



HEALTH CARE
South Sudan

Improved Water, Sanitation and Hygiene (WASH) practices for chronically vulnerable communities living around and at the foot of Jebel (Jebel) Kujur in Juba, South Sudan.

BASELINE SURVEY REPORT

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LIST OF ABBREVIATIONS AND ACRONYMS:

CES	Central Equatoria State
OD	Open Defecation
ODF	Open Defecation Free
HHs	Households
VIP	Ventilated Improved Pit latrine
CLTS	Community Led- Total Sanitation
JMP	Joint Monitoring Programme (WHO/UNICEF)
WASH	Water, Sanitation and Hygiene
HCSS	Health Care South Sudan (United Kingdom)
YOCASS	Yo' Care South Sudan
RSS	Republic of South Sudan
SDGs	Sustainable Development Goals
UN	United Nations
SDG	Sudanese Pound
SSP	South Sudanese Pound
COVID-19	Coronavirus Disease 2019
UK	United Kingdom
SPLA	Sudan People's Liberation Movement/Army
CPA	Comprehensive Peace Agreement (in Sudan)
WHO	World Health Organization

PREFACE:

The Water, Sanitation and Hygiene (WASH) Baseline Survey around Jebel (Jebel) Kujur in Juba was commissioned by Yo' Care South Sudan with technical and financial support from Health Care South Sudan (UK). Conducted from March to April 2021, the WASH Survey marks the realization of an important milestone towards the improvement of data for planning of water, sanitation and hygiene activities by Yo' Care and its partners. The baseline survey itself was necessitated by the absence of reliable and up to date data at project-site level with sufficient levels of disaggregation for focused and participatory planning of WASH activities.

A household-based sample survey provided the most reliable method for generating data on WASH indicators. There was therefore, no any other cost-effective way of generating data except at household level, within the villages surrounding Jebel (Jebel Kujur) and with focused in-depth interviews with key informants representing divergent socio-economic groups (village chiefs/elders, leaders of women and youth groups, etc.).

The baseline survey used both quantitative and qualitative methods of investigations. Of particular interest was the questionnaire comprising of unstructured questions for key informants which focused on the socio-cultural beliefs and practices that hinder or promote popular participation in water, sanitation and hygiene activities provision. The information made available in this report covers household and demographic characteristics, morbidity patterns, economic activities and income status, water and sanitation coverage, water collection, water storage and use at the household level, water point quality and reliability, toilet facilities coverage, maintenance and use, and socio-cultural beliefs and practices that relate to water and sanitation.

The water and sanitation baseline survey tools were developed jointly by Yo' Care's WASH department and the Health Care South Sudan's UK team. The methods used for report writing was participatory in the sense that the Survey and Data teams participated in the actual drafting of the various chapters of the WASH Baseline Survey Report. The cost of the survey was met by both Health Care South Sudan (UK) and Yo' Care South Sudan. The National Bureau of Statistics, the University of Juba, the Government of Central Equatoria State and the National Security Services also provided governance, security, logistical and coordination support to the exercise.

Finally, I would like to thank all those who contributed in one way or another during this exercise. We look forward to collaborative future with you all!

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ACKNOWLEDGEMENTS:

The WASH Baseline Survey Report is a summary of various multi-sectoral indicators assessed by the Yo' Care South Sudan's teams. The process began in July 2020 when a short on-site fact-finding survey was completed as a pilot survey by Mr. Benedick Majok and Dr. Yohanis Riek. The team then started discussion with Dr. Mark Smithies, Medical Advisor of Health Care South Sudan on the initial findings. Based on several months of iterations and discussion, the teams agreed on the survey design, the implementation modalities and selected a team for actual implementation of field work.

Sincere thanks and gratitude are extended to the following Organizations and individuals for the roles played in the survey:

- **Overall coordination and report writing:** Mr Benedick Majok (WASH Programme Manager, Yo' Care); Dr. Yohanis Riek (CEO, Yo' Care); Mrs. Madalina Kaku (Head of Statistics, University of Juba); and Mr. Acuil (National Bureau of Statistics).
- **Data collection by WASH Baseline Survey enumerators:** The survey would have not been successful without the enormous commitment, tolerance and hard work by the 5 enumerators. Despite inadequate logistical arrangement and modest stipends, they were able to complete the exercise timely.
- **Data entry, processing and Qualitative Data analysis:** Ms. Marcilia Paulo (Data, Evaluation & Research Manager, Yo' Care); and Mr. Gabriel Yac (Data Clerk, Yo' Care).
- **Financial, Procurement and Logistical Services:** Mr. Peter Bol, Mr. Atuka Wuor, and Mr. Jurugo David.
- **Technical Report Review:** Dr. Smithies (Health Care South Sudan, UK)
- All the community elders who participated during focus group meetings and the families that cooperated with us, and the WASH Settlement and relevant Authorities of South Sudan.

CHAPTER 1: INTRODUCTION

1.1 Background to WASH and the Republic of South Sudan

South Sudan is a country in North Eastern Africa and has a population of 11,193,725 million people (2020, UN/World Bank Data) of whom 50.6% live below the poverty line. The main economic activity is pastoralism; farming and other income from civil service and trading. South Sudan is predominantly rural with 83 % of the population living in rural areas. The capital city is Juba and had a population of 525,953 in 2017 as per UN Data. South Sudan gained its independence from Sudan in July 9, 2011. The Ministry of Water Resources and Irrigation (MWRI) was created after independent with the mandate to safeguard and conserve fresh water systems – including provision of safe drinking water and improved sanitation services to the people of South Sudan.

Since 2005 following signing of the Comprehensive Peace Agreement (CPA)¹ between Sudan Government and the Southern Sudanese rebel movement (SPLM/A), Juba City experienced rapid growth population from citizens and foreigners, doubling up after independence in 2011. Consequently, the steady urbanization led to unplanned settlements and dwelling of vulnerable people in suburbs, including places surrounding the foot of Jebel (Mt.) Kujur in Juba. The challenging environmental conditions for communities living at the foot and around Mt Kujur present a range of crisis with especially chronic water, sanitation and hygiene (WASH) needs.

The South Sudan WASH sector is regulated by the Water, Sanitation & Hygiene (WASH) Sector Strategic Framework², published by the Government of South Sudan on August 2011. South Sudan has very low WASH coverage, especially sanitation and hygiene. According to the Ministry of Water Resources and Irrigation's data for 2012/2015 Rural WASH Sub-sector Action and Investment Plan the average Rural Water Supply coverage is 41.1% and rural sanitation coverage is at 11.3%, whereas the MDG 2015 target for Rural Water Supply and sanitation were 56.3% and 17.3% respectively.

Numerous studies have shown that poor water, sanitation & hygiene practices are the main causes of diarrhea, one of the underlying causes of childhood malnutrition and a driver of numerous developmental indicators (Bartram and Cairn cross, 2010). This represents a serious threat to an extremely vulnerable population due to consumption of unclean water, and poor hygienic and sanitation practices for these low-income households and communities living arounds and at the foot of Jebel Kujur.

1.2 Importance of water and sanitation to Health.

Safe drinking-water, sanitation and hygiene are crucial to human health and well-being. Safe WASH is not only a prerequisite to health, but contributes to livelihoods, school attendance and dignity and helps to create resilient communities living in healthy environments. Drinking unsafe water impairs health through illnesses such as diarrhea, and untreated

¹ The Comprehensive Peace Agreement (CPA, Arabic: اتفاقية السلام الشامل), also known as the Naivasha Agreement, was an accord signed on January 9, 2005, by the Sudan People's Liberation Movement (SPLM) and the Government of Sudan. A repository is available on the UN Peace Maker https://peacemaker.un.org/sites/peacemaker.un.org/files/SD_060000_The%20Comprehensive%20Peace%20Agreement.pdf.

² The RSS WASH Framework is available at <http://extwprlegs1.fao.org/docs/pdf/ssd181677.pdf> and the GOSS Water Policy 2007 available at <http://extwprlegs1.fao.org/docs/pdf/ssd147091.pdf>

excreta contaminates groundwaters and surface waters used for drinking-water, irrigation, bathing and household purposes.

Access to adequate clean drinking water, basic sanitation and hygiene, is widely recognized to have the strong links with health, education and human productivity. These links form the basis for the Sustainable Development Goals (SDG) of 2015 goal 3, 5, 6 and 13. The desired overall program outcome of 'saving lives, as well as the core outcomes of increasing sustainable access to safe water, sanitation and hygiene behavior are outcomes desired under SDGs, Global water strategy³.

1.3 UN Sustainable Development Goals (SDGs)

According to UN Data, **one in three people live without sanitation**⁴. This is causing unnecessary disease and death. Although huge strides have been made with access to clean drinking water, lack of sanitation is undermining these advances. The United Nations through its Global Goal 6 (SDG 6), aimed to improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally by 2030.

1.4 WHO Policies on WASH

The World Health Organization (WHO) recognizes that safe water, sanitation and hygiene (collectively known as WASH) are crucial for human health and well-being. Globally, 829 000 people die each year from diarrhoea⁵ as a result of unsafe drinking-water, sanitation, and hand hygiene as per WHO publication WHO/CED/PHE/WSH/19.149.

1.5 WASH at global scale:

The 2019 WHO/UNICEF Joint Monitoring Programme⁶ for Water Supply, Sanitation and Hygiene shows that South Sudan has only 41% of the population using at least basic improved water supplies at national level, whereas only 35% of rural and 65% of urban populations have access to basic water, sanitation and hygiene. Globally, the report shows that in 2017:

- The population using safely managed drinking water services increased from 61 per cent to 71 per cent.
- The population using safely managed sanitation services increased from 28 per cent to 45 per cent.
- 60 per cent of the global population had basic handwashing facilities with soap and water at home.

1.6 The Jebel Kujur WASH Context:

Jebel Kujur, a suburb of Juba City is highly surrounded at its foot by mostly poor and vulnerable communities living in semi-permanent and grass-thatched homes with no basic

³ The UN-Water 2030 Strategy represents a collective way forward to address the water and sanitation challenges over a ten-year period with necessary focus, urgency, effectiveness and coherence. A full link to the Strategy is available at <https://www.unwater.org/publications/un-water-2030-strategy/>.

⁴ Source: Extracted from <https://www.globalgoals.org/6-clean-water-and-sanitation>.

⁵ The WHO WASH PRIMER was published on 12 December 2019 and is available at <https://www.who.int/publications/i/item/WHO-CED-PHE-WSH-19.149>

⁶The Joint UNICEF-WHO Progress on Household Drinking Water, Sanitation and Hygiene 2000–2017: Special focus on inequalities

<https://www.unicef.org/media/55276/file/Progress%20on%20drinking%20water,%20sanitation%20and%20hygiene%202019%20.pdf>

infrastructure – including WAS services. Among the vulnerable residents included a few families who cultivate the land on the Mountain side and those who work manually as stone crushers, quarrying rocks into foundation block and fragments, gravel and aggregates. They display these hand-work rock materials for sale as source of living by the roadside. It was this vulnerable group of people which this phase-based project, starting with baseline survey represents.

1.7 Objective of the survey and this detailed report:

The ultimate objective of the baseline survey was to obtain better understanding on the current situation in relation to water supply, sanitation and hygiene practices of residents of Jebel Kujur in Juba, to;

- ❖ Obtain a better understanding of the current situation in relation to water supply, sanitation and hygiene and the living conditions of communities living around and at the foot of *Jebel (Jebel) Kujur* in Juba;
- ❖ Establish baseline figures on key project indicators, which will form a basis for additional resource mobilization and targeted WASH program interventions to be measured at the end of the survey to support the community;
- ❖ Identify areas requiring critical intervention to avert prevailing health hazards and elevate basic WASH services for these vulnerable communities, and finally to
- ❖ Allow for a participatory approach for future WASH projects towards provision of water, sanitation and hygiene activities amongst the marginalized and vulnerable population in this survey area or elsewhere.

This report is published to enable local communities, government and development partners understand condition of the communities and to enable relevant stakeholders plan their develop priority in line with the community needs, gaps and resources.

CHAPTER 2: METHODOLOGY

The main methodology used in conducting the baseline was the survey method where interviews were used to collect information from the households. The household questionnaire was printed whilst focus group discussions (FGDs) and meetings were held for the sustainability indicators. The Audio records and minutes of the meetings were later transcribed into the report. In South Sudan, most NGOs conduct only rapid need assessment (RNA) which only focuses on emergency needs of the communities as a whole rather than households as the basic unit of intervention.

2.1 Survey Design and Desks reviews

Before the actual commencement of the survey, Yo' Care team made an informal visit to the settlements and had conversation with the area residents on the anticipated WASH assessment and to assess how they can participate in the process. The questionnaire was developed by Yo' Care South Sudan through local knowledge and expertise of the selected communities and a technical input from HCSS. The draft questions were reviewed, modified and approved by both Yo Care and HCSS teams, after which it was share with National Bureau of Statistics of the Republic of South Sudan for endorsement. The questionnaire covers key indicators ((see Box 1) to measure the status on access to water (Drinking and domestic water); Sanitation, Hygiene and Health status, Education and Literacy, Housing status and Income's status.

2.2 Survey Location

Through local knowledge and evaluation by Yo care South Sudan team, Jebel Kujur was selected considering factors such as settlement and environment patterns which have been largely neglected by the government and development actors despite closeness of the settlements to the city. In addition, living conditions of these vulnerable communities, accessibility and logistics arrangement make it possible to conduct the survey. The location has an estimated 4000 households, i.e., around 28,000 – 30,000 inhabitants based on extrapolated data from the Juba City population estimates of 2020⁷.

2.3 Sampling

The overall sample size that was agreed with HCSS for survey is 500 and unit of study was households. The choice of the sample size was based on the minimum change in significant difference that was desired of either 5%. The sample size for Jebel Jukur was computed (from the Juba City population) based on a formula which is widely used for determining absolute percentage change.

A total of 500 households were randomly surveyed out of estimated 4000 households in all the settlements. However, 480 questionnaires were valid and 20 having errors which were cleaned from the sample to ensure that statistical analysis and measurement is based on valid samples. A copy of the survey questionnaire can be found in Annex B attached with this report. Since no official population figures exist for Jebel Kujur areas, a stratified sample was taken where by 50 households were selected at random from each of the 4 settlements around the Mountain – survey one and skip two nearest household until the Enumerators reach the end of the settlement.

⁷ Source of Data:

https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/20191207_hno_2020_s_sudan_0.pdf

Based on Shadish et al., 2002 argument, random sampling ensures that results obtained from the sample should approximate what would have been obtained if the entire population had been measured. Thus, the application of this method allows all the settlements in the Jebel Kujur township to have an equal chance of being selected. The survey was carried out in a period of three months from March 1 to May 30, 2021 including data collection, analysis and reporting.

2.4 Baseline Survey Administration and Management

5 Survey Enumerators and 2 field supervisors/data entry clerks were trained for two days on how to complete questionnaires and each enumerator was assigned 100 households to cover for a period of 5 days. The 5 enumerators were drawn from the University of Juba, National Bureau of Statistics (NBS), and Yo' Care and were dispatched with some grouped into teams of two persons.

In each Settlement, the field work exercise was coordinated with the active participation of community chiefs and elders. Data from the Field Enumerators were received by the Supervisors and checked/scrutinized before entrance into the Data Register. Data clerk checked every questionnaire to ensure that the entries were made as required before they were finally processed and analysed by the Data, Evaluation and Research unit.

2.5 Data Collection

Data were collected based on standard questionnaire which was administered through Survey Enumerators. Data collection from the sites was done by Survey Enumerators going through house to house. To ensure a high proportion targets numbers were achieved, a time convenient for the head of households was agreed upon with communities who said that their preferred time are from 9 am – 3pm. Data were analyzed using Advanced Microsoft excel and SPSS to generate graphs or charts in this report.

2.6 Gender Consideration and Inclusion

Yo' Care South Sudan has strong emphasis on gender consideration and inclusion as per the Gender Policy (2020) which set minimum gender participation at 50% for both male and female. Therefore, gender mainstreaming and consideration is not an option but a requirement for all our program interventions. With this goal in minds, the survey was designed to achieve equal participation for both men and women, boys and girls. For example, out of 5 enumerators for this survey, 2 of them were female. In addition, 39% of the respondents were female and 61% were male.

2.7 The definition of terms used within the Study:

Throughout this study, concepts and key terms have been defined in accordance with South Sudan Household Health Survey (SHHS)⁸ 2010 and the South Sudan WASH Sector Strategic Framework document (2011).

2.7.1 Household

In this survey, the household has been used as the basic unit of inquiry and of analysis of household-based data. A household is defined as a person or a group of persons usually (but not always) bound together by ties of kinship, sharing common source of food, living within the same compound (not necessarily fenced) or house, and answerable to the same head.

⁸ Source of Data: <https://ssnbs.org/home/document/survey/sudan-household-health-survey>

2.7.2 Head of Household

The head of the household was defined as the key decision-maker whose authority is acknowledged by other members. Identification of who was considered by other household members to be the head of the household was of analytical importance because the economic status of the household head is one of the factors that has been used in this report to classify the households into various socio-economic groups.

2.7.3 Household Characteristics

Standard demographic questions were asked on names of regular household members, their ages, sex, marital status, economic status, and relationship to the head of the household. In addition, questions were asked on the highest level of education attained by each member, literacy, and morbidity trends.

2.7.4 Household Income

While income is a key measure of household well-being its measurement posed a number of conceptual and practical problems. An attempt has, however, been made to capture household income accruing from two main sources, manual work on rock quarrying (240 respondents) and small businesses (211 respondents).

2.7.5 Poor person

Is defined as persons with the value of monthly total consumption below 72.9 (Ref. separate poverty report from 2010). Non-poor is defined as person who lives on more than 72.9 Sudanese pounds per a month.

2.7.6 Improved Water and Sanitation

The quality of housing and access to basic amenities are important determinants of household welfare. Questions were therefore asked to generate information that has been used to assess adequacy of housing and sanitation behavior, water accessibility, water collection and use, water reliability, water quality, and operation and maintenance. Improved sanitation is defined as the use of toilet facilities that are flush to sewer, ventilated improved pit latrines or covered pit latrines.

2.7.7 Operation and Maintenance

Community participation in operation and maintenance is important for long term sustainability of water sources. The existence of Community Management Committees and the availability community contribution (in whatever form) are indicators community participation.

2.7.8 Water Reliability

Water is life and therefore needed all the times for different uses. Reliability of a water source is therefore defined by the availability of water in that source all the times and most of the time when the households need it.

2.7.9 Access to Toilet Facilities

Access to toilet facilities is defined by the availability of a form of facility at the or within easy reach of a **household** that is used for the disposal of excreta. Respondents were asked to indicate the type of toilet available for their use and the materials used to construct them.

2.7.10 Toilet Facilities Maintenance and Use

The availability of a toilet facility in a homestead is not enough to determine use. Use of a toilet facility may be hampered by lack of maintenance leading to offensive smell, presence of flies and careless disposal of excreta on the floor. Toilet facilities were therefore physically

checked to determine their maintenance status in addition to checking for the presence of a distinct track leading to the facility.

2.7.11 Social Cultural Beliefs and Practices

Socio-cultural beliefs and practices comprise norms and taboos that regulate behavior and attitude towards provision and use of water and sanitation facilities. These norms and taboos may have both positive and negative implications on water and sanitation. Questions were therefore asked to establish the impact this has on water usage, water sources, water collection, use and ownership of latrines, water storage and provision.

2.7.12 Definition(s) of communities/settlements:

There are settlements comprised majorly of Bari Speakers and other ethnics communities living near Jebel Kujur. These settlements have been named by the communities DMI settlement at the East Jebel Kujur; Tolmoit Na' Mere 1 at North of Jebel Kujur; Lukilili and Tolmoit-Na' Mere 2 in the west of Jebel Kujur; and Jebel-check-point in the south of Jebel Kujur. The word Tolmoit Na' Mere means shadow of the mountain according to transcription from the Bari Tribe whereas the word Lukilili means a night wanderer. Jebel Check-point settlement was named after the formal army check-point established since 2005 located 1.5 km from the mountain. The DMI settlement is named after the only school established in this area by the Catholic Church DMI Sisters of the Archdiocese of Juba.

2.7.13 Boma

Is the basic/smallest administrative unit of the county in South Sudan made up of villages having a population of not less than 5000 which divided division of an area that have not less 10 villages in a given location.

2.7.14 Payam

Is an administrative subdivision of a county and population of 20,000 to 25 000 and an area which has congregation of 10 to 30 villages in a given area; with about 2 to 6 sub-division known as Boma in South Sudan.

2.7.15 County

Is a territorial description to an area which has not less not less 250,000 to 300,000 people in term of population?

2.7.16 Jebel Kujur

Jebel Kujur is the mountain on the outskirts of Juba City, Juba County in South Sudan. The original name of Jebel Kujur was Korok. With the coming of northern Sudanese Arabs in the area, its common name changed to Kujur (which means "witchcraft" in Arabic).

2.7.17 Juba City

Juba is the capital and largest city of South Sudan. The city is situated on the White Nile and also serves as the capital of Central Equatoria State and it is the world's newest capital city.

2.7.18 Republic of South Sudan

The Republic of South Sudan became the world's newest nation and Africa's 55th country on July 9, 2011. South Sudan is bordered by Sudan to the north, Ethiopia to the east, Kenya to the southeast, Uganda to the south, the Democratic Republic of the Congo to the southwest, and the Central African Republic to the west. It includes the vast swamp region of the Sudd, formed by the White Nile and known locally as the Bahr al Jabal. The current population of South Sudan is 11,327,372 as of Saturday, July 10, 2021, based on Worldometer elaboration of the latest United Nations data.

CHAPTER 3 RESULTS:

From the total number of 500 proposed sample sizes, 480 samples were valid from the sample, collected between April 21 – 27, 2021. Making the retrieval rate of 96%.

3.1 Demographic Profile

Jebel Kujur is located 6.1 KM west of Juba City center. According to findings from the surveyed households, majority of the households are built with mud (44.1%), follow by Bamboo built (29.7%), and block-built (21.9%) with iron-sheet roof. Additionally, the respondents were asked whether they own the piece of land on which they have built their houses. Only 27% reported not owning their land on which the lives, while 73% respondents reported owning their land, as permanents residents.

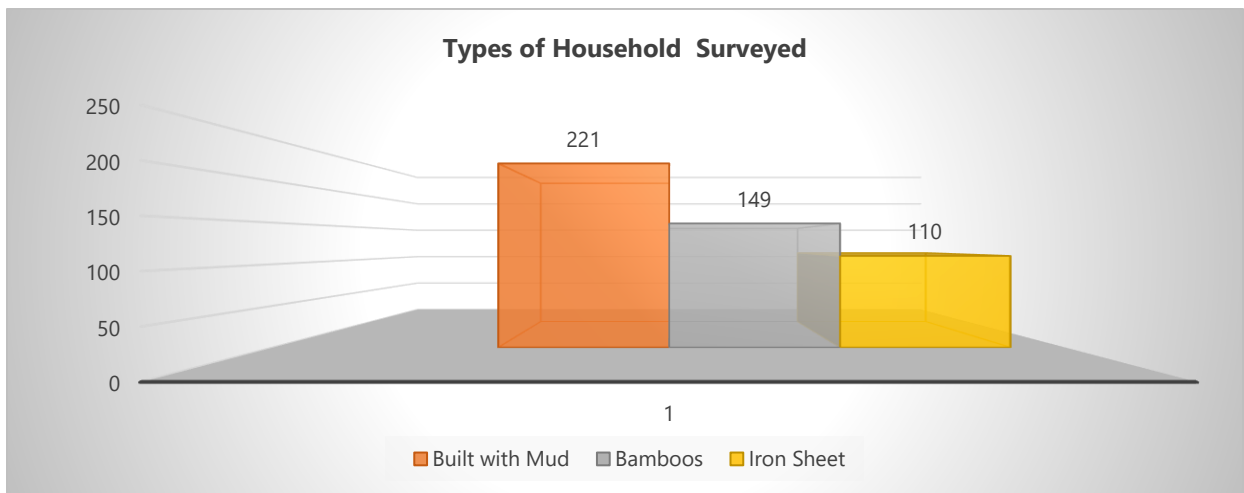


Figure 1: Types of Households Surveyed, built.

3.2 Household Size

The estimated numbers of households in the four settlements (DMI, Toilmot Na' Mere, Lukilili and Jebel-checkpoint, surrounding the foot of Jebel Kujur range from approximately 3500 to 4500 households. According to the survey results, the average household size is 6 persons. However, total number of persons per household varies, ranging between 5 to 10 members per household. A large percentage of households have more than six persons.

All of the households surveyed comprised majority of Bari-speaking Communities – 68% (Bari is the main tribe of Juba locality), and none-Bari communities (32% or 153 HHs). Most of them live in mud or bamboo houses with no fence or with bamboo fence. According to the data collected, 36.4% of the houses are made of bamboo, 48% of wood, 14% of bricks, and 1.2% small huts with the ground as the floor.

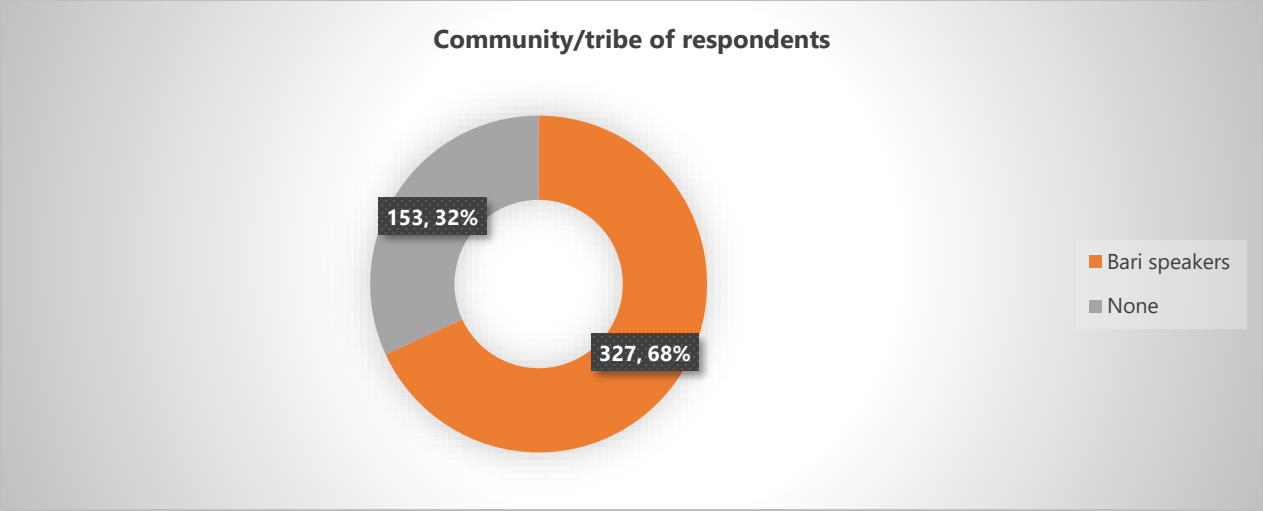


Figure 2: Community/Tribe of respondents

3.3 Housing

Housing is a basic need. It does not only provide shelter, but also social security. A good house is measured not just by the quality of the materials used in its construction. Other important conditions for a good house include sanitation of the environment and availability of amenities like water, lighting, and security.

For the purposes of this baseline survey, the following information was sought from the housing conditions materials used in constructing the house, number of rooms in main house, number of windows and number of people sleeping in main house.

3.3.1 Type of Main House

The common houses in the surveyed area comprises of mud-built with grass thatch roof or roof covered with polyethene sheets. Other houses are built with mud-block and iron sheet roof. Majority of households lacks fences or have bamboo fences around them. Below are the survey findings:

- ❖ Only 4% of households’ respondents reported having no shelters or houses but using relative shelters.
- ❖ 74% of households reported having temporary shelters/houses built with muds, bamboos, and 22% of households reported having houses with iron sheet roofing.
- ❖ Almost over 70% of households built with bamboo and mud reported having at least one or two rooms.
- ❖ Over 20% of households reported houses which are well ventilated and with a window (s).
- ❖ 73% of the households reported owning current household land. Only 27% reported not owing their current household land.
- ❖ The House Carrying Capacity is between 6 to 10 members. With most houses recording large membership over 6.

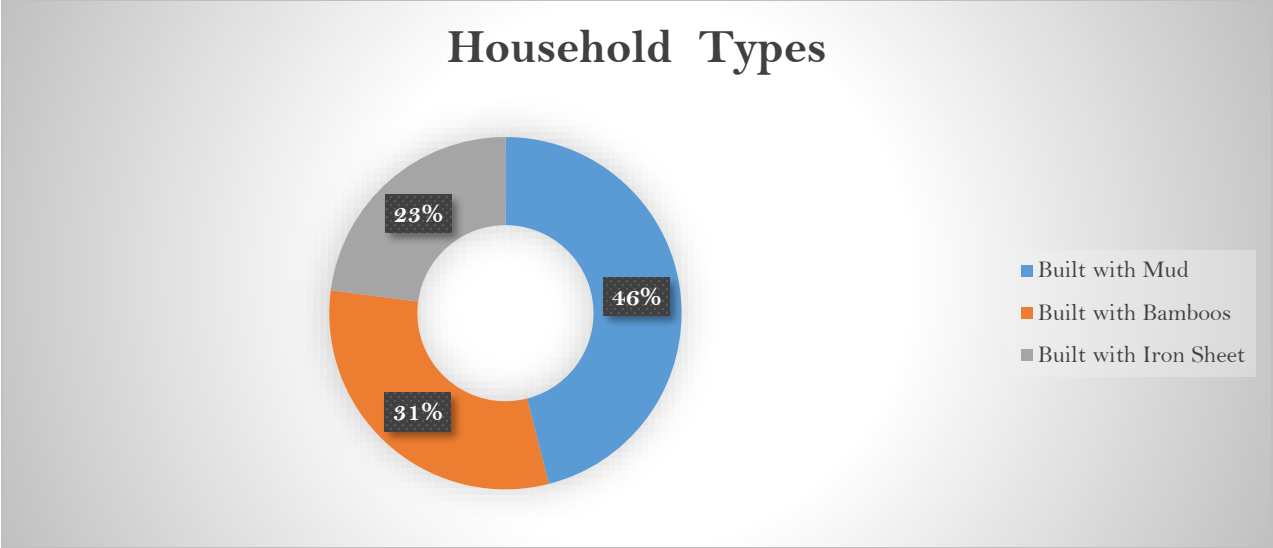


Figure 3: Types of Households Built

3.4 Gender Distribution

The distribution of respondents by sex/gender is shown in the chart below. As shown, women form a larger percentage of the respondents in all the locations.

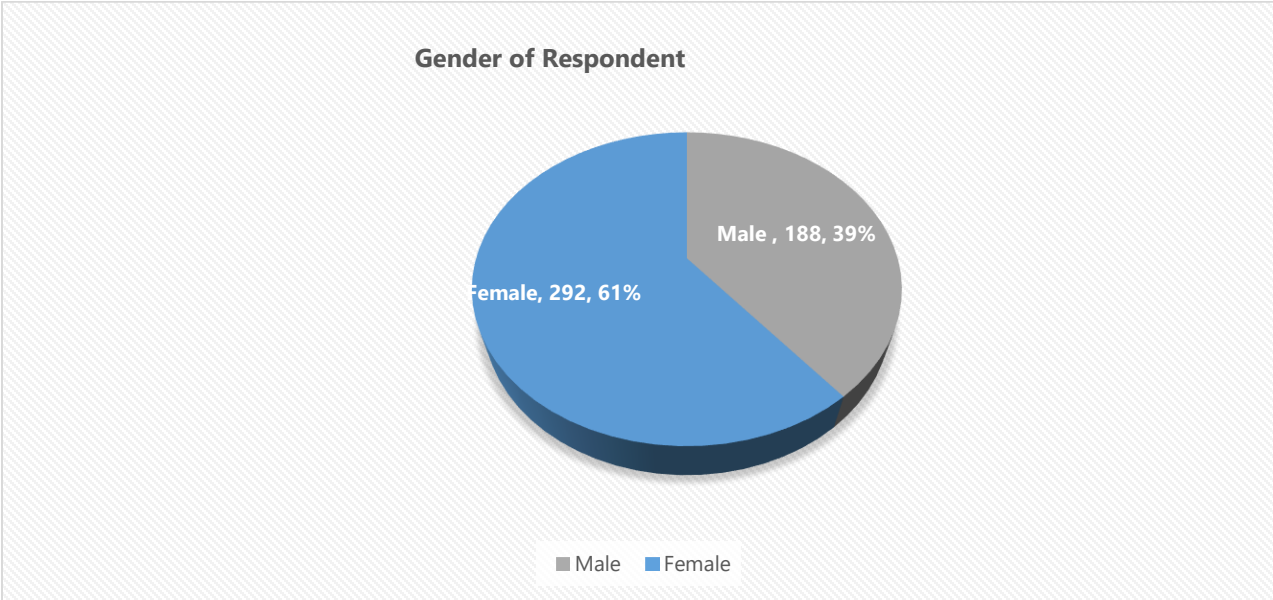


Figure 4: Distribution of sampled house by gender

3.5 Household Heads

In this survey, the headship of a household is considered an important demographic variable. The sex of the head, her/his educational level, his/her occupation and industry have economic and social implications for the household. In this survey report, it is observed that in semi-urban locality areas of Juba where opportunities are scarce and, given that most females have few or no skills for high paying occupations, dependents of these female household heads

are more likely to be relatively more deprived of essential necessities of life. The pie chart below shows the distribution of household heads by gender.

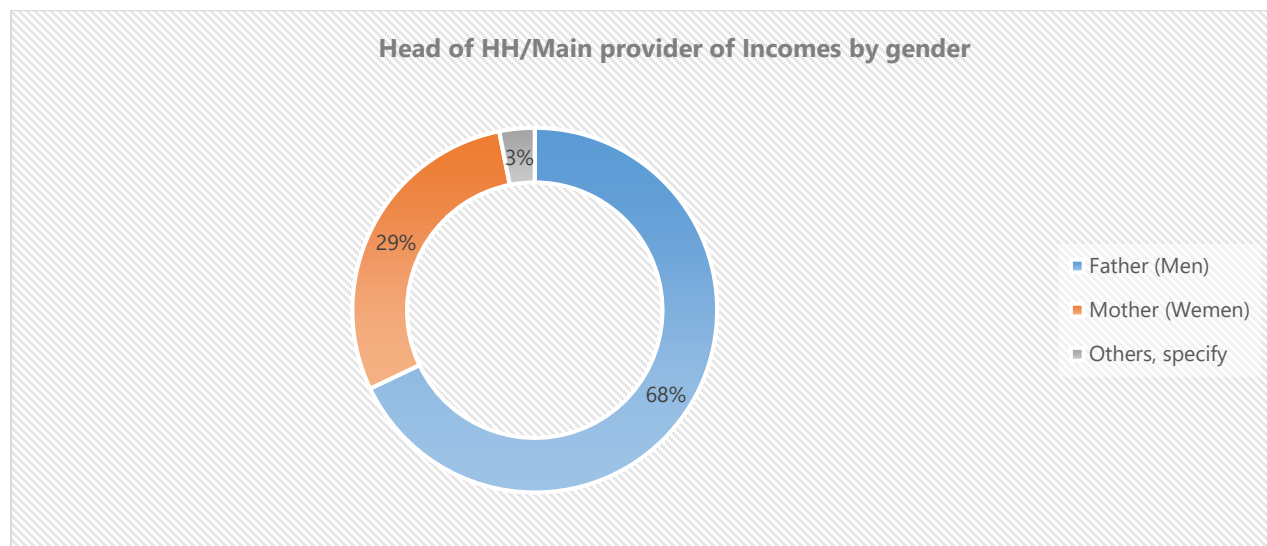


Figure 5: Distribution of households Head by Gender

As shown above, the male-headed households constitute 68% (326), female-headed 29% (139) and others at 3% (15) of the respondents.

3.6 Level of Education and Literacy

It is found that out of the 4 villages, 3 of them have schools nearby primary schools, and 1 village (Toilmot Na Mere) have no school at all.

The survey was interested in both the literacy levels of the household members and the educational attainment of the head of the household. This was important because the literacy level of a population gives a good indication that populations potential for participation in WASH activities and other socio-economic development

Literacy empowers those who possess it to receive a wide body of ideas and often to act positively towards the fulfillment of those ideas. The rate of acceptance and adoption programmes aimed at improvement of health and sanitation status of the people will largely depend on their education status

The survey results shown in figure 10 below reveal that about 53.89% of the respondents in all the locations were able to read and write while about 41.9% were not. Male were leading in literacy rates.

HHs with members who're able to read and write	Yes	No
	270	210

A related area of interest was to find out the education attainment of the household members reveal that about a quarter of the household members have gone to school up to the Primary level while a similar proportion have no education at all in all the locations.

3.7 Economic Status

Figure 6 below shows household members occupational status. 47.9% of the household members are engaged in quarrying rock fragments, 42.1% are engaged in small business activities, farming households constitute only 0.8% while about 4.6% reported other sources of incomes occasional support from friends and relatives. Despite these figures, survey also shows that 50% of the populations are very poor, living below global poverty lines.

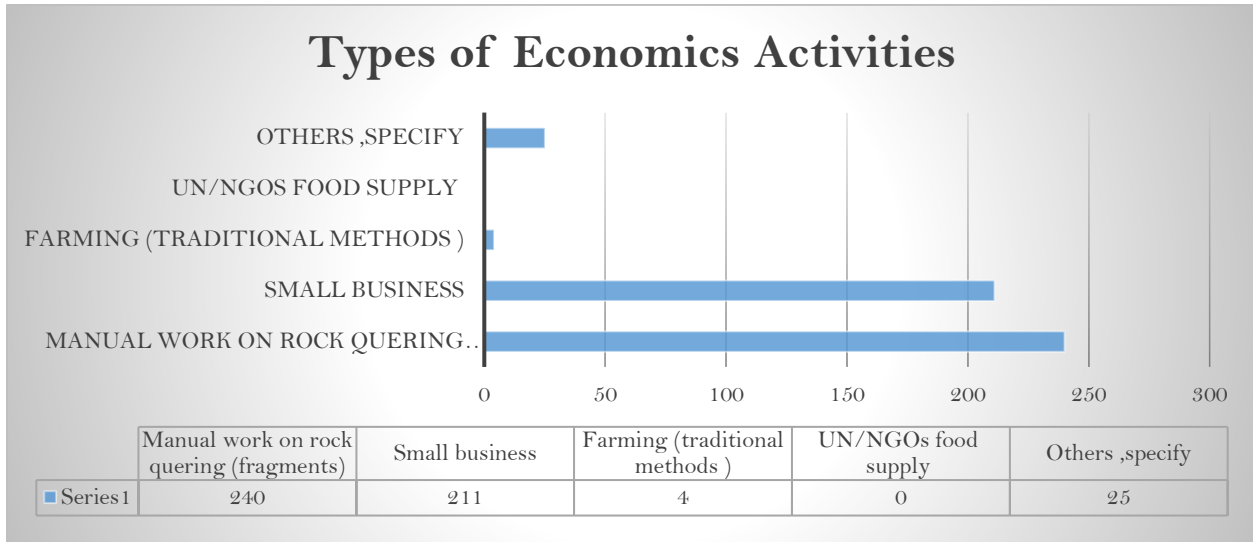


Figure 6: Types of economic activities the communities are engaged in.

In general, most of these poor people do not even get enough income for food and basics services such quality water, basic sanitation, health and hygiene. The rest of the households (%) with income of close to 50,000 and above South Sudanese Pounds could be considered low-income populations.

3.8 Household Income

This survey was primarily a baseline survey of the water and sanitation sector. While income data is important to the water and sanitation sector, particularly with respect to community financing of water and sanitation facilities, it was not technically feasible to collect detailed income and expenditure data. The survey therefore mainly collected data on the income of the household members based on farm, manual works, business and wage/salary. Thus, the total income of the household as per this survey is derived from the sum of:

- Manual work on rock quarrying for fragments.
- Farm/Business income last month and/or last year
- Wage/salary income last month and/or last year

The reported monthly income of each household surveyed, shows that out of all the households surveyed, 95% (456 HHs) earned monthly incomes of less than SSP 20,000 (or about USD 80) while the rest (5% or 24) of households earn monthly incomes of between SSP 20,000 - 50,000. With those incomes they earn, more than half of the households (64.4%) spend their money on food, 27% on clothing, 4.6% on other expenditures.

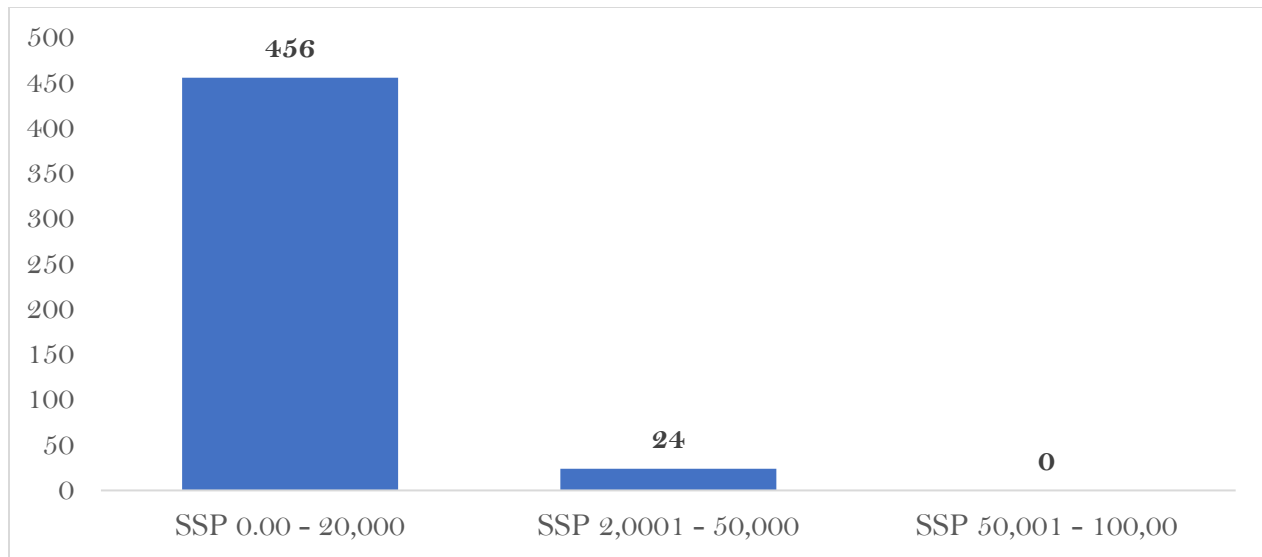


Figure 7: Distribution of monthly households' incomes.

3.9 Health Status

This section examines the general health trend as part of household characteristics in terms of morbidity. The disease pattern and the kind of coping mechanisms at the household level for members who are sick. The information presented in this section include morbidity pattern (this is provided by two weeks morbidity prevalence rates), type of sickness, options at household level for coping with morbidity- this is provided by the type of treatment sought in the event of illness or for prevention of disease.

Poor WASH in rural, pre-urban and urban causes many interconnected health, economic and social impacts. Poor WASH is the main cause of faecally-transmitted infections, including cholera and diarrheal disease. The situation is particularly acute in unplanned settlement (slum), as well as high-density urban areas with poor WASH services, with helpless group (children and elderly) in the poorest pre-urban households more vulnerable due to repeated exposure to risks

3.9.1 General Morbidity

In South Sudan, the most common illness in the population is malaria frequently contracted through breeding of mosquitoes in nearby stagnant water, as well as poor hygiene. Besides malaria, other general morbidity often contracted from similar cause, is diarrhea and enteric fever or locally know as typhoid.

3.9.2 Specific Morbidity

As reported in surveyed area by most respondents; (47.9% of households) reported malaria as the leading cause of sickness among the residents, followed by diarrheal diseases (28.7%). Other diseases such as scabies comes in the third at only 19.2%. Other illness prevalence asked from respondents in this survey area and reported with zero percent of morbidity were enteric fever, eye infections and guinea worm.

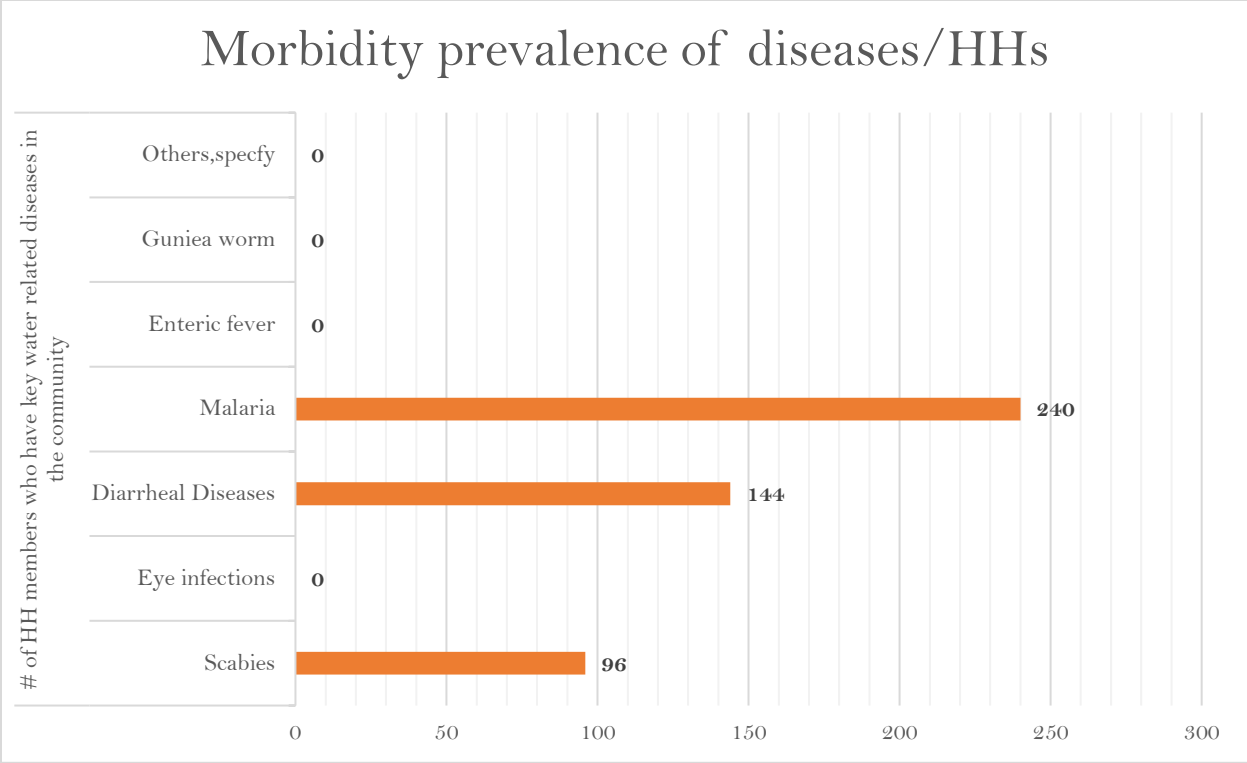


Figure 8: Distribution of 1-month Morbidity Prevalence

3.9.3 Handwashing Knowledge

One of the most critical hygiene behaviors, which prevents diarrheal diseases is that of washing hands at the 5 critical moments throughout the day as per WHO and UNICEF modified policy recommendation⁹ for hand hygiene. 451 (90%) of the respondents reported that they washed their hand in the last one day while 23 (10%) reported not washing their hand in the same period.

Almost all the respondents were able to recall 1 of the 5 critical moments in handwashing: 256 (51.1%) respondents were able to recall that that they washed their hands before eating in the last 1-day of the critical times of handwashing; 101 (20.2%) of respondents were able to recall that they wash their hand before preparing food in the last 1-day of the critical times of handwashing. 85 (17%) of respondents were able to recall that they washed their hands in the last 1-day before feeding a child or breast-feeding a baby; only 23 (4.6%) of the respondents recalled that they washed their hands in the last-day after visiting the latrines/after defecating while the 3% (15) of the respondents reported washing hand after cleaning a baby bottom or disposing a child's feces.

⁹ Source: WHO https://www.who.int/gpsc/5may/hh_guide.pdf and UNICEF <https://www.unicef.org/media/91326/file/Handwashing-MandE-Module.pdf>



Figure 9: Critical Moments of Handwashing Practices recalled by the respondents

3.9.4 Hygiene Practices

The baseline survey investigated the hygiene practices by asking households in the whole area on basic condition on bathing, hand washing and presence of soap, and any other traditional means of basic hygiene such as washing with ashes and/or water alone. Hygienic practices vary, with over 57.5% of all respondents washing their hands before cooking and 19% washing their hands sometimes.

Table 8 below shows the hygiene behavior and practices for different households

Table 8: # of HH member who wash their hands with soap or water before and after food preparation.	Responses/Results	% Per
Always	276	57.5%
Never	110	22.9%
sometime	94	19.6%

Although the availability of hygiene material does not seem to be a problem, good hygiene practices are not adopted by significant percent of the households surveyed. Nearly 23% (110) of the respondents do not wash hands before eating or cooking. This could be attributed to the lack of adequate water, cost of supplies and knowledge on hygiene practices.

3.9.5 Hand washing Knowledge and presence of soap

In the chart below, large proportion of respondents 307 or 64% do not washed with hands after visiting toilets/defecation.

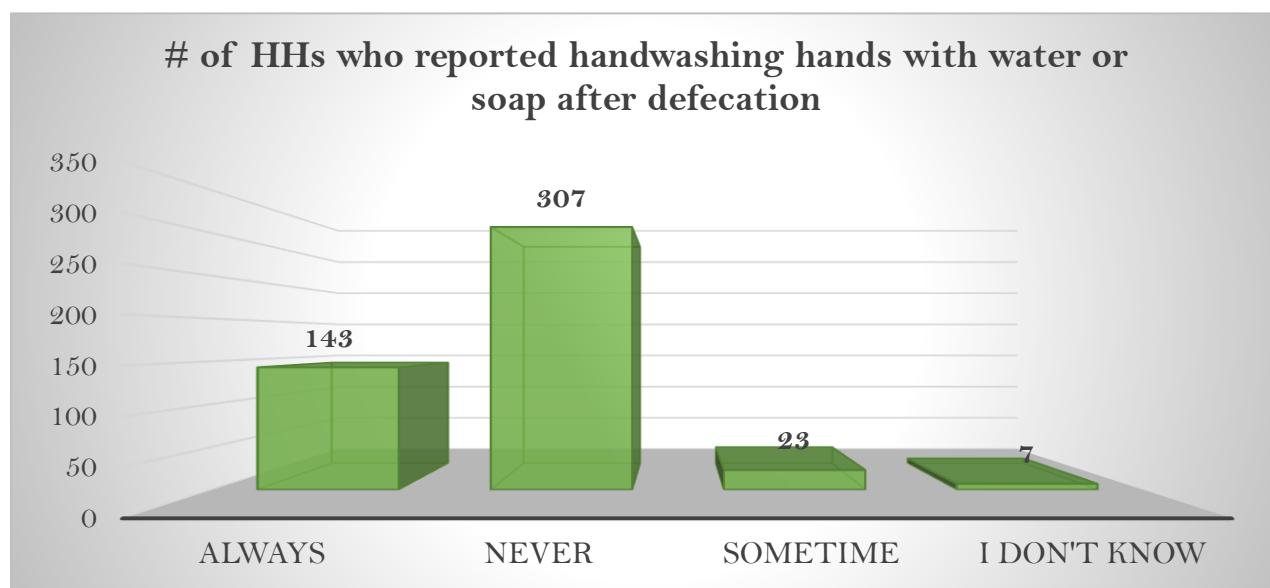


Figure 10: Proportion of HHs/Respondents who washed hand after defecation

3.9.6 Options for Treatment

The baseline survey also investigated health linkages or referral pathways whenever member of household contracted any illness related to the common diseases reported above. The common reported options for treatment options include visiting nearby private clinics (%) and public primary health care centers often own by government and/or supported by International Agencies.

The factors which determine choice of treatment include awareness of the existence of such treatment, attitudes governing causes of the illness, appropriateness of treatment for the illness, psycho-social influence such as opinion of people in the community, educational status, religion and traditional beliefs and practices and the perceived severity of the illness.

168 (35%) of the respondents stated that they attended to a doctor in the nearby clinic within last month, whereas majority 312 or 65% reported not attending to a doctor despite one or more of their family members falling sick.

HHs member who fall sick and attend to the doctor for treatment in the last 1-month

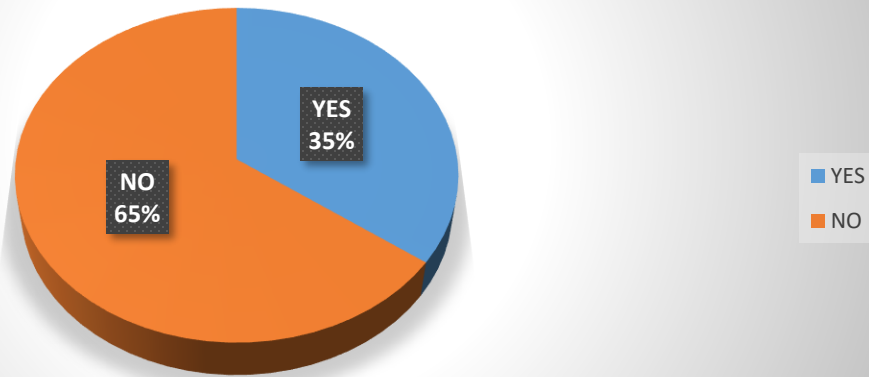


Figure 11: Distribution of HHs by rate of attending to a doctor in nearby clinic

Similarly, on 24 (4.8%) of the respondents reported being able to afford to pay for clinical services, treatment and care while majority, 456 (91%) are unable to pay or afford clinical care/treatment. The main coping mechanisms recorded were decision to take the sick to a health facility, purchase and use of drugs and consultation with a traditional medicine man/woman.

Capacity of HHs member to pay for clinical services in SSP

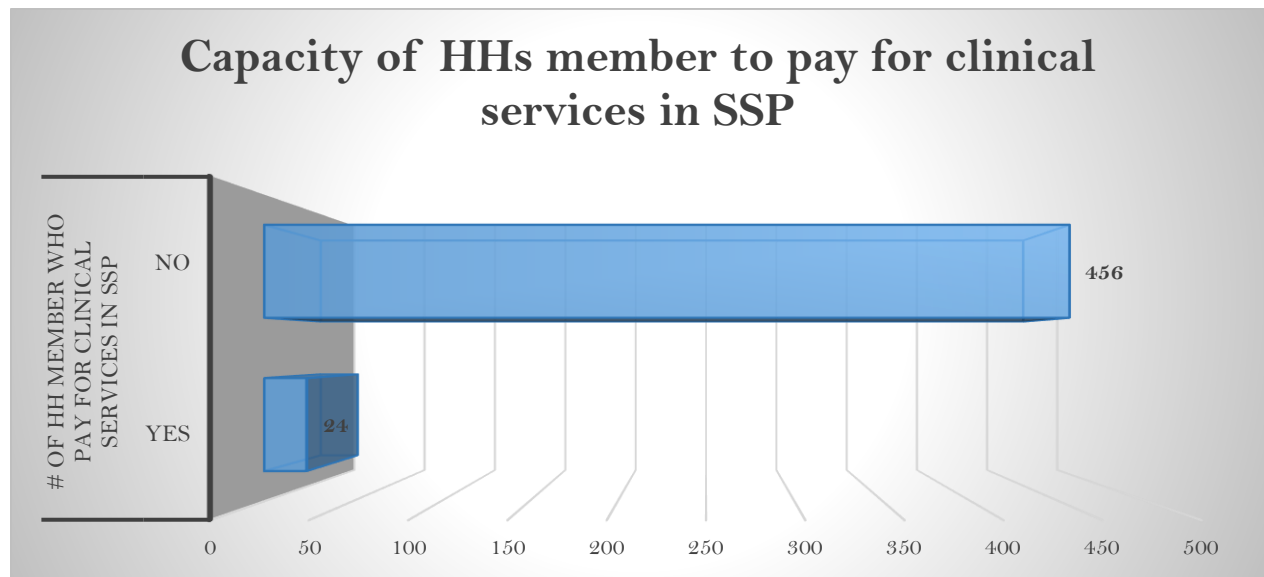


Figure 12: Distribution of HHs capacity to afford clinical services, treatment and care.

The surveyed also revealed that majority of the households visited government run facility one in a while compared to only 24 of the respondents who reported visiting private clinic when one of their household members got sick.

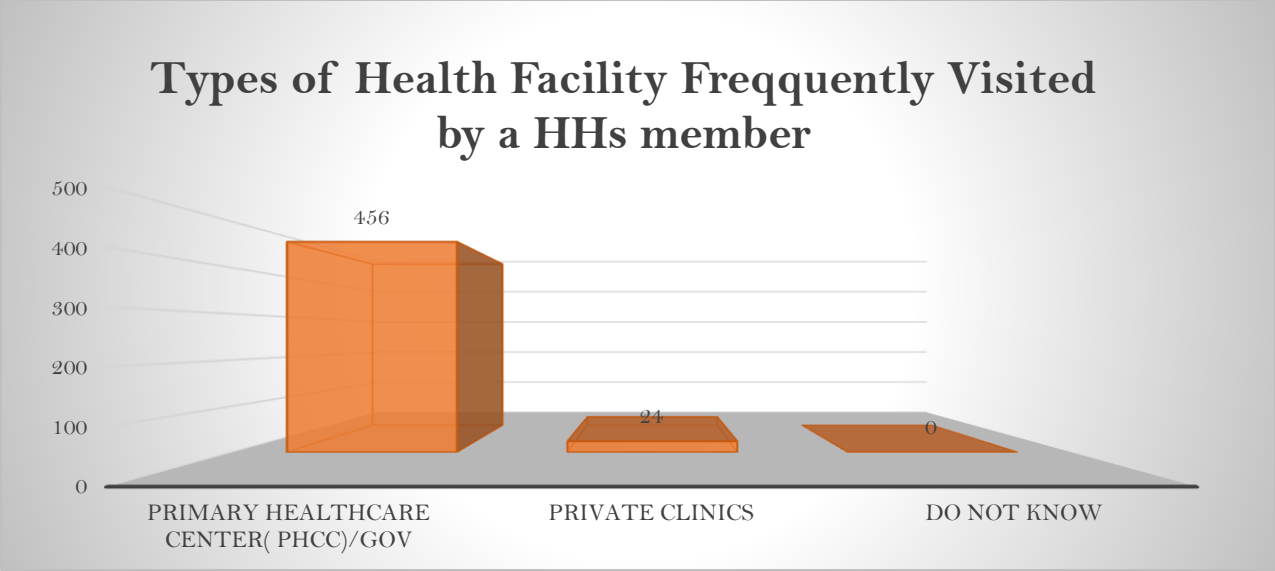


Figure 13: HHs frequently visited type of health facility

Further, 370 (73.9%) of the respondents' access health facility by walking, 90 (18%) used public transport means and the rest of the respondents (20 or 4%) used motor bikes as transport means to access nearby health facilities.

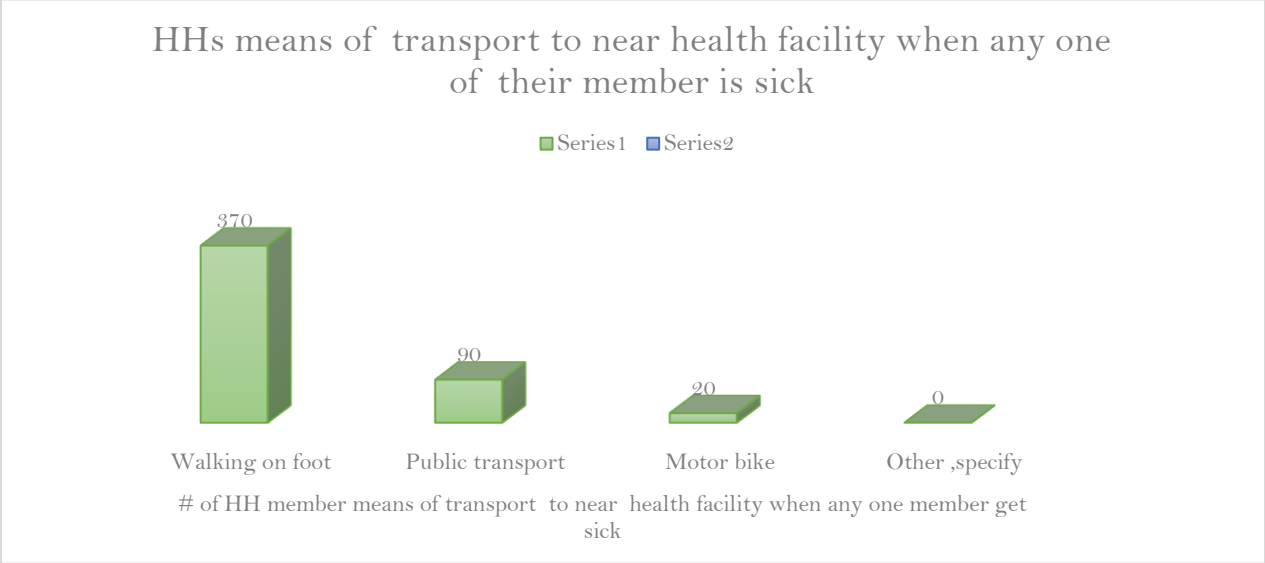


Figure 14: HHs access and transport means to nearby health facilities

In the chart below, 60% (288) of the respondents accessed health facilities within Rock City suburb, 120 (or 25%) visit health facilities in nearby Gudele and the other 15% (72) of the respondents' access health facility in Jebel-Checkpoint. This is distribution reflects the geographical location of the Jebel which is surrounded by Rock City in the East, Gudele in the Northern and Check-point in the South of the Mountain.

Location of nearby health facility visited by HHs member when one of the member is sick

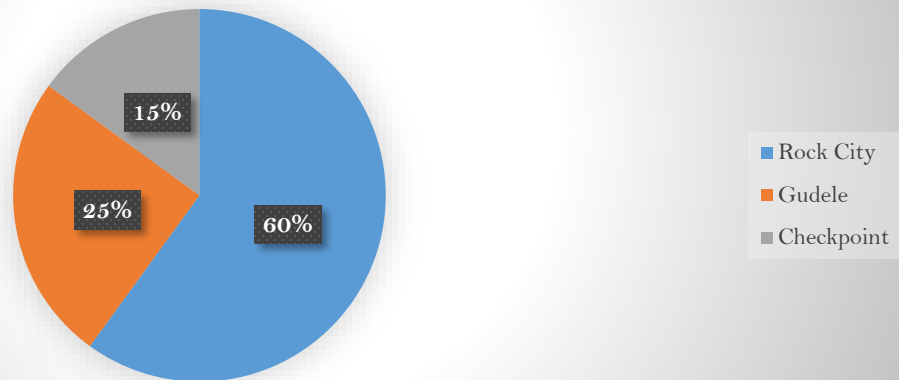


Figure 15: Nearby location of Health Facility frequently visited by the HHs when one of their members got sick

3.9.7 Knowledge of malaria prevention.

During the baseline survey, responders were asked to mention any causes of malaria they may know. The chart below shows that 408 of the respondents do not know what causes Malaria, 50 of the respondents reported Mosquitoes as the causes whereas 22 reported germs as the causes.

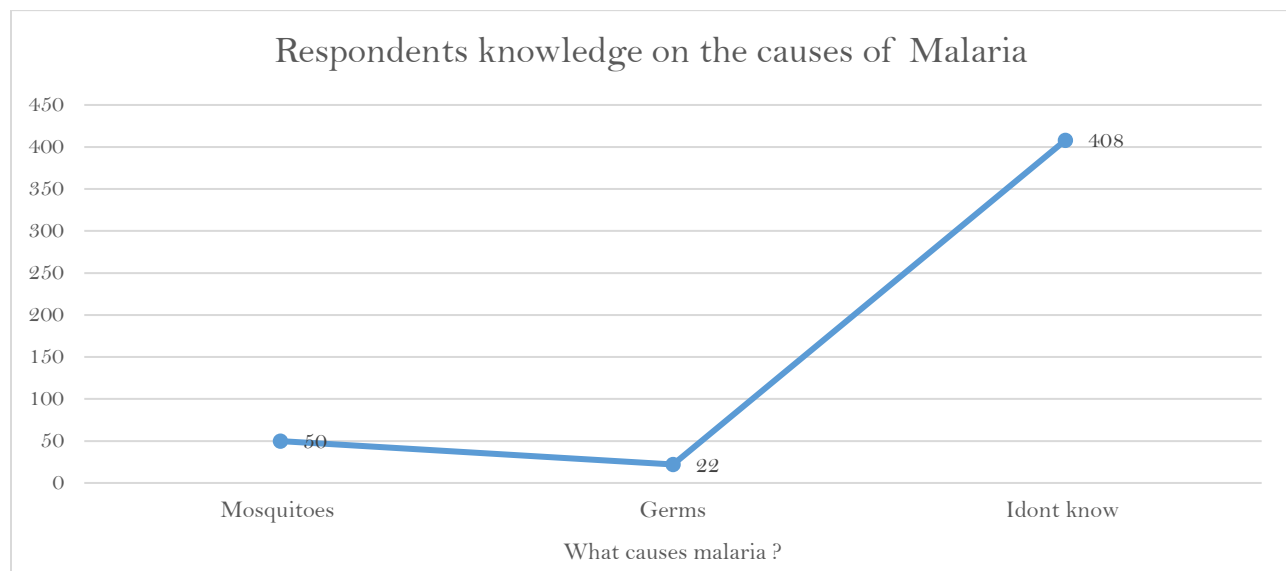


Figure 16: Causes of Malaria recalled by respondents

Similarly, respondents were asked what can they do to prevent malaria? The Chart below shows 273 (54.5%) respondents do not know what to do, 120 reported covering up their bodies using clothes or mosquitoes net while 87 stated clearing and cutting grass around the household can prevent malaria. No respondent thought that draining stagnant water and spraying could help prevent malaria as well.

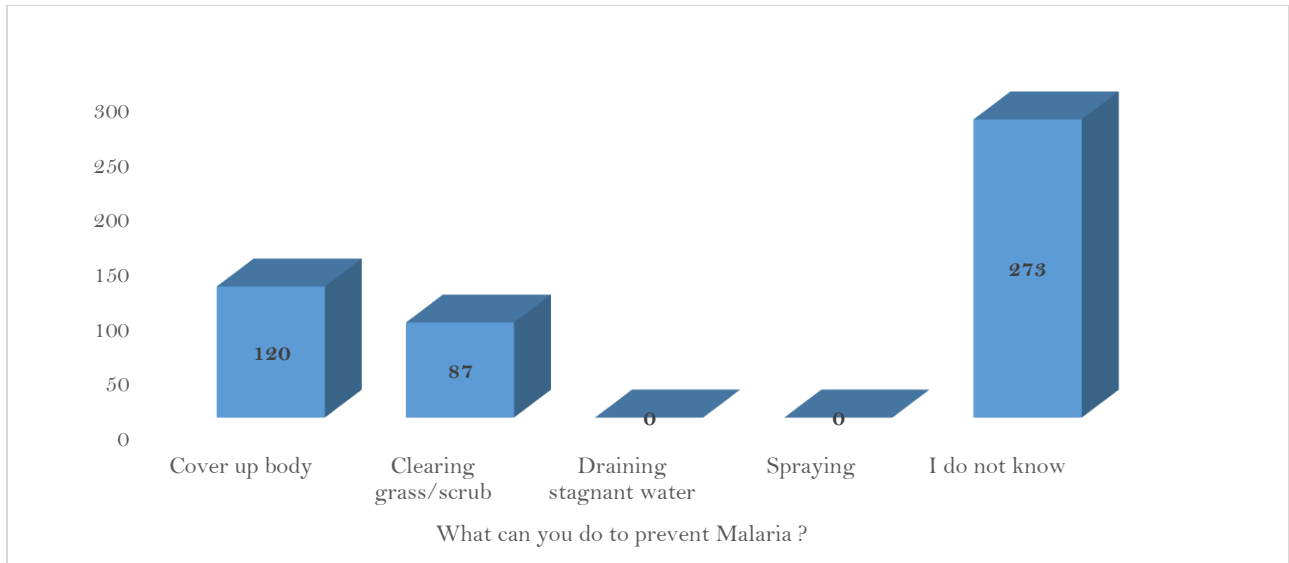


Figure 17: Causes of Malaria recalled by the respondents

3.9.8 Covid-19's Community Impact

The survey also looked into the impact COVID-19 has had on the life and livelihood of the communities living around and at the foot of Jebel Kujur. The surveyed revealed that all the 480 HHs surveyed were aware of the COVID-19 pandemic. However, their knowledge on covid-19 preventive measures varies across as illustrated in the table below.

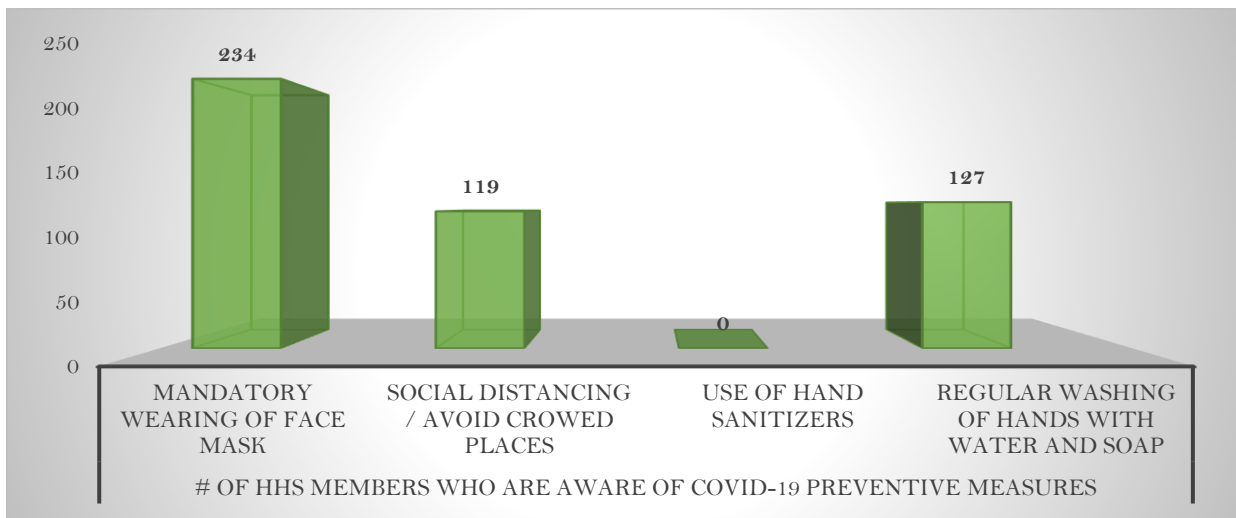


Figure 18: Knowledge of community on COVID-19 preventive measures

3.10 WATER AND SANITATION

This section is based on information on water availability, accessibility and quality, operation and maintenance status, and reliability. On sanitation, respondents gave information on type of toilet facilities, their maintenance status and interviewers verified the information by physically checking on the facility status.

3.10.1 Water Supply

Water is essential to life and health. It is required in considerable quantities for drinking, washing, cooking and personal hygiene. Despite its importance, water is not always available in quantities and qualities required yet the need for it is such that people tend to use any water that is readily available to them. Whether it is polluted or not Access to water is an important determinant of health. Polluted waters when used for drinking and bathing and cleaning, constitute one of the principal modes for infection by diseases.

For any meaningful gains to be realized in improvement of health status of the people at household level and thus enhance the general productivity of the population, measures must be taken to ensure that people have access to safe water. The source of water should as much as possible supply a quantity of safe water that is adequate for the needs of the community.

In this survey safe water is defined as water that is not harmful to the user The results of the water supply situation are presented according to five different levels of supply conditions

Section 3.10.2 analyses the water supply situation in Jebel Kujur Suburb taking into account all water sources used during wet and dry seasons The discussion distinguishes between protected and unprotected sources of water.

In section 3.10.3, the various modes used for water collection are described, including the distance to water sources from the household and the time taken to and from the water source

Section 3.10.4, describes the methods used to store water at the household level and the major uses of water.

Section 3.10.5, looks at the quality of drinking water at the household and the various treatment options used by the households to improve on water quality before use.

In Section 3.10.6, Water point reliability is discussed in terms of availability of water at all times or otherwise.

3.10.2 Access to Water

In the surveyed area, not a single household has connection to water network and/or municipal running water with only a handful of households close to some private boreholes fixed with hand pump. The result chart below shows that 244 (50.8%) of the respondents rely on water draining from the mountain top for drinking, and 230 (or 47.9%) depend on commercially supplied water by water trucks from Juba town for similar use.

Similarly, major water sources for other domestic's water use (washing, bathing and cleaning) included streams from mountain tops (379 or 79%) of the respondents, and boreholes (62 or 12.9%) and commercially supplied water (28 or 5.8%) of the respondents. Although the

commercially supplied water is considered clean, not all households have enough incomes to purchase this water or have access to the private hand pumps.

Consequently, over 90% of all households rely on untreated water from unprotected source for both their primary and secondary source of drinking water, mainly in the form of streams, and only 8% drink treated water.

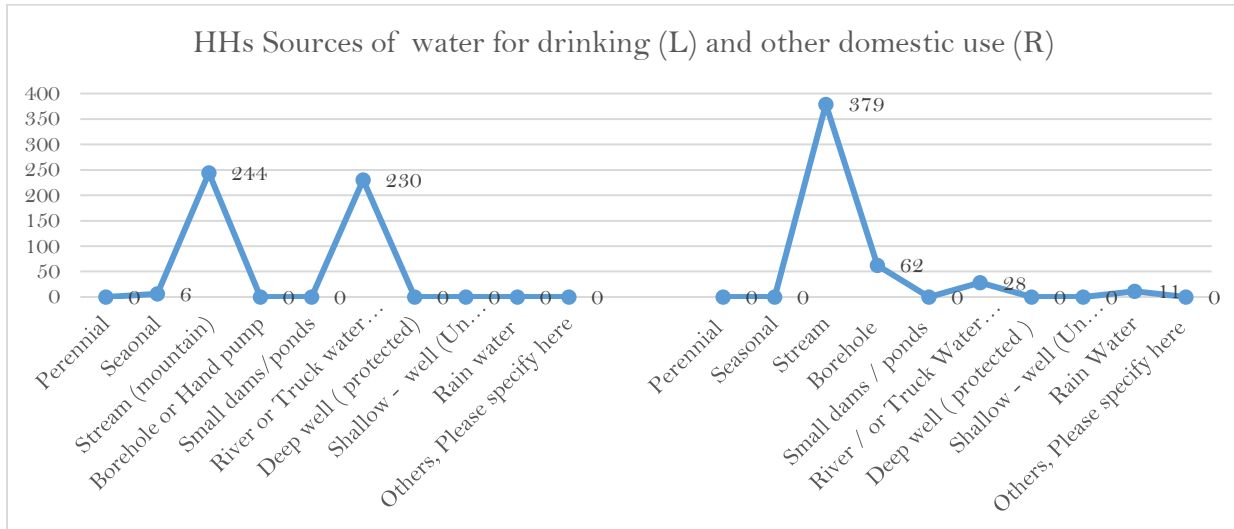


Figure 19: HHs Sources of driving water

3.10.3 Water Collection and Distance to Water Source

Women and girls are primarily responsible for water collection, with 79% of households reporting women and 28% reporting girls involved, compared to 23% of men and 16% of boys respectively. Waiting times at water points of longer than 30 minutes were reported by 13% of households, while travel times to and from water points of longer than 30 minutes were reported by 8%. However, despite relatively few households reporting long distances and wait-times, problems with access to water were reported by 56% of households, and largely related to long distances (43% of all households) and long wait-times (41% of all households).

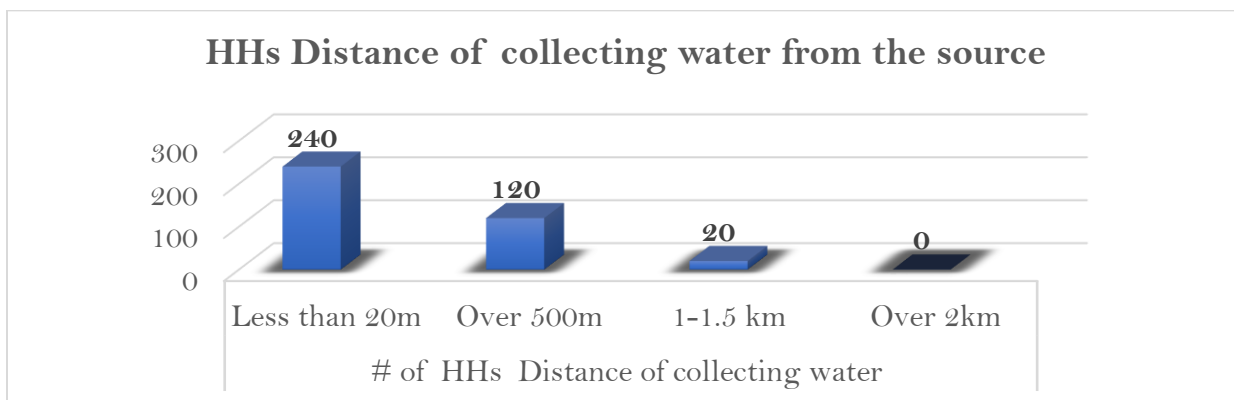


Figure 20: Distance of water source from the HHs

Girls (240) of the respondents are considered as primarily responsible for collecting households' water, follow by women (221) and boys does a minimal role while men are totally barred from

participating in fetching water for their households. The men have been traditionally known as Heads and as such are predominantly engaged on searching food to the household.

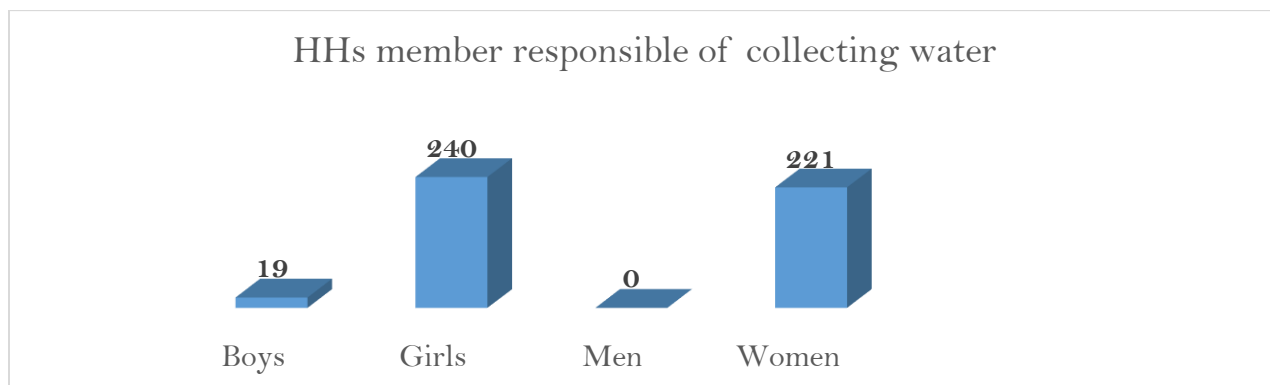


Figure 21: Distribution of water collection role by gender

As seen above in the chart, water collection has customarily been the domain of women. In the division of labor, men did not associate themselves with this daily routine task. The survey sought to find out the mode of transportation from the source to the household, the distances involved in fetching water from the main source to the household and time taken to fetch water.

Table gives the distribution of different methods used to fetch water by households. The overall situation indicates that most of the respondents use human porters as their dominant mode of transporting water from the source to the household. Bicycles, vehicles and domestic animals are not commonly used or not used at all.

Table below: Showing means of collecting water by each household.

HHs means for fetching water	Responses	% Per
Human Porters/Efforts	480	100%
Bicycle	0	0.0%
Vehicle	0	0.0%
Domestic porter	0	0.0%
Hand cart/W. Barrow	0	0.0%
Animals	0	0.0%

3.10.4 Water Storage and Use

To check household water availability and household water storage practices, respondents were asked to show enumerators the containers used for drinking water collection the day prior to the assessment. The common type of containers for water storage were:

- ❖ 20 litre plastic jerry cans and buckets; and 200lt and 250 litter plastic drums (one that was used for paraffin);
- ❖ Few households use 250-300 litters storage capacity plastic tank.

Most respondents (459 or 96%) reported putting their water containers on flat ground, while few (21 or 4%) reported placing water tanks few meters above the ground on metal stands.

Overall, the average available volume of drinking water available per person per day was 5 liters for 192 (40%) of the respondents, 10 liters for 144 (30%) of the respondents, 15 liters for 72 (15%) of the respondents, 20 liters for 48 (10%) of the respondents whereas only 24 (5%) reported storing large volume of water above 20 liters per day.

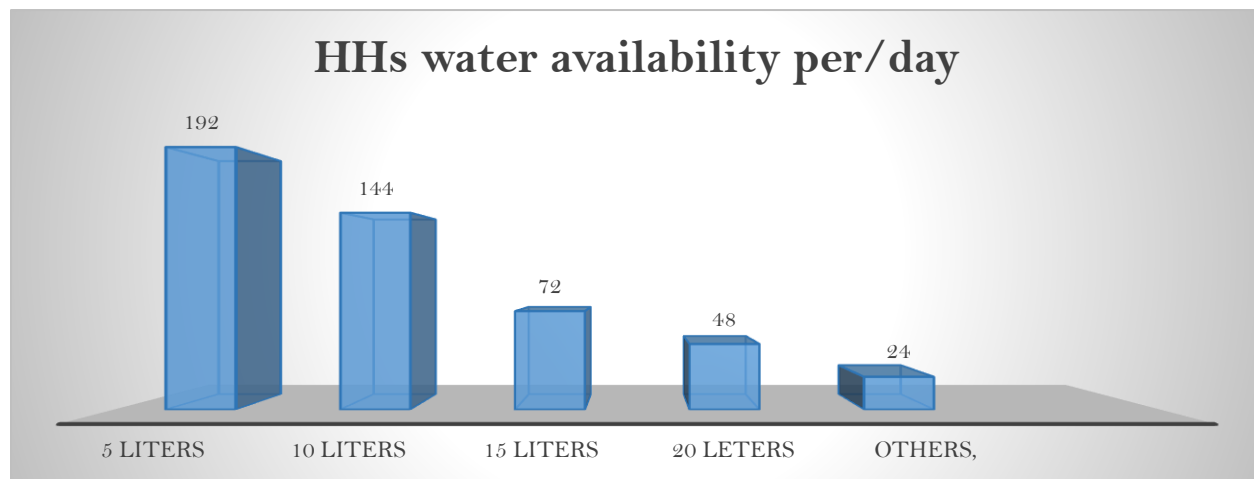


Figure 22: Water availability per HH/Day

All HHs respondents reported using water containers of various capacities and size in their households. 270 (56%) reported covering all their containers, 96 (20%) covered some whereas 114 (24%) do not covers their water containers at all.

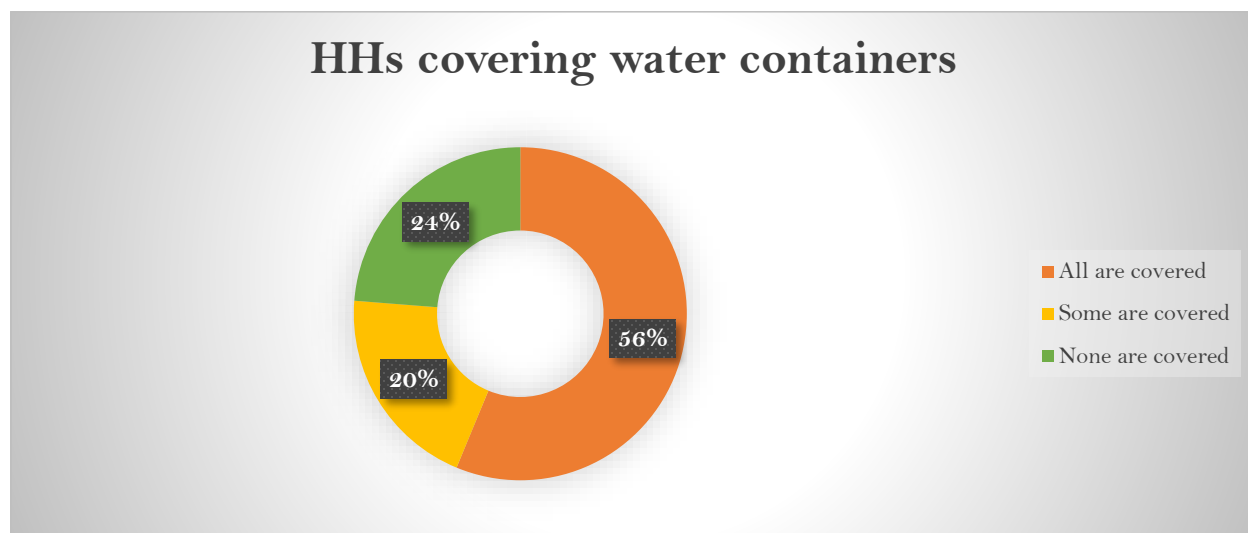


Figure 23: HHs coverage of containers

3.10.5 Quality of Drinking Water and Water Treatment Methods

The surveyed households were asked questions regarding various forms of water treatment methods including boiling, chlorinating with tabs or pure powder, sand filtration, in addition to specifying other forms they use to treat water for drinking or domestic used. Only 39 (8%) of the

respondents reported treating water and 441 (91%) do not treat water. Majority of respondents (95.2%) reported 'others' as means of treating water but didn't mention specifically what treatment method. Only few households reported boiling (4%), chlorinating (0.8% with pure powder and/or tablets) and none reported sand filtration method (See the fig. 27 below):

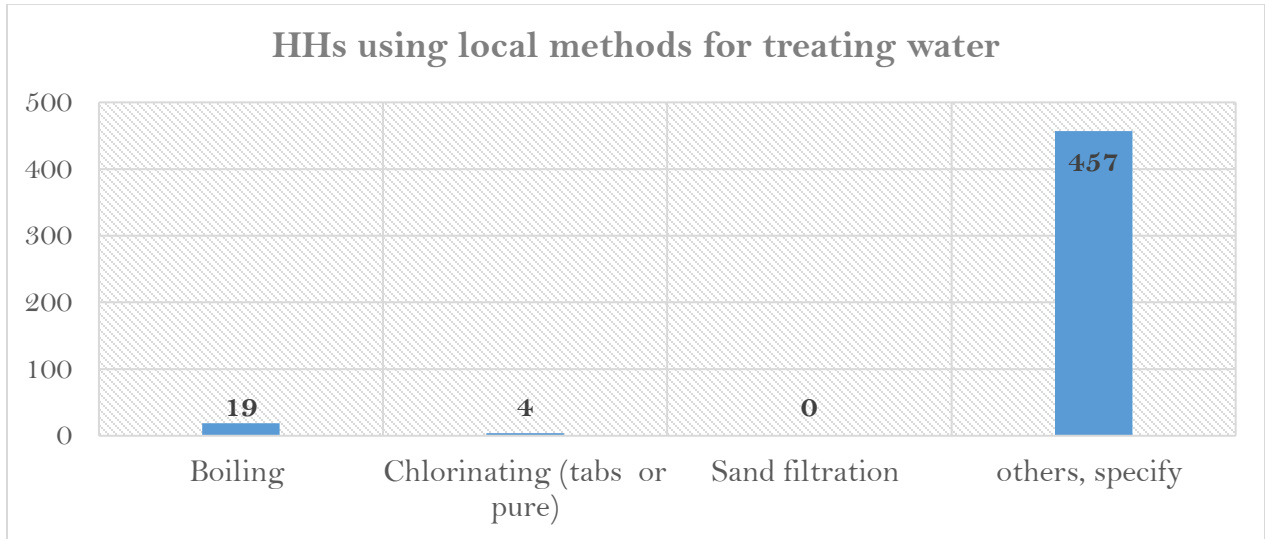


Figure 24: Water treatment methods used at the household level

As the graph shows, it can be seen that most of household are not treating water with any correct and/or known mentioned methods, and therefore, quality of drinking water in this survey area remain highly poor and prevalence consumption of untreated water remain high.

When asked why they don't treat water, 432 of the respondents said its expensive, 39 of the respondents believe that their water is safe and 9 reported that there was no need to treat their water.

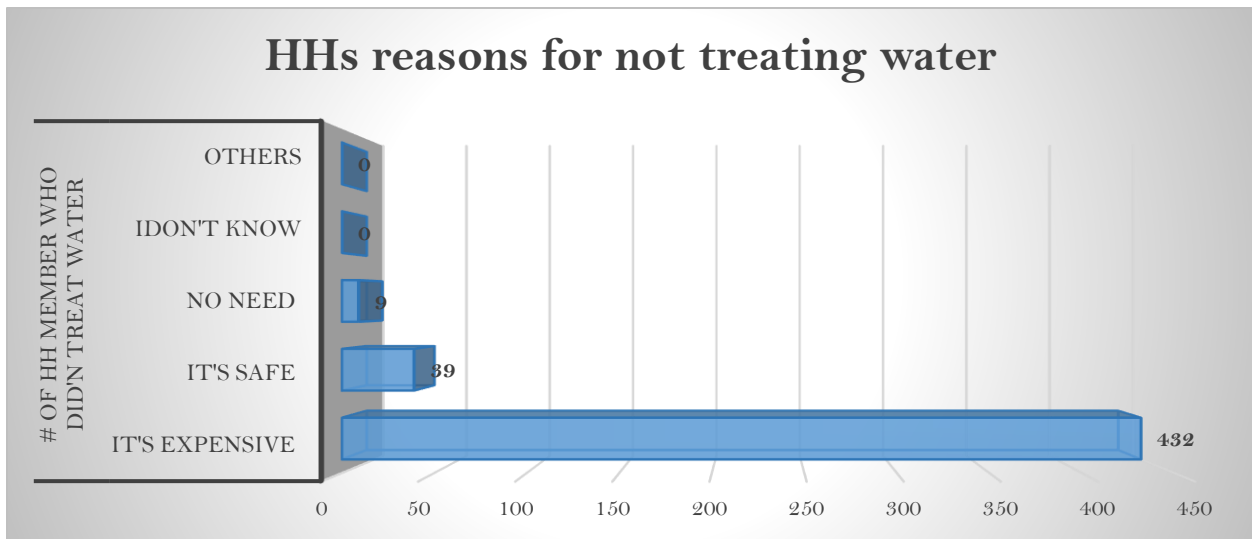


Figure 25: HH reasons for not treating water

Water storage in the household is quite important aspect of water quality. Water can be safe and clean from the source but if it is not properly and hygienically stored it loses its safety. The type of container used for storage is therefore important for maintaining quality of water provided the container is also kept clean.

Plastic Buckets and Clay Pots are relatively safer than other containers like metal drums for storage of water because they are rust free. The table/chart below indicates that only 240 (50%) of the respondents stored water for drinking, washing and cleaning separately while 120 (25%) do not store water separately. 50 respondents cited lack of no enough storage capacity as reasons for not storing water separately whereas 30 respondents said they do not know if they should separate water.

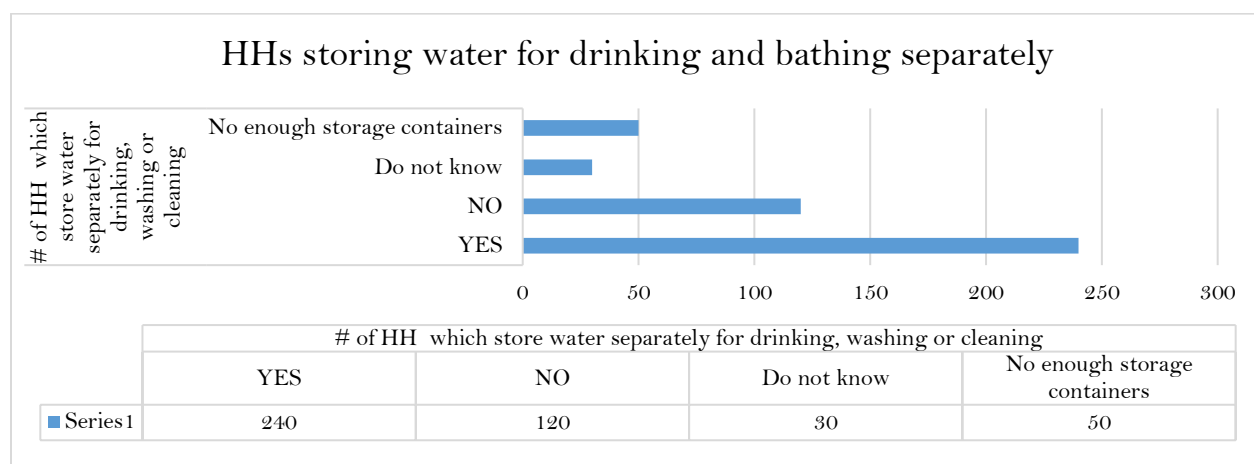


Figure 26: HHs separation of water storage

3.10.6 Water Point Reliability

The survey asked the respondents to indicate the reliability of the various sources of water that have access to in terms of whether water is available all the times, most of the time or not reliable, meaning the water source dries up or the water is not adequate for all the consumers

Table below show the survey results on water reliability.

HHs sources of water which changes according to different seasons	Responses	% Per
YES - all sources	270	56.3%
YES - 1or 2 sources	48	10%
NO	162	33.8%

Most of the water sources reported by respondents in all survey areas are seasonal streams which dried up with cessation of rains (56.3%), and perennial in nature. During dry and hot season, some household only use water draining out from fractures on Mountain-root into small dug holes.

Because commercially supplied (from mobile trucks) is expensive, many households use unprotected water sources for water supply for drinking, washing and cooking. Few households

use shallow borehole water but often salty and unsuitable for use as reported by community leaders during focus group discussion.

3.10.7 Sanitation

In South Sudan, the most widespread form of water contamination results from disease—bearing human waste. This waste poses great health risks for people who are compelled to drink and wash in untreated water.

3.10.7.1 Access to Toilet Facilities

In order to find out the proportion of the households with access to sanitary facilities, the survey sought to know the types of toilets owned by households.

Table below shows the distribution of toilet facilities access by households.

HHs with latrine inside the house which they can use	Responses	% Per
YES	72	15%
NO., no latrine has been constructed nearby my home	69	14.4%
NO., we do not have the materials or manpower to construct a latrine	123	25.6%
I move here recently	0	0.0%
I can't construct a latrine here - this is not my land	0	0.0%
I have never used a latrine before	0	0.0%
I prefer to defecate outside	288	60%
I don't see any reason for having a latrine	0	0.0%

Only 20% or 96 of respondents reported having household latrine whereas 80% or 383 of the respondents had no toilet facilities in their households and practiced open defecation.

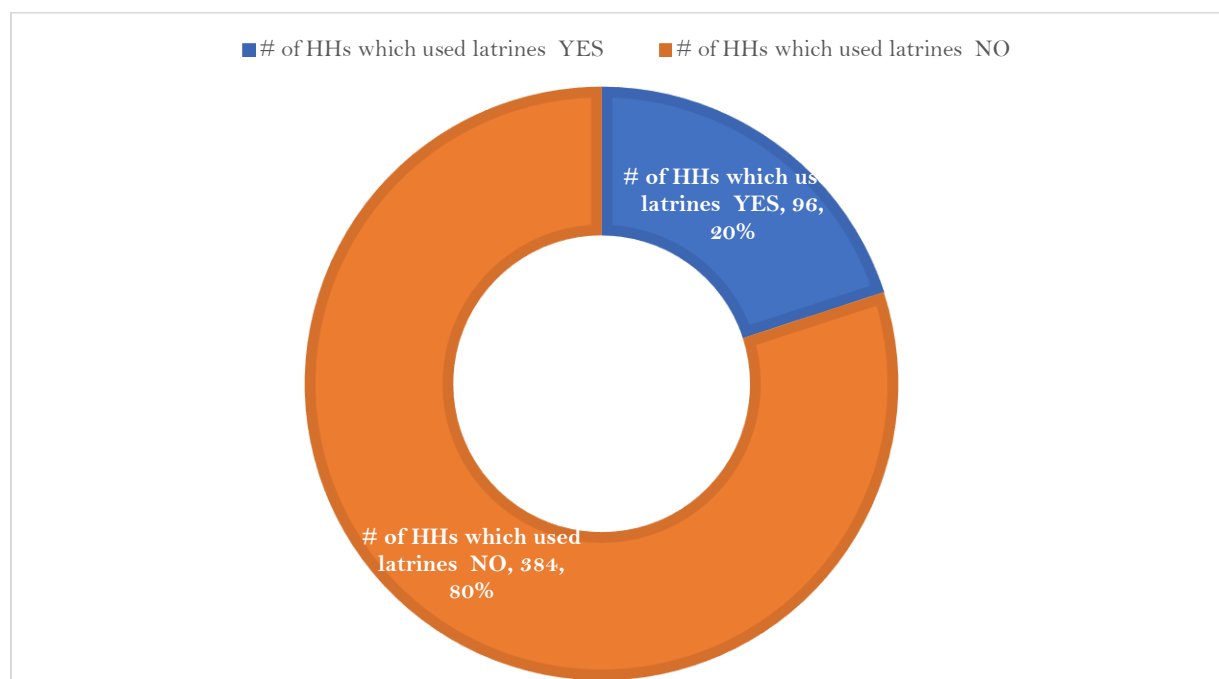


Figure 27: HHs access to toilet facilities

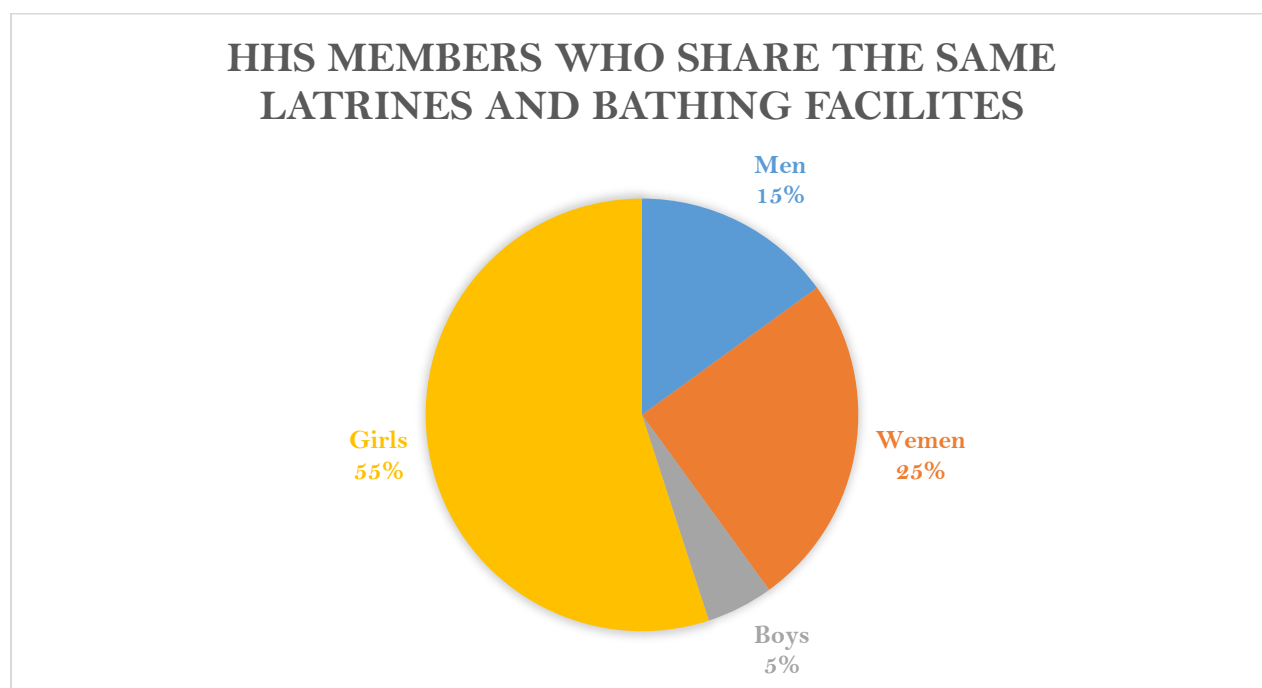
and Only 8% households having no latrines and/or not (85% of household) living nearby latrine and sanitation facilities, but access other communal latrine facilities. Over 80% of households reported specific form of practiced sanitation/defecation, sometimes shared latrine with other household and/or rely on open defecation.

The survey also assessed the commitment households and community contribution if a support is mobilized to build toilets in their area. Table below shows the level and type of contribution that the communities are willing to contribute.

HHs capacity to contribute in the construction of the toilets	Responses	% Per
Rock materials	216	45%
Manpower(builders)	240	50%
I don't know	0	0.0%
Others, specify	24	5%

As can be seen above, 50% of the respondents are willing to provide manpower and 45% of the respondents willing to offer rocks and materials for building toilets. This is a very good indication of community expected ownership and participation in the project.

In the chart below, most of the available toilet facilities are shared among communities' members with only 15% of the respondents reported that men have their own toilet facility alone compare to 25% for women and 55% for girls.



The table below 5 shows the distribution of shared bathing facilities

# of HHs who shares the same latrines and bathing facilities	Responses	% Per
Men	72	15%

Women	120	25%
Boys	24	5%
Girls	264	55%

Also, only 168 (35%) of the respondents reported that their toilet facilities are safe and convenient for pregnant women, elderly, and handicapped people compared to 312 (65%) who reported they have no specific designated toilet facilities for these vulnerable people.

The survey also assessed whether latrine facilities are sufficiently secure for use by everyone at any time. Only 120 (25%) reported that their toilet facilities have secure doors compared to 360 (75%) of the respondents who reported that they have no specific toilet facilities.

3.10.7.2 Toilet Facilities Maintenance

The survey sought to establish the level of maintenance of the toilet facilities. Interviewers physically checked the exact maintenance status of the facility in terms of condition of the wall, floor and roof and also checking for the presence or absence of flies, irritating smell and disposal of human waste on the floor. The maintenance status of the latrines was important for this survey because it is a measure of the level of household's sanitation awareness as well the value attached to the latrine.

Table 6 shows the maintenance status of the latrines. Smell and flies in a latrine are an important measure of the level of utilization and maintenance.

Percentage Distribution of Toilet Facilities Maintenance/Cleaning Status by HH	Results	% Per
Daily	71	15%
Once a week	0	0.0%
Once a month	9	2%
It's safe	0	0.0%
Others – No latrines	336	70%

3.10.7.3 Toilet Facilities Utilization

The survey sought to determine the proportion of households with access to toilets as well as the level at which such facilities are being utilized. For the purposes of this survey, the level of facility utilization was determined by the existence of a distinct track or foot path leading to the latrine. Facilities which had no distinct tracks leading to them were considered as not being used or under-utilized meaning that some members of the households' members may be using other unknown methods for human waste disposal.

HHs which safely disposed off excreta for children/human

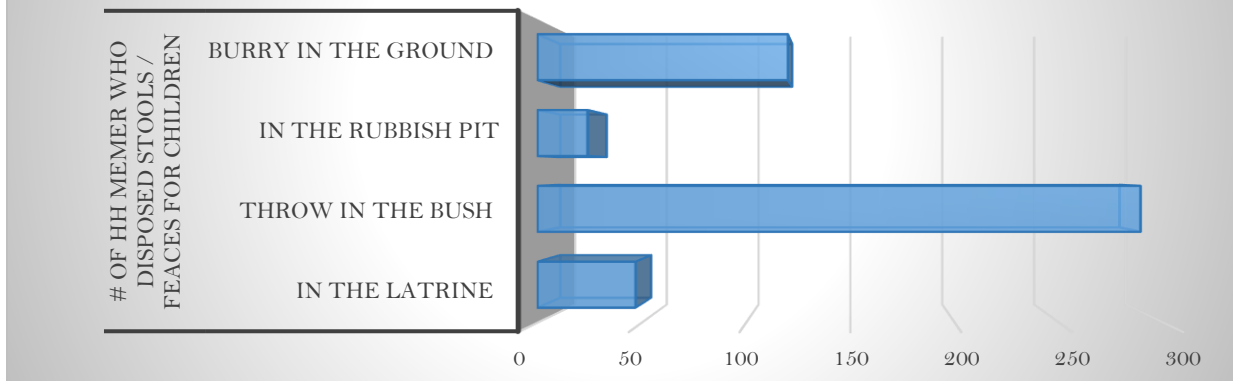


Figure 28: Percentage Distribution of Households with Distinct track leading to a toilet and disposal of children excreta

Table: Percentage Distribution of Households with Distinct track leading to a toilet for disposal of human/children excreta.	Results	% Per
In the latrine	47	10%
Throw in the bush	289	60%
In the rubbish pit	24	5%
Burry in the ground	120	25%

Majority of the households had no distinct track leading to the sanitary facilities except for 47 households although 97 (20%) of the HHs had sanitary facilities. This further explain that 50% of the HHs with sanitary facilities under-utilized their available facilities.

3.10.7.4 Solid and soft waste management

Household respondents were asked about solid and soft household-generated waste management, if they think that waste is a problem; how and who collect and disposed their waste. Over 95% of households reported they don't have any waste collection system including municipal allocated sites. Alternatively, only 23% of households reported they safely dumb their household's waste by burning as the only safe disposal practices, compare to over 77% of households that reported disposing wastes anywhere.

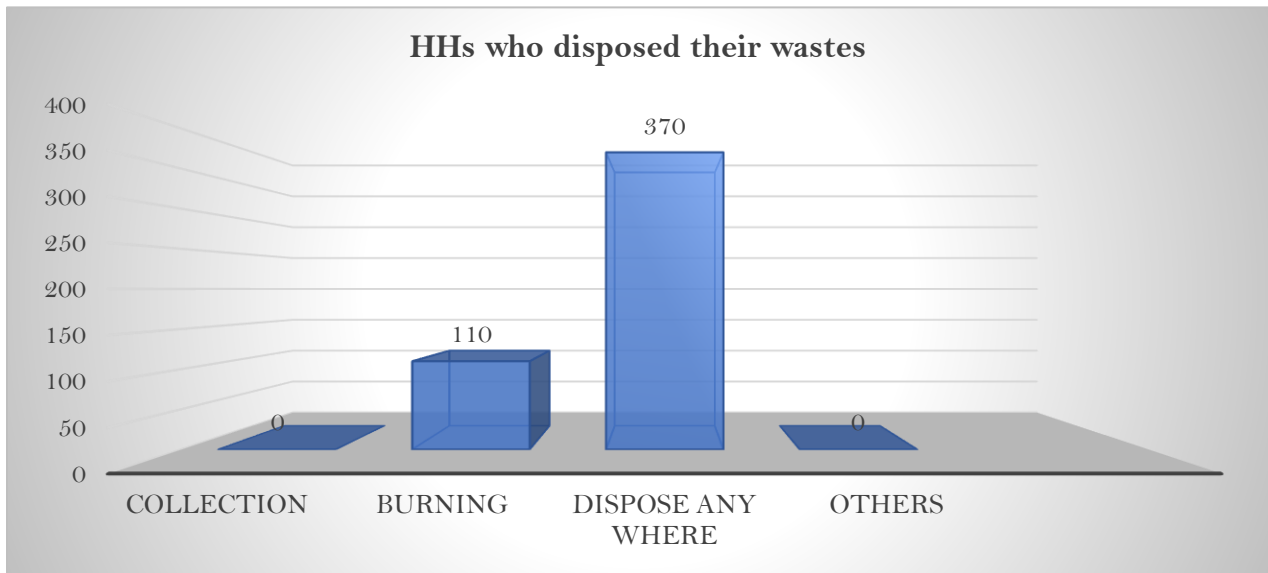


Figure 29: HHs means of wastes disposal.

Although there is no proper waste collection system, 408 (85%) of the respondents believed that waste is a problem to them, 72 (15%) didn't believe otherwise. When asked, 120 of HHs respondents believe that who thing that solid waste can be disposed of on-site designated for such purposes to avoid transmission risk of diseases whereas 360 believed it can be collected and disposed of off-site as they believe no risks are associated with waste nearby their households.

3.11 SOCIO-CULTURAL BELIEFS AND PRACTICES

This section is based on information analyzed from the focus group discussions. The focus group members included leaders of women groups, leaders of youth, manual workers, village elders, chiefs and their assistants. The issues discussed can broadly be categorized as follows traditional beliefs and practices relating to water and sanitation, beliefs and practices that hinder/promote provision of water and sanitation, gender roles in provision, collection and use of water and environmental factors affecting water resources.

Traditional beliefs and practices constitute some of the broad basic factors that have a bearing on health status of a community. Often these factors lag behind changes in the economic structure of a society and affect the delivery of services. Because of the fact that some of these beliefs are deeply rooted, most of the cultures are in transition and this explains why “modern” and “traditional ways of living often coexist.

Water has invariably been referred to as a source of life in many communities all over the world. It is indeed a commodity without which virtually no life can be sustained. Most of the diseases which affect people in South Sudan are water related. Deteriorating health standards are mainly attributed to lack of safe drinking water in most of the affected areas. Among the Mundari and Bari communities for example, water is used for cleansing for instance when a new baby was born. The first bath was considered to be an act of cleansing. Water was considered blessed or sanctified and so it was the one commodity which did not need purification.

It was seen as a sign of life. While in transit from the river water could never be given to somebody to drink before it reached its destination. Mothers were not allowed to bathe with water from the son’s house. It was also taboo to use modern built toilets.

3.11.1 Customary Beliefs and practices relating to Water Collection

Water collection was predominantly done by women and young girls. Men were not allowed to carry water but in extreme cases where this had to happen, they would carry it on the shoulder or with both hands but never on the head.

3.11.2 Customary Beliefs and practices relating to Sanitation

Sanitation as covered in this survey included the following latrine and toilet facilities, bathroom, animal slaughter sheds, utensil racks, clearing of bushes and overgrown grass in and around the homestead and general cleanliness of the home.

With regard to toilets, there was mainly a restriction relating to sharing of the facility. It was not allowed for a father to share a toilet with his daughters, sons, and daughter’s in-law. A son in-law on a visit to his wife’s home was not allowed to use a latrine with the homestead as it was taboo for a son in law to be naked in his father in-law’s home.

Children use of latrines was not restricted, depending on their ages. They could use any latrine at their convenience but they were mostly assisted or used bushes to relieve themselves. This was however merely a precaution to guard against the possibility of them falling into the latrine pits

There were also some beliefs and practices among the Mundari and Bari in regard to the location of latrines. It was a belief that answering the call of nature was something requiring privacy and

so latrines were absent or constructed in hidden/far places. Most people interviewed believed that the best location for a latrine was just outside the gate. This was to solve the issue of visiting in-laws. The wind direction was also to be considered to prevent the foul smell occasionally emitted from latrines from spreading to the houses.

3.11.3 Outdated Beliefs and Practices

Based on observation entire communities still face a problem of the dangerous practice of open defecation in nearby surroundings. On the other hand, consumption of water from open and unprotected sources for drinking, bathing and washing clothes, as well as cooking. At some point, it can be seen that the culture of health is highly taken for granted in communities where OD and utilization of unprotected water being practiced.

Chief among the beliefs and practices considered outdated by the Mundari and Bari Community is the restriction of water collection to women. This was strongly objected to by the women who felt that they were over-worked whereas men have been turned into passive bystanders. Most of the household chores undertaken by women are water and cooking related. This means that above everything else the woman has to ensure an adequate supply of water in the house before any work can begin.

It is also important to note that the revision of gender roles cannot be achieved overnight. It is a long process that can only be achieved over time with patience. It was therefore suggested that the government and its partners should double their efforts to ensure “adequate water supply for all people. On the other hand, people should be sensitized on the importance of gender roles equality.

3.11.4 Division of Labor

As in all other spheres of work in the community there was division of labor along gender lines in regard to the provision and management of water facilities even though these were at times disregarded, they were clearly outlined.

Among the Bari and Mundari Communities, men played a very important role in provision of water facilities. They make decision on where various water points were to be constructed, they also do the actual construction of these water points these included constructing wells both protected and unprotected. Given that in most of these communities’ men are the sole bread winner, they also financed water projects by assisting in the purchase of pipes and other materials needed.

It is a common practice that Men and young boys to do hard labor such as for these communities’ manual rock quarrying for households’ income; whilst ladies including young girls do simple and most routine house-works like water collection, cooking or less laborious work like local small businesses.

Provision and management of sanitation facilities is yet another area that has not escaped the division of gender roles. This is another area in which men did much more than women. Most of the sanitation facilities were constructed by men. Generally, men constructed latrines, animal slaughter sheds, bathrooms, dish racks and even drainage around the home. They ensured that bushes around the home were cleared, dug compost pits for dumping rubbish and dug up the soil

for smearing the latrines. Women mostly did the finishing work e.g., smearing toilets and others. They also maintained these facilities by ensuring they were well cleaned

3.11.5 Gender Roles in Water Collection

The survey established that the major modes of water collection are human porter – mostly women and girls.

In most of the places women still formed 80% of the human porter mentioned above. In some places it was however established that water collection has been commercialized and to some extent men are now involved. Note however that the men involved do it purely as a commercial activity and in most cases this water is sold to those staying in the local trading centers.

This point to only one direction: the women's workload is still the same if not greater. This is because the distances to the water points are great and the time taken also corresponds to the distance covered. In some cases, women have to carry the family washing of clothes and utensils to the local streams/river to wash.

CHAPTER 4: DISCUSSION, ANALYSIS AND INTERPRETATION OF RESULTS:

4.1 Discussion on key findings:

The results obtained in this survey indicate that open defecation (at 85%) is widely practiced among semi-urban communities living around Jebel Kujur Suburb, Juba compared to 63 % at national level for South Sudan (% of population) reported as practicing open defecation in 2017, according to a global WHO/UNICEF joint monitoring reports in 2019, compiled from officially recognized sources. Proportion of population served with open defecation sanitation of South Sudan fell gradually from 71.1 % in 2011 to 60.1 % in 2020. Current access to sanitation is at 15% at National Level, 33% in urban centres and 11% across rural South Sudan while hygiene awareness is one of the lowest worldwide. These results are low compared to neighbouring Sudan which have an improved access to water at 60%, sanitation (38%) and OD (24%) and Uganda with improved access to water at 60%, sanitation (34%) and OD (6%) according to the same report.

Similarly, the survey found that only 8% of the households in Jebel Kujur have access to improved basic water supply with the other 91% relying on untreated and unprotected water sources draining from the mountain top. This is a very low access to clean water compared to reported 41% at national level, 35% in rural areas and 65% in urban cities as per the 2019 joint WHO/UNICEF Report for South Sudan. On average, water consumption in Jebel Kujur is around 5 litres per capita per day compared to 6 litres reported for other rural part of South Sudan. The study established that the major mode of water collection is human porter – mostly women and girls. In some places – such as the DMI settlement it was however noted that water collection has been commercialized to some extent whereby men are now involved. The men involved do it purely as a commercial activity and in most cases this water is sold to those staying in the local trading centres/shops.

This point to only one direction: the women’s workload in semi-urban areas is still the same if not greater.

In Lukilili settlement (west of Jebel Kujur which is less rocky), USAID and IOM provided one solar-powered borehole in 2019 as a water collection point through taps for over 2000 households. This provided some clean water for domestic use, alleviating the water problem to some extent. However, Wani, 50, and teacher at DMI Settlement said that *“only clean water for use is one that water trucks move with for sale but it is expensive for some, given that our salary or income is small. Our wish as a community is for an organization which can construct for us water point with at least one big tank here at least”*.

Further, the study demonstrates a correlation between diarrheal diseases, malaria and scabies and a poor sanitation and hygiene practices with only 57% reported that they wash their hands with soap and water or water only. In Jebel Kujur, malaria (47.9%) was reported by the respondents as the most common illness, frequently contracted through breeding of mosquitoes in nearby stagnant water sources, and diarrhea (28.8%) due to poor sanitation and hygiene with Scabies coming in the third at only 19.2%. This trend is similar to current morbidity trends across South Sudan whereby communicable diseases remain a major public health problem and are the leading causes of deaths. Malaria, diarrhoea and pneumonia constitute about 77% of the total OPD diagnoses for children under five¹⁰. Other causes of morbidity and mortality include maternal deaths; severe acute malnutrition; TB/HIV where

¹⁰ Source of Data: 2018 WHO CCS Report

http://apps.who.int/iris/bitstream/handle/10665/136881/ccsbrief_ssd_en.pdf;jsessionid=A71EAF734BE3C35C0807E1A07EFEBF7B?sequence=1

TB prevalence is at 146 per 100,000 and HIV/AIDS prevalence is estimated at 2.6%, hence classified as a generalized epidemic.

Most importantly, the communities are aware of dire need to improve their WASH conditions including access sanitation facilities and clean water. Households with no toilets mention lack of materials – such as iron sheet, timbers and nails as the biggest impediment to having a toilet. The communities indicated that they can contribute rocks materials (45%) and manpower (50%) if they're provided with the materials to constructs toilets. There was no rejection by head of households to participate in the survey in all villages, and this demonstrated the willingness of the population to participate in future program.

The survey confirmed our initial hypothesis that open defecation is widely practiced and access to improved water and sanitation is slowest despite that these are minorities communities close to the government and major development donors.

4.2 Limitation of the Survey:

Although the research team was able to obtained data with the cooperation of the community leaders, government and Yo' Care staff, the following points presents the limitation of the research findings:

a) Geographical coverage of the Survey.

The survey was only limited to a small section of Juba City. Juba City currently has a population of around 421,000 as per latest data¹¹ while the estimated population of the target areas is around 28,000 based on extrapolation from Juba Town population. Therefore, the results are not statistically representative for the whole of the Juba City. The results presented in these reports are only applicable to the survey area and cannot be used for overall planning of the city.

b) Survey participants/respondents.

Majority of the survey respondents were head of households. So, although the households were randomly selected, respondents were not randomly selected. Therefore, convenience sampling cannot make generalizations about the general population. Randomized approach of sampling has only capture representative and approximate data, as several households were left uncovered. Thus, survey did not cover all the 4000 households in the target area. This entails the findings in this research could have over or under estimate the real situation. It was observed that majority of households are living below poverty line, and as such might have an interest in giving incorrect responses in a bid to attract the support from prospective organizations and/or donors. Although this bias might have been avoided by training the enumerators to correctly explain the survey's objectives to household before proceeding further and obtain consent to voluntary participate, this might have existed.

c) Lack of previous research studies in this area.

The researchers solely rely on primary data, which was collected in one month. Thus, we were obliged to use applicable variables at the time of the survey. The survey found no evidence of previous baseline data and as such no baseline reference are available for this survey for comparative analysis. The team had to design completely new questionnaire to understand the context and capture as much information about the WASH conditions in these areas.

¹¹ <https://www.macrotrends.net/cities/22577/juba/population>

d) Timing and season on which survey was taken.

The time schedules to conduct this survey was from 9:00hr AM to 3:30hr PM local time for 5 days, and each enumerator was given 20HHs target per day to achieve. In addition, the season was the start of rain or wet season in the country, the team experienced some intermittently interruption during the survey by rains. Consequently, this put enumerators to work beyond recommended time to compensate daily-targets, and this might have generated enumerators' error in the process.

e) Translation.

Questions were being interpreted and read to respondents who could speak little or no English at all but can understand local language or Arabic language and this may cause misunderstanding between the enumerators and the respondents which might have led to wrong answers.

f) Budget:

The budget limited scope and schedules of the survey to cover all the 4,000 estimated households in all townships.

CHAPTER 5 CONCLUSION AND RECOMMENDATION:

Based on this survey findings, it can be concluded that open defecation is widely practiced in Jebel Kujur and South Sudan as whole compared to neighboring Countries of Sudan, Kenya and Uganda. Therefore, South Sudan government and its partners should double efforts to establish sanitation facilities at community and in rural areas so that adequate health outcomes can be realized for the population. Hygiene and sanitation education for general population should be carried out routinely – by both communities, local government and other development partners. We also recommend that further research can be done to established access to WASH service for the overall Juba area as there are settlement which this survey didn't cover.

Based on these findings, Yo' Care South Sudan recommend the following specific WASH interventions:

On education:

- Education partners should ensure that areas with no single school are provided with school and educational services. Also, government and education partners should ensure that further assessment is done to investigate the quality of available school infrastructures in these settlements.

On Housing:

- Encourage households with houses built with muds to transition to semi-permanent structures with iron roofing and well ventilation.

On access to water:

- Creation or construction of local water catchment area (well) around critically unprotected water sources at the foot of the Mountain.
- Distribution of water filters, water treatment and purification tabs
- Training of water management committees on protection, sustainable use of water, maintenance and operations of water sources.
- Construction of boreholes; at two per township in areas/settlements with no boreholes.
- Rehabilitation of old and broken borehole (1) near DMI Sub-Settlement township.

On sanitation:

- Construction of at least shared communal toilets (minimum can established in consultation with communities and dependent on budget) (piloting) subject to scale up based on facilities utilization. Most household respondents pledge to contribute the labor and part of materials for constructions.
- Training of sanitation and hygiene promoters.
- Distribution of sanitation materials/kits
- Awareness of the communities on covid-19 prevention measures.

On Hygiene:

- Distribution of Hygiene kits
- Provision of menstrual hygiene activities for girls and women
- Hygiene Promotion activities .

