

Maiwut, South Sudan Household Water, Sanitation, and Hygiene Survey

May-July 2019

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I. Introduction

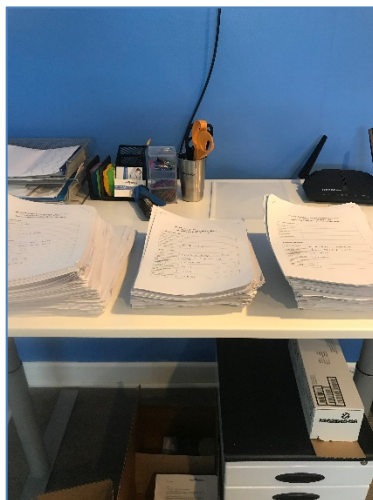
During May 16 through May 18, 2019 Buey Ray Tut, the Executive Director of Aqua-Africa, traveled to Maiwut Town, South Sudan. Maiwut Town has approximately 12,000 residents and is in Upper Nile (Latjoor) State in South Sudan, on the country's northeastern border. It is approximately 75 miles west of Gambella, Ethiopia and accessible only via unimproved roads. While in Maiwut, Mr. Tut hired and trained a team of local interviewers to conduct face-to-face interviews with 370 community residents in the Payam's village of Maiwut Town, while preparing a survey questionnaire for each person interviewed.

The survey questionnaire gathered "baseline" data about household family composition, head of household work occupation, level of schooling attained by the head of household, as well as data about annual household income and savings. The households included a cross-section of long-term community residents, internally displaced persons (IDPs) and recent Returnees (Since 2018 Peace Agreement between Government and Opposition forces). In addition to this demographic and socio-economic data, other data was gathered regarding household drinking water, sanitation facilities, health and education. A copy of the survey questionnaire is included as an attachment to this report (Attachment A).

While in Maiwut, the team also visited the community's medical clinic and interviewed the doctor and nurses on staff. A detailed geophysical survey was also performed.



Conducting Interviews in Maiwut



Compiling the Questionnaire Data

In mid-July, two additional assessments were performed by local interviewers. The community's ability to pay for water and power services, and marketplace usage of these services were examined. It is the organization's intention to repeat these surveys following completion of the water and sanitation development projects it has planned for Maiwut Town during 2020 and 2021. By completing the review a second time the organization expects to demonstrate a positive, measurable impact on the community's quality of life.

II. Background

The Republic of South Sudan (ROSS) has been immersed in an internal civil war since December 2013. Maiwut is one of the nine Counties in Upper Nile State which has been affected by this conflict; with the most significant fighting having occurred in July 2017 in Pagak and within Maiwut. This conflict led to the massive displacement of the civilian population in the entire county. 68% of the civilian population in Maiwut County claimed that they fled their original homes. Nearly one third of the population are recent returnees to the community, having returned following the Peace Agreement which was signed between the opposing forces in September 2018. IDPs and an influx of 5,421 returnees to the community since 2017 have exhausted Maiwut Town resources. Of the returnees, 18% came from various location within Maiwut and Ethiopia, 6% from Juba, and 8% from north Sudan.

The internally displaced persons (IDPs) and Returnees were living in harmony with their hosts and 16% said tensions exist with the hosts. 60% felt safe staying in Maiwut, 33% not sure and 7% felt unsafe because of lack of basic services and assistance but all indicated Maiwut will be safe for them to receive humanitarian assistance.

The International Committee of the Red Cross (ICRC) is the only organization delivering humanitarian assistance to the community. The ICRC operates a compound in the community and provides food assistance to residents.

IDPs and Returnees have been affected more severely than the host population. 89% of the affected population do not have any source of livelihoods, they only depend on the collection of wild fruits and 11% do some casual work for the host community to sustain their families. Maiwut Town does not possess a big market area, however small household items like salt, sugar, cigarettes, wild fruits, cooking oil, small pieces of soap and some few clothes could be found in some smaller market areas. 74% lacked or had limited access to local resources for household construction and 26% completely had nothing. Grass is scarce, especially grass for roofing. 76% of IDPs and Returnees use old bed sheets for covering at night but for the vulnerable only, 18% were using animal skin and 6% had nothing for covering at night. As for protection against mosquitoes, 88% of them had no mosquito nets and 5% had old torn ones while 7% said they were using smoke at night. 96% of the IDPs and Returnees are using grass for lighting at night and 4% had old torches for light.¹

III. Family Composition

Maiwut Town family units interviewed were very large. On average, households consisted of 7.5 family members living together in the village, with an additional 4.5 family members living elsewhere. A male was the head of household in 39 percent of the families; 61 percent were led by female heads of household.

¹ Shelter Cluster South Sudan (December 2018) NFI and Emergency Shelter Assessment

Households are often comprised of immediate family and relatives who share temporary shelters (Tukuls) of about 2-3 per household accommodating 5-15 individuals.²

IV. Head of Household Education and Occupation

Generally, Maiwut Town male head of households reported having received more schooling than their female counterparts, as shown in the table below. Nearly half the Payam's adult population has received no formal education.

Education Level Attained	Men %	Women %
None	48%	55%
Some Primary	7%	18%
Primary	14%	26%
Secondary	19%	2%
Degree/Diploma	12%	0%

Farming is the most commonly reported occupation for both men and women. Many heads of household reported that they had no income producing work. The survey did not gather details to determine whether advanced age and/or poor health were factors when "None" was reported as the head of household's occupation. The following table shows reported occupations of male and female heads of household, by percent:

Occupation	Men %	Women %
Soldier	19%	0%
Farmer	29%	28%
Driver	5%	0%
Teacher	7%	0%
Student	5%	6%
Hospital Worker	2%	0%
Home Maker	0%	18%
Collecting Firewood	0%	8%
Fetching Water	0%	2%
Cooking Family Meals	0%	8%
Cook	0%	2%
Police	10%	3%
Merchant	2%	2%
Community Leader	0%	5%
None	21%	20%

² Shelter Cluster South Sudan (December 2018) NFI and Emergency Shelter Assessment

V. Household Income

Household annual income data was collected in Aqua-Africa's survey. All respondents who chose to share this data (approximately half), reported household income in Ethiopian Birr. No doubt there are many reasons the community uses the Birr. First, Ethiopia is the community's nearest trading partner and supplier of manufactured goods. Second, is the stability of the Ethiopian currency. Third is a general lack of trust in the South Sudan Pound.

As of June 19, 2019, the exchange rate for the Ethiopian Birr was .034 U.S. Dollars (USD).

Average annual household income for male led households was 2,054 Birr or \$71 USD. Average annual household income for female led households was 1,497 Birr or \$52 USD.

The months of May and June were reported as the months with highest household income. Only 20 percent of families have any form of savings.

VI. Sources of Drinking Water

Maiwut Town possesses only 10 operational boreholes that provide half of the community's drinking water needs. Four of the boreholes have solar pumps to feed small elevated tanks. The other six are handpump wells. The community has hand dug several other wells which are used for water collection. Nearly half of the community's drinking water is collected from surface water sources, such as the river or from hand-dug wells. Dr. Mar and the nurses at the community's clinic expressed deep concern over the community's water situation. The use of surface water has led to serious health problems. Surface water sources are breeding grounds for bacteria and disease-carrying insects. Malaria is a significant problem for the community. The following table shows community water source usage percentages:

Main Source of Drinking Water	
Piped water into dwelling	0%
Piped water to yard/plot	0%
Public tap/standpipe	2%
Borehole	50%
Protected dug well	1%
Unprotected dug well	16%
Protected spring	0%
Unprotected spring	2%
Rainwater collection	0%
Bottled water	0%
Cart with small tank/drum	0%
Tanker-truck	0%
Surface water (river, dam, lake, pond, stream, canal, irrigation, channels)	29%
Other (specify)	0%

100%



Dr. Mar at the Maiwut Town Clinic

VII. Power

The interview team toured the community. Carbon fuel such as wood, coal, diesel and kerosene are Maiwut's primary energy sources. Only limited daytime solar power is in use for pumping at the community's four water tanks. The community's one health clinic's diesel-powered generators sit idle due to the cost of fuel. Unsecured and poorly maintained roads restrict fuel delivery to the vulnerable and hard to reach people of Maiwut, making it one of the most expensive commodities. A few other

diesel-powered generators in the marketplace operate to charge cell phones. Lighting after sundown is virtually non-existent due to cost.

VIII. Water Collection Time and Responsibilities/Burden for Collection

As reported in prior studies, most of the burden for collection of water for household use is borne by adult women (81%) and girls under age 15 (12%); the other 7% by men and boys. On average, 2 hours is expended in water collection each day by these individuals, with 3-4 hours/day being the most commonly reported collection time. Although not a part of our survey questions, roughly 60% of households interviewed stated that the waiting lines at the wells were often long, and that disputes often occurred between residents over water access. This was confirmed by the team's own observations.

IX. Water Treatment

The Maiwut Town households interviewed follow no water treatment practices. No overt action is taken to destroy water-borne bacteria.

X. Household Toilet Facilities

Household toilet facilities are extremely limited in Maiwut County. Only 14 percent of households reported the use of pit latrines. 86 percent of the households reported no available facilities, instead practicing open defecation in bushes or in fields.

XI. Frequency of Stomach/Intestinal Illness

78 percent of households had one or more family members who suffered stomach or intestinal illness in the past 12 months. Of the impacted households, on average 3 family members had the illness.

XII. Frequency of Stomach/Intestinal Illness Resulting in Death

23 percent of all households reported having a family member die from stomach or intestinal illness in the past 12 months.

XIII. Education Investments in Male/Female Children

The community seems to understand the importance of education and are making a strong commitment to schooling. 85 percent of both boys and girls under age 15 are attending school on a regular schedule. The commitment to education of boys is somewhat larger. On average, boys attend school 22 hours per week; girls 17 hours per week. This difference is likely related to domestic chores such as water collection duties.

XIV. Willingness to Pay for Various Services

In mid-July 2019 a “Willingness to Pay” survey was performed with 150 adults selected at random from various parts of Maiwut Town. Residents were asked about their present use of services (mobile phones, water, health, and lighting), their desire for these services, and fees they presently pay for them. A copy of the completed survey is provided in Attachment B.

Mobile Phones

43 percent of survey respondents reported that someone in their household owned a mobile phone. 57 percent did not own one. Households with mobile phones pay appx. 13 Birr (\$.44) to obtain a single charge of their phone in the marketplace.

Water

Residents who obtain their water from one of the borehole sources, will purchase their water when the borehole source is spoiled or inoperable. On average, these residents will spend 797 Birr (\$27/year) for their household to have access to clean water.

Health

79 percent of residents reported that someone in their household had been to the hospital or clinic in the past year. The “per visit” cost of health care services is quite high, averaging 3,815 Birr (\$129/visit).

Lighting/Safety

Nearly 2/3 of the residents felt comfortable collecting water at night. 1/3 believed it was dangerous to do the collection at night. The potential for nighttime lighting at the boreholes was viewed as a positive development.

XV. Market Survey

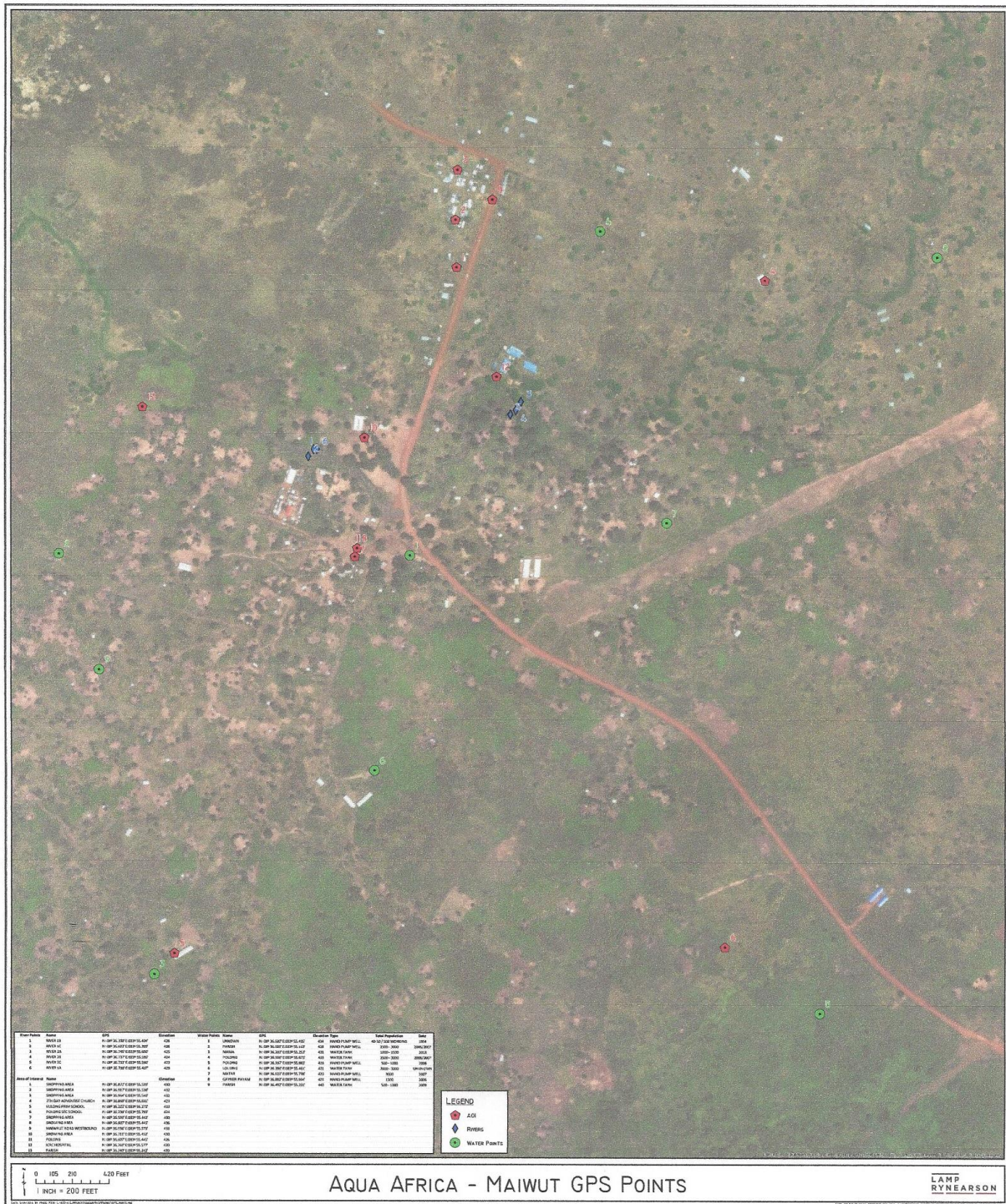
In combination with the mid-July survey activity, interviews were held with 70 shop owners in the Maiwut Town’s marketplace(s). The focus of the “Market Survey” was on marketplace power and water usage. A copy of the completed survey is provided in attachment C.

Only 9 of 70 shop owners used electric power in their daily operations. Six (6) for lighting, two (2) for refrigeration and seven (7) for mobile phone charging stations. Three of shop owners used diesel powered generators, one relied on solar power and the other five purchased their power from another owner. On average, the shop owners who utilized power spend 472 Birr (\$16 USD) per day for its production.

65 of 70 shop owners reported the use of water in their daily operations. Of these 65 shops, 97% use it for drinking, 77% use it for cleaning, and 62% use it for cooking. Only one of the shop owners sold water as a source of revenue. 55 of the 70 shop owners purchased the water vs. collecting it themselves. On average, the shop owners reported paying 45 Birr (\$1.53) per day for their water use/consumption.

XVI. Geophysical Survey

A survey map was produced. The community's improved water access points, its river water collection points, and other landmarks were mapped by the assessment team. GPS coordinates and elevation details were gathered as a part of this survey work.



XVII. Other Observations

Navigating the political environment in Maiwut is very difficult for non-government organizations (NGOs) and humanitarian aid workers. Portions of the county are under ROSS government control and a portion in rebel-controlled territory. The operations of the NGOs and humanitarian workers are often scrutinized or regarded with great suspicion. NGOs and aid workers are required to register with and advise each governmental body of their work. It is hoped that the new peace accord and a unified government structure in the County will improve aid worker travel access and administrative burden.

Household Water, Sanitation, and Hygiene Survey
Aqua Africa Village Supplier Project
Maiwut, Upper Nile State (Latjoor), South Sudan

Interview Identification:

Questionnaire number	
District Name	
Commune Name	
Village Name	
Date of Interview	
Interviewer Name	

Introductory Questions:

What is your name?	
What is your relationship to the head of the household?	
What is the respondent's sex? (<i>answer by observation</i>)	
What is the sex of the head of the household?	
What is the occupation of the head of the household?	
What is the occupation of the respondent?	

How many people usually live in the house?	
How many family members live and work elsewhere?	
What level of schooling did the head of the household receive?	
What level of schooling did the respondent receive?	

Socio-economic Questions

1. What were the main sources of your cash income of all your family members in the last 12 months?
2. How much was the household's total income for the past 12 months?
3. In what months do you have the highest income?
4. In the household, how often is money put aside for savings?

Drinking Water Questions

1. What is the main source of drinking water for members of your household?

	Piped water into dwelling	>>Q4
	Piped water to yard/plot	>>Q4
	Public tap/standpipe	>>Q2
	Borehole	>>Q2
	Protected dug well	>>Q2
	Unprotected dug well	>>Q2
	Protected spring	>>Q2
	Unprotected spring	>>Q2
	Rainwater collection	>>Q2
	Bottled water	>>Q1A
	Cart with small tank/drum	>>Q2
	Tanker-truck	>>Q2
	Surface water (river, dam, lake, pond, stream, canal, irrigation, channels)	>>Q2
	Other (specify)	>>Q2

- a. What is the main source of water used by your house-hold for other purposes, such as cooking and hand washing? ***Only use for those who answer “bottled water” above.***

	Piped water into dwelling	>>Q4
	Piped water to yard/plot	>>Q4
	Public tap/standpipe	
	Borehole	
	Protected dug well	
	Unprotected dug well	
	Protected spring	
	Unprotected spring	
	Rainwater collection	
	Cart with small tank/drum	
	Tanker-truck	
	Surface water (river, dam, lake, pond, stream, canal, irrigation, channels)	
	Other (specify)	

2. How long does it take to go there, get water, and come back?

	Number of minutes:	>>Q3
	Water on premises	>>Q4
	Don't know	>>Q3

3. Who usually goes to this source to fetch the water for your household?

	Adult woman	>>Q4
	Adult man	>>Q4
	Female child (under 15 years)	>>Q4
	Male child (under 15 years)	>>Q4
	Don't know	>>Q4

4. Do you treat your water in any way to make it safer to drink?

	Yes	>>Q5
	No	>>Q6
	Don't know	>>Q6

5. What do you usually do to the water to make it safer to drink?

	Boil
	Add bleach/chlorine
	Strain it through a cloth
	Use a water filter (ceramic, sand, composite, etc.)
	Solar disinfectant

	Let it stand and settle
	Other (specify)
	Don't know

Sanitation Questions

1. What kind of toilet facility do members of your household usually use?

	Flush/pour flush to:	>>Q2
	piped sewer system	>>Q2
	septic tank	>>Q2
	pit latrine	>>Q2
	elsewhere	>>Q2
	unknown place/not sure/don't know where	>>Q2
	Ventilated improved pit latrine (VIP)	>>Q2
	Pit latrine with slab	>>Q2
	Pit latrine without slab/open pit	>>Q2
	Composting toilet	>>Q2
	Bucket	>>Q2
	Hanging toilet/hanging latrine	>>Q2
	No facilities or bush or field	>>Q4
	Other (specify)	>>Q2

2. Do you share this facility with other households?

	Yes	>>Q3
	No	>>Q4

3. How many households use this toilet facility?

	2 or less
	3 or more
	Don't know

4. Would you be interested in having access to an improved toilet facility such as a latrine for your household?

	Yes
	No
	Don't know

Health Questions

1. In the past year, have you or a family member been sick with stomach or intestinal (diarrheal) illness?

	Yes	>>Q2
	No	

2. How many family members were affected by this sickness?

3. In the past year, have you had a family member die from stomach or intestinal (diarrheal) illness?

	Yes	
	No	

Education Questions

1. Do you have male children (under age 15) living in your house?

	Yes	>>Q2
	No	>>Q3

2. How many hours per week does each boy attend school?

3. Do you have female children (under age 15) living in your house?

	Yes	>>Q4
	No	

4. How many hours per week does each girl attend school?

Willingness to Pay Survey

Maiwut, South Sudan July 2019

*Choose 96 adults over age 18 totally at random from different sections of the community. *

Adult Name: _____ Age: _____ SURVEYOR NUMBER: **150**

MOBILE PHONE:

1. Does anybody in your household own a mobile?
 - a. YES ☐ 64/150
 - b. NO ☐ 86/150
2. IF YES, do you pay to charge the power. IF NO, MOVE TO WATER!
 - a. Yes ☐ 64/150
 - b. No ☐ 86/150
3. IF YES, how much do you pay?
 - a. AMOUNT 830

WATER:

1. Does your household use a borehole for water?
 - a. Yes ☐ 54/150
 - b. NO ☐ 96/150
2. IF YES, when the borehole is spoiled, do you pay? IF NO, MOVE TO HEALTH!
 - a. Yes ☐ 54/150
 - b. NO ☐
3. IF YES, how much in one year.
 - a. AMOUNT 43,030

HEALTH:

- Avg per person 796.85 Birr
1. Has anybody in your household been to hospital or clinic?
 - a. Yes ☐ 119/150
 - b. NO ☐ 31/150
 2. IF YES, do you pay? IF NO, MOVE TO COLLECTING WATER!
 - a. Yes ☐ 45/150
 - b. NO ☐ 65/150
 3. IF YES, how much per visit.
 - a. AMOUNT 324,300 birr

COLLECTING WATER:

- Avg per person 3815.29 Birr
1. Is it safe to collect water at night?
 - a. Yes its comfortable ☐ 97/150
 - b. No Its dangerous ☐ 53/150
 2. IF NO, would having light at borehole make it safer.
 - a. YES ☐ 50/150
 - b. NO ☐ 100/150

Market Survey
Maiwut, South Sudan July 2019

SHOP OWNER NAME: _____ TYPE OF SHOP: _____
DATE: _____ SURVEYOR NUMBER: **70**

POWER:

1. Does your shop use power?
 - a. YES ☐ 9/70
 - b. NO ☐ 61/70
2. IF YES, for what things: IF NO, MOVE TO WATER!
 - a. Lights: ☐ 6/9
 - b. Refrigerator: ☐ 2/9
 - c. Mobile Charging Station: ☐ 7/9
 - d. Fan: ☐ 0/9
3. IF YES, where do you get power. IF NO, MOVE TO WATER!
 - a. Purchase from another shop ☐ 5/9
 - b. Use a generator ☐ 3/9
 - c. Use solar ☐ 1/9
4. IF YOU Pay for power or Fuel, how much?
 - a. AMOUNT 4250 Lira
Avg per person 472.22 Birr

WATER:

1. Does your shop use water?
 - a. YES ☐ 65/70
 - b. NO ☐ 5/70
2. IF YES, for what things: IF NO, MOVE TO FINISHED!
 - a. Cooking: ☐ 40/65
 - b. Selling: ☐ 1/65
 - c. Drinking: ☐ 63/65
 - d. Cleaning: ☐ 50/65
3. IF YES, where do you get water. IF NO, FINISHED!
 - a. Purchase ☐ 55/65
 - b. Collect myself ☐ 9/65
4. IF YOU Purchase, how much? IF NO, FINISHED.
 - a. AMOUNT 2,910 Birr
Avg per person 44.77 Birr

Works Cited

Shelter Cluster South Sudan (December 2018) *NFI and Emergency Shelter Assessment*, Retrieved June 19, 2019 from Shelter Cluster South Sudan:<https://>