2025

KAMASENGRE WATER SUPPLY PROJECT

Household Impact Assessment Report

VICTORIA FRIENDLY MONTESSORI

VFM Kenya

Vision

A society where every child lives with dignity and enjoys equal and just access to opportunities for a bright future through empowered communities.

Mission

To improve the situation of orphaned and vulnerable children on Rusinga Island, Kenya through sustainable community-led initiative that improve education, health care, nutrition, clean water, sanitation and hygiene, livelihoods, environmental protection and socio-economic resilience by addressing the factors leading to their vulnerabilities.

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1. Introductions

Victoria Friendly Montessori (VFM) is a locally based organization operating within the Rusinga Island community, specifically focusing on the Kamasengere West sub-location of Rusinga West in Suba North sub-county, Homa Bay County, in the Nyanza region of Kenya. The VFM initiative was established in 2014 to address the pressing need for early childhood development (ECD) education among the fishing communities on the island. The project uses Montessori to empower children. It has 7 initiatives aimed at achieving transformational development: Education; Water and Sanitation services; Health; Economic empowerment; HIV and AIDs response; Child protection and social services; and social welfare empowerment.

Goal

To develop the capacities of the grassroots community along the Lake Victoria basin to mitigate against the effects of poverty through sustainable community-led interventions.

Mission

To improve the situation of orphaned and vulnerable children by providing education, feeding, and health care, and addressing the factors leading to their situation. The project addresses the root causes of poverty and vulnerability by tackling the social determinants in the key areas to ensure the well-being of children.

Vission

The organization envisions a society in which all children will be able to live a dignified existence with equal and just access to future opportunities in life. This directs focus to children as agents of change and development within the Rusinga Island. This will ensure that children are the entry point into the households among the beneficiaries, both directly and indirectly, to ensure transformational development within the Island.

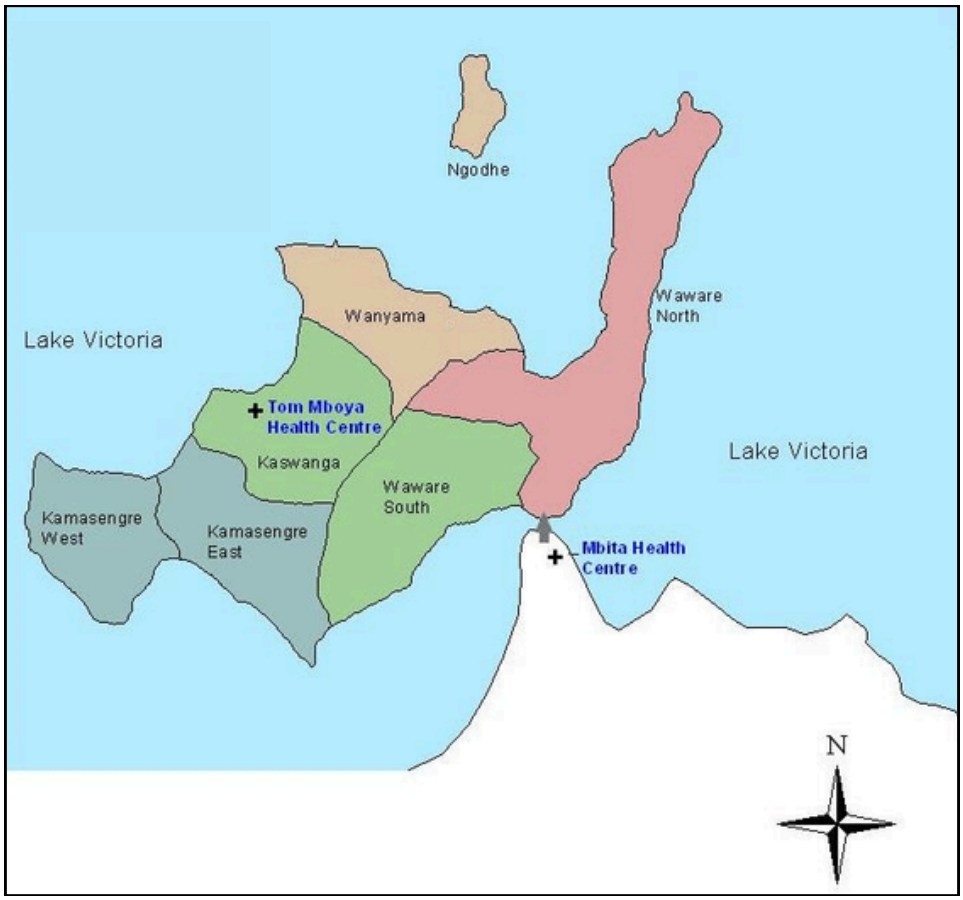
The Kamasengere Community Water Supply Project, located in Rusinga West, Homa Bay County, was commissioned on 14 November 2023. Designed to benefit over 2,400 households, the project aims to provide clean, reliable, and safe water access to the community. Its primary purpose is to ease the burden of residents who previously had to travel long distances in search of clean water, while also improving public health, enhancing housing development, and creating greater convenience, particularly for women and children. By enabling households to save time and reduce waterborne disease risks, the project is expected to contribute significantly to community well-being and productivity. This survey report, therefore, focuses on assessing the impacts of the project on the community, with a particular emphasis on governance, service delivery, and sustainability.

2. Objectives of the survey

- To assess the impacts of the Kamasengere Community Water Supply Project on various aspects of life, including education, health, food security, economic opportunities, gender inclusion, and climate resilience
- To identify the gaps in the Kamasangre Water Supply Project.
- To develop practical and effective recommendations for scaling up the existing VFM projects in the Kamasengere West communities, to improve overall community well-being and development.

3. Location Context

Victoria Friendly Montessori (VFM) is situated on Rusinga Island, specifically covering the Kamasengere West sub-location of Rusinga West in Suba North sub-county, which is in Homa Bay County within the Nyanza region of Kenya. The sub-county spans an area of 634 square kilometers and has a population of 122,383 individuals. According to the 2019 Kenya Population and Housing Census: Volume II, page 220, Kamasengere West sub-location has a population of 5,469 people, with 2,717 being male and 2,752 being female. It has a total of 1,433 households and covers a land area of 4.9 square kilometers (490 hectares).

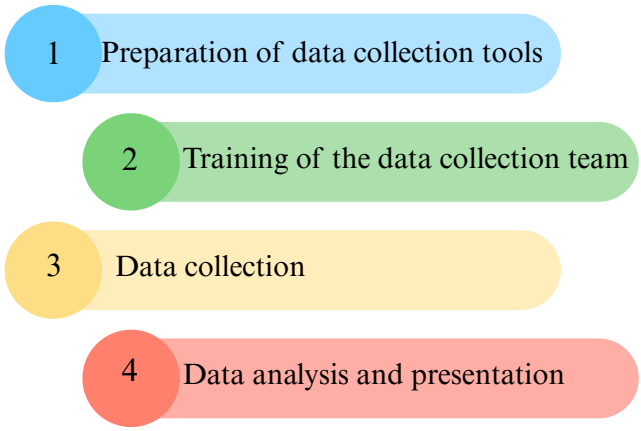


4. Methodology

4.1 Research Design

The survey employed a Community-Based Participatory Research (CBPR) approach, utilizing both quantitative and qualitative data collection methods. Quantitative data were gathered through household surveys to capture information on family income and the impacts of access to clean water on livelihoods, health, and education. The approach also included data collection from community water kiosks to assess their functionality and accessibility. Complementing this, qualitative data were obtained through Key Informant Interviews (KIIs) and community discussions, which provided deeper insights into community experiences, perceptions, and the social dynamics surrounding water access and management.

4.2 Methods of Data Collection



4.2.1 Preparation of data collection tools

The study utilized several data collection tools, including the household survey, the water kiosk survey, the focus group discussion (FGD) guide, and Key Informant Interview (KII) guides. A total of four KIIs were conducted with key stakeholders including a nurse, the area chief, a headteacher, and a representative from Maji Milele, the local water service provider. These tools were designed to generate relevant information aligned with the research objectives. Data collection was facilitated using Kobo Collect, a mobile-based platform that ensured accuracy, efficiency, and real-time data entry.

4.2.2 Training of data collection team

The research involved the mobilization of community members to assist in data collection within their settlements. The team was adequately trained on the various tools used for data collection, which emphasized the significance of the process.

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4.2.3 Data collection

The actual data collection started on 7th– 15th September 2025, where 278 households and 164 water kiosk users in Kamasengere West and East sub-location in Rusinga West in Suba North sub-county were profiled in 9 villages.

4.2.4 Data analysis and presentation

Household and water kiosks survey data were cleaned for any spelling mistakes and presented in Excel format. A detailed statistical analysis was done for all datasets using SPSS. This includes frequency distribution, which was used to describe qualitative and categorical variables. Furthermore, there was a cross-tabulation to provide information about the intersections of two or more variables, and the results are presented by the use of graphs, charts, and tables for easy interpretation.

5. FINDINGS OF THE STUDY

5.1 Respondents demographics

5.1.1 Respondents gender

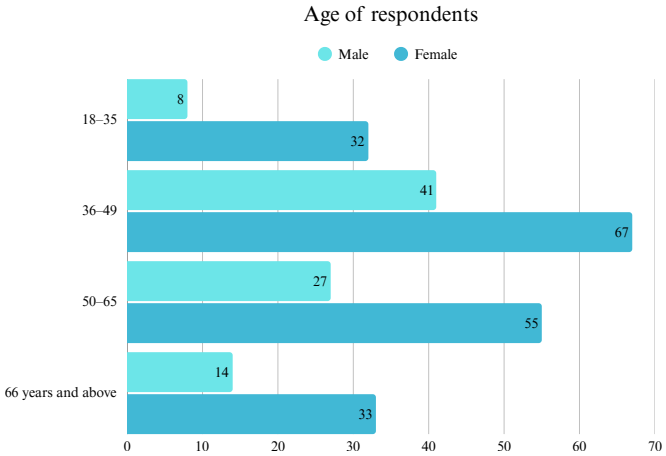
A total of 278 household questionnaires were administered in the entire area. These were distributed as follows: Kamasengere West sublocation had 89% while Kamasengere East sublocation had 11%. Collectively, 58% of the respondents were female, and 42% were male.

Gender of respondents

5.1.2 Household heads

The data reveal that a majority of respondents, 58%, were household heads. This indicates that more than half of those interviewed were the primary decision-makers responsible for the welfare and management of their households. The remaining proportion consisted of other household members, such as spouses, or dependents, who participated in the survey.

5.1.3 Age of respondents



The age distribution of respondents reflects diversity across different brackets. The largest share was in the 36–49 years group, where men accounted for 38% and women 62%, representing individuals at the peak of their economic productivity while balancing family responsibilities. The 50–65 years group followed closely, with 56% male and 44% female, showing a significant proportion of older adults who remain active in income generation but are approaching retirement. Among those 66 years and above, men were the majority at 60% compared to 40% women, highlighting the role of elderly respondents in intergenerational support and household caregiving. Younger adults aged 18–35 years made up 14% overall, with women (67%) forming a clear majority over men (33%), indicating their important contribution to the labor force and future community leadership. A very small share (1%) were under 18 years, all of whom were male, likely reflecting dependent youth or children who participated on behalf of their households.

5.1.4 Education level of the respondents

The data indicate that the majority of respondents (42.29%) had completed primary education, making it the most common level of schooling within the community. This highlights that access to basic education is relatively widespread. However, the sharp drop from primary to secondary education (29.75%) suggests that a significant portion of individuals may face barriers to progressing beyond basic schooling.

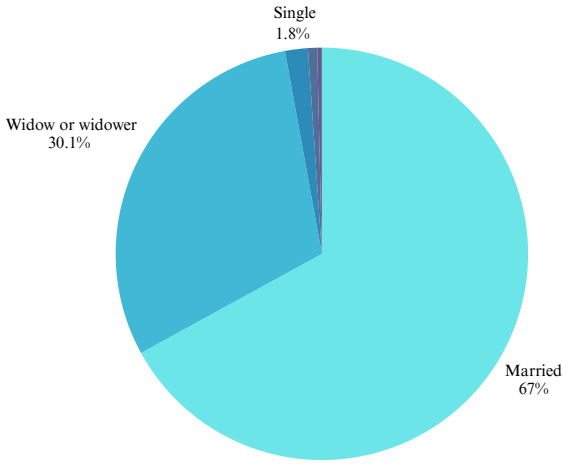
A notable 14.70% of respondents attained tertiary education (certificate or diploma level), which reflects opportunities for technical training and skills development. However, only 5.02% reached university level.

The presence of 6.81% of respondents whose highest level was pre-primary indicates some early dropout or limited access to formal education for certain households. Additionally, the 1.43% who reported never attending school reflects that while illiteracy is not widespread, it is still present and may contribute to marginalization in economic and social participation.

5.1.5 Marital status of the respondents

The survey shows that most respondents (67.03%) were married, highlighting that family-based households dominate in the community. Marriage plays a key role in shaping household organization, resource sharing, and caregiving. However, a large number of respondents (30.11%) were widows or widowers, which is relatively high. This points to many households being led by single parents or elderly individuals, who may face challenges with income, caregiving, and reliance on others for support. Only a small share of respondents (1.78%) were single, referring to individuals who are not currently in any marital union.

On the other hand, a very small proportion (0.72%) were separated, suggesting that most adults in the community marry early or live in family-based settings. A further 0.36% fell under "other," which may include dependents or housekeepers. While small in number, this group reflects unique household circumstances that still contribute to the overall community structure.



Marital status of the respondents

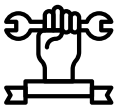
5.2 Type of Household

Traditionally, men are regarded as the heads of households in the community, expected to make key decisions and provide for the family. Despite this cultural norm, 54.6% of households are male-headed, while a significant 45.4% are female-headed (single, separated, divorced, or widowed women).

This high proportion of female-headed households indicates that many families rely on women as primary decision-makers and providers, reflecting both the resilience of women and the impact of widowhood or male absence. These dynamics highlight the need for development initiatives to be sensitive to gender roles, ensuring that interventions address the specific challenges and responsibilities of women-headed households while also engaging men in culturally appropriate ways.

5.2.1 Household income

Self-employment
66.67%



Casual labor
20.79%

Formal employment
12.54%

The survey findings show that most respondents (66.67%) depend on self-employment, mainly through small-scale businesses, farming, fishing, and similar activities, reflecting limited participation in formal labor structures. Informal or casual labor accounts for 20.79%, indicating a reliance on unstable and low-paying work that often leaves households, especially female-headed and widowed ones, vulnerable to income insecurity.

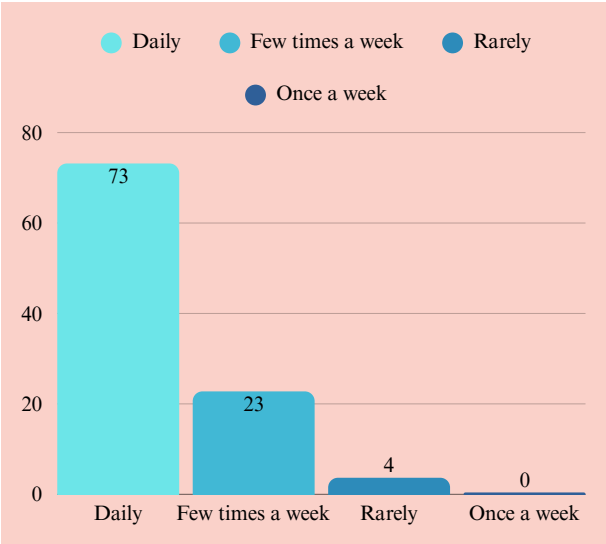
5.3 Family members with Disability

Out of the 278 respondents, 33 households (11.87%) reported having at least one family member with a special need or disability. Within these households, the most common challenges were physical disabilities (8 households, 24.24%), hearing disabilities (6 households, 18.18%), and caring for the elderly (6 households, 18.18%). Other reported conditions included mental disability (4 households, 12.12%) and terminal illnesses such as cancer and hypertension (4 households, 12.12%). A smaller share of households reported orphans (3 households, 9.09%), while individual cases involved autism, spinal injuries, sickle cell anemia, sickle cell traits, and sight problems (1 household each, 3.03%).

6. ACCESS TO WATER SUPPLY

6.1 Household Water Connections and Access Patterns

The data shows that 88.49% of households are connected to the water supply, indicating that a large majority of respondents have direct access to the system. Additionally, most households rely on the supply consistently, with 73.17% (180 households) accessing water daily. Another 22.76% (56 households) access water a few times a week, while smaller groups reported using it rarely (3.66%) or once a week (0.41%).



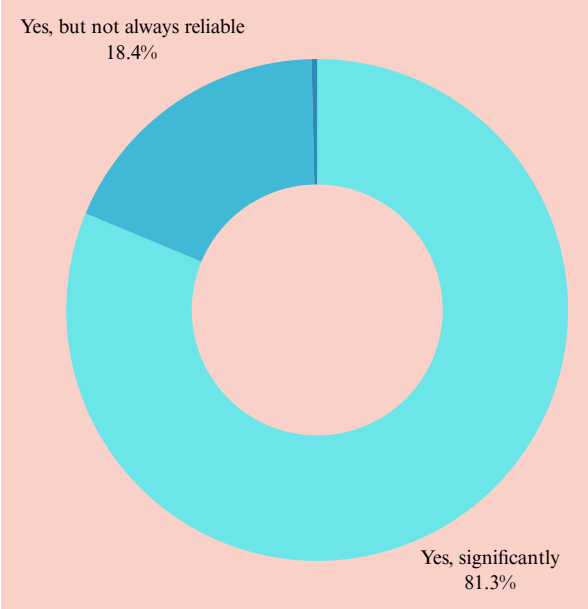
These findings suggest that the project is effectively meeting the daily water needs of most households in the area, with the majority of respondents indicating that the price of water has decreased significantly since the project was implemented.

These patterns demonstrate that the water supply is not only widely available but regularly used by most households, showing its importance in meeting the daily needs

6.2 Impacts of the Project on Access to Clean Water

Based on the collected data, the majority of respondents report a significant improvement in their access to clean water as a result of the project. The responses are broken down as follows:
Significant Improvement: A large majority (nearly 81.29%) of respondents indicated that their access to clean water has improved significantly. This demonstrates a strong positive impact on the project.

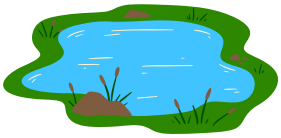
Partial Improvement: 18.35% reported some improvement, though with reliability issues.
This suggests that while infrastructure or access has improved, there may be concerns about consistency or quality that need to be addressed.
No Improvement: Only 0.36% (1 respondent) stated that their access to clean water remains unchanged, indicating minimal cases of non-impact.



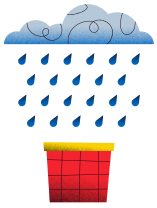
Generally, the data shows that the project has been largely successful in enhancing access to clean water, with nearly 90% of respondents acknowledging improvement. However, continued efforts are recommended to ensure reliability and consistency in water supply for all beneficiaries.

Before the project, the majority of households (84.53%) collected water for domestic use from Lake Victoria. Other common sources included rainwater (34.17%) and private water vendors (14.39%). A few households also relied on rivers or streams, unprotected wells or springs, and other unspecified sources, each accounting for just over 1% of responses.

6.3 Other sources of water for domestic use before the project

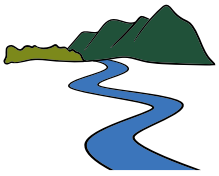


Lake victoria
64.53%



Rain water
26%

Water vendor
6%

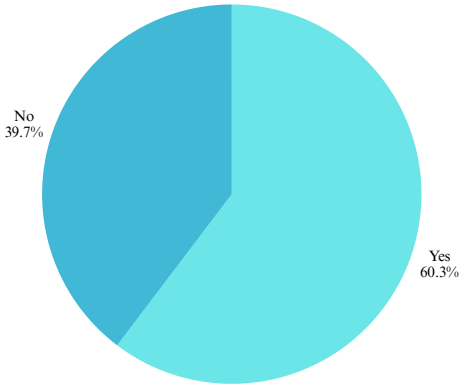


River or stream
3.47%

Before the project, Most households in the community depended on Lake Victoria as their main source of water, with others relying on rainwater, private vendors, rivers, or unprotected wells and springs. These sources were often unreliable, unsafe, or difficult to access, leaving many families struggling to meet their daily water needs. This situation showed a clear need for a reliable and safe water supply project to improve access, reduce the burden of water collection, and promote better health and well-being in the community.

6.4 Access to water by neighbors

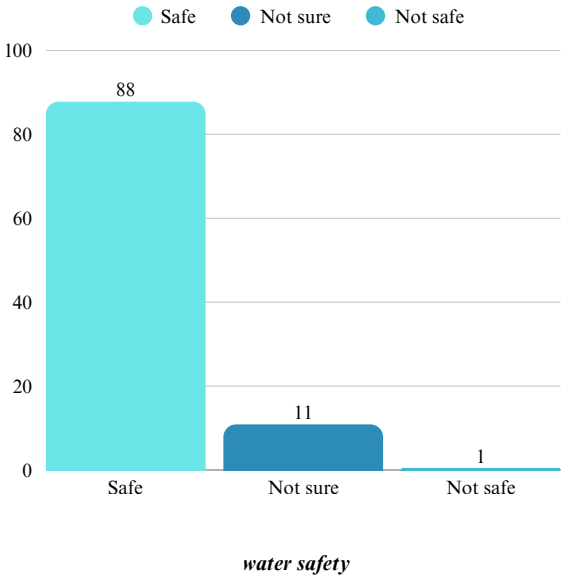
For households connected to the water project, more than half (**60.3%**) reported that their neighbors (on average of three neighboring households) regularly come to fetch water from them. This indicates that t**he project is not only benefiting directly connected households but also extending its impact to the wider community through shared access**. During a focus group discussion, one participant shared that their household's financial situation had significantly improved. The participant noted, *'I started farming, and now I sell the produce. I have also connected three of my neighbours who are now farming and selling crops as well. At times, I also sell water, I have a donkey that I use to deliver it to people's homes for a fee.'* However, **39.7%** of respondents said their neighbors do not fetch water from them, suggesting that access may still be limited for some households or that sharing practices vary by area.



Access to water by neighbors

6.5 Impacts of the project on water quality

Since the implementation of the Kamasengere Water Supply Project, there has been a significant improvement in the community's perception of water quality. About 88% of respondents now consider the water safe for drinking without treatment, with only 1% deeming it unsafe. The rest of the respondents (11%) were not sure whether the water was safe.



water safety

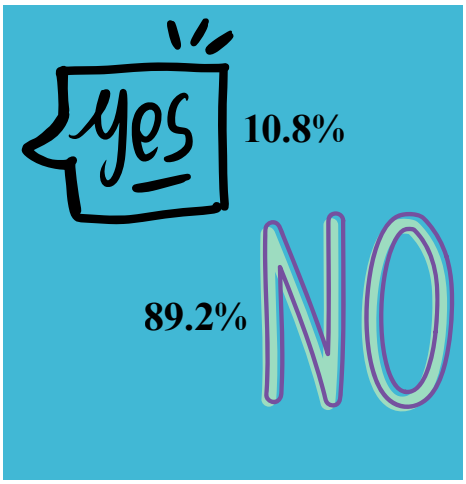
During a focus group discussion, one participant shared their experience of accessing clean water. The participant explained, *"I used to get water from the lake, but it was very contaminated. I was often in and out of the hospital, and my children frequently had diarrhoea. After connecting to a water supply, everything changed, the water smells good, it's clean, and when you drink it, you have no worries."*

Additionally, based on the FGDs, the highlighted that the status of Kamasengre has been elevated on multiple fronts. The area is now perceived as a safe, clean, healthy, and commercially vibrant location. This transformation is evidenced by the growth of water-related enterprises, the influx of people from neighbouring areas visiting Kamasengre, and improvements in academic performance due to increased learning hours and enhanced learner–teacher contact time. Notably, the area has reported zero cases of lives lost to hippopotamus attacks, unlike before, when learners and community members were at risk while fetching water from the lake.

7. IMPACT OF IMPROVED WATER ACCESS ON HEALTH

7.1 Prevalence of waterborne diseases

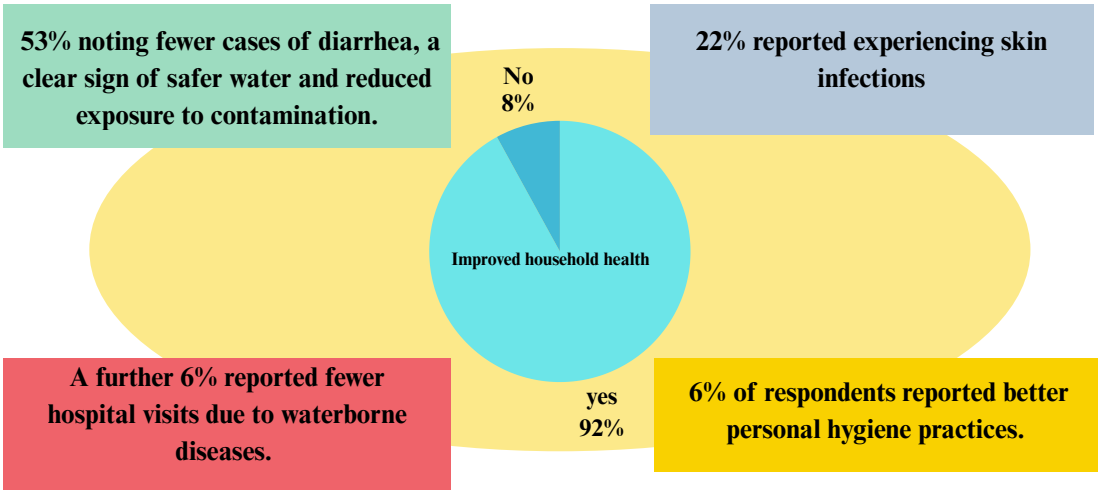
The findings show that the vast majority of respondents (248 households) reported not experiencing any waterborne diseases since the project began, while only 30 households indicated that they at times use water from the lake, leading to incidences of waterborne diseases. This implies that the project has had a positive impact on community health by reducing exposure to unsafe water sources that previously contributed to illnesses such as typhoid and diarrhoea.



However, during a focus group discussion, one participant confirmed that despite being connected to the water system, their family had still experienced waterborne diseases. The participant explained that this was sometimes due to the inability to afford water tokens, forcing them to revert to fetching water from the lake, stating that *"this water is expensive; they should reduce token prices."* This sentiment was echoed in the household survey, where 30 households reported similar experiences. The relatively small number of reported cases suggests that while the water supply system has greatly improved overall health outcomes, there may still be isolated gaps in safe water access, affordability, or hygiene practices that require continued attention.

7.2 Health outcomes of the project

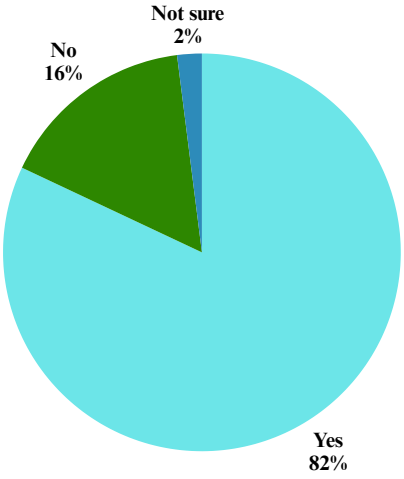
Health outcomes refer to the measurable changes in the health status of individuals or communities resulting from specific interventions. These outcomes capture improvements in disease prevention, reduced healthcare burden, and overall well-being. The survey results show a significant positive impact of the project on the health of households in the Kamasengre community. During a focus group discussion, one participant who was not directly connected to the Kamasengre water supply noted that improved accessibility to clean and adequate water at the household level has helped reduce strain among people suffering from other health-related conditions, such as asthma and sickle cell disease. The participant shared that *'due to the reduced burden of ferrying heavy jerricans of water from the lake to our households, there are fewer hospital visits for those with such conditions.'* This testimony highlights the indirect health benefits of improved water access, extending beyond disease prevention to enhancing the quality of life for vulnerable individuals.



Generally, these outcomes demonstrate that the project has delivered substantial health benefits by reducing disease prevalence, lowering treatment costs, and improving the quality of life for households.

7.3 Household expenditure on Health-related issues

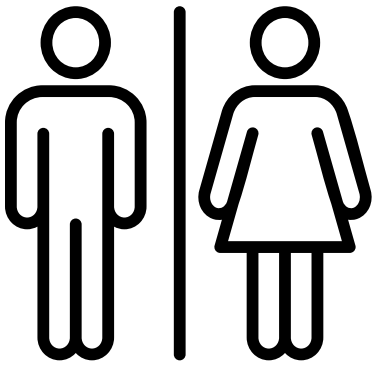
The project brought clear financial benefits, with 82% of households reporting reduced spending on water-related illnesses due to fewer cases of diarrhoea, typhoid, and skin infections. While 16% saw no change and 2% were unsure, the reduction in medical costs for the majority of households reflects not only better health outcomes but also greater economic resilience, as families can now redirect the money previously spent on treatment to other essential needs such as food, children's education, or savings.



Reduced spending on health-related issues

However, during an interview, a technical expert from Maji Milele noted that some families, though connected to the water system, still resort to fetching water from the lake. The expert explained that *"some households loaded their water tokens only once with a small amount of money and have never reloaded them. This means that if they were facing any health-related issues before, these challenges may persist due to continued use of unsafe water."* This observation highlights that while the project has significantly improved community health and economic stability, affordability and consistent access to clean water remain critical areas for sustained impact.

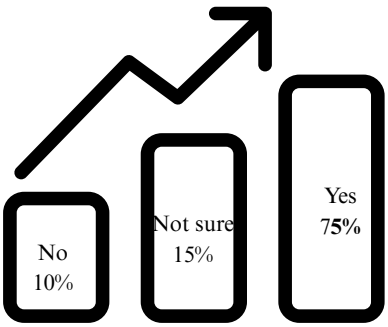
7.4 Gender roles and Health outcomes



From a gender and caregiving perspective, the data reveal a powerful social impact. An overwhelming 99.64% of respondents indicated that improved access to clean water has reduced the caregiving burden on women, who are often the primary caregivers for sick family members. This outcome not only improves the quality of life for women but also enables them to engage more in income-generating activities, education, or community involvement, as mentioned earlier.

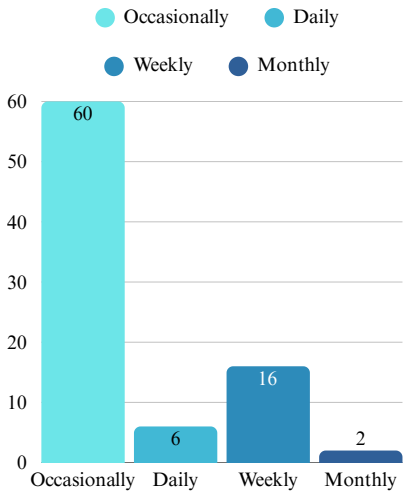
7.5 Impacts of the water supply project on the community healthcare system

The project's benefits extend to the broader healthcare system. Seventy-five percent of respondents reported that nearby health facilities have benefited from improved water access, enhancing their ability to deliver quality care. This is particularly important in emergencies, infection control, and maternal and child health services. However, 15% were unsure, and 10% reported no facility-level improvements, suggesting potential gaps in awareness or uneven implementation that could be addressed in future phases.



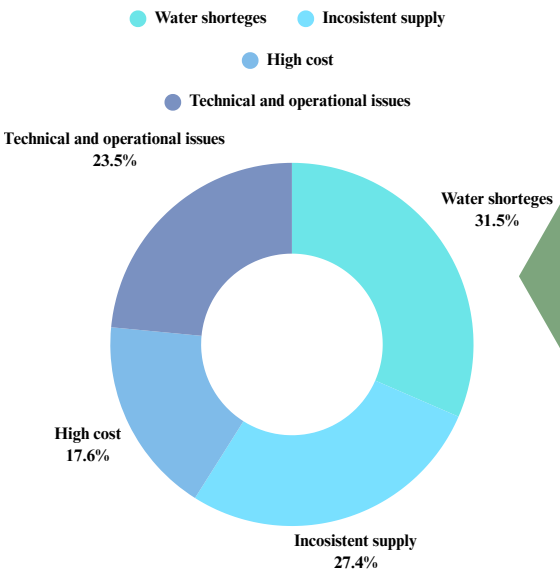
During an interview, a healthcare worker from Litare Dispensary confirmed that cases of waterborne diseases have significantly reduced. The nurse noted that the facility previously spent substantial amounts of money to purchase water, but since the connection, both costs and infection rates have declined. She added that *"the level of hygiene at the dispensary has greatly improved, though we would appreciate if the water prices could be lower."* This highlights how improved water access not only strengthens healthcare delivery but also reduces operational costs and infection risks in community health facilities.

7.6 Challenges in Service Level Operation



Water shortages remain an issue for nearly half (46.04%) of the population, though most experience these shortages only occasionally (60%). Additionally, 6% experience water shortages daily, and 16% every week. The rest experience water shortages monthly.

This suggests the project has improved access, but nearly half of households still face shortages. Most occur occasionally, showing general reliability, but some households experience daily or weekly disruptions, highlighting uneven access.



Other challenges in access to water are highlighted below;

1. Water shortages- this was reported by **31.5%** of the households.
2. Inconsistent Water Supply – Reported by **27.4%** of households, making it among the most common challenges.
3. High Cost of Water – A concern for **17.6%** of households, limiting affordability and access.
4. Other Technical and Operational Issues – Reported by **23.5%**, including:
   - Excessive chlorine levels
   - Pipe breakages
   - Delayed token messages for prepaid water
   - Low water pressure

During times of water shortage, a significant portion of the community (73.68%) depends on lake water, which is often unprotected and vulnerable to contamination, posing potential health risks. The reliance on water vendors (18.43%) indicates that some households must purchase water, which may increase financial strain, especially for low-income families. The 7.89% using other sources reflects varied coping strategies, though often less reliable. In a key informant interview, a local administrative leader from Kamasengre Sub-location highlighted that water insecurity has also exposed residents to safety and protection risks. He reported incidents of attacks by hippopotamuses while fetching water from the lake, as well as cases of child abuse and sexual violence against women and girls who fetch water early in the morning or late in the evening. Consequently, some households have resorted to paying high prices to water vendors to avoid such dangers. These concerns underscore that improving water security is not only a health and economic issue but also a critical protection and safety priority that demands urgent attention.

7.7 Affordability and Household Water Expenditure

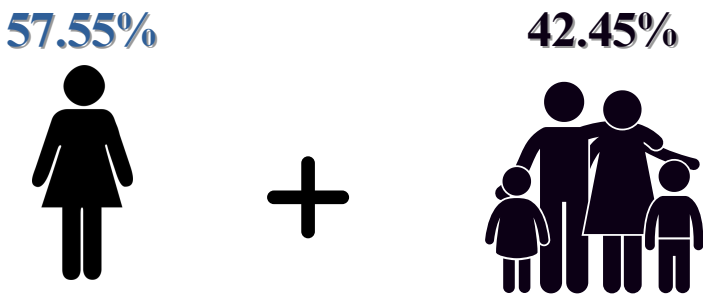
Water from the Kamasengre Water Supply Project is paid for primarily through a prepaid meter system. Since the project's implementation, most households (78.5%) have experienced a decrease in their water expenditure compared to before, indicating improved affordability for domestic consumption. About 11% of respondents reported increased costs, while 10.4% noted no change. Among those facing higher water costs, common coping strategies include reducing water usage (62.5%) and turning to alternative sources such as rivers or lakes (25%), with a small fraction (12.5%) prioritizing water expenses over other household needs.

During a focus group discussion, one participant observed that occasional water supply interruptions were often linked to the new digital prepaid meters rather than actual service failures. The participant explained that when tokens run out, users may delay noticing or recharging, creating a perception of poor supply. He also emphasized that *'the token prices should go down, the current rates are high for an ordinary person.'* This feedback suggests that while the prepaid system has enhanced transparency and affordability for many users, continued community sensitization on meter use and a review of token pricing could further improve satisfaction and equitable access.

8. IMPACT OF WATER ACCESS ON WOMEN AND HOUSEHOLD WELL-BEING

8.1 Roles of women in access to water

In most households within the Kamasengere community, women play a leading role in water collection. About 57.55% of households reported that women are responsible for fetching water, while the remaining 42.45% indicated that this responsibility is shared among other household members, including men and children. This pattern highlights the gendered nature of water collection, with women bearing the primary responsibility, although water collection remains a shared household activity in many families.



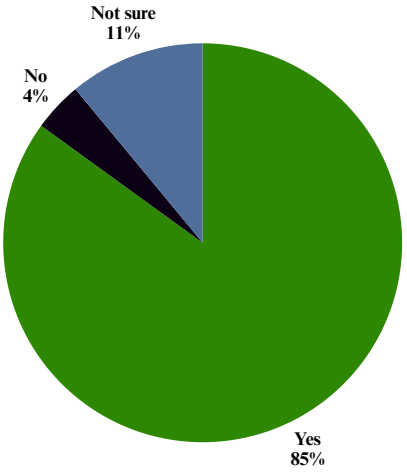
The improved water access from the project has significantly benefited women, with 86.33% reporting reduced time spent fetching water. This improvement has also led to better household hygiene and sanitation for 71.58% of respondents and allowed 63.31% of women to dedicate more time to income-generating activities. Only a negligible number (0.36%) felt there was no significant impact, highlighting the project's positive role in empowering women and improving household wellbeing. (Pictorial)

Women collecting water

9. ACCESS TO EDUCATION AND THE IMPACTS OF THE WATER SUPPLY PROJECT ON EDUCATION

9.1 Access to clean water in schools

There is a significant improvement in access to education in the Kamasengere community, strongly linked to the positive impacts of the water supply project, particularly in schools. A large majority of respondents (85%) confirmed that access to clean water in schools has improved since the project began. This foundational change is critical, as it addresses both health and learning conditions for children.



Access to water in schools

9.2 Impacts of access to clean water in schools

9.2.1 Impacts on school infrastructure

One of the most notable impacts of the project is the improvement of school sanitation infrastructure. According to the survey, 74.82% of respondents reported better facilities in schools, including the availability of clean toilets and functional handwashing stations. These upgrades go beyond hygiene—they help create a healthier, safer, and more dignified learning environment for children. Improved sanitation reduces the risk of waterborne and hygiene-related diseases among pupils, minimizing absenteeism due to illness. For girls in particular, access to clean and private sanitation facilities is essential, as it provides safe spaces for changing and maintaining personal hygiene during menstruation, thereby supporting school attendance and participation. In this way, the project contributes not only to better health but also to educational outcomes, gender equity, and long-term community development.

9.2.2 Impacts of access to clean water on school-going girls

This improved water and sanitation access has had a direct effect on girls' education. 78.42% of respondents stated that girls in their households feel safer and more comfortable attending school due to these changes. Better sanitation facilities are essential for girls, particularly during menstruation, and can significantly reduce school absenteeism. The creation of safe, clean, and private spaces in schools empowers girls to attend consistently and participate more confidently.

9.3 Absenteeism by children going to school

9.3.1 Frequency and trends of absenteeism

Approximately 70.86% of respondents reported that no child in their household missed school for a month or more in the past year, showing that long-term absenteeism is not widespread. However, despite these infrastructure improvements, only 35.25% of respondents reported a decrease in school absenteeism due to water-related illnesses, while 51.44% said there was no change. This suggests that while clean water has improved health outcomes broadly, its full potential to reduce absenteeism may still be hindered by other factors, perhaps including limited access to healthcare, nutrition, or broader socioeconomic issues.

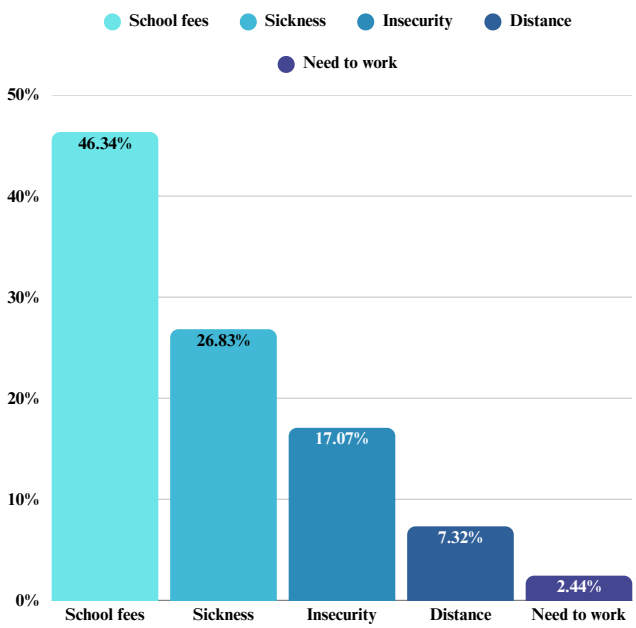
9.3.2 The main reasons for school absenteeism

The main barrier to school attendance was school fees, affecting 46.34% of the sample, followed by sickness at 26.83%, insecurity at 17.07%, distance at 7.32%, and finally the need to work, which accounted for 2.44% of the respondents.

This data implies that financial constraints remain the biggest barrier to education, with both boys (10.07%) and girls (8.27%) missing school mainly due to lack of money for school fees. This highlights the heavy impact of poverty on school attendance and suggests that without financial support mechanisms, many children risk irregular attendance or dropping out.

Health-related challenges also play a significant role, with 6.12% of boys and 5.04% of girls missing school due to sickness. This is consistent with earlier findings that waterborne diseases, though reduced by the water supply project, still affect households and have ripple effects on education.

Other barriers, including distance to school, insecurity, displacement, or the need to work, were much less significant. Their minimal presence suggests that while they exist, they are not the main obstacles compared to school fees and health-related issues, which stand out as the most critical factors limiting consistent school attendance.



Reasons for missing school

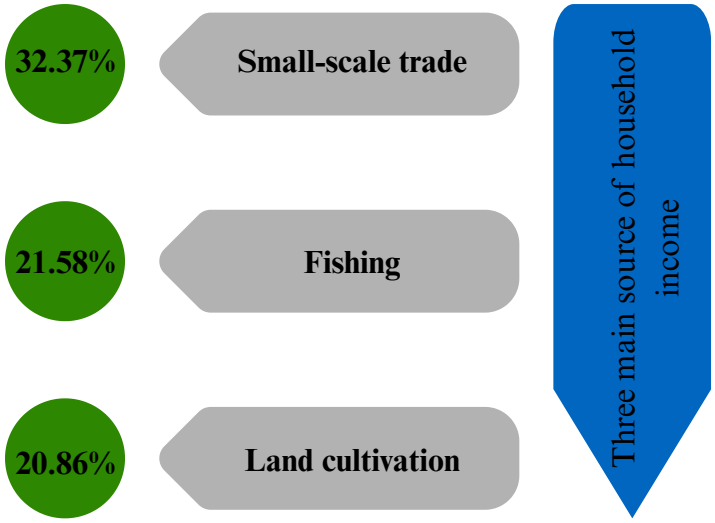
Insights from qualitative interviews highlight that access to clean and reliable water has significantly eased the burden of household chores on children, particularly girls, who previously spent hours fetching water from the lake. During an interview, the in-charge of a primary school explained that students would often avoid coming to school due to the fatigue and safety risks associated with fetching water, including threats from hippos. He noted that absenteeism was high, with over 100 students sometimes absent in a single day, and that school operations were affected as water was needed for washing classrooms, cooking, and other essential activities. Following the implementation of the Kamasengre Water Supply Project, parents were convened and agreed to contribute a small fee per child per month to ease the burden of water collection. This improvement has allowed children to dedicate more time to studying and attending school regularly while enabling schools to implement handwashing and agricultural activities, contributing to a cleaner and more engaging learning environment. These findings suggest that, beyond health benefits, the project has indirectly supported improved school attendance, concentration, and overall learning outcomes.

10. LIVELIHOOD AND ASSETS

10.1 Impacts of access to water on Household income

10.1.1 Main Sources of Household Income

Households in Kamasengere rely on multiple income sources. The most common source is small-scale trade, which supports about 32.37% of the households. This is followed by fishing (21.58%) and land cultivation (20.86%), indicating that the community heavily depends on natural resources for survival. Other notable sources include casual employment (17.99%). A smaller portion of households (7.2%) earn from livestock, aid, and remittances.



10.1.2 Household expenditures

When asked about what takes up most of their household income, the majority of respondents (54.84%) said food. This shows that food security remains a priority concern. The second most significant expense is education, including school fees and related costs, accounting for 31.18% of expenditure. Medical care (4.66%), non-food items, shelter, and fuel followed with smaller percentages, indicating that households face multiple demands on their limited income.

10.2 Trainings and support

A majority of households (66.3%) reported receiving support or training to boost their income in the previous three months. The most common training was in tree planting and environmental awareness (24.46%), followed by environmentally friendly agriculture (20.5%), such as the use of "granny bags" technology. Others received seeds for kitchen gardens (11.15%), entrepreneurship training (8.99%), and land cultivation training (8.63%). Training in energy-saving equipment was also provided to some households. A few people were trained in areas such as tailoring, bookkeeping, animal husbandry, and masonry, which can help them diversify income sources.

10.3 Use of Water for Income-Generating Activities

With access to an improved water supply, 61% of households reported being able to use water for income-generating activities. These activities include farming, irrigation, and kitchen gardening, which many referred to in different terms. Some households also use water for small businesses, such as selling water, selling vegetables, or selling cold drinking water. This shows that water has become a key resource for improving household income.

Based on qualitative interviews, the project has further enabled residents to diversify their livelihoods. For instance, some now run small irrigation farms, make ice for sale, or earn income by providing water to neighbors.

10.4 Time Saved and Its Impact on Work and Business

A significant impact of the water project is the reduction in time spent collecting water. About 96.04% of respondents said the time saved has allowed them or their family members to focus more on income-generating activities or business. This is a major boost to productivity and livelihood development in the community. Based on the qualitative data, women especially noted improved financial independence and time savings, as they can now engage in productive activities within their compounds. This shows that water has become a key resource for improving household income and overall wellbeing.

10.5 Changes in Household Income

Since gaining access to improved water, 56.47% of households reported that their income had increased. However, 29.14% said their income had decreased, while 14.3% reported that their income had remained the same. This suggests that while the project has benefited many, some households may still be facing challenges or are yet to fully benefit from the improved water access.

10.6 New Employment Opportunities

The water project has led to the creation of new job opportunities in the community. A large majority (92.81%) of respondents confirmed that new employment or business opportunities had emerged due to the project. These opportunities are likely linked to increased farming activities, kitchen gardening, water-selling businesses, and other related enterprises.

11. ENVIRONMENTAL AND SOCIAL IMPACTS OF THE PROJECT

11.1 Environmental Impacts

The Kamasengere Water Supply Project has brought significant positive changes to the local environment. A large majority of respondents (99.64%) reported that they have stopped using unsafe water sources such as lakes and rivers. This shift has likely reduced water pollution, as fewer people now bathe, wash, or fetch water directly from natural sources.

Additionally, 65.83% of the community members observed environmental changes since the project began. A major recurring theme was tree planting, mentioned in various ways by many respondents. Activities such as “planting trees,” “planting vegetables,” and “creating kitchen gardens” were noted as common practices. These efforts are contributing to greener surroundings, improved soil stability, and better air quality. Some FGD participants also noted that waterborne diseases have decreased, and that improved hygiene and sanitation are becoming more widespread, thanks to reliable access to safe water. A few even mentioned that the lakes are cleaner, likely due to reduced human activity along the shorelines.

11.2 Social impacts

Socially, the water project has had a profound impact on community well-being and cohesion. An overwhelming 98.2% of the respondents are aware that the water has been tested for quality, and the same percentage also trusts the information they have received. This trust is critical for public health, as it encourages consistent use of the safe water source.

The project has also contributed to peace and stability within the community. About 85.61% of respondents confirmed that the project has reduced water-related conflicts or disputes. In the past, long queues, limited water points, or competition over unsafe sources may have caused tension. Now, with improved access, such issues have declined.

Furthermore, 85.66% of the respondents believe that access to water has strengthened community cooperation and cohesion. The shared benefit of clean water seems to have brought people together, encouraging collective action in maintaining hygiene, protecting the environment, and supporting one another’s livelihoods. This shows how infrastructure projects like water supply can go beyond basic service delivery and foster a more unified, resilient community.

The Kamasengere Water Supply Project has not only improved access to safe drinking water but has also brought important environmental and social benefits. It has helped reduce reliance on unsafe water sources, encouraged environmental restoration through tree planting and gardening, and strengthened community trust, cooperation, and peace. These impacts demonstrate that access to clean water is a powerful foundation for both sustainable development and stronger communities.

12. GOVERNANCE AND SUSTAINABILITY

12.1 Community Participation in Project

The Kamasengere Water Supply Project demonstrates strong governance practices, particularly in ensuring community engagement and accountability. A large majority of respondents (96.04%) reported that community members were involved in decision-making, reflecting inclusive participation during project planning and implementation in installation of meters.

12.2 Community satisfaction with the project

Nearly all respondents (98.56%) reported knowing where to lodge complaints or raise concerns about the water system, which signals the presence of effective communication and grievance redress mechanisms.

Satisfaction with project governance is further reinforced by high ratings of project management: 53.76% of respondents were "very satisfied" and 40.5% "satisfied," bringing overall approval to more than 94%. This indicates that management structures are functioning well and have gained community trust.

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12.3 Level of services provided

Service satisfaction levels are equally positive. Regarding household connections, 61.65% of respondents were "very satisfied" and 34.41% "satisfied," showing that installation and service delivery met user expectations. Furthermore, 90.29% confirmed they received support and clear instructions during installation, underscoring the project's strong technical and customer support system.

12.4 Sustainability Challenges

Despite these positive governance and satisfaction outcomes, several issues pose sustainability challenges. Affordability stands out as the most pressing concern. Repeated feedback emphasizes the need to reduce the cost of water, connection fees, and tokens. The recurrence of this issue suggests that while access has improved, financial sustainability for households remains fragile. High tariffs risk excluding vulnerable groups or limiting the optimal use of water. Others included reducing chlorine levels in the water, indicating community concerns over water taste and possible health perceptions. Respondents also highlighted the importance of continuous technical support, including quick leak repairs, pressure management to avoid bursts, and routine inspections. A few proposed capacity-building initiatives, such as training local youth in plumbing, would enhance long-term system sustainability and reduce dependency on external technicians.

13. THE IMPACTS OF KAMASENGERE WATER KIOSKS

13.1 Introduction

The Kamasengere Water Supply Project was set up to increase access to safe and clean water for households in Rusinga West, Homa Bay County. Community Mappers surveyed 164 household users to assess the performance and impacts of water kiosks established under the project. This report presents findings on governance, service delivery, usage patterns, challenges, and community feedback.

13.2 Ownership and Management of the water kiosks

The survey revealed that three of the kiosks surveyed (99.39%) are owned and managed by Victoria Friendly Montessori (VFM) and its partners. Only one kiosk was reported as privately owned. This shows that the project remains largely under NGO/organizational management, which has ensured consistent oversight and operation.

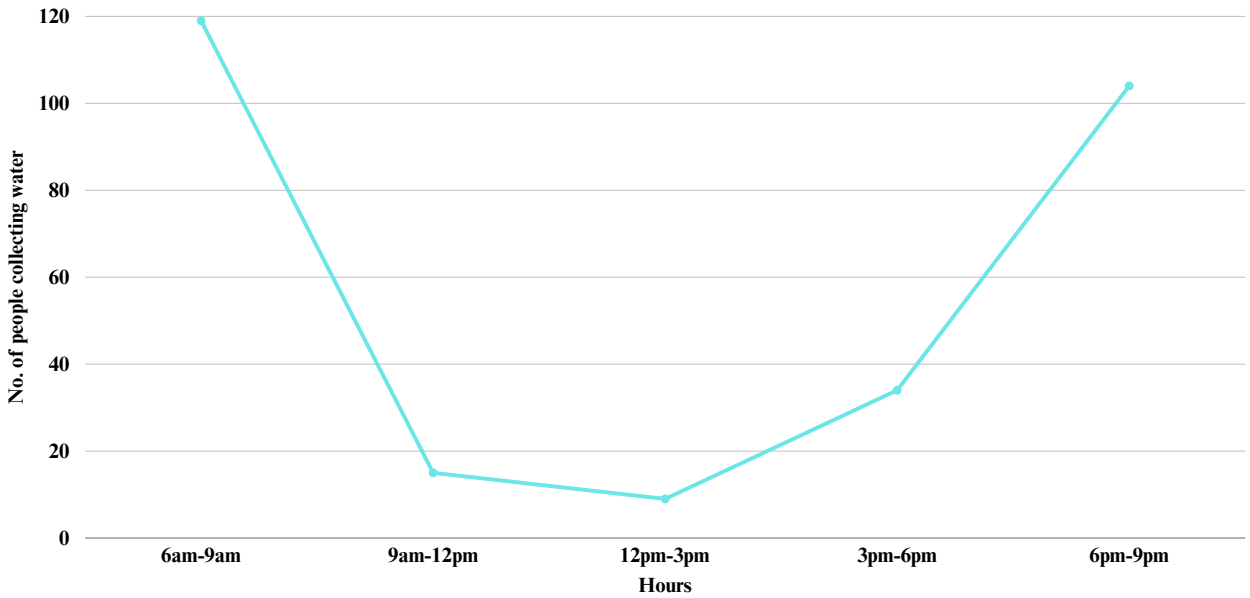
13.3 Peak hours for water collection

The survey shows that kiosk usage is highest in the morning between 6:00 AM and 9:00 AM (72.12%), followed by the late evening between 6:00 PM and 9:00 PM (63.03%). A smaller but notable proportion of respondents collect water in the evening between 3:00 PM and 6:00 PM (20.61%),

The pattern in the figure above implies that water collection is strongly tied to household routines, with peak **demand in the early morning** before daily activities begin and again in the **evening when families return home.**

13.4 Average number of households collecting water per water kiosks

Out of the 165 kiosks users surveyed, only 80 provided data on the number of people fetching water daily. The findings show that, on average, each kiosk serves about **56 people per day** (mean = 56.26). The relatively high standard deviation of 39.14 indicates significant variation in kiosk usage, with some serving far more households than others. This implies that the demand per kiosk is unevenly distributed across the community. The survey suggests a ratio of 1 kiosk serving 56 individuals (**or roughly 10-12 households, assuming an average household size of 5-6 people**).



13.5. Mode of water transportation

The majority of residents (91.5%) fetch water by carrying jerry cans, while a few rely on boda bodas (6.1%) or handcarts. Approximately 1.9% of the respondents mentioned that other people use wheelbarrows and donkeys to transport water to different destinations.

About one-third (33.3%) of respondents reported sharing their kiosk tags with other households, typically two households per tag. This practice highlights both the high demand for water access and the presence of a strong culture of community sharing and solidarity, where families support one another in ensuring access to safe water. However, it also raises concerns about the adequacy of current infrastructure. Sharing kiosk tags may create situations where water demand exceeds kiosk capacity, leading to longer waiting times, overcrowding at kiosks during peak hours, and possible strain on the system.

13.6 Affordability and Pricing of water

The cost of water is generally affordable, with 89.7% of respondents reporting that 20 liters of water costs less than Ksh 5, and 10.3% paying between Ksh 5-10. Importantly, 90.3% indicated that prices have remained stable since the kiosks were set up, with only minor increases of an average of Ksh. 1.75 reported by a few respondents. This price stability makes clean water accessible to a majority of households

13.7 Challenges Facing Water Kiosk Operations

Despite the notable successes of the water supply project, more than half of the respondents (55.8%) reported experiencing various challenges. These challenges can be classified into four main categories:

13.7.1 Supply-Related Challenges

The most commonly reported issue was **water shortages (18.8%)**, which occur either due to limited supply, high demand during peak hours, or system disruptions. Such shortages affect the reliability of kiosks and force some households to seek alternative, often unsafe, sources.

Equipment failures (12.7%), such as pump breakdowns or malfunctioning taps, further reduce kiosk efficiency and contribute to interruptions in service.

13.7.2 Financial and Management Challenges

Financial constraints (16.4%) in operating and maintaining kiosks were also highlighted. These may involve costs of repairs, electricity, or management fees, which can limit the smooth running of facilities and place stress on community committees overseeing kiosks.

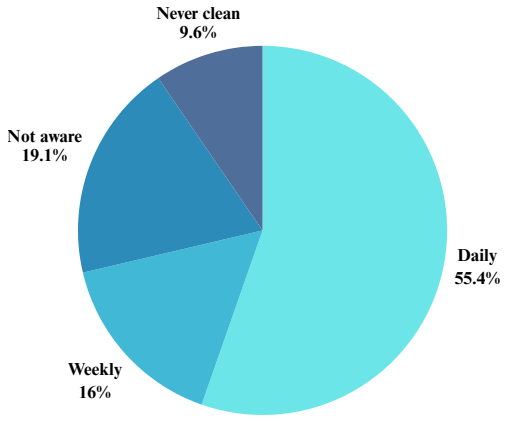
13.7.3 Access and Infrastructure Challenges

Respondents noted difficulties in accessing kiosks, often due to **long queues during peak hours (early mornings and late evenings)** and the need to travel l**ong distances** in some areas.

Occasional **dirty water** and **poor sanitation around** kiosks were also mentioned, which compromise water safety and user confidence in the system.

13.8 Hygiene Practices

An estimated 55.4% of respondents clean or disinfect their storage containers daily, while 156% do so weekly. However, about 9.6% admitted that they never clean their containers, and 19.1% mentioned that they were either not aware of the need to clean their storage containers or assumed it was not their role. These points to the need for more community sensitizations on safe water handling and storage practices. This will help reduce the cases of infections caused by consuming contaminated water at the household level.



Cleaning of water storage containers

13.9 Community Feedback and Satisfaction on Water Kiosks

Feedback from community members was overwhelmingly positive. About 88.5% of kiosk operators reported receiving community feedback, with the majority being appreciative of improved water access. However, 21.2% of respondents requested more kiosks, while others suggested improvements such as reducing chlorine levels, better drainage, fencing, and waste management around kiosks. Negative feedback was minimal (7.9%) and mainly related to water quality and pricing concerns.

Almost all respondents (99.4%) agreed that kiosks have improved access to clean water, showing strong acceptance and trust in the project. Additionally, 87.3% believe more kiosks are still needed to serve the population adequately.

13.10 Impacts of water kiosks on Livelihoods and Well-being

The water kiosks have had broad positive impacts. Households reported easier access to safe drinking water, reduced waterborne diseases like typhoid and diarrhea, and improved personal hygiene. Families saved time previously spent fetching water from the lake, allowing more time for business, farming, and childcare. Several respondents noted cost savings from not having to treat water or buy bottled alternatives. Others mentioned that the kiosks have created jobs and improved safety for women and girls, who no longer risk fetching water from dangerous lakefront areas at night.

14.CONCLUSIONS

The findings from the Kamasengere Water Supply Project survey demonstrate that the project has had a transformative impact on the community. Access to safe, reliable, and affordable water has significantly improved, with the majority of households reporting better water quality, reduced prevalence of waterborne diseases, and improved overall health outcomes. Women, who traditionally bear the burden of water collection and caregiving, have particularly benefited, with more time available for income-generating activities and improved household hygiene. Additionally, schools and health facilities have experienced substantial improvements in sanitation and service delivery, highlighting the project's broad social benefits. The project has also strengthened community trust, reduced water-related conflicts, and fostered greater environmental stewardship through tree planting and reduced reliance on unsafe natural sources.

Despite these notable achievements, challenges remain that require continued attention. Households still experience occasional shortages, high water costs for some users, and technical issues such as over-chlorination and pipe breakages. Furthermore, a considerable portion of the community continues to rely on unsafe or costly alternative sources during shortages, pointing to the need for more sustainable backup systems. Addressing these gaps through improved maintenance, affordability measures, and expanded infrastructure will be essential to sustaining the project's long-term impact. Overall, the Kamasengere Water Supply Project provides a strong foundation for community health, environmental protection, and economic resilience, but its continued success depends on responsive management and ongoing community engagement.

The Kamasengere Water Supply Project has greatly improved access to safe, affordable, and reliable water for residents. The kiosks have reduced health risks, saved time, and provided economic and social benefits across the community. However, sustainability challenges remain, including water shortages, equipment maintenance, sanitation around kiosks, and the need for more kiosks to meet high demand.

15. RECOMMENDATIONS

1. **Strengthen Water Supply Reliability;** Address frequent water shortages, low pressure, and pipe breakages by improving infrastructure maintenance, introducing backup storage systems, and training local youth as technicians for faster repairs.
2. **Improve Affordability and Access;** Revise water tariffs, connection fees, and prepaid token systems to ensure low-income and vulnerable households are not excluded. Explore subsidies, flexible payment plans, or cross-subsidization models.
3. **Expand Livelihood Opportunities**; Build on the time saved and improved water access by supporting households with training, inputs, and credit to scale up water-based income-generating activities (e.g., irrigation, kitchen gardening, livestock rearing).
4. **Enhance Education and Health Impacts**; Strengthen WASH facilities in schools, with particular focus on menstrual hygiene management for girls, and integrate health interventions (like community awareness on safe storage and sanitation) to maximize reductions in waterborne diseases and absenteeism.
5. **Ensure Sustainability through Governance and Community Ownership**; Deepen community participation in management, set up water user committees, and promote accountability mechanisms. Involve households in decision-making on pricing, quality control, and expansion to build trust and long-term sustainability.