Urban Food Security and Nutrition Assessment

Juba

A study jointly conducted by:

WFP, FAO, UNICEF, World Vision and
National Bureau of Statistics

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EXECUTIVE SUMMARY

The food security and nutrition situation in South Sudan has been deteriorating in recent years due to outbreak of conflicts, poor production, disruption of markets, rapid rise in prices, diseases and natural disasters such as floods and drought in parts of the country. With the ongoing macroeconomic crisis including the rapid depreciation of the South Sudanese Pound, hyper-inflation and thus the huge surge in food prices, the urban food insecurity has been of particular concern.

In September 2017, an assessment was conducted in Juba urban areas (including Kator, Juba town, and Munuki) to understand the current food security and nutrition status of the urban population. The survey conducted in September-October 2017 included interviews with some 1,371 households. A two stage sampling design was employed resulting in the selection of a total of 114 Enumeration Areas (EAs) in the three blocks of Juba urban area. Probability proportional to population size was employed in the first stage to select the EAs while in the second stage, households were selected using systematic random sampling. The survey provided representative estimates of key food security and nutrition indicators for the Juba urban population as well as each of the three blocks within the Juba urban area.

Following are the **key findings** of this assessment:

- Overall, **76 percent of the households are food insecure.** Among them **21 percent are severely and 55 percent are moderately food insecure**. This signifies a significant deterioration of the situation from September 2016, when 51 percent of the population was food insecure.

- **Only about a fifth (21 percent of the households) were found to have acceptable food consumption**, while 51 percent had poor consumption and 28 percent were in borderline group.

- Considering the household hunger scale, almost **three-fourth of the households were in a moderate to severe hunger scale** (59 percent moderate and 14 percent severe).

- Overall, the prevalence of **Global Acute Malnutrition** (GAM) was **10.1%**, which is classified as serious as per the WHO emergency threshold. The current result is about the same with the previous assessment of 2015 (12.2%) and 2016 (11.2%).

- Nearly half of the respondents (46 percent) reported spending a high share (65 percent-75 percent) or very high share (>75 percent) of their total household expenditure on food; indicating **economic vulnerability and poor food access.**

- **Strong dependency on market purchases makes vulnerable households highly susceptible to market price fluctuations**, especially when foods become scarce. The Juba urban population accesses food mainly from the market, with about 93% of households reporting markets as their primary source for cereals. Only eight percent of the population reported cultivating, while a meagre two percent own livestock.

- Overall, 23 percent of households reported adopting crisis strategies, and another **35 percent adopted emergency irreversible strategies**. These irreversible coping strategies will negatively impact food security and livelihood in the future.

- **Access to drinking water from relatively safe sources[1] was reported at 69 percent**, while 31 percent of households reported using drinking water from unsafe sources such as tankers/jerry cans from river, and from surface water.

- **69 percent of households are using traditional pit or open pit latrine**, 16 percent are using water seal latrine or improved pit latrines, and only 6 percent are using flush latrine, while 9 percent are practicing open defecation.

- Prevailing shocks that affected the Juba urban population relate to the ongoing economic challenges. **Main shocks reported by the households** in the last 6 months includes **depreciation of South Sudanese Pounds (72 percent), unusual high prices of food commodities (69 percent) and other non-food prices (57 percent) and insecurity/ violence in the area (50 percent).** Results indicate worsening household food consumption and nutrition as households resort to more severe coping mechanisms.

- **Among the three blocks in Juba urban area, the food security situation was found to be relatively better in Juba town (67 percent food insecure)**, while it was worse in Kator (84 percent food insecure) and in Munuki (79 percent food insecure).

Key recommendations:

- Level of food insecurity for Juba urban population has reached unprecedented levels with further deterioration from 2016. This is mainly attributed to the continued economic crisis and hyperinflation amidst stagnant or falling income levels or these market dependant households. Integrated programming to support the vulnerable households should be a priority.

- A high prevalence of adoption of disruptive and non-reversible coping mechanisms is noted with resultant detrimental effects on future household productivity and ability to succumb to shocks. Programmes targeting the most vulnerable households to build their resilience are paramount.

- The effect of the spiralling cost of living among the vulnerable urban population is notable. This calls for relief and development actors to further scale up social transfers to the poor and most vulnerable segments of the population to compensate for the economic problems and welfare losses.

- The Global acute malnutrition was maintained at WHO "Serious" level. Coverage of public health and nutrition interventions prevented deterioration of the nutrition situation. Therefore, it is important to continue scaling up programmes for treatment of malnutrition as well as the common public health measures such as vaccination, deworming, supplementation and water and sanitation. The role of deworming in nutrition status of children is notable, hence the need to continue deworming all eligible children. Disease prevention measures particularly for the oral fecal diseases, is crucial to improve the nutrition situation given that findings showed that incidence of diarrhoea was related to child malnutrition.

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[1] Water from deep borehole fitted with a hand pump, tanker water, bottled/ tap water etc.

1. Context and Objectives

1.1. The context

The food security and nutrition situation in South Sudan has been deteriorating in recent years due to outbreak of conflicts, poor production, disruption of markets, rapid rise in prices, as well as diseases and natural disasters such as floods and drought in parts of the country. With the ongoing macroeconomic crisis including the rapid depreciation of the South Sudanese Pound, hyper-inflation and thus the huge surge in food prices, the urban populations have been vulnerable to food insecurity. In order to understand the situation, assessment of urban food security and nutrition was conducted in Juba in 2015 and 2016. This third urban assessment in Juba was conducted in September-October 2017, to provide an update on the food security and nutrition situation.

1.2. Objectives of the assessment

The main objective of the study is to generate baseline information on food security and nutrition along with vulnerability status of urban population in Juba that would be useful for informed decision making in prioritizing the resource allocations. The specific objectives of the assessment are to:

1.   Assess the current food security situation of the households; and their expenditure pattern;

2.   Identify urban livelihood pattern and assess the types of vulnerabilities among the households;

3.   Assess the possession of assets and households coping mechanisms;

4.   Assess the water, hygiene and sanitation situation;

5.   Estimate the prevalence of acute malnutrition among children aged 6-59 months and women of reproductive age (15 to 49 years);

6.   Assess proxy Infant and Young Child Feeding (IYCF) practices among children aged 0-23 months.

7.   Analyse the markets and price situation and its likely impact on food security.

2. Methodology

Administratively, Juba urban area comprises of three blocks, namely, Juba town, Kator and Munuki. The sampling plan was made to have results representative by each of these three blocks. A two-stage sampling design was adopted by having these three blocks as the sampling strata. A total of 38 clusters or Enumeration Areas (EA) were selected from each block, with 12 households randomly selected from each EA. Thus there were 456 households sampled from each of the three blocks, and a total 1368 households for the whole survey. In the first stage, EAs were selected by using Probability Proportional to the size of Households (PPS). The second stage of sampling comprised of households as Secondary Sampling Unit (SSU). Household listing was done in each EA and selection of households was done after randomly identifying the first household and subsequent households were identified from the listing by adding the sampling interval. A total of 12 households were planned in each of these 38 clusters. The sampling was provided by the National Bureau of Statistics.

The field survey was conducted from 25 September to 12 October 2017 by enumerators provided by the World Vision and supervisors from the National Bureau of Statistics. Prior to the survey, a five-day training was provided to the survey team by WFP, FAO and NBS.

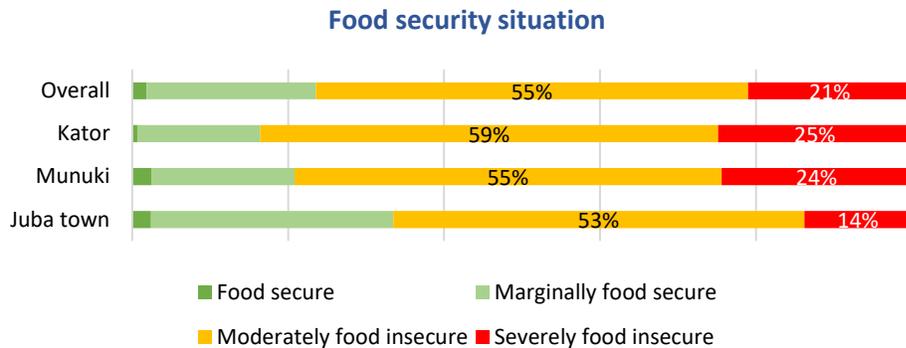| Table 2.1: Sampling plan			
S. No	Block	Sample EAs/clusters	Sample Households
1	Juba town Payam	38	456
2	Kator Payam	38	456
3	Munuki Payam	38	456
	Total	**114**	**1,368**

The Household data collection tool was used to collect data and information. The household questionnaire included standard modules on household profile, livelihoods and income, food consumption, coping strategies, household hunger scale, and household expenditure. In addition, it included module on nutrition, especially for collecting anthropometric data on children 6-59 months.

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South Sudan
Juba urban food security and nutrition assessment 2017

TOTAL HOUSEHOLDS
ASSESSED
1371

Juba Na Bari

Northern Bari

Munuki Block A

Munuki Block C

Juba Nabari

Monanyik

Munuki Block B

Tomping

Hai Seminary

Hai Kwuit

Munuki Island

Hai Gabat

Juba Town

Dar-Salam

Juba Quarter Council

Dar-Salam Jebel

Hai Mouna

Dresses Line Hai Orselim

Hai Nyakama

Hai Commercial

Hai Buluk

Hai Zendia

Hai Cinema

Nyokuron North

Hai Soura

MTC

Hai Mayo   Hai Neem

Hai Neggily   Nimra Talata

Nyokuron East

Munuki

Hai Malakal

Garbu

Atlabara

Kator Centre

Konyo Konyo

Gondokoro

Legend

▲ HH Assessed

— Payam Boundary

▢ Boma Boundary

Kator

Prepared by: VAM UNIT
Map Reference:
juba urban
Date Created: 05/02/2018
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in the map(s) do not imply the expression of any opinion on
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delimitation of its frontiers or boundaries.
* Final boundary between the Republic of Sudan and the
Republic of South Sudan has not yet been determined
Data sources: WFP, OCHA, UNOPS, UNMISS,
MAF, UNHAS, IOM, GAUL, Uni. of Bern

Rejaf
Logo East

Nyokuron South

Lologo

Gumbo   **Rejaf**

N

0   0,5   1   2

Tokiman

Map showing distribution of households covered by the survey in different blocks (Payams) of Juba.

3. Food Security Overview

As per WFP's Consolidated Approach to Reporting Indicators of food security (CARI) methodology, 76 percent of households were found to be food insecure. Among them, 55 percent were moderately food insecure, while 21 percent were severely food insecure. Among the three blocks considered in the analysis, Kator had the worst food security situation (84 percent food insecure), while Juba town was relatively better (67 percent).

Food security situation

	Food secure	Marginally food secure	Moderately food insecure	Severely food insecure
Overall			55%	21%
Kator			59%	25%
Munuki			55%	24%
Juba town			53%	14%

A trend of worsening food security situation has been observed with an increase in the proportion of food insecure populations from 23 percent in 2015 and 51 percent in 2016 to 76 percent in 2017. Compared to 2016, there has been significant increase in severely food insecure population from 3 percent to 21 percent, while the moderately food insecure population has also increased from 48 percent to 55 percent.

Food insecurity trends

Year	Moderately food insecure	Severely food insecure
2015	23%	0%
2016	48%	3%
2017	55%	21%
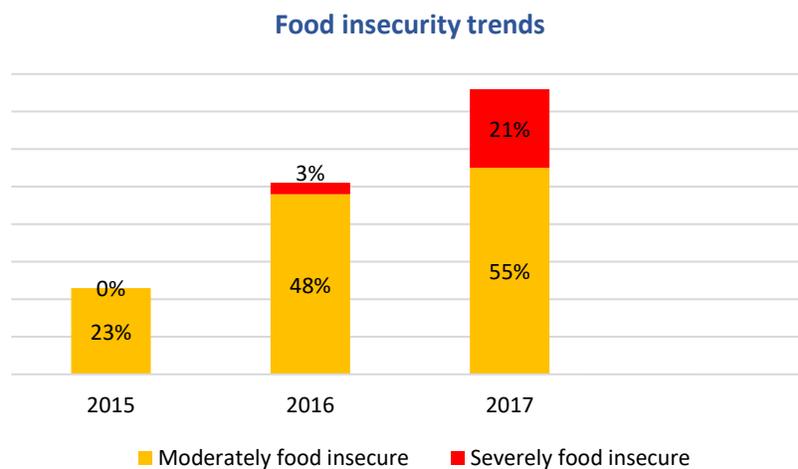
3.1. Characteristic of food insecure households

The results of cross-tabulations of the food insecurity (combining moderate and severe food security) with selected household characteristics reveal that food insecure households generally have one or some of the characteristics below. These findings could potentially help distinguish vulnerable households with higher risk to food insecurity, and thus identify criteria for targeting more vulnerable or food insecure households for possible interventions:

As per the analysis, following types of households are more likely to be food insecure:

1. Female-headed households;
2. Households characterized by a high dependency ratio
3. Households hosting and caring for socially-vulnerable individuals (chronically ill, physically and/or mentally ill, injured, orphans);
4. Households who have recently migrated (IDPs) or returned to Juba;
5. Households hosting at least one IDP;
6. Households where the level of the education of the household-head as well as of any member (especially female) is low (no formal education or up to only primary education);
7. Households owning very few (if any) productive and non-productive assets (household from lower wealth quintiles);
8. Households living in rented houses, hosted by someone or sharing the shelter;
9. Households living in very precarious conditions: temporary structures, with few rooms for more occupants;
10. Households that have contracted debts.

Statistics on key food security indicators by households characteristics are provided in Annex II.

4. Food Consumption

Only 21 percent of households were found to have acceptable food consumption, while over half (51 percent) have poor consumption and the remaining 28 percent have borderline consumption.

Kator has the worst food consumption situation, where 69 percent of the surveyed households have poor and 17 percent have borderline consumption. The situation in Juba town payam is relatively better while in Munuki, it is slightly better than Kator and worse than Juba town.
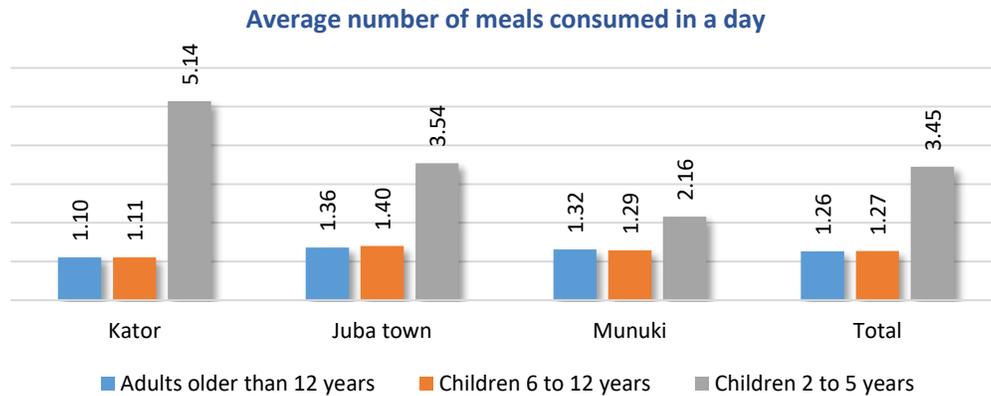
Food consumption groups
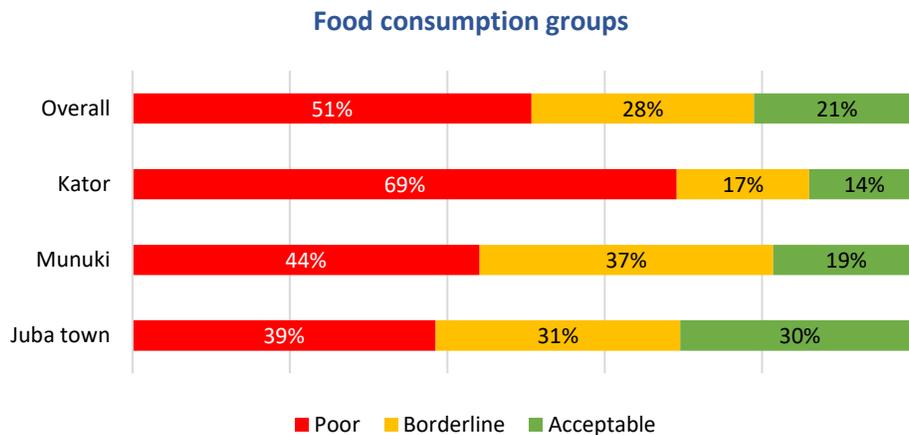
Overall, there has been a worsening trend of food consumption since 2015. The proportion of households with poor food consumption has increased from 11 percent in 2015 to 46 percent in 2016 and 51 percent in 2017. Compared to 2016, while there has been an increase in proportion of households with poor consumption (46 percent to 51 percent), the proportion with borderline consumption has decreased from 38 percent to 28 percent and acceptable consumption has increased slightly (16 percent to 21 percent).

Food consumption trends
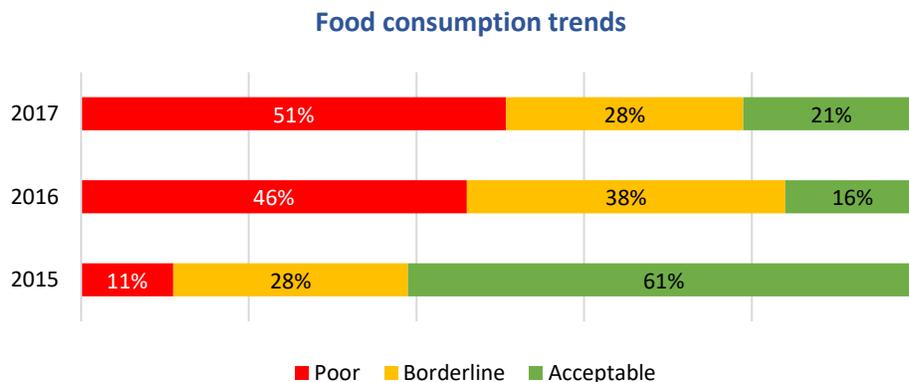
4.1. Number of meals consumed

On average, children under the age of fivewere fed 3.45 meals, children 6 to 12 years old ate 1.27 meals and adults (older than 12 years) ate 1.26 meals on the day prior to the survey, which is far lower than the recommended five meals for children under five and three meals for adults, respectively. The lowest number of meals for children under five is reported in Kator.
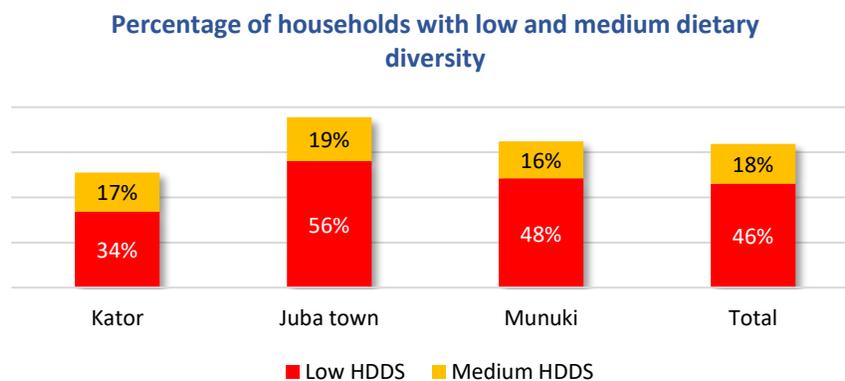
Average number of meals consumed in a day

Legend: ■ Adults older than 12 years ■ Children 6 to 12 years ■ Children 2 to 5 years

Kator: 1.10, 1.11, 5.14
Juba town: 1.36, 1.40, 3.54
Munuki: 1.32, 1.29, 2.16
Total: 1.26, 1.27, 3.45

4.2. Sources of food

Overall, 96 percent of all households purchase cereals (rice, pasta, bread, sorghum, millet, maize, fonio), bread and tubers (potato, yam, cassava, white sweet potato) from the market. Own production accounts for only two percent, and loan or help/gift from relatives or friends for one percent of the food consumed by the households in the survey.

A vast majority of households depend on the market to purchase the entire food basket, except for vegetables, leaves and fruits that are often consumed from own production. Strong dependency on market purchases makes the households highly vulnerable to market price fluctuations, especially those from a lower income group.

4.3. Dietary diversity[2]

Overall, 46 percent of the households were found to have low dietary diversity, while 18 percent had medium diet diversity. Among the Payams, the highest proportion of low dietary diversity was found in Juba town (56 percent) followed by Munuki (48 percent).

Percentage of households with low and medium dietary diversity

Kator: 34% Low HDDS, 17% Medium HDDS
Juba town: 56% Low HDDS, 19% Medium HDDS
Munuki: 48% Low HDDS, 16% Medium HDDS
Total: 46% Low HDDS, 18% Medium HDDS

Legend: ■ Low HDDS ■ Medium HDDS

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[2] The Diet Diversity Score (DDS) measures how many food groups out of 7 groups (*i.e. excluding sugar/sweet from 8 groups used in FCS module*) are consumed on average over a 7-day period. DDS is not an average for one day. The indicator results in the sum of the number of consumed food groups (from 0 to 7). Based on DDS, dietary diversity is ranked in 3 groups: Low diet diversity (DDS is less than 4.5), Medium (DDS = 4.5 - 6), and High (DDS is above 6).

5. Household profile

5.1. Demographics

The average size of the households is 7.8 persons. The household size varies from 6.2 in Kator to 8.2 in Munuki, and 9.1 in Juba town.
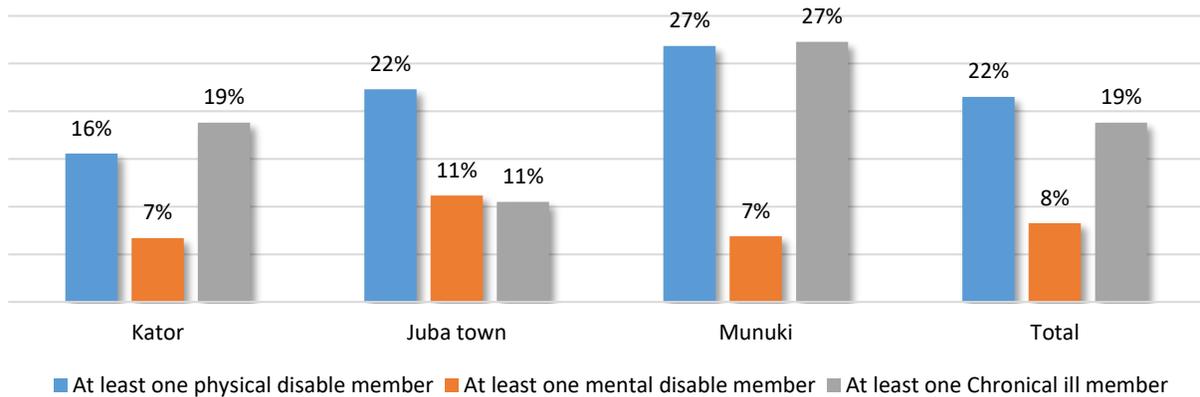
Among the surveyed households, 50 percent are headed by women. Muniki payam has more families headed by women (60 percent) than Kator (52 percent) and Juba town (37 percent).

Overall, 22 percent of the interviewed households reported having at least one member in the family with physical disability. Muniki payam has more families reported with at least one individual with physical disability (27 percent) compared to Juba town (22 percent) and Kator (16 percent). Overall, eight percent of the households reported at least one member with mental disability (11 percent in Juba town, seven percent in Munuki and 7 percent in Kator). 19 percent of the interviewed households reported having at least one member with chronical illness[3]; the proportion was found higher in Munuki (27 percent) compared to Juba town (22 percent) and Kator (19 percent).

Key household characteristics	
Average HH size	7.8
Gender of the Head of HH	Overall (male: 52%, female: 49%), Kator (48%, 52%), Munuki (40%, 60%), Juba (63%, 37%))
Age of HH head	18-60 years (89%), > 60 years (11%), 17 years or less (0%)
HH residence status	Resident(94%), IDP(5%), Returnee(1%)
HH having at least one disabled or chronically ill	Physically disabled (22%), mentally disabled (8%), chronically ill (19%)
HH hosting at least one male or female orphan	Male (22%), female (22%)
HH hosting at least one male or female IPC	Male (5%), female (5%)
Education of head of HH	No formal education (26%), primary (24%), above primary (50%)
Children of school age (6-15 years) attending school	Boys (51%), girls (54%)
Residence status	Resident (94%), IDPs (5%), Returnees (1%)
Housing	Mud houses (41%), brick houses (24%), palm/bamboo (14%), wooden board/iron sheet (13%)

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[3] A chronic disease is lasting for three months or more.

**Percentage of households with vulnerable individuals**

Legend: At least one physical disable member · At least one mental disable member · At least one Chronical ill member

	Kator	Juba town	Munuki	Total
At least one physical disable member	16%	22%	27%	22%
At least one mental disable member	7%	11%	7%	8%
At least one Chronical ill member	19%	11%	27%	19%

5.2. Education

Overall, education level and school attendance in South Sudan remains very low due to the ongoing conflict and insecurity situation. One-fourth (26 percent) of the household heads do not have any formal education, some 24 percent completed primary education and half of the respondents (50 percent) have above primary education.

Among the children 6 – 15 years old, only 51 percent of boys and 54 percent of girls were attending school. The main reasons for not going to school are that the parents are unable to afford school expenses, school too far away, displacement and others (see Figure for details).

## Reasons for boys and girls not attending school

Legend: Girls · Boys
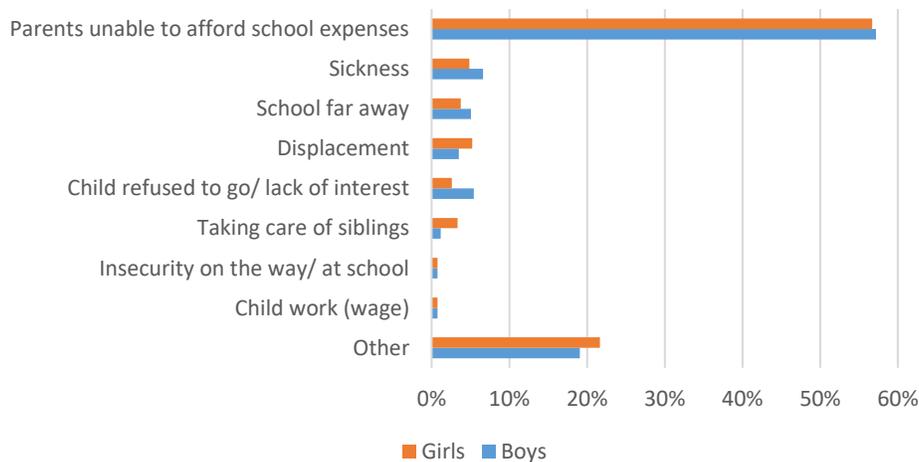
5.3. Residence status

Most of the households interviewed during the survey were residents (94 percent) and very few were IDPs (five percent) or returnees (one percent). The report IDP population was in Munuki (nine percent)

and Kator (six percent), while no IDPs were reported in Juba town. Most of these IDPs were reported coming from Central Equatoria, Western Equitoria and Eastern Equitoria.
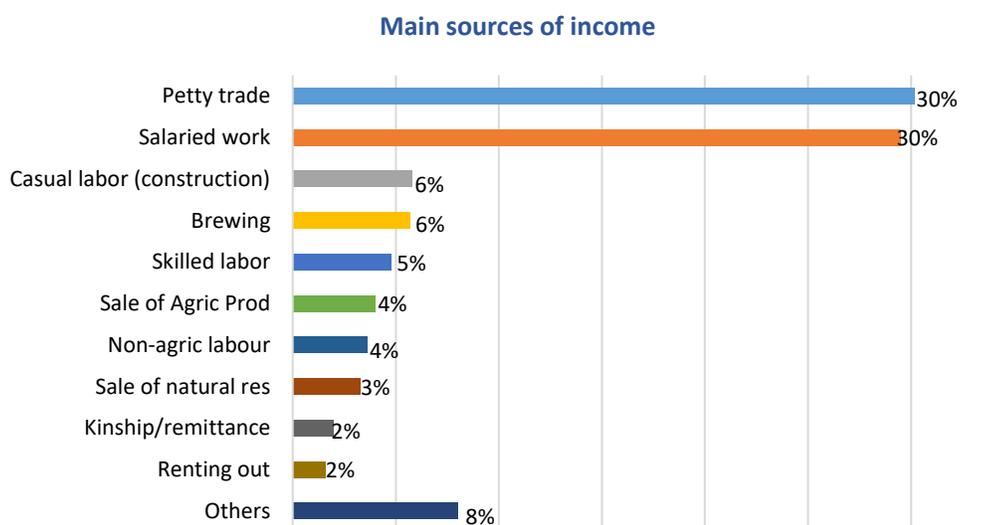
5.4. Migration

Twelve percent of the households reported that at least one member migrated since June 2016; with three family members migrating in average. Most households (64 percent) reported neighbouring countries such as Uganda, Ethiopia, DRC, Kenya, Sudan or CAR were the most common countries for migration. Some households reported their family members migrated to other rural (21 percent) and Urban (11 percent) areas in South Sudan, and very few (eight percent) reported migration to other countries (see Figure). The main reasons for migration reported were for children attending school (19 percent), join family members or relatives (15 percent), lack of food (14 percent), in search of job (11 percent), house or property destroyed (two percent) and others (six percent).

Migration
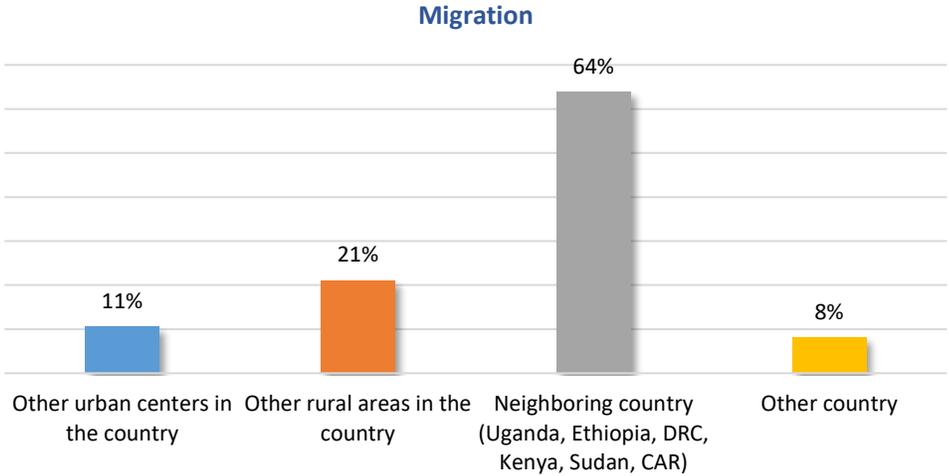
6. Livelihood, Income and Expenditure

6.1. Livelihood - sources of income

Salaried work and petty trade have been the two most important sources of income, with 30 percent of the households reporting as the main source of income for each of this. Among those with salaried income, 23 percent had government employment while seven percent had employment from the private sector. This pattern is generally similar to the previous years. One significant difference is that proportion of households with salaried work as the main source of income has decreased from 42 percent in 2016 to 30 percent in 2017. This signifies the increasing vulnerability of households due to reliance on less stable sources of income. Other significant income sources include casual labour, sale of alcohol/brewing, skilled labour and sale of agricultural produces or natural resources.

Main sources of income

| Source	Percentage
Petty trade	30%
Salaried work	30%
Casual labor (construction)	6%
Brewing	6%
Skilled labor	5%
Sale of Agric Prod	4%
Non-agric labour	4%
Sale of natural res	3%
Kinship/remittance	2%
Renting out	2%
Others	8%

Among the three Payam, Kator has much lower proportion (11.9 percent) of households reporting salaried Government work as the main source of income, compared to Juba town (30 percent) or Munuki (28 percent).

6.2. Income and asset depletion

As reported by the survey respondents, the mean monthly income of a household was SSP 4,932 (US Dollar 26 considering the exchange rate during the time of survey). Average monthly income in Kator (SSP 4,548) was relatively lower than Juba town (5,164) and Munuki (5,092). Presently, 30 percent of households are dependent on petty trading/ small business as the main livelihood source, followed by salaried work, casual wage labour related to construction, agriculture and sale of cereals, vegetables and crops.

Eighty one percent of households reported that compared to the July 2016, their income has decreased, while only seven percent reported increase in their income and 13 percent cited no change in income. The main reasons cited for the decreased income include change in market (36 percent), getting less money in real terms due to inflation (26 percent), lack of money (23 percent), work place inaccessible, closed or destroyed (12 percent) and others (2 percent).

Household income compared to July 2016

No change, 13%

Increased, 7%

Decreased, 81%
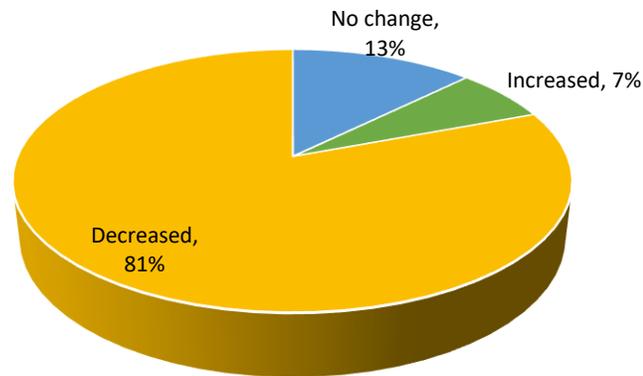
Some 18 percent of households were found to have sold or lost their assets. Among the households who sold their assets, 60 percent reported that they sold their assets to buy food; while other reasons mentioned included buying non-food items and paying school fees for children.

6.3. Food expenditure share

The share of expenditure on food as proportion of total expenditure is a proxy indicator of household food access[4]. The higher the share of food expenditure, the greater the likelihood that a household has poor food access and higher economical vulnerability.

On average, a household spends 54 percent of its monthly expenditure on food. More than one-fourth (28 percent) of the households spend a very high share (more than 75 percent of the household expenditure), and another 19 percent spend a high share (65-75 percent of the household expenditure) on food. This high proportion of households with very high or high food expenditure share suggests the economic vulnerability of Juba urban population.
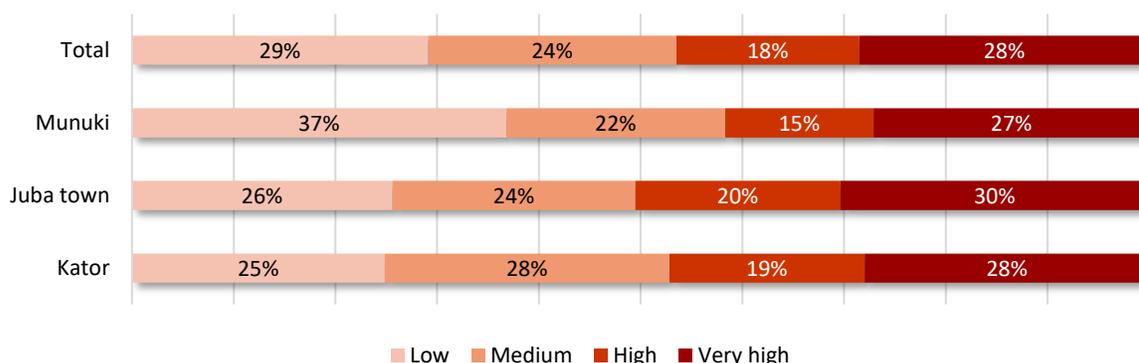
The significant proportion of households with high and very high food expenditure share is likely related to depreciation of SSP, no or limited income opportunities and higher food prices as perceived by a large number of the respondents. As a result, the households have to compromise other basic needs (health care, education, others) to meet their immediate food needs, thereby having an adverse impact on their longer term economic stability, and their resilience to cope and recover in case of major shocks.

Across the Payam, the highest proportion of households with a very high and high food expenditure share is found in Juba town (51 percent), followed by Kator (47 percent) and Munuki (42 percent).

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[4] The higher the share of food expenditure, the greater the likelihood that a household has poor food access and economical vulnerability. The commonly used thresholds for the share of food expenditure are used to classify households into 4 food expenditure groups in line with CARI is: Low equivalent to food secure (<50%); Medium, equivalent to marginally food secure (50 to 64.9%); High equivalent to moderately food insecure (65 to 74.9%); Very high equivalent to severely food insecure (=>75%).

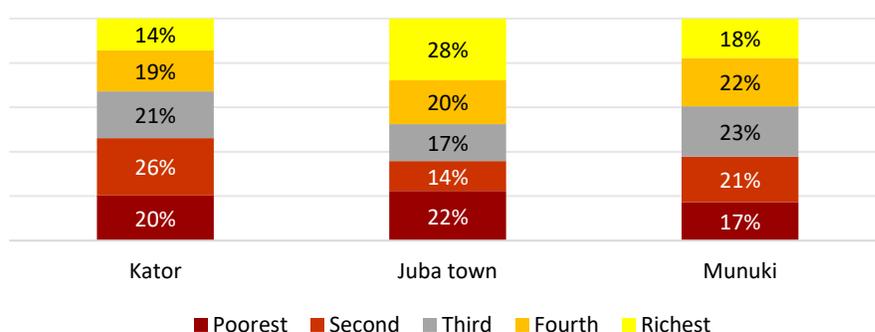**Percentage of households by food expenditure share**

	Low	Medium	High	Very high
Total	29%	24%	18%	28%
Munuki	37%	22%	15%	27%
Juba town	26%	24%	20%	30%
Kator	25%	28%	19%	28%

- Low
- Medium
- High
- Very high

6.4. Household loan

Almost one-third of the respondents (28 percent) mentioned that they have taken loan. The average loan taken by households reported as 11, 839 SSP which is drastically at higher end for Juba town (22,397 SSP) followed by Kator (4,646 SSP) and Munuki (4,642 SSP). Main reasons for taking loan were to purchase food (61 percent), healthcare (19 percent), payment of education fees (12 percent) and others eight8 percent). The main source of loan are parents/ friends (67 percent), local lender (26 percent) and other sources which accounts for seven percent (such as humanitarian agency, cooperative, or employer).

6.5. Wealth Index[5] and asset ownership

Productive as well as non-productive assets and some aspects of housing infrastructures give a very good idea of a household's prosperity and are strongly correlated to the food security of the household. Combining them into a household wealth index (WI), gives a proxy indicator of wealth.

Wealth Index quintiles distribution across Juba blocks

	Kator	Juba town	Munuki
Richest	14%	28%	18%
Fourth	19%	20%	22%
Third	21%	17%	23%
Second	26%	14%	21%
Poorest	20%	22%	17%

- Poorest
- Second
- Third
- Fourth
- Richest

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[5] The wealth index (WI) is a composite index composed of key asset ownership variables; it is used as a proxy indicator of household level wealth. The wealth index measures relative wealth and, unlike a poverty line, is not an absolute measure of poverty or wealth. It is generated with a statistical procedure known as principal components analysis, the wealth index places individual households on a continuous scale of relative wealth and divides and the wealth index quintiles divide the whole population into five equally large groups (20% each).

Evidently, Kator block reports the highest prevalence of poverty and a considerable difference from Munuki and Juba town. In Kator block, almost half of the households (47 percent) falls in the two poorer quintiles, while only 33 percent fall in the two richer quintiles. On the other hand, in Juba town, 48 percent are in the two richer quintiles while 36 percent fall in the two poorer quintiles.

In terms of asset ownership, proportion of households owning general household assets such as wheel barrow, bed, sponge mattress, table, chair, radio, television, DVD player has reduced compared to 2016. An improvement in asset ownership has been reported for mosquito nets, iron and having a bank account.
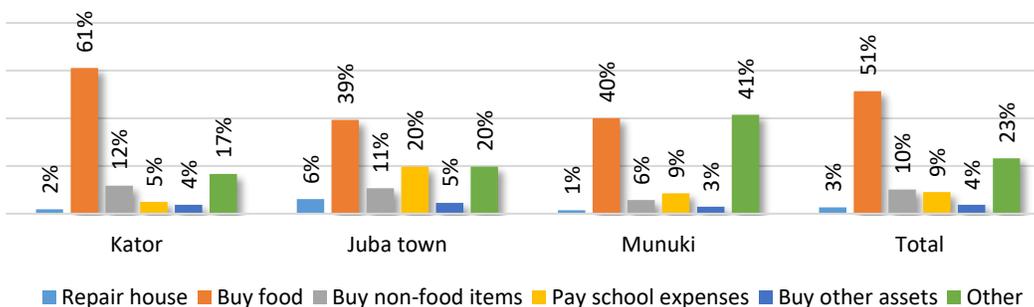
Some 18 percent of the households reported selling or lost these assets compared to July 2016 conflict. Among them, 51 percent reported selling assets to buy food followed by buying non-food items (10 percent) and covering for school expenses (9 percent) and others (30 percent).

6.6.

Table 6.1: Asset ownership presently compared to July 2016 and percent change			
Asset	Present	Before July 2016	Change
Mosquito net	83%	76%	7%
Iron	52%	51%	1%
Bank account	9%	8%	1%
Electric/gas stove/oven	6%	6%	0%
Generator	6%	6%	0%
Fishing tools	1%	2%	-1%
Motorcycle/motorbike	10%	11%	-1%
Cell phone	60%	61%	-1%
Cash or other savings	6%	7%	-1%
Car/taxi	9%	10%	-1%
Refrigerator/freezer	5%	6%	-1%
Satellite dish	14%	15%	-1%
Bicycle	4%	5%	-2%
Agriculture tools	4%	6%	-2%
Seeds for planting	3%	5%	-2%
Sewing machine	1%	3%	-2%
Bed (wood, metal)	86%	89%	-3%
DVD player	10%	14%	-3%
Wheel barrow	13%	16%	-4%
Tables/chairs	72%	76%	-4%
Sponge mattress	84%	88%	-4%
Television	19%	24%	-5%
Radio	31%	39%	-7%

Reasons for sale or loss of assets

Legend: Repair house, Buy food, Buy non-food items, Pay school expenses, Buy other assets, Other

Kator: 2%, 61%, 12%, 5%, 4%, 17%
Juba town: 6%, 39%, 11%, 20%, 5%, 20%
Munuki: 1%, 40%, 6%, 9%, 3%, 41%
Total: 3%, 51%, 10%, 9%, 4%, 23%

7. Agriculture and Livestock

The persistent economic crisis has contributed to the worsening of the food security and livelihood situation in the country. The agriculture and livestock sectors are severely aggected in this fragile environment. The findings from this survey also indicate further worsening of agriculture and livestock situation.

7.1. Agriculture

Eight percent of the households reported currently cultivating land c compared to 13 percent reported in 2015 and 14 percent in 2016, thus showing continued reduction in cultivation over the past two years. Among the households cultivating land, most are subsistence farmers with 77 percent of the respondents reported cultivating less than 0.5 feddan[6] during the current season. 18 percent reported cultivating between 0.5 to one feddan, and very few (five percent) reported cultivating more than one feddan. Compared to July 2016, there has been a decrease of 7 percent for households cultivating more than one feddan and 11 percent for households cultivating 0.5 to one feddan.

Housholeds practising home gardening

■ < 0.5 feddans ■ 0.5 - 1 feddans ■ More than feddans
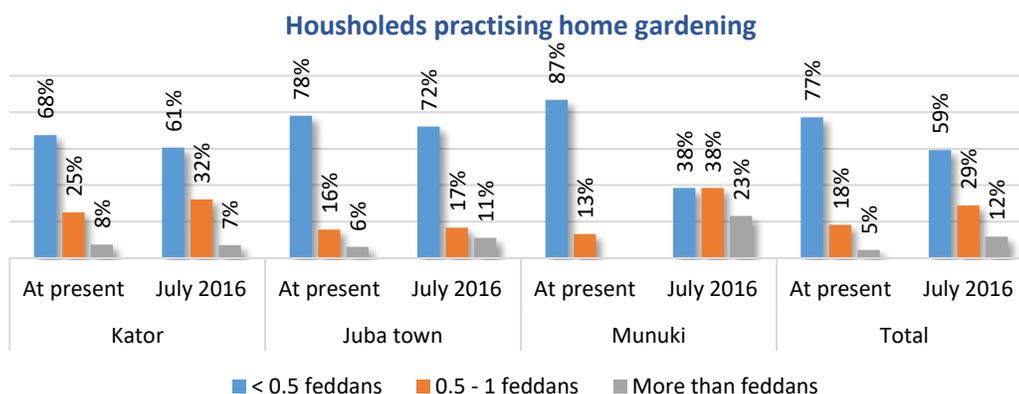
Among those engaged in farming, households reported that on average, their cereal production is sufficient to meet their own consumption needs for 3.4 months, which is reported higher in Munuki (4.6 months) followed by Juba town (3.6 months) and Kator (2.8 months). The main challenges faced during farming includes pests and diseases (27 percent), shortage of rain (20 percent), shortage of seeds (18 percent), floods (13 percent), heavy weeds infection (11 percent) and an increased cost of casual labour related to agriculture (6 percent).

7.2. Livestock

Livestock is a significant element to household food security in South Sudan. A significant reduction in livestock holding is noted. Only two percent of the households reported owning livestock and most of them owned less than 0.5 TLU[7] per household. Around 40 percent of households reported pests and disease as the main challenge for livestock keeping, followed by lack of grazing pastures (20 percent) and lack of veterinary services (20 percent), lack of water (seven percent), lack of market for livestock (three percent) and insecurity (three percent).

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[6] A feddan is a unit of area used in Egypt, Sudan, Syria consisting of roughly 60x70 meters.
[7] Tropical Livestock Unit (TLU) values are: Camel=1, cattle=0.7, goat/sheep=0.1 and poultry=0.01. Source FAO (1987), Livestock Production in tropical Africa

8. Housing, Water and Sanitation

8.1. Type of house ownership

Nearly three-fifths of the households (61 percent) reside in their own houses. 26 percent reported living in rented compound, six percent reported being hosted by friends and family, and other eight percent. The house ownership was found high in Juba town where 65 percent household reported residing in their own house, followed by Munuki (61 percent) and Kator (56 percent).

Type of house ownership
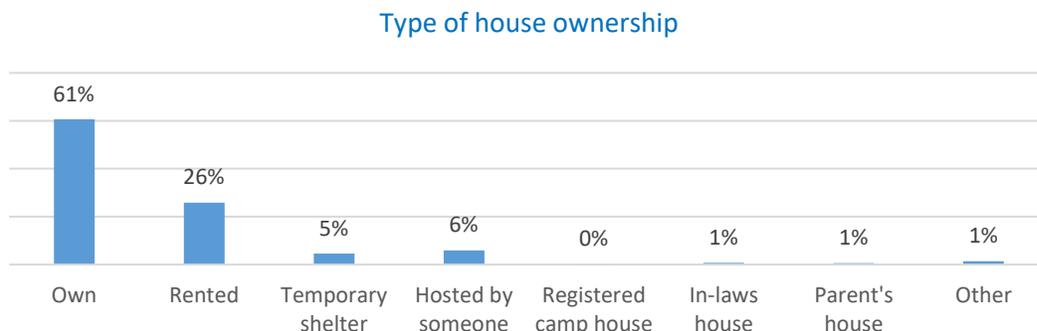
According to direct observations by enumerators on the type of dwelling used by the households, some two-fifth of the households (41 percent) reside in mud houses followed by 24 percent living in brick houses, 14 percent in palm/ bamboo and 13 percent in wood board/ iron sheet. Others account for eight percent that includes straw, semi rigid, stone, plastic/ fabric etc. The main component of the floor reported is made up of compacted soil or sand (65 percent), cement (26 percent) and others (nine percent).

On an average, the dwelling consisted of three rooms for living[8] and main source of lightning reported was candle (61 percent), torch (11 percent), generator (five percent) and four percent reported others (such as kerosene lamp, gas lamp, firewood etc.). Almost 10 percent of the respondent reported no lightning source and very few (2 percent) reported electricity (from company) as their main source of lightning.

Charcoal is the main source of cooking fuel as reported by 62 percent of the households, followed by collected firewood (28 percent) or purchased firewood (nine percent); only one percent reported gas as the main source of cooking fuel.

8.2. Water and sanitation

Water and sanitation are important factors to be considered for household food security since these are closely related to food utilization.

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[8] Rooms used for living excluding kitchen, store, toilet

8.2.1. Drinking water

Overall, 69 percent of the households obtain their drinking water primarily from an improved or safe source[9] and 31 percent from an unimproved or unsafe source[10]. The access to safe drinking water was found higher in Munuki at 77 percent compared to Juba town (68 percent) and Kator (63 percent).

Source of HH drinking water
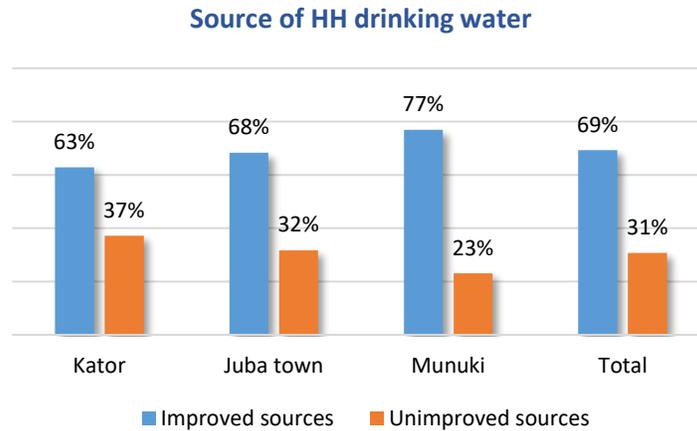
Among those who use unimproved water sources, only 34 percent reported practicing purification practices on unsafe water before drinking, while 66 percent do not use any treatment. The common water purification practices reported are chlorination (adding water guard, aqua tab etc.) by 94 percent of households, while six percent of households reported boiling the water before drinking.

8.2.2. Use of toilet

Most respondents (85 percent) reported using dry pit latrine[11] while only 6 percent were using flush toilet. Nine percent of the households reported to practise open defecation. Most households from Munuki (95 percent) reported using dry pit latrine compared to Juba town (85 percent) and Kator (75 percent). Similarly, open defecation is reported more by households in Kator (12 percent) compared to Juba town (10 percent) and Munuki (three percent).

Percentage of households by type of toilet facility used

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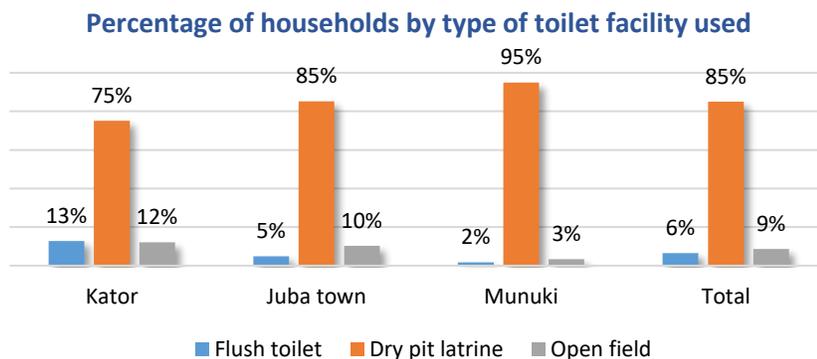
[9] Water from deep borehole fitted with a hand pump, tanker water, bottled/ tap water etc.
[10] Water from tanker or Jerri can filled from river or surface water etc.
[11] Dry pit latrine includes pit latrine that includes water seal latrine or other Improved pit latrines with concrete slab or traditional pit/ open pit latrine

9. Shocks and coping

9.1 Household shocks

The main shocks in the past six months as reported by households are depreciation of SSP (reported by 72 percent), high food prices (69 percent), high fuel and transport cost (57 percent) and insecurity/violence/theft (50 percent). Other main shocks included reduced income of household r (32 percent), loss or reduced employment (31 percent).

Main household shocks
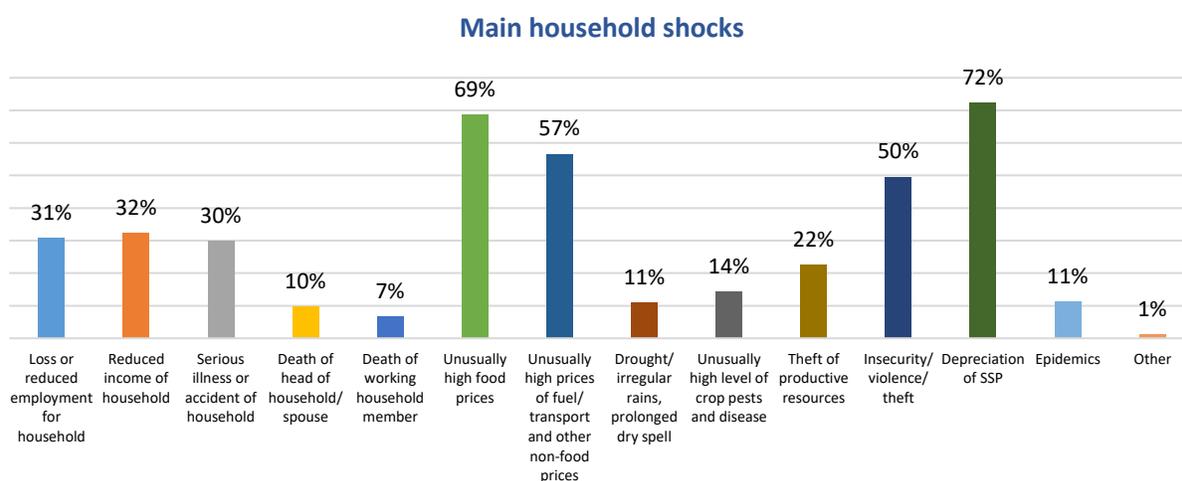
9.2 Food based coping strategy

Households use a variety of coping strategies when they have problems meeting their food needs. Change in food consumption of the household such as eating less preferred or less expensive food, borrowing food from others, reducing the number of meals or portions, adults eating less in order to provide sufficient food for the children are considered as food-based coping strategies. The magnitude of such coping may be expressed in terms of reduced coping strategy index (rCSI). Based on the thresholds, the coping is onsidered high in Munuki (rCSI is 19.42), Juba Town (rCSI 15.24) and Kator (rCSI 11.86).
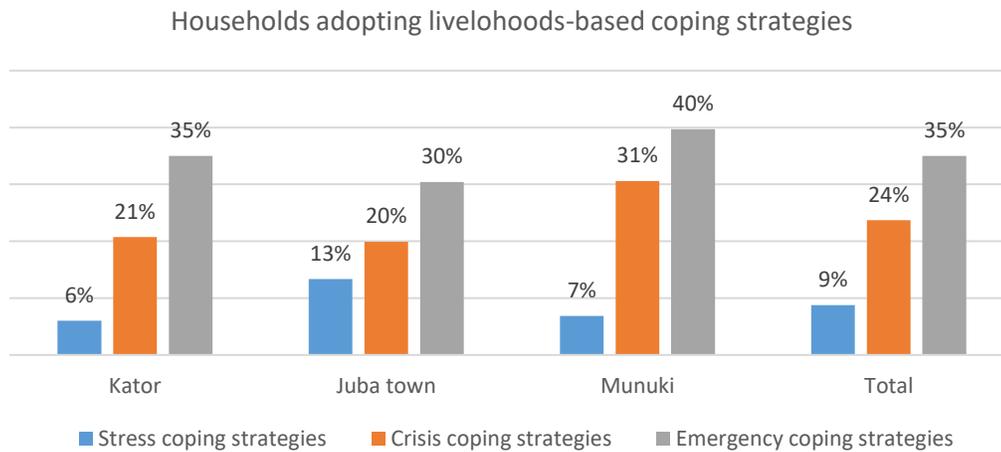
9.3 Livelihood-based coping strategy

Households may also resort to livelihood related coping strategies in the face of food insecurity, which could further erode the resilience of the households in the medium to long term. These include selling household goods or assets to buy food, selling productive assets or means of transport (such as a sewing machine or tractor), or consuming seed stock held for the next planting season. The livelihood-based strategies are analyzed based on their occurrence in the past 30 days prior to the survey.

The livelihood-related coping strategies are analyzed into three sub-categories, i.e. stress strategies (such as borrowing money, purchasing food on credit or spending savings), crisis strategies (selling household or productive assets, or withdrawing children from school), and emergency strategies (consuming seed

stock held for the next season, selling house or land or last female animal or begging). Most of the households (90 percent) reported using at least one livelihood-based coping strategy to meet their food needs. The proportion of households adopting stress, crisis and emergency coping strategies were nine percent, 24 percent and 35 percent, respectively.

The highest proportion of families resorting to livelihood-based coping strategies was found in Munuki (77 percent) and Juba town (64 percent), while it was the lowest in Kator (62 percent).

Households adopting livelohoods-based coping strategies

Legend:
- ■ Stress coping strategies
- ■ Crisis coping strategies
- ■ Emergency coping strategies

Data shown in chart:
| Location	Stress	Crisis	Emergency
Kator	6%	21%	35%
Juba town	13%	20%	30%
Munuki	7%	31%	40%
Total	9%	24%	35%

10. Markets

Market is the main source of food commodities to urban residents. More than 90 percent of households reported their main source of food were central market or local shop purchases. South Sudan is highly dependent on imported goods but has limited hard currency available because of the collapse of oil revenues as the oil prices dropped in international markets, and the ongoing conflict resulted in reduced oil production. Traders depend on parallel market to access hard currency to import basic food commodities. In South Sudan where food requirements rely on import, the rate at which local currency is exchanged to foreign currencies has significant role among other factors in determining the price of commodities.

In September 2017, the parallel market exchange rate was SSP 182 SSP per US Dollar, 54 percent higher than the official exchange rate, SSP 118. With the increase in price of food commodities, urban poor and very poor households who spend the highest proportion of their income on food are vulnerable to increase in food prices. About 88 percent of the interviewed households reported that they had no enough resources to buy food from the market. In order to cope with the rising food prices, half of households either bought less quantity or bought cheaper food from the market. About one-fifth of

HH response to rise in food prices

- Buying less quantity
- Buying cheaper food
- Eating less
- Eating less number of meals
- Other
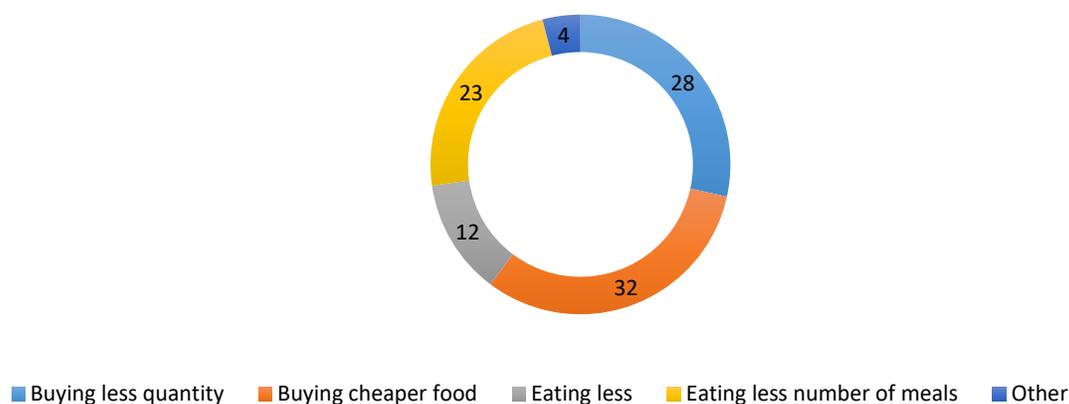
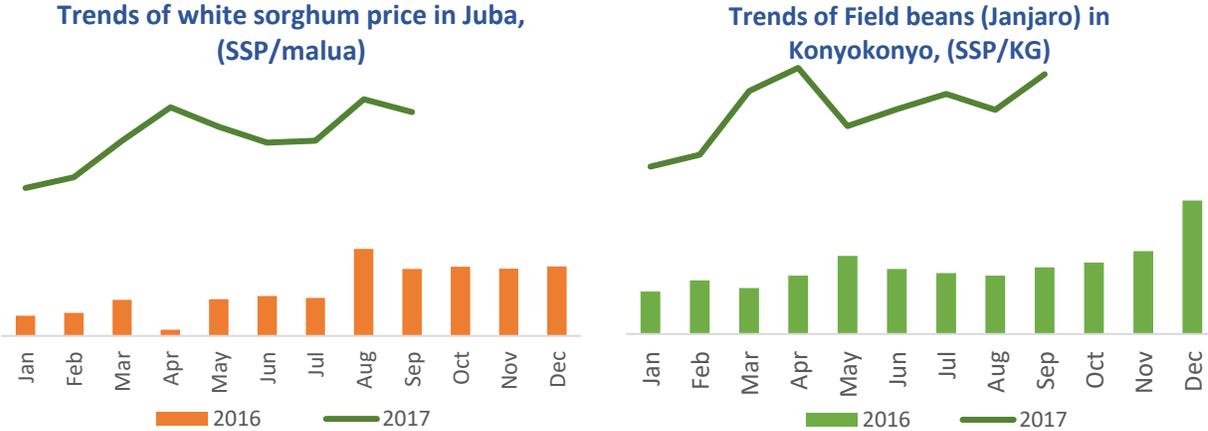interviewed households reported having less number of meals.

Interviewed households were also asked to rate the availability of food in the market. 77 percent reported availability was higher as compared to pre-July 2016 conflict. Only 11 percent of the households reported availability was lower. Juba is a big market that serves as a distribution hub in the country and has good tarmac road connections to the main supply market, Kampala. As a result, availability of commodities in the market is not a challenge; however, affordability is the main constraint.

The assessment also looked into households' chances of buying food on credit from traders. About half of the interviewed households mentioned that the chance of getting food on credit from traders was lower compared to before July 2016 conflict. Households with better access to food on credit were about 27 percent while the remaining 23 percent experienced the same chance as before July 2016. In markets where value of money is eroded by hyperinflation and prices are too volatile and unpredictable, access to

food on credit from private traders is very unlikely. It is a common practice in hyperinflation environment that people convert the local currency into US dollar to maintain their purchasing power.

Among the respondents who had access to borrowing, the first most important use of the money was to buy food (for 61 percent of households), followed by health care costs (20 percent), paying for tuition fees (12 percent) and other purposes (7 percent).

In order to curb the rising food prices and to minimize the suffering of Juba urban residents, South Sudan government has introduced short term administrative measure by avoiding custom duties on basic imported food commodities for three months. Furthermore, food market stabilization programme was introduced by establishing a company that imports selected basic food items for sale at subsidized prices to Juba urban residents. The items are sugar, wheat flour, maize flour, field beans and cooking oil. Upon the start of a programme (May/June), there were about 35 shops established across Juba to sell these commodities at prices set by the government. The prices of the commodities in these shops were significantly cheaper as compared to private shop prices. For sugar it was 27 percent cheaper, for maize flour and cooking oil (35 percent each), field beans (42 percent) and wheat flour (44 percent). As a consequence, on the intervention, prices of the commodities in private shops have also dropped.

Trends of white sorghum price in Juba, (SSP/malua)

Trends of Field beans (Janjaro) in Konyokonyo, (SSP/KG)

However, the market stabilization programme was not systematized to reach the poorest and very poor households.

The disruption of agricultural activities in Greater Equatoria has limited the flow of supplies to markets. In this regard, Juba is one of the markets being affected to benefit from local production and seasonal prices drop. Furthermore, the restricted movement along trade routes exacerbated the challenges to the poor and very poor households. In 2017, the prices of staple foods stood higher than the corresponding month of 2016. Compared to September 2016, prices were higher for sorghum (235 percent), maize grain (263 percent), wheat flour (181 percent), field beans (290 percent), wheat flour (160 percent), cooking oil (81 percent) and groundnuts (138 percent). Figure indicates the trends of retail price in Konyokonyo market, where prices were much higher than during the corresponding months in the previous year.

11. Nutrition

A joint (WFP, UNICEF, WVI and NBS) urban food security and nutrition assessment was conducted in juba city administration, stratified into three strata. The survey conducted from 22 September to 7 October 2017, was a cross sectional study with two-stage cluster sampling using Standardized Monitoring of Relief and Transition (SMART) methodology. Considering the heterogeneity of the city, the sample was stratified into three city administration blocks namely Juba town payam, Kator payam and Munuki payam. The sample size for anthropometric was calculated using the ENA software (version July 9, 2015). In each stratum, sample size was calculated at 456 Households[12], that gives a total of 1368 households across the three stratum (blocks). Total of 38 clusters or enumeration areas (EA) were allocated in each block.

Summary of findings

Prevalence of acute malnutrition

o   A total of 1534 children 6-59months were assessed in the three stratum/blocks. The analysis for Global acute malnutrition (GAM) was done with 1490.

o   Overall, prevalence of GAM was 10.1% (8.6 – 11.7 95% CI) which is classified as Serious as per the WHO emergency threshold. The current result is about the same with the previous assessment of 2015 (12.2%) and 2016 (11.2%). Looking at by Payam level, the highest GAM was reported in Kator 10.9 (8.4-14.0) followed by Munuki 9.9% (7.6 – 12.8) and Juba 9.1 (6.8-12.0). However, there is no statistical difference between the three Payams.

o   The overall proxy GAM prevalence (based on MUAC) was 5.2% (4.2 – 6.4 95%CI) and proxy SAM prevalence was 1.4% (0.9 – 2.1 95% CI)

o   Prevalence of wasting (MUAC <23cm) in women aged 15 to 49 years was 10.1%

o   The findings showed overall wasting (MUAC <230mm) of 10.1% (7.9-12.8% 95% CI) for women 15 to 49 years, 9.6% in PLW and 10.4% in non-PLW 10.4%. The findings across the strata indicate that there were no significant differences across the three stratum of Juba town, Kator and Munuki Payams.

Infant and Young Child Feeding Practices

o   The findings indicate that breast feeding is widely practiced in the first year with about 83 percent and then sharply decline at the age of two years (about 55 percent).

o   About half of children 6-8 years old were fed solid/semisolid foods.

o   About 14 percent of the children 6-23 months met their minimum diversified food - at least four food groups.

o   22.6% children 6 to 23 months received solid, semi-solid or soft foods, the minimum number of times or more during the previous day.

o   3.9 percent of the children aged 6-23 months received a minimum acceptable diet.

Coverage of Vitamin A supplementation, Deworming, Measles vaccination

o   Overall, all the three public health services are universal; 98.8% received the measles, 94.7% Vitamin A

[12] The sample size was calculated based on the following parameters: expected prevalence 13.6%, Precision 4, design effect 1.5, household family size 6, under five populations 21%, non-response 10%. This gives 451 Households. Based on 2016 experience, it was assumed a team to cover 12 households per a day. Hence, the number of cluster per stratum was determine as 451/12 = 37.5 cluster then rounded of 38 clusters per stratum.

11.1. Acute malnutrition among children aged 6 to 59 months

Anthropometric data was obtained from a total of 1,534 children aged 6 to 59 months, of which 47.3% and 52.7% percent were girls and boys respectively. Status of acute malnutrition in children was analysed based on weight-for-height index, Mid-Upper Arm Circumference (MUAC) and/or presence of bilateral pitting oedema while MUAC was used for women.

The overall prevalence of GAM in Juba city was 10.1% (8.6 – 11.7 95% C.I.) and the severe acute malnutrition (SAM) prevalence (WHZ<-3 and/or oedema) was 3.1% (2.3 – 4.1 95% C.I.). According to World Health Organization (WHO) classification of severity of acute malnutrition in a community, the rate in Juba city is classified as **seriou**s. At Payam level, the findings indicate that the prevalence of global acute malnutrition (GAM) of 9.1%(6.8-12.0) in Juba Payam, 9.9%(7.6 – 12.8) in Munuki, and 10.9% (8.4-14.0) in Kator Payam. However, there is no statistical difference between the three Payams.

Prevalence of Global acute malnutrition - September 2017
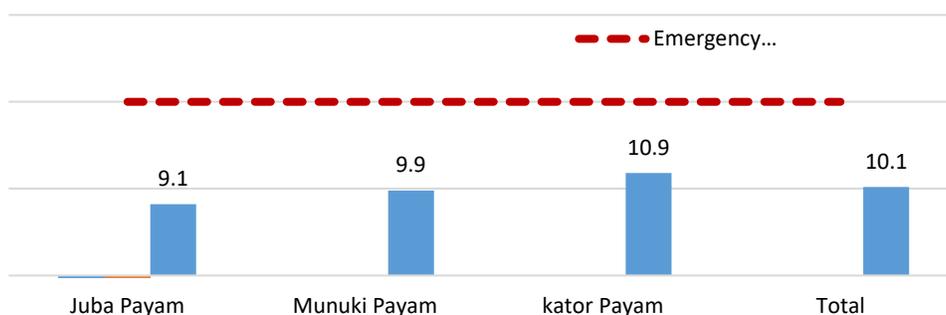
The MUAC based assessment in children indicates that the overall proxy GAM (MUAC <125ml and/or Oedema) was 5.2% (4.2 – 6.4). Looking by strata, the highest proxy GAM was recorded in Juba Payam (7.3%) followed by Kator (4.8%) and Munuki (3.7%).

Trends of GAM shown below in figure, indicate that the trend of global acute malnutrition (GAM) since 2015 remain at the WHO "serious" level. This denotes how the situation is still precarious.

Trends of Globa acute malnutrition in Juba Urban - 2015 to 2017
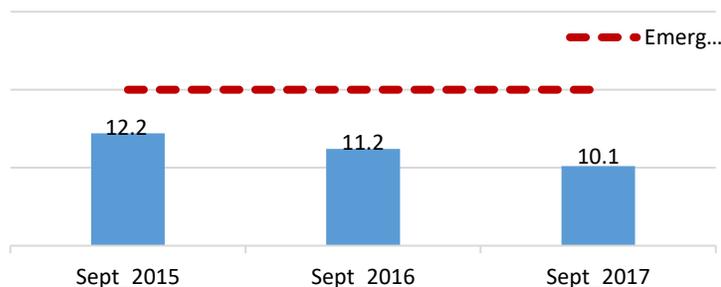
11.2. Women Anthropometry

A total of 626 women aged 15 to 49 years old were assessed, out of which about 42% were pregnant and lactating. Prevalence of wasting (MUAC <23cm) in women is shown in the Figure. The prevalence is disaggregated into three physiological categroes; Pregenant and Lactating (PLW), non-PLW and all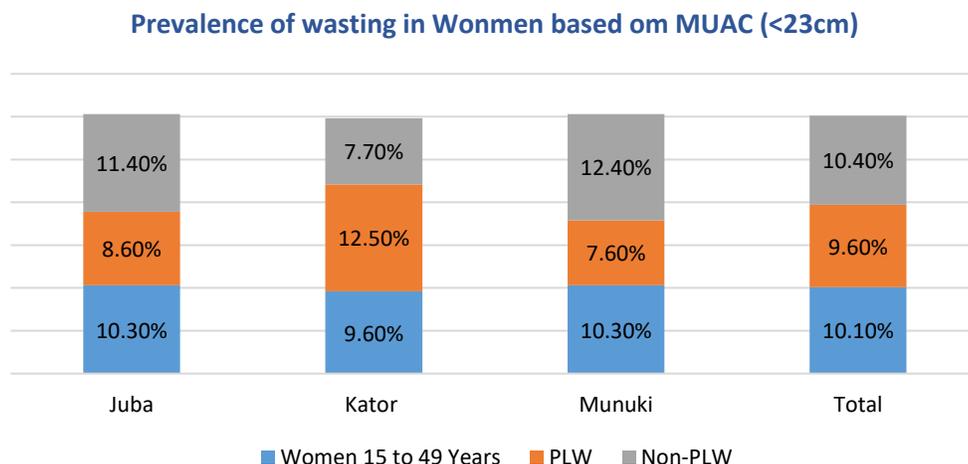 women 15 to 49 ages. The findings showed that overall wasting (MUAC <230mm) in women 15 to 49 years was 10.1%, PLW 9.6% and non-PLW 10.4%. Overall, wasting among among pregnant and lactating women was 9.6%.

Prevalence of wasting in Wonmen based om MUAC (<23cm)

	Women 15 to 49 Years	PLW	Non-PLW
Juba	10.30%	8.60%	11.40%
Kator	9.60%	12.50%	7.70%
Munuki	10.30%	7.60%	12.40%
Total	10.10%	9.60%	10.40%

11.3. Infant and young child feeding (IYCF)

The target population for IYCF survey was children from 6 to 23 months of age and their caregivers living in Juba city. The questionnaires were developed based on WHO guideline for IYCF. Data on infant feeding practices for children 6-23 months was collected using a standard 24 hours' recall method. The caregivers were asked what the children received in the 24-hour preceding the survey. The following IYCF indicators were analysed.

1. **Continued breastfeeding at 1 year -** Proportion of children 12–15.9 months of age who are breast fed
2. **Continued breastfeeding at 2 years (20-23 months)** - Proportion of children 20–23.9 months of age who are breast fed
3. **Introduction of solid, semi-solid or soft foods (6-8 months)** - Proportion of infants 6–8.9 months of age who receive solid, semi-solid or soft foods
4. **Minimum dietary diversity (6-23 months)** - Proportion of children 6–23.9 months of age who receive foods from fpir or more food groups
5. **Minimum meal frequency (6-23 months) -** Proportion of breastfed and non-breastfed children 6–23.9 months of age who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more.
6. **Minimum acceptable diet 96-23 months)** - Proportion of children 6–23 months of age who receive a minimum acceptable diet (apart from breast milk).

Total of 592 infant and young children of age 6-23 months were assessed, out of which 55 percent were boys and 45 percent were girls. As the number children assessed were low, the sample of the three strata was combined and analyzed together.

The findings indicate that breast feeding is widely practice in the first year with about 83 percent and sharply decline at the age of two years (about 55). According to the WHO guidelines, it is recommended for mothers to breastfeed exclusively for the first six months of life followed by complementary feeding and continued breastfeeding for up to two years or beyond.

The findings reveal very sub-optimal complementary feeding practices. About half of children aged 6-8 years were fed solid or semisolid foods. Similarly, about 14 percent of the children 6-23 months met their minimum diversified food, at least four food groups. About 23 percent of all children meet their minimum desired meal frequency. Only about four percent of children age 6-23 months received a minimum acceptable diet apart from breast milk. Minimum Acceptable diet is composed of Minimum Dietary Diversity and Minimum Meal Frequency. It captures the proportion of children 6–23 months of age who receive a minimum acceptable diet (apart from breast milk).

Prevalence of infant and young child feeding practices in Juba
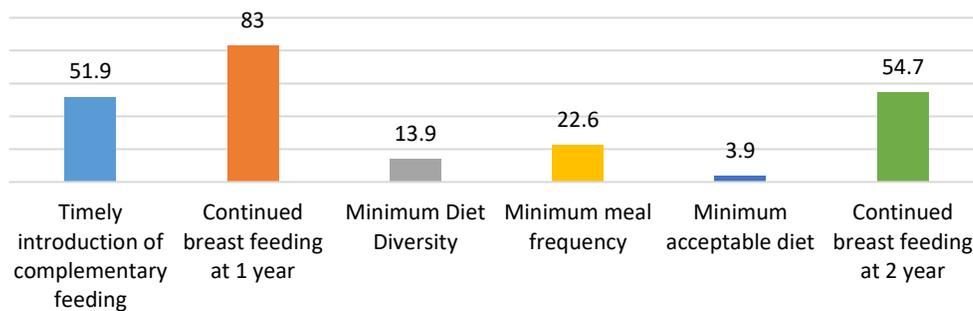
11.4. Child morbidity

The findings show that 37% of children under the age of five had experienced illness in the past two weeks prior to the assessment. Of those children who were ill in the past two weeks, fever was the most common illness (79.6%) followed by diarrhea (53.5%) and cough or difficult breathing (15.1%). The breakdown by Payam showed no significant difference between three Payams; Juba 36.8% (32.4-41.4), Kator 40.2% (35.7-44.8) and Munuki 35% (30.7-39.7). The breakdown of the symptoms is shown in the figure below, which indicates that all symptoms (fever, diarrhea and cough) across all Payams are similar.

Breakdown of symptoms of children who experienced illness in the past two weeks (percent)
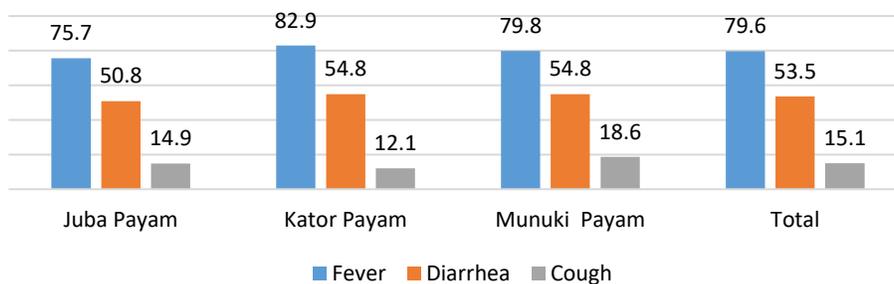
11.5. Vaccination, supplementation and deworming

As it is shown in the figure, the coverage of Vitamin A supplementation, Deworming and Measles vaccination is universal. Overall, nearly all children (99.2%) received the measles vaccination based on confirmation from vaccination card and recollection from the mother. The coverage of vitamin A, deworming and mosquito net uses was 94.7, 89.5 and 95.9 percent respectively. The coverage across all the three Payams are almost the same. Given the Urban setup, such a coverage is much better than the rest of the country.

Vacinnation, Supplementation and Deworming coverage

Payam	Measles Vaccination (9-59 Months)	Mosquito Net use 6-59 months	Vitamin A Suplementation (6 to 59 months)	Deworming (12-59 Months)
Juba Payam	98.9	97.6	95.9	93
Kator Payam	98.5	92.8	92.8	85.6
Munuki Payam	98.8	97.2	95.4	89.8
Total	98.8	95.9	94.7	89.5

- Measles Vaccination (9-59 Months) - with Card or maternal confirmation
- Mosquito Net use 6-59 months)
- Vitamin A Suplementation (6 to 59 months)
- Deworming (12-59 Months)

12. Assistance

Overall, 23 percent of the households reported receving at least some kind of assisstance. This was found significantly higher in Juba town with 35 percent as compare to Kator (19 percent) and Munuki (13 percent).

HH reported receving some kind of assistance
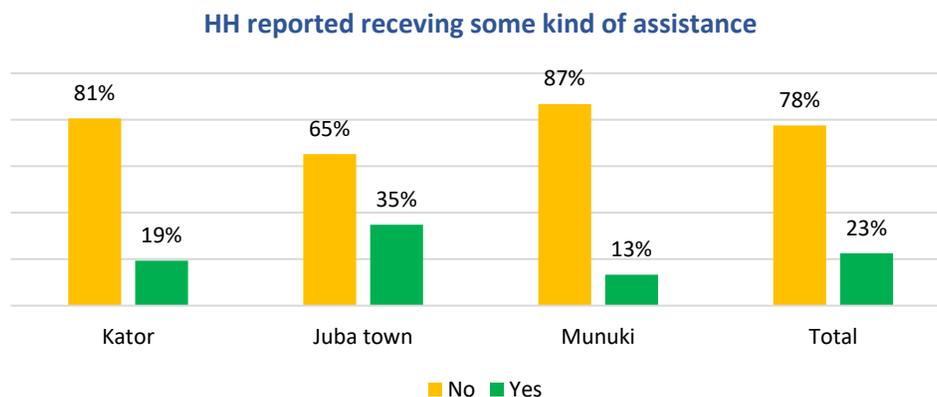
About 10 percent of the households reported receiving cash transfer (eight percent benefited from cash for work and 1.6 percent received cash transfers) from social assistance programme (government, private, NGO). Some 3 percent benefited from food for work, while another three percent benefited from food for young, malnourished children or for pregnant/lactating women. two percent benefited from food for school children (eaten at school or take-home), one percent received free food ration. Nine percent reported to have benefited from free health care or drugs from programmes implemented by NGOs. Those benefiting from the Government support to poor, free fodder or animal feed, agricultural tools, seeds, livestock support, and micro-credit were one percent in each of these categories.

Respondents were asked what kind of transfer modality they would prefer if there is an assistance programme to support them. Almost 40 percent of the respondents said they would prefer a combination of cash and food, while 32 percent preferred in-kind food assistance and 21 percent preferred cash transfer.

HH preference on transfer modality
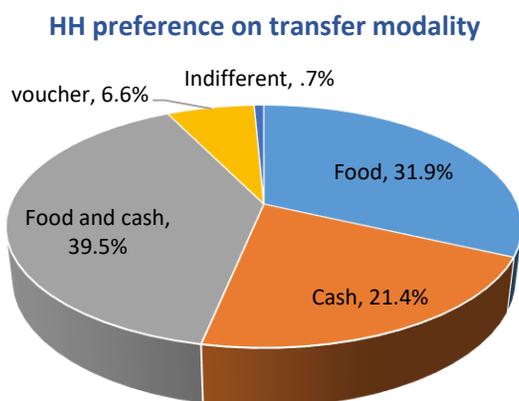
Among those who prefer food, the following reasons were cited: food is better for nutrition (44 percent), high food prices in market (28 percent), to meet food shortage (20 percent), easy to control for household food use (three percent), better for children (two percent) and better controlled by women (two percent).

For those preferring cash, the reasons are flexibility to use for food and other needs (54 percent), possibility to use part of cash to run small business (22 percent), possibility to buy preferred type of food (14 percent), saving part of cash (two percent), and no transport costs involved (one percent).

Among those preferring combination of food and cash, the reasons mentioned were meeting different seasonal needs (62 percent), multiple options to diversify diets (16 percent), improved coping capacity with reduced reliance on food (eight percent), minimizing risk of losing all cash or poor-quality food (eight percent), safer approach than only cash (two percent) and control of both men and women (two percent).

Statistical details on nutrition findings are provided in Annex 1.

13. Conclusion and Recommendations

- Level of food insecurity for Juba urban population has reached unprecedented levels with further deterioration from 2016. This is mainly attributed to the continued economic crisis and hyperinflation amidst stagnant or falling income levels of these market dependant households. Integrated programming to support the vulnerable households should be a priority.

- A high prevalence of adoption of disruptive and non-reversible coping mechanisms is noted with resultant detrimental effects on future household productivity and ability to succumb to shocks. Programmes targeting the most vulnerable households to build their resilience are paramount.

- The effect of the spiralling cost of living among the vulnerable urban population is notable. This calls for relief and development actors to further scale up social transfers to the poor and most vulnerable segments of the population to compensate for the economic problems and welfare losses.

- The Global acute malnutrition was maintained at WHO "Serious" level. Coverage of public health and nutrition interventions prevented deterioration of the nutrition situation. Therefore, it is important to continue scaling up programmes for treatment of malnutrition as well as the common public health measures such as vaccination, deworming, supplementation and water and sanitation. The role of deworming in nutrition status of children is notable and hence the need to continue deworming all eligible children. Disease prevention measures particularly for the diseases that area result of oral-fecal transmission, is crucial to improve the nutrition situation given that findings showed that incidence of diarrhea was related to child malnutrition.

- Access to non-food factors such as social basic services need to be addressed in order to address malnutrition situation.

Annex I: Key nutrition statistics

1.1 Acute malnutrition

Based on WFH	Juba N=475	Kator N=487	Munuki N=525	Total N=1490
GAM	(43) 9.1% (6.8-12.0)	(53) 10.9% (8.4-14.0)	(52) 9.9% (7.6-12.8)	(150) 10.1% (8.6-11.7 95% CI)
SAM	(8) 1.7% (0.9- 3.3)	(20) 4.1% (2.7- 6.3)	(16) 3.0% (1.9- 4.9)	(46) 3.1% (2.3- 4.1 95% CI)
Based on MUAC	Juba N=492	Kator N=500	Munuki	Total N=1534
Proxy GAM	(36) 7.3% (5.3-10.0)	(24) 4.8% (3.2- 7.0)	(20) 3.7% (2.4- 5.6)	(80) 5.2% (4.2- 6.4 95% CI)
Proxy SAM	(9) 1.8% (1.0- 3.4)	(8) 1.6% (0.8- 3.1)	(4) 0.7% (0.3- 1.9)	(21) 1.4% (0.9- 2.1 95% CI)

1.2 Prevalence of wasting (MUAC <230mm) in Women 15 to 49 years

	Juba	Kator	Munuki	Total
Women 15 to 49 Years	(20/195) 10.3% (6.4-15.4)	(21/218) 9.6% (6.1-14.3)	(22/213) 10.3% (6.6-15.2)	(63/626) 10.1% (7.9-12.8)
PLW	(7/81) 8.6% (3.5-17.0)	(11/88) 12.5% (6.4-21.3)	(7/92) 7.6% (3.1-15.1)	(25/261) 9.6% (6.3-13.8)
Non-PLW	(13/114) 11.4% (6.2-18.7)	7.7% (3.8-13.7)	(15/121) 12.4% (7.1-19.6)	(38/365) 10.4% (7.6-14.1)

1.3 Infant and young child feeding

Indicator	Age group	N	n	%	95% CI
Timely introduction of complementary feeding	6-8 months	81	42	51.9	40.5-63.1
Continued breast feeding at 1 year	12-15 months	147	122	83	75.9 – 88.7
Minimum Diet Diversity	6-23 months	592	82	**13.9**	11.2 – 17.0
Minimum meal frequency	6-23 months	592	134	**22.6**	19.4 – 26.3
Minimum acceptable diet	6-23 months	592	23	3.9	2.5 – 5.9
Continued breast feeding at 2 year	20-23 months	148	81	54.7	46.3-62.9

1.4 Morbidity

	Juba Payam N=492	Kator Payam N=500	Munuki Payam N=542	Total N=1534
Illness	(181) 36.7% (32.5-41.2)	(199) 39.8%(35.5-44.3)	(188) 34.7% (30.7-38.9)	(568) 37% (34.6-39.5)
	Breakdown of the illness (symptoms) Juba Payam			
	Juba Payam N=181	Kator Payam N=199	Munuki Payam N=188	Total N=568
Fever	(137) 75.7% (68.8-81.7)	(165) 82.9% (77.0-87.9)	(150) 79.8% (73.3-85.3)	(452) 79.6% (76.0-82.8)
Diarrhea	(92) 50.8% (43.3-58.3)	(109) 54.8% (47.6-61.8)	(103) 54.8% (47.4-62.0)	(304) 53.5%(49.3-57.7)
Cough	(27) 14.9% (10.1-21.0)	(24) 12.1% (7.9-17.4)	(35) 18.6% (13.3-24.9)	(86) 15.1% (12.3-18.4)

1.5 Vitamin A supplementation, Deworming, measles vaccination

	Juba Payam	Kator Payam	Munuki Payam	Total
Vitamin A Supplementation (6 to 59 months)	(472/492) 95.9%(93.7-97.4)	(464/500) 92.8% (90.1-94.8)	(517/542) 95.4%(93.2-96.9)	(1453/1534) 94.7% (93.4-95.8)
Deworming (12-59 Months)	(398/428) 93.0% (90-95.1%)	(374/437) 85.6% (81.9-88.7)	(442/492) 89.8%(86.7-92.3)	(1214/1357) 89.5% (87.7-91.0)
Mosquito Net use 6-59 months)	(480/492) 97.6% (95.7-98.7)	(464/500) 92.8% (90.1-94.8)	(527/542) 97.2% (95.4-98.4)	(1471/1534) 95.9% (94.7-96.8)
Measles Vaccination (9-59 Months)				
Measles with Card	(336/461) 72.9% (68.5-76.8)	(341/474) 71.9%(67.6-75.9)	(415/518) 80.1% (76.4-83.4)	
Measles with maternal recall	(120/461) 26.0% (22.1-30.3)	(126/474) 2 6.6% (22.7-30.8)	(97/518) 18.7% (15.5-22.4)	
Measles with card or recall	(456/461) 98.9% (97.3-99.6)	(467/474) 98.5% (96.8-99.4)	(512/518) 98.8% (97.4-99.5)	(1435/1453) 98.8% (98.0-99.2)

Annex II: Food security by selected household characteristics

		Food security console				Food consumption group			HH Livelihood coping strategies				HH hunger score			
		Food secure	Marginally food secure	Moderately food insecure	Severely food insecure	Poor	Borderline	Acceptable	None	Stress coping	Crisis coping	Emergency coping	None	Slight	Moderate	**Severe**
Overall		1.8%	21.7%	55.4%	21.0%	50.7%	28.3%	21.0%	32.5%	8.8%	23.7%	35.0%	21.5%	5.7%	59.1%	13.7%
Block	Kator	0.6%	15.8%	58.7%	24.8%	69.1%	16.8%	14.0%	38.2%	6.0%	20.7%	35.0%	28.1%	3.5%	54.6%	13.8%
	Juba town	2.4%	31.1%	52.7%	13.8%	38.5%	31.1%	30.4%	36.3%	13.3%	19.9%	30.4%	28.2%	9.2%	56.5%	6.1%
	Munuki	2.4%	18.4%	54.8%	24.4%	44.1%	37.3%	18.6%	22.8%	6.9%	30.6%	39.7%	8.0%	4.4%	66.3%	21.3%
Gender of Head of HH	Male	2.3%	24.8%	53.5%	19.3%	46.9%	28.4%	24.7%	30.0%	9.7%	24.4%	35.9%	22.8%	6.5%	60.3%	10.4%
	Female	1.3%	18.6%	57.4%	22.7%	54.6%	28.2%	17.3%	35.1%	7.8%	23.0%	34.1%	20.2%	4.9%	57.8%	17.1%
HH having at least one child under 5	No	2.1%	20.4%	59.6%	18.0%	53.9%	27.5%	18.6%	38.3%	7.2%	17.1%	37.4%	29.0%	3.9%	52.7%	14.4%
	yes	1.7%	22.2%	54.1%	22.0%	49.7%	28.5%	21.8%	30.7%	9.3%	25.8%	34.2%	19.1%	6.3%	61.1%	13.5%
Education of the household head	education	0.6%	14.0%	57.6%	27.8%	66.1%	19.0%	14.9%	33.6%	7.2%	25.9%	33.3%	17.1%	4.4%	61.7%	16.8%
	Upto Primary (2 to 8 years)	0.6%	18.3%	54.7%	26.4%	52.8%	31.7%	15.5%	30.4%	6.8%	21.7%	41.0%	18.0%	5.6%	58.7%	17.7%
	Above Primary	3.1%	27.3%	54.7%	14.9%	41.5%	31.7%	26.8%	33.0%	10.5%	23.4%	33.0%	25.6%	6.3%	57.9%	10.2%
Highest education of any male member of HH	No formal education	0.9%	15.1%	62.2%	21.9%	69.9%	17.3%	12.8%	43.2%	9.4%	29.0%	18.5%	19.9%	3.7%	56.3%	20.2%
	Upto Primary (2 to 8 years)	0.5%	12.3%	50.3%	36.9%	56.4%	30.8%	12.8%	16.9%	7.2%	16.4%	59.5%	12.3%	4.1%	67.2%	16.4%
	Above Primary	2.6%	26.7%	53.8%	17.0%	41.3%	32.4%	26.3%	31.8%	8.8%	23.0%	36.4%	24.2%	7.0%	58.4%	10.4%
Highest education of any female member of HH	No formal education	1.3%	14.7%	57.7%	26.2%	68.5%	16.5%	15.0%	38.6%	8.4%	29.4%	23.6%	17.8%	4.5%	61.2%	16.5%
	Upto Primary (2 to 8 years)	0.8%	17.8%	56.6%	24.9%	50.8%	32.5%	16.7%	26.8%	7.4%	20.8%	45.1%	16.7%	4.6%	62.6%	16.1%
	Above Primary	2.8%	28.8%	52.8%	15.5%	39.7%	32.5%	27.8%	33.0%	10.2%	21.5%	35.3%	26.8%	7.3%	55.0%	10.8%
Wealth quintile	Poorest	0.4%	7.7%	64.2%	27.7%	79.7%	13.3%	7.0%	38.7%	8.5%	26.6%	26.2%	8.9%	1.5%	64.9%	24.7%
	Second	0.4%	12.9%	57.6%	29.2%	68.6%	21.4%	10.0%	34.7%	7.4%	18.5%	39.5%	9.6%	4.8%	67.9%	17.7%
	Third	0.4%	21.7%	52.2%	25.7%	43.4%	36.4%	20.2%	25.0%	8.5%	21.3%	45.2%	19.9%	7.4%	62.9%	9.9%
	Fourth	1.5%	25.5%	57.9%	15.1%	39.9%	37.3%	22.9%	30.3%	8.9%	27.7%	33.2%	23.6%	5.5%	61.6%	9.2%
	Richest	6.6%	41.7%	45.8%	5.9%	19.6%	34.7%	45.8%	33.6%	10.7%	24.0%	31.7%	44.6%	9.6%	40.2%	5.5%
No of rooms in the house	1 room	0.6%	10.3%	60.6%	28.5%	73.0%	18.2%	8.8%	37.9%	9.1%	16.7%	36.4%	12.4%	3.0%	62.1%	22.4%
	2 - 3 room	1.7%	20.3%	54.6%	23.3%	49.2%	30.8%	20.0%	29.7%	8.4%	24.8%	37.1%	19.2%	4.9%	65.4%	10.5%
	More than 3 rooms	3.0%	32.9%	52.6%	11.5%	34.9%	32.4%	32.7%	32.4%	9.2%	27.4%	30.9%	32.7%	9.0%	47.6%	10.7%