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Food Security and Nutrition Assessment for Karamoja Sub-region

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Acronyms

ARI	Acute Respiratory-tract Infections
BMI	Body Mass Index
CI	Confidence Intervals
DPT	Diphtheria, Pertussis and Tetanus (vaccines)
EBF	Exclusive Breastfeeding
ENA	Emergency Nutrition Assessment
FCS	Food Consumption Score
FSNA	Food Security and Nutrition Assessment
GAM	Global Acute Malnutrition
HDDS	Household Diet Diversity Score
IBFAN	International Baby Food Action Network
ITN	Insecticide Treated Nets
IYCF	Infant and Young Child Feeding
LC	Local Council
M&E	Monitoring and evaluation
MAD	Minimum Acceptable Diet
MAM	Moderate Acute Malnutrition
MCHN	Maternal, Child Health and Nutrition
MDD	Minimum Dietary Diversity
MMF	Minimum Meal Frequency
MUAC	Mid-Upper Arm Circumference
NCHS	National Centre for Health Statistics
NUSAF	Northern Uganda Social Action Fund
RCSI	Reduced Coping Strategy Index
SAM	Severe Acute Malnutrition
SFP	Supplementary Feeding Programme
SMART	Standardised Monitoring and Assessment of Relief and Transition
SPSS	Statistical Package for Social Scientists
TFP	Therapeutic Feeding Programme
TLU	Tropical Livestock Unit
U5MR	Under-five Mortality Rate
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNWFP	United Nations World Food Programme
WASH	Water and Sanitation Hygiene
WHO	World Health Organization
WHZ	Weight-for-Height Z Scores

Executive Summary

Introduction

***Background*:** Karamoja sub-region is characterised by high rates of poverty and under-nutrition linked to weather-related challenges, poor environmental conditions and infrastructure. Comprehensive Food Security and Nutrition Assessments (FSNA) have been regularly conducted twice a year to monitor the situation and provide basis for timely, objectively verifiable interventions and response. The January 2018 FSNA that is in effect linked to the December 2017 cycle, was conducted in all seven districts of Abim, Amudat, Kaabong, Kotido, Moroto, Nakapiripirit and Napak. It comprised of quantitative household assessment targeting all sub-counties and urban divisions in each district. In addition, a qualitative assessment was conducted in Kotido District to complement and gain better understanding of findings from the quantitative assessment.

***Objective*:** The overall aim of the Karamoja FSNA was to determine the extent and severity of malnutrition in different age groups and food security of households as well as monitor selected food security, nutrition, health, water and sanitation indicators to assess programme performance.

***Methodology*:** The FSNA was designed as a cross-sectional household survey using two-stage cluster sampling based on the internationally recognized SMART (Standardized Monitoring and Assessment of Relief and Transitions) method for survey design and anthropometric assessments. Target populations were children 6-59 months for anthropometry, health and anaemia; children 0-23 months for Infant and Young Child Feeding, women 15-49 years for anaemia and anthropometry, and households for health, food security and mortality. Two survey teams for each of the 7 districts comprising of four members each carried out the assessment. The assessment teams were supported by a team of supervisors throughout the duration of data collection. A three-day training for supervisors and assessment teams were held prior to the field activity, including standardisation and field tests. The mobile platform was used for data collection in the field that facilitated automatic transfer of data to excel files. Anthropometric and mortality data was analysed using ENA for SMART software, while other data was analysed using Statistical Package for the Social Sciences (SPSS). A total of 256 clusters (villages) in the sub-region were assessed; 5,028 households; 5,653 children; and 4,914 women of child-bearing age.

Key Findings

- Assessment revealed a strong association between levels of education amongst heads of households and mothers with wasting, stunting and underweight in children below the age of five years while the family size had a strong association with prevalence of underweight;
- Crude mortality rate (CMR) across the Karamoja sub-region was 0.82 deaths per 10,000 per day and under-5 mortality rate (U5MR) of 0.70 deaths per 10,000 per day, which were not of public health significance (normal for stable situations);
- Prevalence of Global Acute Malnutrition (GAM) of 10.4% and Severe Acute Malnutrition (SAM) of 2.5% were noted to be "serious"/ "high" according to WHO's classification. GAM was highest in Moroto district (15.0%), noted as "Critical/ Very high" category and lowest in Abim district (6.2%) noted as "Poor/ Medium";

- The trend in prevalence of global acute malnutrition among children between 2010 and 2017 during the June and December assessments shows a gradual increase with the prevalence of malnutrition during the June round of assessments having increased from 11.5% in 2010 to 13.8% in 2017 whilst in December it increased from 9.8% to 10.4%.
- Prevalence of stunting of 34.0%, was of public health significance in the category of "serious/ high", with highest level registered in Kotido district (44.2%), categorised as "Critical/ very high", whilst the lowest was in Amudat district (23.8%) in the category "Serious/ High";
- Prevalence of under-nutrition on basis of the Body Mass Index among non-pregnant women in Karamoja sub-region was 5.3%, highest in districts of Moroto (8.2%) and Amudat (9%), while 15% of non-pregnant women in the sub-region were at risk of becoming undernourished;
- Initiation of breastfeeding within one hour of birth was reported by 85% of mothers, higher in districts of Kaabong, Nakapiripirit and Kotido whilst Amudat district had the lowest (69%). Exclusive breastfeeding of infants age 0 – 5 months was high (94%), particularly in Amudat and Napak districts (97% each);
- Timely introduction of complementary foods was reported for 74% of children in the sub-region, which was higher in Napak, Nakapiripirit, Moroto and Abim districts. Minimum dietary diversity was 8.5%; Minimum meal frequency 45%; and Minimal Acceptable Diet 4.7%;
- Prevalence of anaemia among children aged 6 to 59 months was at 59%, higher in Nakapiripirit, Kotido and Kaabong. Prevalence of anaemia among sampled women was 46%, with prevalence above 50% being registered in the districts of Kotido, Nakapiripirit and Kaabong;
- Immunisation among children aged 6 – 59 months was high, with 74% and 75% of children with verifiable evidence from the Child Health Card having received DPT3 and Measles vaccination, respectively. Absence of Child Health Cards was particularly marked in the districts of Kaabong and Moroto;
- Vitamin A supplementation in the previous six months among children age 6 – 59 months was at 64% with Child Health Card in the sub-region, with Abim district registering the highest coverage. Overall, 57% of the sampled children aged 12 to 59 months received de-worming medicines within 6 months preceding the assessment with verifiable evidence. Kaabong district had the highest and districts below sub-regional average included Moroto and Napak;
- Iron supplementation during the previous pregnancy was reported by 93% of women, especially from districts of Kotido, Abim and Moroto (98% each), whilst Amudat district recorded only 81%. The assessment revealed that only 40% of the pregnant women took supplements for at least 3 months in line with the national guidelines;
- Only 79% of the women received at least one messages on infant feeding, nutrition and health with the highest proportion from Abim (96%) and lowest in Amudat (44%). The highest proportion of mothers received messages on "Exclusive breastfeeding for first 6 months" (47%) and least on complementary feeding and maternal nutrition;
- Access to relatively safe and clean sources of water was reported by 90% of households in the sub-region with Amudat district lowest at only 22%. Water utilization of 20 or more litres per person per day was reported by only 23% of households ranging from 9% in Kaabong to 47% in Abim district. Treating of drinking water was only reported by 11% of the households, most commonly practiced in Abim (34%) and Nakapiripirit (11%) districts;

- Toilet ownership by households was reported by only 27% in the sub-region and an additional 6% shared toilet facilities. Households with toilet facilities were comparatively more common in Abim and Kaabong districts though highest proportion of toilets in Kaabong was the open pit type;
- Only 20% of children in the sub-region were enrolled in a feeding programme, with a range from only 7% in Amudat district and 9% in Abim, to 29% and 30% in Napak and Nakapiripirit districts, respectively:
- Prevalence of disease/ illness was common in the sub-region with 71% of sampled children reportedly having disease or symptoms within 2 weeks preceding the assessment. Fever/ malaria was the commonest (47%), followed by acute respiratory tract infection (ARI)/ cough (34%) and diarrhoea (26%). Kotido district recorded the highest prevalence of illnesses but Amudat the lowest;
- Livestock ownership was reported in 55% of households, with only 20% having reported ownership of high livestock holding, mainly in Amudat and Nakapiripirit districts. Parasites/ diseases (65%) were the most common constraints cited in livestock production, a problem more common in Amudat district (85%) but less in Kotido district (35%);
- Access to land for agriculture production was reported by 80% of households, which had an average size of 2.3 acres. Sorghum (77%) and maize (40%) were the most commonly cultivated crops by the households, followed by beans (22%). The main constraint to crop production was drought/ low rainfall (61%);
- Availability of food stocks was reported in 50% of households, with estimated mean duration for the sub-region of only 12.4 days, ranging from 4.1 days in Moroto district to 18.2 days in Amudat district. Main sources were own production (90%) and markets (7%). Food and humanitarian assistance had been received by 12% of the households in form of food aid (11%) and cash (2%). Beneficiaries of food aid were mainly from Nakapiripirit and Kotido districts, while most cash beneficiaries were in Kaabong and Amudat districts;
- Two or more income earners were reported by only 44% of households in the sub-region, with Nakapiripirit district (61%) registering the highest proportion and Amudat district the lowest (24%). The most important source of income was sale of natural resources such as firewood and charcoal (29%), predominantly in Napak, Moroto and Nakapiripirit districts;
- Having debt was reported in 32% of households, with the highest proportion being observed in Abim and Moroto districts while the lowest was in Amudat district. Sources of credit for all debts and loans were relatives (40%), traders and shop-keepers (21%), and Bank/credit institution/Micro-credit projects (17%). Main reasons for household debt were purchase of food (48%) and health expenses (28%). Borrowing to purchase food was comparatively more common in Kaabong and Moroto districts, but less common in Abim and Kotido districts;
- Market dependence by households for food was 42% in the sub-region, especially those from Moroto district (92%) but comparatively lower in Kaabong district (17%). About 37% of households were moderately insecure or severely food insecure based on the food expenditure share. This was more marked in the districts of Napak, Moroto and Amudat;
- Households with acceptable food consumption score (FCS) were 57% in the sub-region, with Kotido and Moroto districts having the highest proportion while Kaabong and Napak districts registered

the lowest. Low Dietary Diversity Score was reported by 52% of the selected households in the sub-region with Abim and Amudat districts registering the highest proportion.

- The linear trend in acceptable food consumption scores for the harvest season (December round of assessments) from 2012 to 2017 shows a gradual decline over the period while the poor FCS showed a gradual increase. However, apart from a slight increase to 61% in 2013, the food consumption pattern was relatively stable over the 5-year period between 2013 and 2017. This could reflect the responsiveness of interventions being made to address challenges faced by households in the Karamoja sub-region;
- The main shocks reported included sickness/ disease (34%), high food prices (27%), and drought (13%). Sickness was a big problem to households in Nakapiripirit and Kotido while high food prices affected mainly Abim and Moroto districts. The most commonly applied food consumption coping strategies were the consumption of less preferred food, borrowing of food, reducing the number of meals consumed per day, reducing the size of portions consumed and reducing the quantity of food consumed by adults. Kaabong and Nakapiripirit districts had comparatively larger proportion of households that applied the coping strategies while Abim district registered the lowest; and
- Overall, Food Security classification showed just more than half (56%) of the households in Karamoja sub-region were food secure. Abim district registered the highest proportion of food secure households whilst Napak and Kaabong districts had the lowest.

General Recommendations

A. Food Security

1) Implement climate smart agricultural practices, including, introduction of short maturing drought resistant crops, sustainable land management practices, crop rotation, intercropping cereals with legumes and diversification of agriculture to ensure minimum production levels amidst increasing climate variability;
2) Improve access to more land for agriculture production through re-settlement of communities from *Manyatta* settings and high plains, to the vast virgin land. This could be done through sensitization and awareness creation of communities given the benefits of obtaining enough foods coupled with improved agronomic practices and timely planting of crops;
3) Promote good post-harvest handling practices to reduce agricultural losses. This could be achieved through awareness creation on storage for future consumption, controlled sell of food after harvesting, Improved food management after harvest to avoid wastage among other interventions. In addition, the conventional practices could be combined with local post-harvest handling techniques;
4) Advocate for the construction of water harvesting structures and/or establishment of irrigation systems for improved crop and livestock production in the region;
5) Promote further investment in the livestock sector for the predominantly pastoral communities, e.g. through construction of dams, training on hay making, improved livestock breeds, etc. for improved household food security. This could be done through scaling up of the Para-Vet capacity enhancement programme, a joint programme supported by Government and FAO;

6) Scale up the Village Saving and Loan Associations but with oversight and keen interest from the leaders to provide guidance to the communities on efficiency of handling revolving funds, income generation grants and loans to avoid defaulting and failing to pay back; and

7) Introduce by-laws to regulate sale and consumption of alcohol and simultaneously implement a sensitization campaign on the dangers of alcohol.

B. Nutrition

8) Re-focus the supplementary feeding programmes to conduct more education for the caretakers and raise awareness on appropriate health, hygiene and caring practices, rather than simply distribution of food. Outreach services should be expanded to reach at least 90% of moderately malnourished children, with appropriate strategies to improve coverage of therapeutic feeding programmes;

9) Support and expand the interventions to increase supplementation of pregnant women with iron/folate especially in relation to duration of intake; as well as to promote consumption of diversified diets by pregnant women as a preventive strategy to the high anaemia prevalence in the sub-region;

10) Strengthen linkage between programmes aiming to reduce and/or prevent malnutrition and increasing community access to safe and clean water and sanitation, and reducing disease incidence, particularly diarrhoeal disease, respiratory infections and fever. Districts should make specific efforts to increase access to water given the distance mothers have to travel in search of clean and safe water as well as improve latrine coverage in the sub-region;

11) Promote early childhood development and complementary feeding practices among the communities since caring practices are a key factor in young child nutrition and health status;

12) Strengthen routine immunisations, de-worming and supplementation of vitamin A for all children and support the health clinics to provide Child Health Cards. Districts should promote campaigns to maintain high levels of de-worming and Vitamin A supplementation given their relatively low coverage in situations of poor feeding practices coupled with poor hygiene and sanitation practices.

13) Advocate for the central government to consider supplementing young children with Iron given the high prevalence of anaemia in this age group; and

14) Strengthen the routine surveillance activities that are integrated in the local government structures up to the sub-county levels, to allow early detection of changes in food security, nutrition and health status in order to scale down the bi-annual surveys.

C. Research

15) Include all the district development programmes in the next assessment and not only NUSAF in order to determine the impact of district development programmes on improved food and nutrition situation; include the number of individuals attending FAL classes in next assessment;

16) Improve training for enumeration teams with emphasis on probing for instance on livestock ownership because communities do not always speak the truth when it comes to ownership of livestock, the migratory nature of livestock, the difference between firewood and shrubs etc.;

17) The questions should be regularly reviewed and updated prior to the assessment to improve quality of responses, for instance to access to safe water which includes distance and functionality of the water sources should be included in the questionnaires;

18) Disseminate the FSNA results at national level to include implementing partners, donors Office of the Prime Minister and the relevant sectors as well as up to sub-county and community levels to include the health workers who can provide feedback to communities to instigate change; and

19) Harmonise all survey indicators and conduct fewer surveys due to community fatigue. This could be done through coordination meetings to unify the indicators.

1. Background

1.1: Introduction

The Karamoja sub-region in north-east Uganda is characterised by high rates of poverty and under-nutrition that are linked to weather-related challenges, poor environmental conditions and weak infrastructure. As a result, comprehensive Food Security and Nutrition Assessment (FSNA) has been regularly conducted twice a year to monitor the situation in the sub-region, and providing the basis for timely response and verification of intervention effectiveness.

This assessment of January 2018 was carried out one month late and conducted in all seven districts in the sub-region namely: Abim, Amudat, Kaabong, Kotido, Moroto, Nakapiripirit and Napak. It comprised of quantitative household surveys targeting all the sub-counties and urban divisions in each district. In addition, a qualitative assessment was also conducted in Kotido District to complement, and gain better understanding of findings from the quantitative survey.

1.2: Rationale

The purpose of the assessment was to establish the current status as of December 2017/ January 2018, of the key indicators related to food security, nutrition and health, including Water and Sanitation Hygiene (WASH) in all the 7 districts of Karamoja sub-region. This involved conducting quantitative household-level food security and nutrition assessments using the SMART methodology as well as application of qualitative research methodology in Kotido, a district in the northern part of Karamoja. During the mid-year round of assessments, the qualitative research was conducted in Amudat district situated in the southern part of Karamoja sub-region.

The activity is expected to provide current data on selected indicators that reflect the achievements from on-going program interventions. The findings will inform the program planning and decision-making and thus contribute towards the continuous program monitoring and evaluation processes.

1.3: Objectives

The specific objectives of the survey were to:

1) Determine the levels of retrospective crude mortality rates and age specific mortality rates for under-5s in a specified time period;

2) Determine prevalence of malnutrition (wasting, stunting and underweight) among children aged 6-59 months (and/or measuring 65 – 110 cm in length or height);

3) Assess the current IYCF feeding practices of the children in the target group, children 0 – 23 months;

4) Determine the prevalence of anaemia among children 6-59 months and pregnant and non-pregnant women 15-49 years;

5) Determine the coverage of health interventions (e.g. routine immunization coverage, DPT, Measles, polio and de-worming) and Vitamin A supplementation among children under five;

6) Assess access and coverage of safe water and sanitation facilities;

7) Determine the coverage of selective feeding programmes for children 6 to 59 months as well as programme performance;

8) Determine prevalence of common diseases (malaria, diarrhoea, measles and ARI) among the target population, two weeks prior to the assessment and access to/uptake of health services for treatment;

9) Assess the current food security status of households, including food consumption and dietary diversity (using 7-day dietary recall methods) and use of coping strategies including factors that determine household food security status;

10) Recommend appropriate immediate as well as medium to long term courses of action by the government, and its partners based on the findings of the assessment.

2. Methodology

2.1: Scope

The Karamoja Food Security and Nutrition Assessment comprised of quantitative surveys from 11th to 26th January 2018 in all the seven districts in the sub-region namely: Abim, Amudat, Kaabong, Kotido, Moroto, Nakapiripirit and Napak. However, to complement the findings from the quantitative survey, a qualitative assessment was also conducted in Kotido District.

The assessment was designed as a cross-sectional household survey using two-stage cluster sampling that provided representativeness at the district level. It was undertaken based on the internationally recognized SMART (Standardized Monitoring and Assessment of Relief and Transitions) methods for survey design and anthropometric assessments. The results for each indicator included the interval in which the real value among the study population is contained with a 95% confidence.

The qualitative assessment in Kotido explored the supply side from the perspective of community and civic leaders, the health and project managers at district and sub-district levels. The demand side was explored from the perspective of beneficiaries, with focus on mothers of children age 0 – 59 months, their spouses or partners and the community resource persons.

2.2: Sampling

In the first stage, a sample of clusters was selected using an updated list of parishes that constitute the district using the probability proportional to population size approach. The cluster, or enumeration area, was the parish. Updated parish lists were obtained from the district planning units. At the second stage households were selected using the systematic random sampling approach based on a list of village households obtained from the village head. We did not carry out a listing of households. More specifically, the approach adapted included the following:

- Where the number of households in the village was less than or equal to the required number, all households in the village were selected;
- Where the required number of households with children was not met in a village, in line with the SMART guidelines, the survey team proceeded to the nearest village and randomly selected the additional households to make up the required number;
- Where an individual or an entire household was absent, the teams returned to the household or revisited the absent individual up to two times on the same survey day. If unsuccessful after the subsequent attempts, it was recorded as an absence and not replaced; and
- Where the individual, entire household or entire village refused to participate, it was registered as a refusal and not replaced.

The actual parameters taken into consideration during sample size calculation has been summarised in Table 1. Precision needed at various levels of malnutrition prevalence, as outlined in the SMART Guidelines were used.

Table 1: Parameters used for Sample Size Calculation

Measure	District						
	Nakapiripirit	Moroto	Napak	Kotido	Abim	Kaabong	Amudat
Nutrition Status							
Estimated prevalence of malnutrition (%)	9.4	11.6	11.2	14.2	8.4	14.6	15.5
± Desired precision (%)	3	3.2	3.5	3.5	3	3.5	4
Design Effect	1.5	1.5	1.3	1.5	1.5	1.5	1.5
Children to be included	**594**	**628**	**601**	**624**	**536**	**638**	**514**
Number of Children per cluster	**17**	**18**	**17**	**18**	**15**	**17**	**13**
Average household size	5	5	5	5	5	5	5
<5 population (%)	20	20	20	20	20	20	20
Non-response households (%)	5	5	5	5	5	5	5
Households to be included for Anthropometry and Health module	694	735	703	730	627	747	601
No. households per cluster	20	21	20	21	18	21	16
Anaemia - Children							
Estimated prevalence of anaemia (%)	32.1	21.7	31.6	31.3	39.1	20.6	30.9
± Desired precision (%)	7.5	5.0	7.5	7.5	10	5.0	7.5
Design Effect	1.5	1.2	1.5	1.5	1.5	1.2	1.5
Children to be included	**243**	**341**	**241**	**240**	**149**	**328**	**238**
Estimated No. of children per cluster	**7**	**10**	**7**	**7**	**5**	**10**	**6**
Anaemia - Women							
Estimated prevalence (%)	44.1	45.9	17.5	48.8	34.8	32.8	17.2
± Desired precision (%)	10	10	5	10	7.5	7.5	5
Design Effect	1.5	1.5	1.2	1.5	1.2	1.2	1.2
Women to be included	**155**	**156**	**290**	**157**	**202**	**197**	**286**
Estimated no. of Women to be included per cluster	**5**	**5**	**8**	**5**	**6**	**6**	**8**
Food Security							
Estimated households of poor (21) Food Consumption Score	30	40	55	66	55	70	25
± Desired precision	7.5	10	10	10	10	10	7.5
Design Effect	2	1.5	1.5	1.5	1.5	1.5	1.5
Average household size	5	5	5	5	5	5	5
% of children < 5 years	20	20	20	20	20	20	20
Households to be included	312	491	579	577	569	617	610
Final Households to be Included	**758**	**694**	**689**	**628**	**719**	**655**	**672**
Number of Households per cluster	**22**	**20**	**20**	**18**	**21**	**19**	**20**
IYCF Practices							
Estimated % children 6 - 23 months in population	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Estimated prevalence (%)	50	50	50	50	50	50	50
Estimated District population	156,690	103,432	142,224	181,050	107,966	167,879	105,769

Measure	District						
	Nakapiripirit	Moroto	Napak	Kotido	Abim	Kaabong	Amudat
Estimated Population of 6 - 23 months (estimated at 6.4% of population)	10,028	6,620	9,102	11,587	6,910	10,744	6,769
Sample size	384	384	384	384	384	384	384
Sample size after small population correction	364	364	371	372	363	370	369
Number of Children (6-23) per cluster	**11**	**11**	**11**	**11**	**11**	**11**	**10**

The summary of clusters, households, children and women is presented in Table 2.

Table 2: Summary of Selected Clusters, Households and Target Population in the FSNA January 2018

District	Clusters	No. of Households	# Children - 6–59 months	# Children - 6 - 23 months	# Anaemia - Women	# Anaemia - Children
Abim	36	746	887	396	190	167
Amudat	40	716	778	365	223	216
Kaabong	35	721	869	339	252	346
Kotido	36	707	851	375	157	207
Moroto	36	662	667	359	186	328
Nakapiripirit	36	816	822	438	185	229
Napak	36	660	779	326	279	257
Total	**255**	**5,028**	**5,653**	**2,598**	**1,472**	**1,750**

2.3: Data Collection

An electronic version of the quantitative data collection questionnaire was prepared for use on the ODK platform. It was administered through face-to-face interviews with mothers, caregivers and/or household heads in the home settings using mobile tablets provided by United Nations World Food Programme (UNWFP) and the United Nations High Commissioner for Refugees (UNHCR). The food security module was administered at the household level, while health and nutrition module covered children age 0 – 59 months and their mothers. The anthropometric measurements were conducted on children aged 6 – 59 months. In addition, measurements were taken from the pregnant women and mothers of children age 0 to 59 months.

Age determination of children was done preferentially using child health cards but in their absence, a local events calendar was used following discussions with the mothers. The children with physical disabilities were assessed but findings from anthropometry was excluded from the analysis.

For qualitative data collection, 6 facilitators (two male and four female) were recruited from Kotido, on basis of fluency in the local language, and prior experience in conducting face-to-face

interviews and focus group discussions. The key informant interviews were conducted in English involving the Village Health Teams and Local Council 1 (LC 1) Chairpersons of 4 villages in the selected sub-counties. The focus group discussions were conducted in the local vernacular involving groups of 8 – 12 individuals comprising of: mothers of children age 0 – 59 months, male adults with children age 0 – 59 months, and mothers with malnourished children. Data was collected using voice recorders to facilitate accurate documentation of the process and in addition, the team took notes to facilitate the transcription process.

2.4 Data Quality Assurance

Measures put in place to ensure quality of the quantitative data included the following:

- Pre-programming the data-collection tablets to compute nutrition indices and to check for out-of-range values (using WHO-ANTHRO) such that input of wrong measurements raised an alert message and stopped the process till after the correction was done;
- Inclusion of pre-coded skip patterns, ranges and restrictions tailored to reduce errors during data collection and to save time;
- Conducting of standardization exercises during the training in all districts that ensured conducting of valid measurements by the Enumerators;
- Utilisation of the electronic digital weighing scales with higher accuracy and measurements to one decimal point, which eliminated digit piling and bias during the determination of weight;
- Seamless integration of the survey data with other computer programs such as Microsoft Excel for analysis with minimum errors; and
- Establishment of a strong supervision structure comprising of Team Leaders, Supervisors and Co-Investigators alongside the District Coordinator (District Health Officer) and the Ministry of Health team.

Measures undertaken for the qualitative data included the following:

- Qualitative data was collected using voice recorders that facilitated accurate documentation of the process, complemented by notes from the Enumerators;
- The daily notes were compiled and organized along the questions in the interview guide to accurately link interpretation of the findings from respondents during transcription; and
- Preliminary findings were first discussed among the analysis team for validation and triangulated to ensure accuracy.

2.5: Analysis

The overall framework for analysis of the assessment is summarised in Figure 1. The quantitative data was downloaded from the ONA website and cleaned before analysis could commence. Thereafter, exportation was done from the database software to the appropriate software used for processing and analysis, namely: Microsoft Excel, SPSS and ENA for SMART.

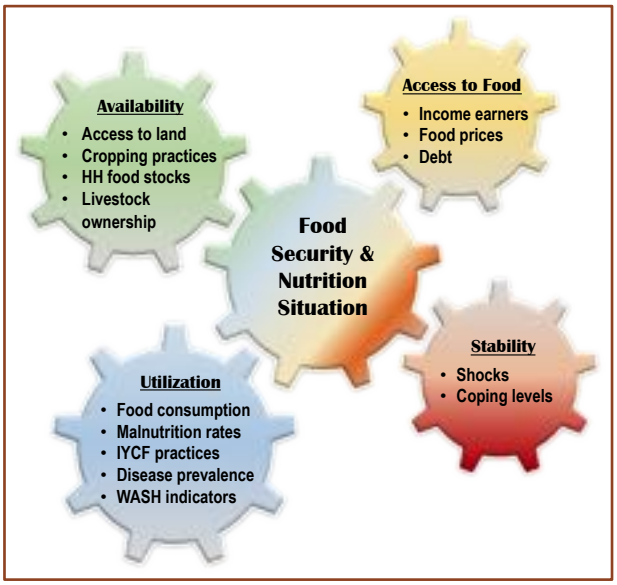

Figure 1: The Analysis Framework

Morbidity and other health-related data was analysed using SPSS and presented in form of descriptive statistics in appropriate tabular and graphical formats. Anthropometric data was exported into ENA for SMART for generation of z-scores used to determine nutritional indicators of Weight for Height (WHZ), Weight for Age (WAZ) and Height for Age (HAZ) z-scores based on the 2006 WHO Child Growth Standards.

The factors associated with malnutrition and food security were independently assessed using binary logistic regression.

Qualitative data

Qualitative data analysis involved identifying key messages in responses from the transcribed data. The transcribed empirical material was reviewed using an open coding procedure to identify the aspects that the respondents emphasized when they talked about undernutrition, food security and infant and young child practices. The key points/themes that emerged were marked with a series of codes, which were extracted from the text. These were read several times and closely related themes put together for a synthesis into specific messages in order to make them more workable for analysis.

Manual coding of key messages and subsequent generation of narratives as recommended by Svarstad (2010)[1] was followed because of its advantages over the available computer programmes. In particularly, was the advantage of ease to alternate between the different fragments of the transcribed material as well as the deeper understanding of the material that could be attained through the process.

[1] Svarstad, H. (2010). Why hiking? Rationality and reflexivity within three categories of meaning construction. *Journal of Leisure Research, 42* (1), 91-110.

2.6: Limitations

1) The Pokot of Amudat District are a cross-border, migratory community along the Uganda – Kenya border, the households were widely scattered, and their migratory nature led to unexpected shifting of villages;

2) Lack of Child Health Cards could have resulted in inaccuracies in the determination of the age through the events calendar, with the consequences of infants <6 months or children >59 months being included in the survey;

3) Some villages, especially in Amudat district were sparsely populated and hence had fewer number of households than required in the sample;

4) Actual number of livestock owned by an individual is a sensitive subject in the sub-region and what is reported may not be an accurate reflection of the situation on the ground.

3. Findings from Quantitative Survey

3.1: Household Socio-Demographic Characteristics

3.1.1: Age Distribution of Household Heads

In the sampled population, two-thirds of the selected 5,028 household heads (67%) were within the age-group of 20 – 39 years and 29% in the 40 – 49 years age group (Figure 2). There is evidence that links higher vulnerability to malnutrition of children born to the very young heads of household in age group 15 – 19 years and the very old heads of household in age group of 60 years and above[2]. Only 1% of household heads were within the age group of 15 – 19 years, while 3% were in the age group above 60 years, both age groups being particularly prominent in Napak district. This was attributed to early child marriages and adolescent pregnancies that is rampant in Napak district.

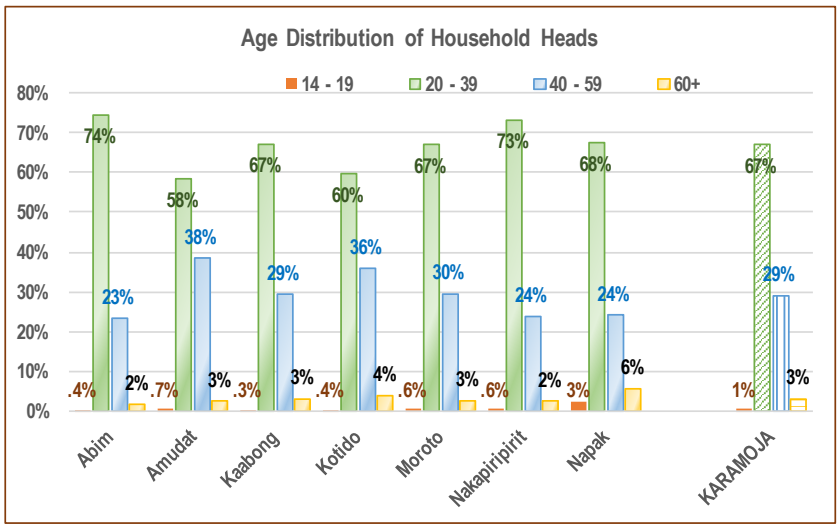

Figure 2: Age Distribution of Selected Household Heads, Jan 2018

3.1.2: Highest Education Level of Household Heads

There is a positive association between level of education and household income, which could in-turn influence the household food security[3]. As illustrated in Figure 3, approximately one in three heads of household (30% of 5,028) had gone through some formal education, with highest proportion in Abim district (83%). The lowest

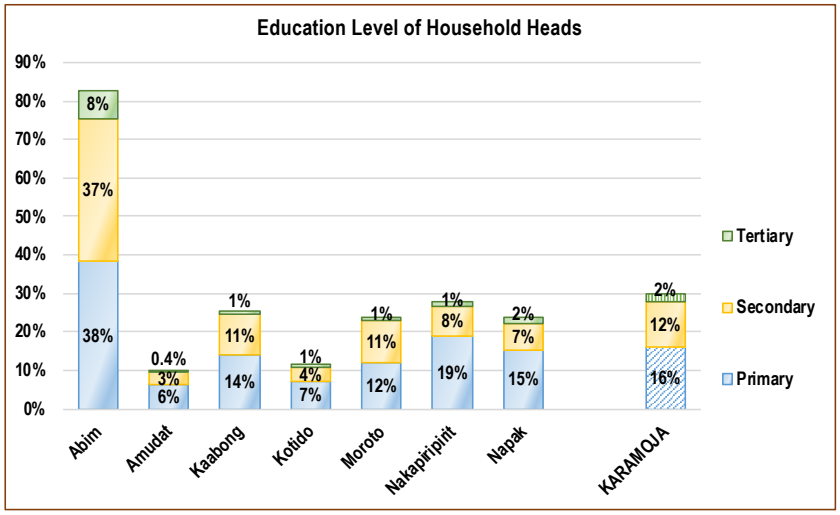

Figure 3: Education Level of Selected Household Heads, Jan 2018

[2] Yu SH, Mason J, Crum J, Cappa C, Hotchkiss DK. 2016. Differential effects of young maternal age on child growth. Global Health Action 2016, 9: 31171 - http://dx.doi.org/10.3402/gha.v9.31171

[3] Saad AA, and Adam AI. 2015. "The relationship between household income and educational level: South Darfur rural areas, Sudan, Statistical Study". International journal of Advanced Statistics and Probability, 2016

proportion were in recorded in the districts of Amudat (10%), Kotido (12%), Moroto and Napak (24% each). Overall, 70% of the household heads had no formal education, primary level education was reported by 16% whilst secondary and tertiary levels of education were reported by 12% and only 2%, respectively. This finding is similar to the one during the December 2016 assessment. Disaggregated by gender, there were more female household heads without any formal education (81%) than males (68%). There was a comparable proportion with primary level education (15% and 17%, respectively) but at secondary and higher levels of education, males were 15% male and females only 4%.

3.1.3: Gender of Household Head and Polygamy

Studies have linked vulnerability to malnutrition among children born in female-headed as well as polygamous households[4]. Up to 17% of the 5,028 sampled households in the region were female-headed, more pronounced in Napak, Kaabong and Nakapiripirit districts but lowest in Amudat district (Figure 4). This was slightly lower than 20% reported in the December 2016 assessment. On the other hand, 49% of the household heads were in a polygamous relationship, which was higher than 44% reported in the previous assessment. Among the selected population in this assessment, household polygamy was lowest in Abim district and highest in Kotido.

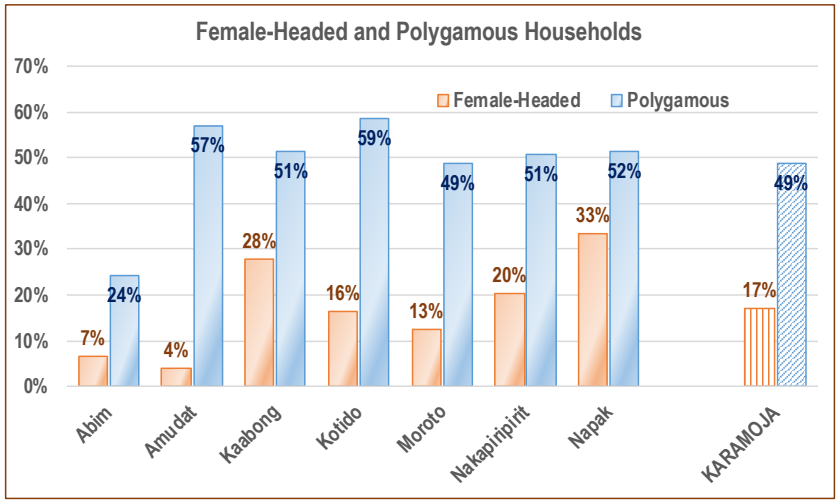

Figure 4: Gender of Household Heads and Polygamy Status, Jan 2018

3.1.4: Household Family Size

The number of people who eat from the same pot (household) has an influence on food security[5]. As illustrated in Figure 5, the highest proportion of selected households in the sub-region ranged between

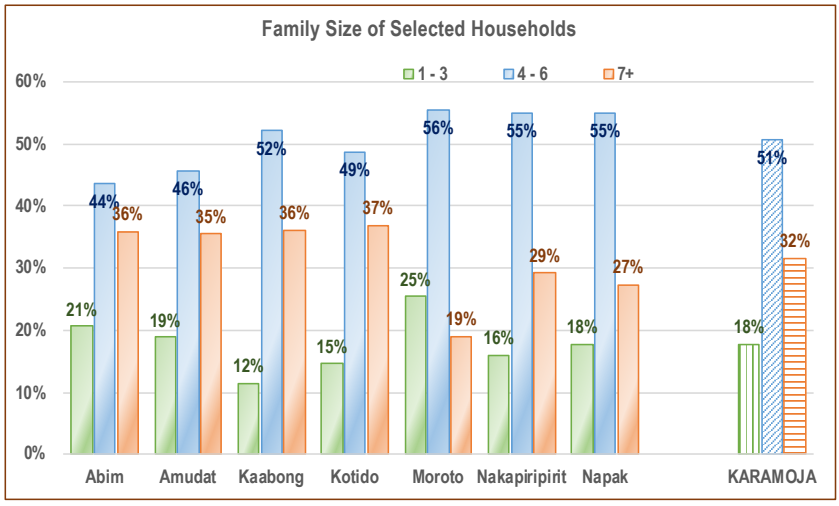

Figure 5: Family Size of the Selected Household, Jan 2018

[4] International Maize and Wheat Improvement Center. 2014. Food security as a gender issue: Why are female-headed households worse off compared to similar male-headed counterparts?

[5] Ajao KQ, Ojofeitimi EO, Adebayo AA, Fatusi AO, Afolabi OT (2010). Influence of family size, household food security status and child care practices on the nutritional status of under-five children in lie-Ife, Nigeria. US National Library of Medicine National Institutes of Health

four and six people (51%). It is worth noting that about one-third of the selected households (32%) reported having seven or more people in the household, particularly prominent in Kotido, Kaabong, Abim and Amudat districts. Only 1.5% of the selected households reported having either one or two people, which was more notable in Amudat and Napak districts.

3.1.5: Access to Health Care Services

The majority of selected household members in the region (83%) mostly got treatment when sick from the health centres, which are relatively more accessible (Figure 6). For instance, Kotido and Nakapiripirit districts where there is no hospital, 99% and 89% respectively, got treatment from the health centres. About one-fifth of households in Moroto and Abim districts reported going to the hospital when sick. Whereas Kaabong and Napak district have a hospital, only 6% and 7% of the selected households respectively, reported going to the hospital when sick. Utilisation of curative services by Village Health Teams was low across the sub-region apart from Amudat district. This was mainly attributed to a shortage of supplies and medicines for treatment of simple ailments as well as the predominantly preventive nature of services they provide.

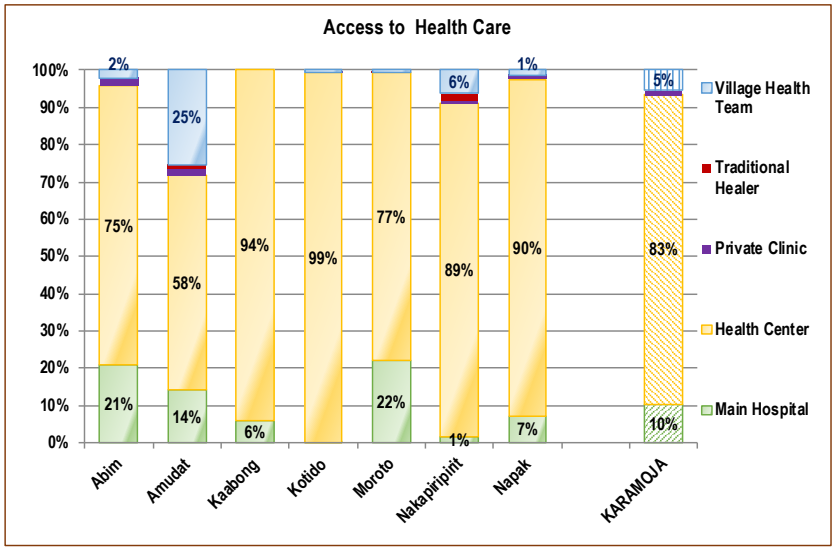

Figure 6: Access to Health Care by the Household Members, Jan 2018

3.1.6: Vulnerable Households and Support from NUSAF

Disability and chronic illness are associated with reduced ability to work, which in turn influences the food security level in the household[6]. As illustrated in Figure 7, out of the sampled households, 9% were previously in Extremely Vulnerable Households (EVH) program. This was more prominent in Nakapiripirit and Kaabong districts but lowest in

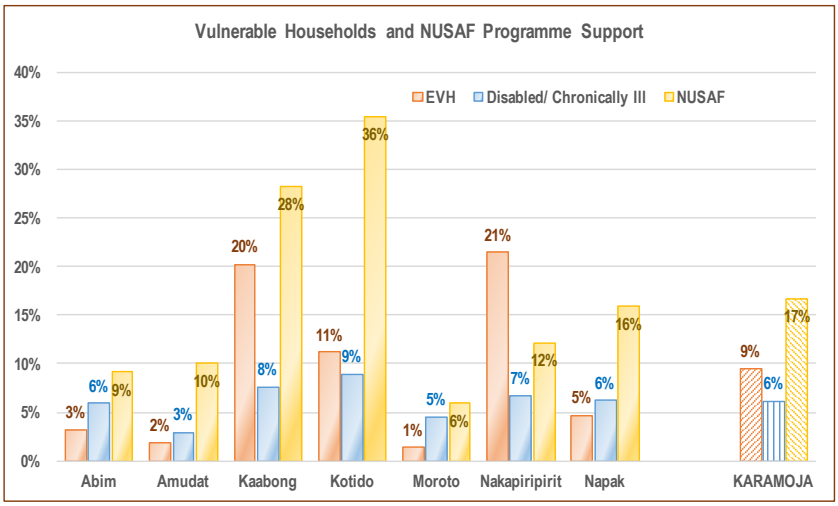

Figure 7: Vulnerable and NUSAF Supported Households, Jan 2018

[6] Coleman-Jensen A. 2013. "Disability Is an Important Risk Factor for Food Insecurity". ERR USDA, Economic Research Service

Moroto district. In the Karamoja sub-region, 6% of the selected households were headed by persons with disability or suffering from chronic illness. Kotido and Kaabong districts registered comparatively higher proportions of such households (9% and 8%, respectively), whilst Amudat district had the lowest. The assessment revealed a significant positive association between the prevalence of stunting among children and extremely vulnerable households.

Out of the sampled households in the sub-region, 17% were registered under the Northern Uganda Social Action Fund (NUSAF), with largest proportions in the districts of Kotido (36%) and Kaabong (28%). Moroto district with only 6% of the selected households, registered the lowest proportion of NUSAF beneficiaries. The district made note of the fact that other livelihood and development programmes had not been included in this assessment.

3.2: Household Water, Sanitation & Hygiene

3.2.1: Household Water

Overall, 90% of selected households in the sub-region accessed water from improved water sources such as boreholes fitted with hand pumps, piped water through taps, protected wells and springs (Figure 8). The finding is similar to the 91% reported from the December 2016 assessment. However, while Amudat still lagged behind in terms of access to safe sources of water, the proportion of 22% was lower than 31% reported in December 2016. Kaabong and Nakapiripirit districts also had comparatively larger proportion of households without access to relatively safe and clean sources of water. It was noted that this assessment did not cover the aspects of time and distance as possible constraints for access to household water.

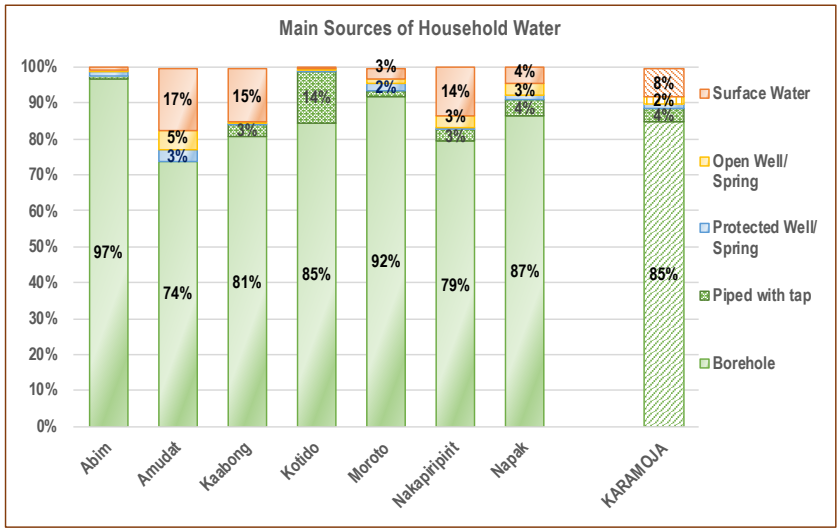

Figure 8: Reported Main Water Sources for Selected Households, Jan 2018

Treating of drinking water was only reported by 11% of selected households in the sub-region, with the practice comparatively more common in the districts of Abim (34%) and Nakapiripirit (11%). The main methods of water treatment reported were by boiling (44%) and letting it stand to settle (41%) that was mainly practiced in Abim district. Chlorination was used by 8% of households, mainly in Moroto and Napak districts.

The recommended amount of water for basic household hygiene and sanitation is at least 20 litres per person per day. As illustrated in Figure 9, only 23% of the selected households in Karamoja sub-region reported use of 20 or more litres of water per person per day, with a range from 9% in Kaabong to 47% in Abim district. The December 2016 assessment reported 37% of the households utilised at least 15 litres of water per person per day. In this round of the assessment, 38% of the households were found to be consuming 15 litres per person per day.

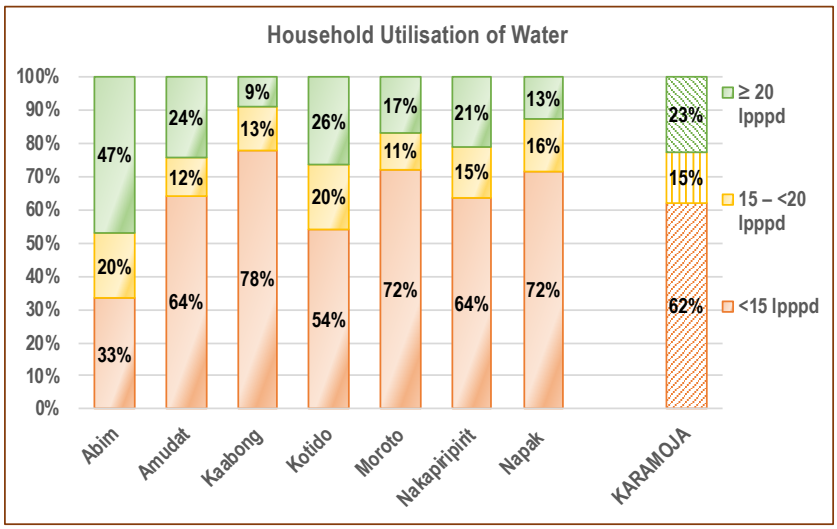

Figure 9: Reported Utilisation of Water at Selected Households, Jan 2018

3.2.2: Household Sanitation

Overall, only 27% of all selected households in the sub-region had their own toilet facilities and an additional 6% had shared toilet facilities (Figure 10). The finding was similar to that of December 2016 assessment that reported 27% owned and 6% shared toilet facilities. Households with toilet facilities were comparatively more common in Abim and Kaabong districts. The reported sharing of toilet facilities with other households was more common in Nakapiripirit district but much less common in Amudat district.

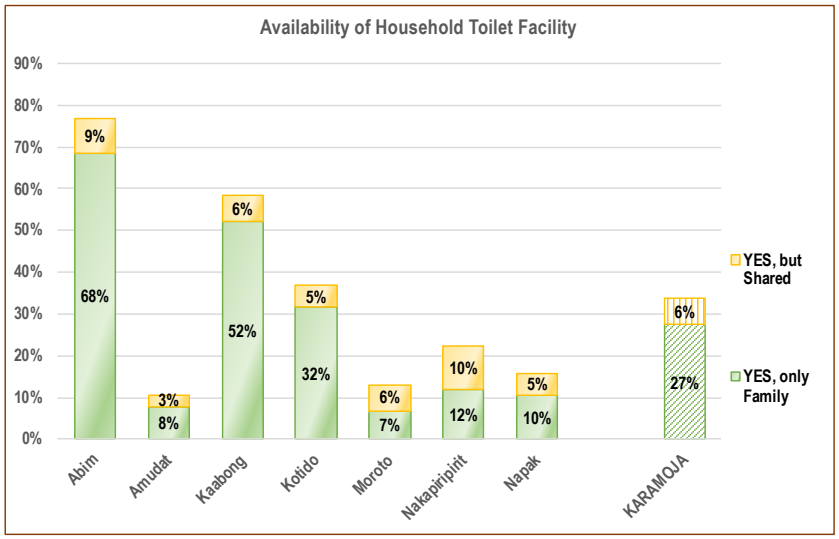

Figure 10: Availability of Toilet Facilities in Selected Household, Jan 2018

As illustrated in Figure 11, the open pit without a super structure, which is of a lower quality constituted the main type of facility for 73% of the selected households with toilets in the sub-region. The districts of Kaabong (97%) and Nakapiripirit (90%), had more households with this type of toilet facility than the sub-regional average. Of the households with toilets, Amudat, Moroto and Napak districts had the greatest proportion with good quality facilities. Whereas households were reporting availability of toilet facilities, members of the assessment team noted that open defaecation was still a relatively common practice in the sub-region. There is therefore continued need to improve latrine coverage as well as promote their use.

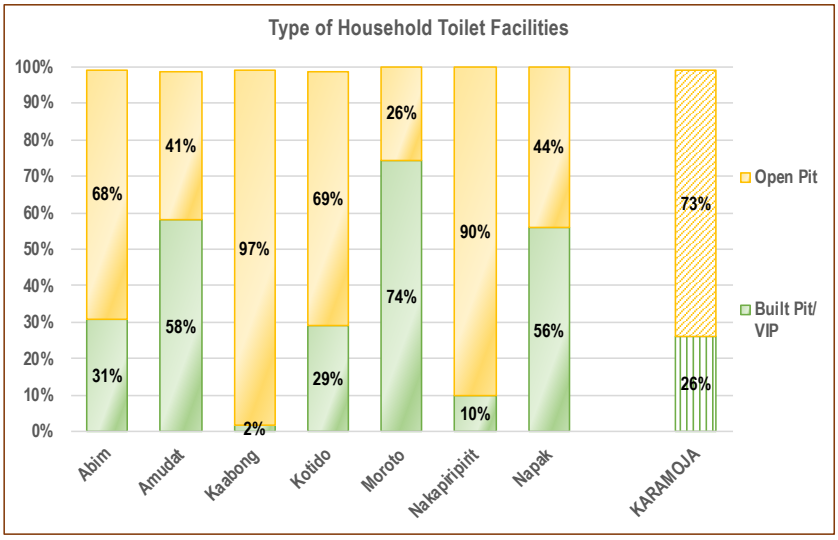

Figure 11: Type of Available Toilet Facility in Selected Households, Jan 2018

3.2.3: Household Fuel for Cooking

The type of cooking fuel reportedly utilised by the selected households is summarised in Figure 12. Firewood was the main type of fuel utilised by 93% of the selected households in the sub-region and the predominant fuel in the districts of Amudat and Kaabong (99% and 98% of households, respectively). Charcoal was reported by only 5% of the households, with comparatively more use by those in Moroto and Abim districts. The use of straw, shrubs and grass for cooking was a practice only common in Napak and Moroto districts.

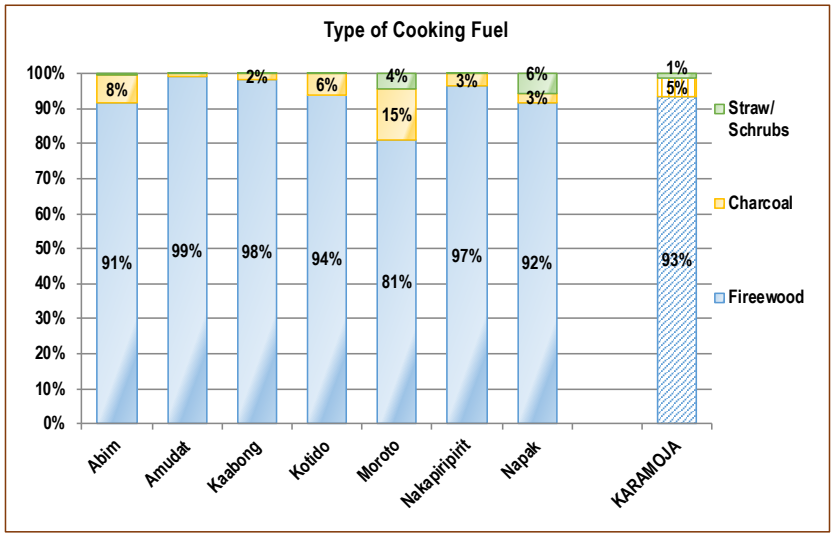

Figure 12: Type of Cooking Fuel Used in the Selected Households, Jan 2018

3.3: Maternal Health and Nutrition

3.3.1: Age Distribution of Mothers

Age is an important factor since for instance, the teenage mothers are still growing and are nutritionally at higher risk[7]. Most of the 5,653 women sampled during the assessment (88%) were in the age category 20 – 39 years, whilst those in category 40 – 49 years and 15 – 19 years were 6% and 5%, respectively. This finding was relatively similar across all districts in Karamoja sub-region as shown in Figure 13. There were comparatively more teenage mothers in Abim and Amudat districts but fewer in Kotido district.

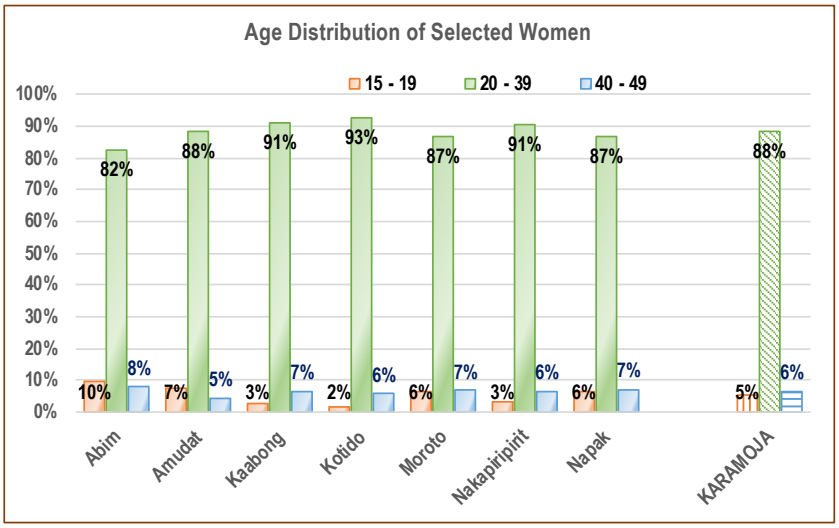

Figure 13: Age Distribution of the Selected Women, Jan 2018

3.3.2: Education Level of Mothers

Several studies have shown a strong relationship between education level of the mother and the child's nutrition status[8]. The highest education level attained by mothers summarised in Table 3, shows that only one-quarter had formal education: 20.3% of mothers have primary level and 5.2% secondary, or higher level of education. The proportion was slightly higher than that reported in the December 2016 assessment of 17% with formal education. However, a similar finding is that Abim district had the highest proportion of women with formal education in the sub-region (76%) and Kotido district had the lowest (9.4%).

Table 3: Summary of Sampled Women Disaggregated by Education Level

District	Educational Level of Mother			Total (n)
	No Formal Education	Primary Education	Secondary Level or more	
Abim	180 (24.0%)	440 (58.6%)	131 (17.4%)	**751**
Amudat	613 (89.1%)	55 (8.0%)	20 (2.9%)	**688**
Kaabong	576 (84.7%)	86 (12.6%)	18 (2.6%)	**680**
Kotido	648 (90.6%)	52 (7.3%)	15 (2.1%)	**715**
Moroto	511 (79.3%)	99 (15.4%)	34 (5.3%)	**644**

[7] Yu SH, Mason J, Crum J, Cappa C, Hotchkiss DK. 2016. Differential effects of young maternal age on child growth. Global Health Action 2016, 9: 31171 - http://dx.doi.org/10.3402/gha.v9.31171

[8] Saad AA, and Adam AI. 2015. "The relationship between household income and educational level: South Darfur rural areas, Sudan, Statistical Study". International journal of Advanced Statistics and Probability, 2016

District	Educational Level of Mother			Total (n)
	No Formal Education	Primary Education	Secondary Level or more	
Nakapiripirit	631 (80.9%)	131 (16.8%)	18 (2.3%)	**780**
Napak	503 (76.7%)	135 (20.6%)	18 (2.7%)	**656**
KARAMOJA	**3,662 (74.5%)**	**998 (20.3%)**	**254 (5.2%)**	**4,914**

3.3.3: Live Births

Higher numbers of live births is associated with nutritional and other complications to the mother[9]. The reported number of live-births by the selected women is summarised in Figure 14. It shows that about half of the women from Karamoja sub-region (52%) had given birth to between 1 and 3 children.

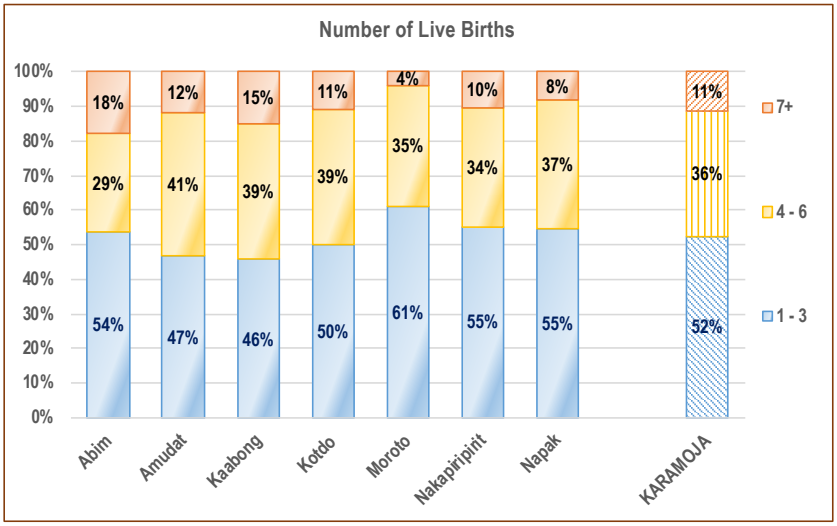

Figure 14: Reported Number of Live Births by Selected Women, Jan 2018

It is noteworthy that 11% of the women had given birth to 7 or more children especially marked in the districts of Abim and Kaabong (18% and 15%, respectively). The assessment showed that Abim mothers began child-bearing at an earlier age and produce many children. Findings of the assessment revealed a significant association between number of live births and polygamy, whereby polygamous households had higher numbers of live births.

3.3.4: Iron and Folate Supplementation

Iron and folic acid supplementation during pregnancy is among the strategies being promoted to reduce prevalence of anaemia. As illustrated in Figure 15, approximately 93% of the selected women in Karamoja sub-region reported taking iron tablets or syrup during the pregnancy for their

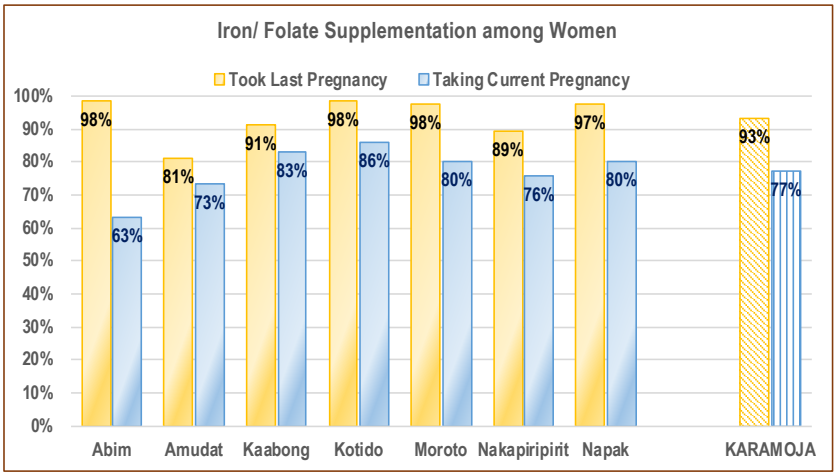

Figure 15: Iron and Folate Supplementation in Selected Women, Jan 2018

[9] Abuya AB, Ciera J, Kimani-Murage E. 2012. Effect of mother's education on child's nutritional status in the slums of Nairobi. BMC Pediatr. 2012; 12: 80. doi: 10.1186/1471-2431-12-80

youngest child. The districts of Abim, Kotido and Moroto (98% each) registered the highest proportion of women whilst Amudat district had the lowest (81%). Figure 15 also shows that overall, 77% of the pregnant women in the sub-region reported currently taking iron and folic acid supplements, a practice that was more marked among those from Kotido district (86%). Abim district registered the lowest proportion of women currently receiving iron and folic acid in Karamoja sub-region (63%)

The national guidelines recommend taking iron and folic acid supplements for at least 90 days during the pregnancy. Table 4 summarises the duration of taking the supplements by selected mothers in Karamoja sub-region and shows that 39.8% took for at least 3 months in line with the guidelines. The practice was more common among women from Napak and Moroto districts, while Kotido district registered the lowest proportion of women (18.1%). District officials attributed this to late attendance of antenatal care by mothers and inadequate supplies of iron and folate.

Table 4: Reported Duration of Iron and Folate Supplementation by Selected Women, January 2018

District	Less than 1 month	1 - 2 month	3 or more months	Don't know	Total
Abim	173 (23.4%)	249 (33.7%)	314 (42.5%)	2 (0.3%)	**738**
Amudat	198 (35.5%)	197 (35.3%)	159 (28.5%)	4 (0.7%)	**558**
Kaabong	141 (22.7%)	283 (45.5%)	194 (31.2%)	4 (0.6%)	**622**
Kotido	299 (42.6%)	266 (37.9%)	127 (18.1%)	10 (1.4%)	**702**
Moroto	204 (32.5%)	62 (9.9%)	353 (56.2%)	9 (1.4%)	**628**
Nakapiripirit	303 (43.4%)	143 (20.5%)	231 (33.1%)	21 (3.0%)	**698**
Napak	25 (3.9%)	146 (22.8%)	446 (69.8%)	22 (3.4%)	**639**
KARAMOJA	**1,343 (29.3%)**	**1,346 (29.4%)**	**1,824 (39.8%)**	**72 (1.6%)**	**4,585**

3.3.5: Mothers' Nutritional Status

Table 5 shows that on basis of the Body Mass Index, 5.2% of non-pregnant selected women in Karamoja sub-region were undernourished (severe and moderate), whilst 3.8% were over-nourished (overweight and obese). The results of the assessment also showed that 15% of non-pregnant women were at risk of becoming undernourished. The prevalence of under-nutrition among non-pregnant women was higher in the districts of Amudat (9%) and Moroto (8.2 %), while Kotido and Abim districts registered the lowest proportion. Amudat district had the highest level of under-nourished and over-nourished non-pregnant women of 9% and 8.6% respectively, which highlighted the double burden of malnutrition being faced by the district.

Table 5: Nutritional Status of Selected Women in Karamoja by BMI, January 2018

District	N	BMI Category					
		Severe	Moderate	Under-nourished *(Severe + Moderate)*	Over weight	Obese	Over-nourished *(Overweight + Obese)*
Abim	650	8 (1.2%)	9 (1.4%)	**17 (2.6%)**	25(3.8%)	8 (1.2%)	**33 (5.0%)**
Amudat	547	24 (4.4%)	25 (4.6%)	**49 (9%)**	20 (3.7%)	27 (4.9%)	**47 (8.6%)**
Kaabong	566	11 (1.9%)	15 (2.7%)	**26 (4.6%)**	6 (1.1%)	2 (1.2%)	**8 (2.3%)**
Kotido	616	6 (1.0%)	9 (1.5%)	**15(2.5%)**	14 (2.3%)	4 (0.6%)	**18 (2.9%)**
Moroto	578	23 (4.0%)	24 (4.2%)	**47 (8.2%)**	10 (1.7%)	7 (1.2%)	**17 (2.9%)**
Nakapiripirit	649	12 (1.8%)	21 (3.2%)	**33 (5.0%)**	9 (1.4%)	8 (1.2%)	**17 (2.6%)**
Napak	549	12 (2.2%)	17 (3.1%)	**29 (5.3%)**	6 (1.1%)	7 (1.3%)	**13 (2.4%)**
KARAMOJA	**4,255**	**96 (2.3%)**	**120 (2.9%)**	**216 (5.2%)**	**90 (2.2%)**	**68 (1.6%)**	**158 (3.8%)**

The nutritional status of the selected women (pregnant and non-pregnant) from Karamoja sub-region on basis of Mid-Upper Arm Circumference (MUAC) findings is summarised in Table 6. It shows that 6.9% of women in the sub-region were under-nourished. Amudat district (11.4%) had the highest proportion of under-nourished women whilst Abim district registered the lowest proportion of under-nourished women.

Table 6: Prevalence of Malnutrition by MUAC, January 2018

District	N	Severe	Moderate	Under - nourished
Abim	751	7 (0.9%)	15 (2.0%)	**22 (2.9%)**
Amudat	688	35 (5.1%)	43 (6.3%)	**78 (11.4%)**
Kaabong	680	16 (2.4%)	42 (6.2%)	**58 (8.6%)**
Kotido	715	5 (0.7%)	24 (3.4%)	**29 (4.1%)**
Moroto	644	11 (1.7%)	46 (7.1%)	**57 (8.8%)**
Nakapiripirit	780	4 (0.5%)	59 (7.6%)	**63 (8.1%)**
Napak	656	8 (1.2%)	21 (3.2%)	**29 (4.4%)**
KARAMOJA	**4,914**	**86 (1.8%)**	**250 (5.1%)**	**336 (6.9%)**

3.3.6: Prevalence of Anaemia among Mothers

The prevalence of anaemia among women aged 15 – 49 years has been summarised in Figure 16, which shows that 46% had some form of anaemia: 22% mild, 23% moderate and 1% had severe. It reflected an increase from the prevalence of 40.3% reported in December 2016,

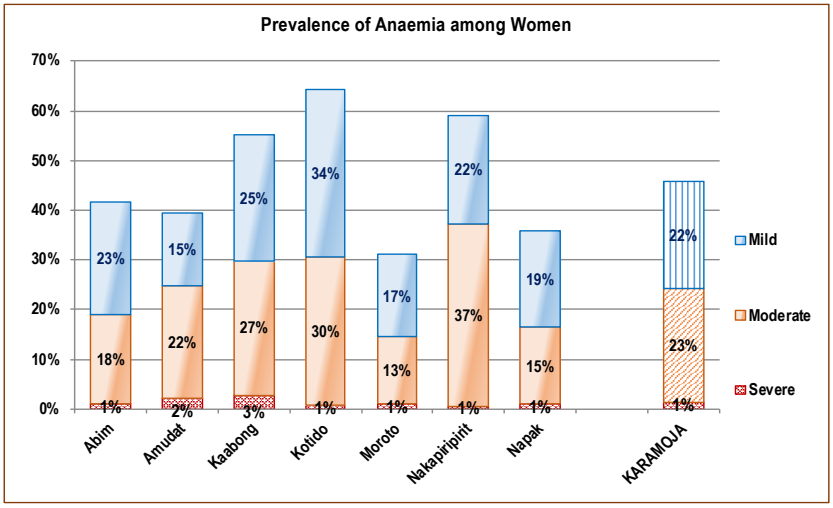

Figure 16: Prevalence of Anaemia among the Selected Women, Jan 2018

with mild, moderate and severe at 28.6%, 11% and 0.8% respectively. Overall, anaemia prevalence among women above 50% was registered in the districts of Kotido, Nakapiripirit and Kaabong whilst Moroto district had the lowest level. Kaabong district had the highest proportion of women with severe anaemia and Nakapiripirit had the highest proportion with moderate anaemia. The higher proportion of women with longer duration of iron intake during pregnancy from Moroto and Napak districts could have contributed towards the lower prevalence of maternal anaemia in these districts.

3.3.7: Education on Health and Nutrition

Table 7: Key Messages from Maternal Education

Breastfeeding	Timely initiation of breastfeeding	1,526 (39.4%)
	Exclusive breastfeeding for 1st 6 months	1,807 (46.7%)
	Breastfeeding frequency increases breast milk	981 (25.3%)
Complementary Feeding	Frequency, amount, thickness and variety of feeds	765 (19.8%)
	Supervise the feeding of children ¨	784 (20.3%)
	Use of vitamin and mineral powders	585 (15.1%)
Maternal Nutrition	Eat a variety of foods to have a healthy baby	1,177 (30.4%)
	Treatment and prevention of malaria in pregnancy	1,069 (27.6%)
	Increase food intake in pregnancy/ breastfeeding	889 (23.0%)
	Deworm during 3rd trimester of pregnancy	667 (17.2%)
Hygiene and Sanitation	Hand washing before preparing food	1,399 (36.1%)
	Hand washing before eating or feeding a child	1,559 (40.3%)
	Hand washing after cleaning a child's bottom	1,271 (32.8%)
	Hand washing after using the toilet	1,350 (34.9%)
	Safe and clean water use for domestic purposes	931 (24.1%)
	Wash and dry home utensils on a dry rack	975 (25.2%)
	Use the latrines for proper disposal of faeces	1,138 (29.4%)
Total Number (N)		**3,871**

Sampled women were asked whether they had received any messages and support on breastfeeding, complementary feeding, maternal nutrition and hygiene as well as sanitation. Of the women assessed in Karamoja sub-region, only 79% had received at least one such message and support with the highest proportion in Abim **(96%)** and lowest in Amudat **(44%)**. The other districts with lower proportions than sub-region's average included Napak (76%) and Moroto (73%). As summarised in Table 7, in relation to breastfeeding messages, the highest proportion of mothers received messages on "Exclusive breastfeeding for first 6 months" (46.7%); complementary feeding was on "Supervise the feeding of children" (20.3%); Maternal nutrition messaging was on "Eat a variety of foods to have a healthy baby" (30.4%); and messages on Hygiene and sanitation was on "Hand washing before eating or feeding a child" (40.3%). Noteworthy, messages on Complementary Feeding and Maternal Nutrition were reportedly received by a lower proportion of the sampled mothers, as compared to messages on breastfeeding, maternal nutrition, hygiene and sanitation. This could have been due to inadequate education materials and tools as well as low staffing levels at the health facilities.

3.4: Child Health and Nutrition

3.4.1: Prevention of Childhood Illness

The third dose of Pentavalent/ DPT vaccine is given at 14 weeks of age and its coverage reflects effectiveness of the immunisation programme. As summarised in Table 8, overall 93.9% of the children had received DPT3 with verifiable evidence from the Child Health Card available for 74.3% but 19.6% being based on the mother's or caretaker's report. The highest proportion of children was in Abim district (98.2%) while districts below the sub-regional average included Kaabong, Amudat and Napak.

Table 8: Immunisation of Children in Karamoja Sub-region, by District, January 2018

District	DPT 3					MEASLES				
	Yes, with Card	Yes, without Card	No, with Card	No, without Card	Total	Yes, with Card	Yes, without Card	No, with Card	No, without Card	Total
Abim	703 (74.3%)	226 (23.9%)	9 (1.0%)	8 (0.8%)	**946**	597 (72.5%)	209 (25.4%)	4 (0.5%)	13 (1.6%)	**823**
Amudat	609 (71.3%)	167 (19.6%)	38 (4.4%)	40 (4.7%)	**854**	536 (74.8%)	146 (20.4%)	18 (2.5%)	17 (2.4%)	**717**
Kaabong	481 (54.8%)	283 (32.3%)	98 (11.2%)	15 (1.7%)	**877**	500 (61.1%)	285 (34.8%)	27 (3.3%)	6 (0.7%)	**818**
Kotido	824 (89.8%)	52 (5.7%)	34 (3.7%)	8 (0.9%)	**918**	724 (91.2%)	47 (5.9%)	23 (2.9%)	0	**794**
Moroto	456 (63.2%)	246 (34.1%)	16 (2.2%)	4 (0.6%)	**722**	371 (62.0%)	207 (34.6%)	12 (2.0%)	8 (1.3%)	**598**
Nakapiripirit	768 (87.2%)	71 (8.1%)	32 (3.6%)	10 (1.1%)	**881**	671 (86.8%)	70 (9.1%)	24 (3.1%)	8 (1.0%)	**773**
Napak	655 (76.5%)	139 (16.2%)	55 (6.4%)	7 (0.8%)	**856**	545 (75.5%)	129 (17.9%)	43 (6.0%)	5 (0.7%)	**722**
KARAMOJA	**4,496 (74.3%)**	**1,184 (19.6%)**	**282 (4.7%)**	**92 (1.5%)**	**6,054**	**3,944 (75.2%)**	**1,093 (20.8%)**	**151 (2.9%)**	**57 (1.1%)**	**5,245**

Measles vaccination is carried out at 9 months of age and overall 96% of children in the sub-region were immunised, 75.2% of them with verifiable evidence on the Child Health cards and 20.8% based on the mother's or caretaker's report (Table 8). The range was from 93.4% in Napak district to 97.9% in Abim district. The proportion of children without evidence from Child Health Cards was higher in Kaabong and Moroto districts.

Vitamin A supplements is provided every 6 months to children between the age of 6 and 59 months. Out of the selected households, 83.2% of the children aged 6 to 59 months had received vitamin A supplements within the previous six months, 64.4% with the Child Health Cards for verification but 18.8% based on mother's or caretaker's report (Table 9). Abim district had the highest (90.5%) whilst districts below the sub-regional average included Amudat and Napak.

Medicines for treatment of intestinal worms is provided every 6 months to children aged between 12 and 59 months. Overall, 89.5% of the sampled children aged 12 to 59 months had received de-worming medicines within the 6 months preceding the assessment with verifiable evidence for 69.2% (Table 9). Abm district had the highest (96.7%) and districts below the sub-regional average

included Moroto, Kaabong and Napak. Lack of Child Health Cards was most marked in Kaabong and Moroto districts. In general, districts attributed the high coverage of services to participation in the MCHN programme but low uptake of services to stock outs of medicines such as anti-helminthics and supplies.

Table 9: Vitamin A and De-worming among Children in Karamoja Sub-region, by District, January 2018

District	DEWORMING					VITAMIN A				
	Yes, with Card	Yes, without Card	No, with Card	No, without Card	Total	Yes, with Card	Yes, without Card	No, with Card	No, without Card	Total
Abim	531 (70.9%)	193 (25.8%)	13 (1.7%)	12 (1.6%)	**749**	662 (67.7%)	223 (22.8%)	54 (5.5%)	39 (4.0%)	**978**
Amudat	473 (72.3%)	134 (20.5%)	18 (2.8%)	29 (4.4%)	**654**	544 (60.3%)	186 (20.6%)	102 (11.3%)	70 (7.8%)	**902**
Kaabong	389 (52.3%)	250 (33.6%)	85 (11.4%)	20 (2.7%)	**744**	473 (53.8%)	276 (31.4%)	111 (12.6%)	19 (2.2%)	**879**
Kotido	637 (86.4%)	68 (9.2%)	31 (4.92%)	1 (0.1%)	**737**	736 (78.0%)	76 (8.1%)	117 (12.4%)	15 (1.6%)	**944**
Moroto	260 (52.5%)	161 (32.5%)	18 (3.6%)	56 (11.3%)	**495**	403 (54.2%)	237 (31.9%)	67 (9.0%)	37 (5.0%)	**744**
Nakapiripirit	549 (80.3%)	53 (7.7%)	73 (10.7%)	9 (1.3%)	**684**	692 (77.1%)	61 (6.8%)	127 (14.2%)	17 (1.9%)	**897**
Napak	425 (64.7%)	102 (15.6%)	102 (15.5%)	28 (4.3%)	**657**	513 (56.6%)	115 (12.7%)	229 (25.3%)	49 (5.4%)	**906**
KARAMOJA	**3,264 (69.2%)**	**961 (20.4%)**	**340 (7.2%)**	**155 (3.3%)**	**4,720**	**4,023 (64.4%)**	**1,174 (18.8%)**	**807 (12.9%)**	**246 (3.9%)**	**6,250**

3.4.2: Breastfeeding Practices

Early initiation of breastfeeding, within one hour of birth, protects the newborn from acquiring infection and reduces newborn mortality among other benefits. Table 10 shows that **85%** of sampled mothers with children 0 to 23 months of age put their infants to the breast within the first hour after birth. This finding was slightly lower than the 88% reported in the December 2016 assessment. The proportion of children initiated within first hour was above the sub-regional average in the districts of Kaabong, Nakapiripirit and Kotido whilst Amudat district had the lowest (69%). The survey also found out that only 0.5% of children did not breastfeed at all.

Exclusive breastfeeding for 6 months confers many benefits to the infant and mother such as protection against gastrointestinal infections, among other benefits[10]. Table 10 shows that 94% of infants 0–5 months of age were fed exclusively with breast milk. This finding reflected a slight increase from the 91% reported in December 2016 assessment. Amudat and Napak districts had comparatively higher proportions of children on exclusive breastfeeding (97% each), whilst the lowest was in Kaabong district (86%). Exclusive breastfeeding in Karamoja sub-region has been consistently higher than the national average[11] of 65.5%.

[10] WHO 2011. Benefits of Exclusive breastfeeding: Statement January 2011. Geneva, Switzerland
[11] Uganda Bureau of Statistics (UBOS) and ICF. 2017. Uganda Demographic and Health Survey 2016: Key Indicators Report. Kampala, Uganda: UBOS, and Rockville, Maryland, USA: UBOS and ICF

Breast milk provides one half or more of a child's energy needs between 6 and 12 months of age, and one third of energy needs between 12 and 24 months. As summarised in Table 10, nine out of ten children between ages 12 and 15 months were fed breast milk during the previous day, with comparatively higher proportions than the sub-regional average attained by Napak and Nakapiripirit districts. Continued breastfeeding at one year was lowest in Amudat district.

Table 10: Summary of the Breastfeeding Indicators for Karamoja Sub-region, January 2018

District	Timely BF Initiation	Exclusive Breastfeeding	Continued BF at Age 1 Year	Continued BF at Age 2 Years
Abim	770 (79%)	86 (92%)	82 (87%)	38 (48%)
Amudat	619 (69%)	107 (97%)	78 (76%)	22 (36%)
Kaabong	792 (90%)	6 (86%)	61 (86%)	57 (70%)
Kotido	914 (97%)	75 (93%)	70 (90%)	65 (76%)
Moroto	611 (82%)	66 (90%)	78 (96%)	47 (75%)
Nakapiripirit	825 (92%)	54 (93%)	121 (98%)	56 (72%)
Napak	763 (84%)	119 (97%)	80 (99%)	42 (76%)
KARAMOJA	**5,294 (85%)**	**513 (94%)**	**570 (90%)**	**327 (65%)**

The National Nutrition Policy on IYCF recommends breastfeeding up to 2 years or beyond and assessing breastfeeding among children aged 20–23 months provides a more accurate measure of those receiving the full benefit. Table 10 shows that 65% of children 20–23 months of age were fed on breast milk the previous day. Kotido and Napak districts registered the highest proportions of children 20–23 months of age were fed on breast milk the previous day. Continued breastfeeding at 2 years was lowest in Amudat district.

3.4.3: Complementary Feeding Practices

Around the age of 6 months, an infant's need for energy and nutrients starts to exceed what is provided by breast milk. Complementary foods are necessary to meet energy and nutrient requirements to promote adequate growth. As illustrated in Figure 17, approximately three-quarters (74%) of the selected infants 6–8 months of age received solid, semi-solid or soft foods during the

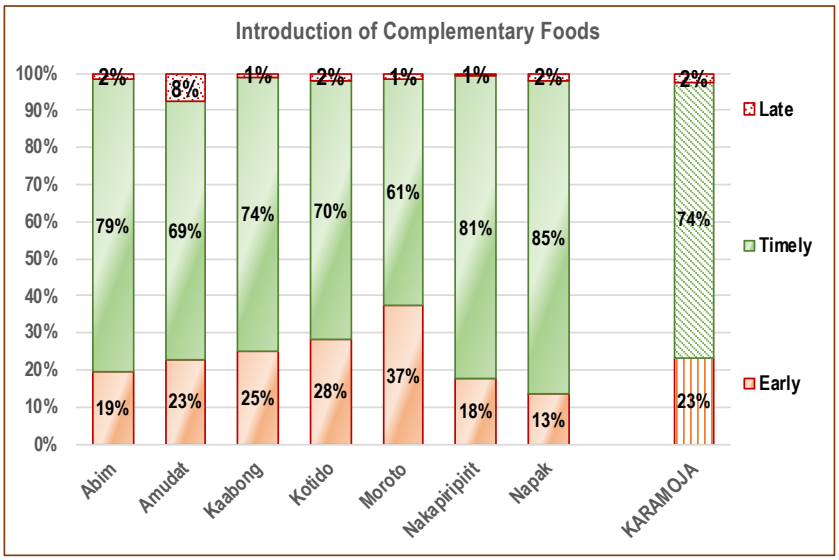

Figure 17: Introduction of Complementary Foods, January 2018

day prior to the assessment. The districts of Napak, Nakapiripirit, Moroto and Abim registered proportions higher than the sub-regions average. The December 2016 assessment reported on proportion of children introduced at 6 months (50%), which was different from the recommended 6 – 8 months.

Figure 19 also illustrates that for 23% of the selected children, complementary feeding was introduced before the recommended age (before 6 months of age). The finding reflects an increase in proportion from the 14% reported in the December 2016 assessment. The practice of early introduction of complementary foods was observed to be more common in the districts of Moroto and Kotido.

Late introduction of complementary foods (after 8 months of age) was reported by only 2% of children in Karamoja sub-region. The practice was noted to be mainly prevalent in Amudat district (8%) but lowest in Nakapiripirit district 0.7%)

Dietary diversity[12] is a proxy for adequate macro- and micro-nutrient-density of foods. Several studies have shown that consumption of foods from at least 4 food groups on the previous day would mean that the child had a high likelihood of consuming at least one animal-source food and at least one fruit or vegetable, in addition to a staple food[13]. Table 11 shows that **8.5%** of children 6–23 months of age received foods from 4 or more food groups during the previous day with the highest proportion found in the districts of Kaabong (12.1%) and Nakapiripirit (14.8%). The finding reflected significant increase from that of December 2016, when only 1.1% of children in Kotido and 0.7% each in Moroto and Napak districts met the minimum dietary diversity. The lowest was recorded in the districts of Amudat (2.7%) and Moroto (4.7%). Children in the 18 – 23 months' age-group had comparatively higher likelihood of consuming diverse diets, while the 6 – 11 months had the lowest.

Table 11: Minimum Dietary Diversity by Age Group and District, January 2018

District	6 - 11 Months	12 - 17 Months	18 - 23 Months	6 - 23 Months	Total (N)
Abim	3 (2.4%)	6 (4.2%)	7 (5.5%)	16 (4.0%)	**396**
Amudat	4 (3.1%)	4 (3.0%)	2 (2.0%)	10 (2.7%)	**365**
Kaabong	5 (5.5%)	14 (13.2%)	22 (15.5%)	41 (12.1%)	**339**
Kotido	20 (16.3%)	11 (8.8%)	11 (8.7%)	42 (11.2%)	**375**
Moroto	5 (3.4%)	6 (4.8%)	6 (6.7%)	17 (4.7%)	**359**
Nakapiripirit	14 (11.6%)	27 (14.8%)	24 (17.9%)	65 (14.8%)	**438**
Napak	8 (6.9%)	10 (7.9%)	13 (15.5%)	31 (9.5%)	**326**
KARAMOJA	**59 (6.9%)**	**78 (8.3%)**	**85 (10.6%)**	**222 (8.5%)**	**2,598**

[12] If the child is at least 6 months old but less than 24 months old and getting at least 4 of the 7 food groups, then the child is considered to have adequate dietary diversity. The seven food groups are: 1. Grain, roots tubers; 2. Legumes and nuts; 3. Dairy products (milk, yogurt, cheese); 4. Flesh foods (meat, fish, poultry, liver/organ meats); 5. Eggs; 6. Vitamin A rich fruits and vegetables; 7. Other fruits and vegetables

[13] Pasqualino, M., Kennedy, G., Longley, K. – 2016. Food and nutrition security in the Barotse floodplain system. https://books.google.co.ug/books?id=-eWqDQAAQBAJ

Minimum daily meal frequency[14] Table 12 shows that only 45% of breastfed and non-breastfed children 6–23 months of age received solid, semi-solid, or soft foods the minimum number of times or more the previous day. Districts registering higher proportion of children falling under this category were Kaabong and Amudat while Napak district had the lowest 30%. Children in the 6 – 11 months' age-group had comparatively higher likelihood of receiving minimum number of meals compared to the other age-groups.

Table 12: Minimum Meal Frequency by Age Group and District, January 2018

District	6 - 11 Months	12 - 17 Months	18 - 23 Months	6 - 23 Months	Total (N)
Abim	53 (42%)	62 (44%)	43 (34%)	158 (40%)	**396**
Amudat	73 (57%)	76 (56%)	55 (54%)	204 (56%)	**365**
Kaabong	66 (73%)	80 (75%)	93 (65%)	239 (71%)	**339**
Kotido	79 (64%)	57 (46%)	54 (43%)	190 (51%)	**375**
Moroto	62 (43%)	36 (29%)	30 (33%)	128 (36%)	**359**
Nakapiripirit	51 (42%)	57 (31%)	45 (34%)	153 (35%)	**435**
Napak	46 (40%)	37 (29%)	14 (17%)	97 (30%)	**326**
KARAMOJA	**430 (50%)**	**405 (43%)**	**334 (42%)**	**1,169 (45%)**	**2,595**

Minimum acceptable diet[15] Table 13 shows that only **4.7%** of children 6–23 months of age received a minimum acceptable diet with the highest proportion being registered in the districts of Nakapiripirit and Kaabong, whilst the lowest was in the districts of Amudat and Moroto (1.6% and 1.7%, respectively). Poor complementary feeding practices were attributed by districts to food insecurity, high work-load amongst women, inadequate knowledge on feeding of children especially among young mothers, and high consumption of alcohol in the communities.

Table 13: Minimum Acceptable Diet by Age Group and District, January 2018

District	6 - 11 Months	12 - 17 Months	18 - 23 Months	6 - 23 Months	Total (N)
Abim	2 (1.6%)	4 (2.8%)	3 (2.4%)	9 (2.3%)	**396**
Amudat	3 (2.3%)	3 (2,2%)	0	6 (1.6%)	**365**
Kaabong	4 (4.4%)	9 (8.5%)	18 (12.7%)	31(9.1%)	**339**
Kotido	16 (13.0%)	7 (5.6%)	2 (1.6%)	25 (6.7%)	**375**
Moroto	1 (0.7%)	2 (1.6%)	3 (3.3%)	6 (1.7%)	**359**
Nakapiripirit	9 (7.4%)	12 (6.6%)	15 (11.2%)	36 (8.2%)	**438**

[14] Minimum daily meal frequency is defined as twice for breastfed infants aged 6–8 months; three times for breastfed children aged 9–23 months and four times for non-breastfed children aged 6–23 months. The number of meals that an infant or young child needs in a day depends on how much energy the child needs and amount that a child can eat at each meal as well as the energy density of the food offered.

[15] Minimum acceptable diet indicator combines standards of dietary diversity and feeding frequency by breastfeeding status. The numerator includes only those children who have received both the minimum dietary diversity and the minimum meal frequency for the child's breastfeeding status. The indicator thus provides a useful way to track progress at simultaneously improving the key quality and quantity dimensions of children's diets.

District	6 - 11 Months	12 - 17 Months	18 - 23 Months	6 - 23 Months	Total (N)
Napak	3 (2.6%)	3 (2.4%)	3 (3.6%)	9 (2.8%)	**326**
KARAMOJA	**38 (4.5%)**	**40 (4.3%)**	**44 (5.5%)**	**122 (4.7%)**	2,598

3.4.4: Enrolment in Feeding Programmes

Out of all the 6,227 selected children in Karamoja sub-region, 1,049 (16.8%) were reportedly enrolled in a feeding programme (this excludes the children who were on the micron-nutrient powder programme). The proportion of children enrolled in a feeding program ranged from only 3.6% of the children in Amudat district and 8.9% in Abim district, to 27.2% and 23.3% in Kaabong and Nakapiripirit districts, respectively.

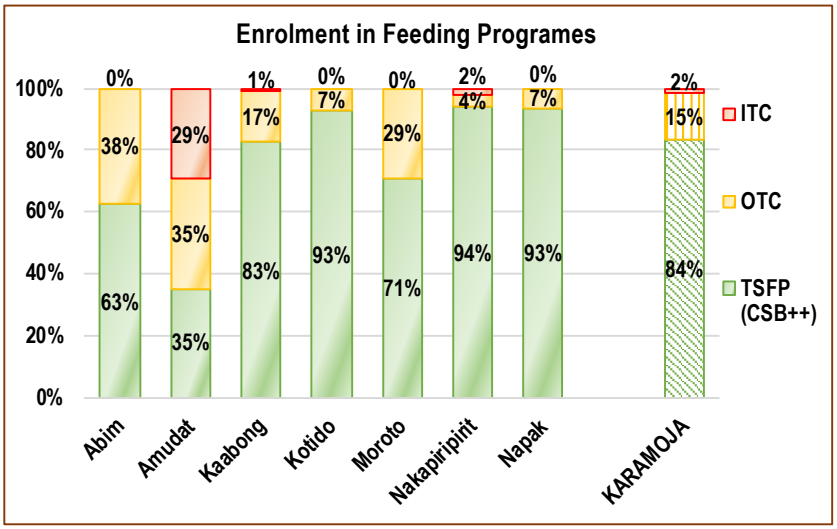

Figure 18: Enrolment in Different Feeding Programmes, January 2018

As illustrated in Figure 18, 84% of the 1,049 children were enrolled in the Targeted Supplementary Feeding Programme (TSFP) where they benefitted from the *Super Cereal Plus (CSB++)*, mainly in districts of Nakapiripirit, Napak and Kotido. Overall, 15% of the children were in the Outpatient Therapeutic Care (OTC) programme, mainly from Abim, Amudat and Moroto districts. It is noteworthy that whereas Amudat district had the lowest proportion of children enrolled, 29% were under the In-patient Therapeutic Care (ITC) programme.

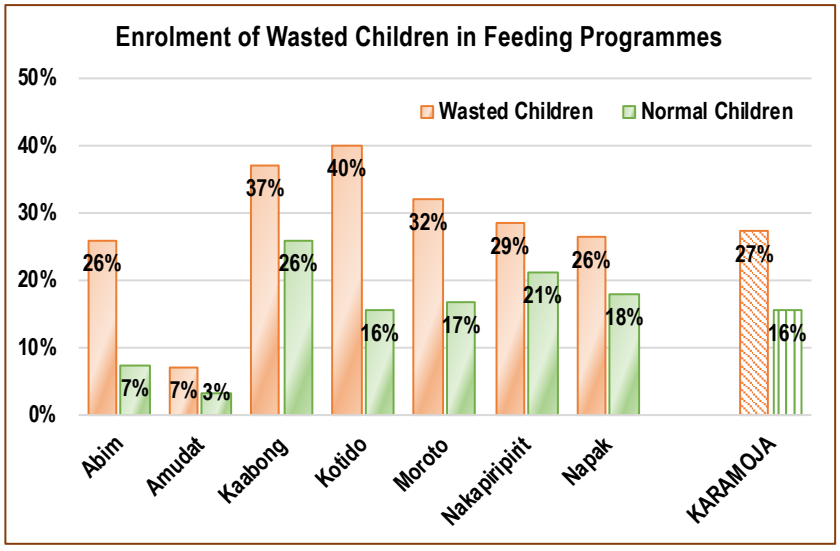

Figure 19: Enrolment of Children in Feeding Programmes, January 2018

Further analysis revealed that overall in the sub-region, only 27% of the children with wasting were enrolled in the feeding programmes (TSFP, OTC and ITC) as well as 16% of the normal children, without any evidence of malnutrition (Figure 19). The districts of Kotido (40%), Kaabong (37%) and Moroto (32%) enrolled comparatively higher proportions of children with

wasting on the feeding programmes. Amudat district had the lowest proportion of children both wasted and normal children on the feeding programmes. It is possible that some of the participating children could have improved but not yet discharged from the feeding programme. Alternatively, there could have been weaknesses in the screening and targeting processes that resulted in missing the malnourished children. It is of particular concern that only 7% of the malnourished children in Amudat district had benefited from the feeding programmes.

Enrolment of children into the Maternal, Child Health and Nutrition (MCHN) program[16] is presented in Figure 20. The figure shows that 50% of children aged 6 to 23 months were enrolled in the programme, which was not markedly different from 53% reported in the December 2016 assessment. The highest enrolment was in Napak and Nakapiripirit districts whilst the lowest was in Abim and Moroto districts. Some of the possible reasons cited included absence of health centre-level facilities, erratic food supply from UNWFP and low involvement of men in the programme.

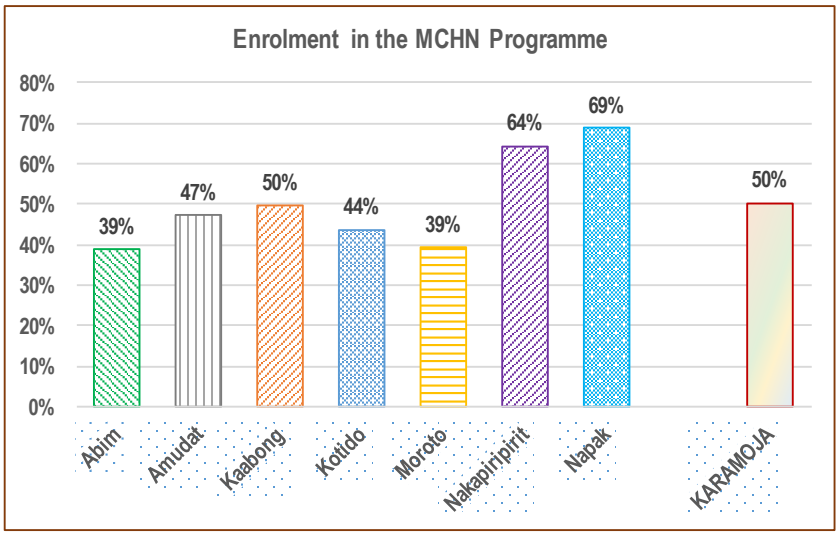

Figure 20: Enrolment of Children in the MCHN Programme, January 2018

The MNP program was being implemented in four districts of South Karamoja i.e. Moroto, Napak, Nakapiripirit and Amudat. The implementation was through existing government health system, targeting children aged between 6 to 23 months with exceptions of the MAM and SAM children. At least 26 sub-counties in the district of operation had been covered at the time of the assessment. Of the 6,242 sampled children in the Karamoja sub-region, only 225 (3.6%) had received Micronutrient Powder with the highest proportion reported from Napak district at 13.7%.

3.4.5: Nutritional Status of Children

Table 14 summarises the gender distribution of selected children in each district, which shows that overall sub-region's average was of nearly equal proportion of males and females indicating no sex bias in the study population.

[16] The Maternal, Child Health and Nutrition (MCHN) is a stunting prevention programme, mainly implemented through the health facilities. The programme focuses on prevention of malnutrition through blanket nutrition support to expectant women, lactating mothers and children under 2 years of age.

Table 14: Gender Distribution of Sampled Children for Anthropometry, by District January 2018

District	Boys	Girls	Total
Abim	426 (48.6%)	451 (51.4%)	**877 (15.5%)**
Amudat	407 (52.3%)	371 (47.7%)	**778 (13.8%)**
Kaabong	396 (45.6%)	473 (54.4%)	**869 (15.4%)**
Kotido	426 (50.1%)	425 (49.9%)	**851 (15.1%)**
Moroto	348 (52.2%)	319 (47.8%)	**667 (11.8%)**
Nakapiripirit	405 (49.3%)	417 (50.7%)	**822 (14.6%)**
Napak	381 (48.9%)	398 (51.1%)	**779 (13.8%)**
KARAMOJA	**2,789** (49.4%)	**2,854** (50.6%)	**5,643**

Acute Malnutrition: The results presented in Table 15 are based on weight-for-height z-scores and the presence of nutritional oedema. For the overall sub-region, the prevalence of Global Acute Malnutrition (GAM) was **10.4%** [95% CI: 9.5 – 11.3%] and Severe Acute Malnutrition (SAM) was **2.5%** [95% CI: 2.1 - 2.9%]. The finding reflected a decrease from 12.4% and 3.4% respectively, reported from the December 2016 assessment. GAM was highest in Moroto district (15.0%) but lowest in Abim district (6.2%). Among children 6 to 59 months of age, the prevalence of acute malnutrition was higher amongst the boys (12.0%) than girls (8.8%).

When GAM was disaggregated by age-group, children 6 – 11 months and 12 – 23 months had the highest prevalence of malnutrition at 15.0% and 13.0%, respectively. The possible cause of high levels of malnutrition in the 2 age groups could be related to the poor complementary feeding practices.

Table 15: Prevalence of Acute Malnutrition based on Weight-for-Height, by District, January 2018

District	Severe	Moderate	Global	Total (N)
Abim	11 (1.3 %) [0.7 - 2.2]	43 (4.9 %) [3.4 - 7.0]	54 (6.2 %) [4.5 - 8.4]	**877**
Amudat	26 (3.3 %) [2.2 - 5.0]	87 (11.2 %) [9.2 - 13.5]	113 (14.5 %) [12.1 - 17.3]	**778**
Kaabong	19 (2.2 %) [1.2 - 3.9]	70 (8.1 %) [6.2 - 10.4]	89 (10.2 %) [8.1 - 12.8]	**869**
Kotido	24 (2.8 %) [1.8 - 4.3]	45 (5.3 %) [3.7 - 7.5]	69 (8.1 %) [5.9 - 11.0]	**851**
Moroto	29 (4.3 %) [2.9 - 6.5]	71 (10.6 %) [8.3 - 13.5]	100 (15.0 %) [11.9 - 18.7]	**667**
Nakapiripirit	21 (2.6 %) [1.7 - 3.9]	72 (8.8 %) [6.9 - 11.0]	93 (11.3 %) [9.3 - 13.7]	**822**
Napak	11 (1.4 %) [0.8 - 2.4]	56 (7.2 %) [5.5 - 9.3]	67 (8.6 %) [6.6 - 11.2]	**779**
KARAMOJA	**(141) 2.5 % [2.1 - 2.9]**	**444 (7.9 %) [7.1 - 8.7]**	**585 (10.4 %) [9.5 - 11.3]**	**5,643**

Prevalence of oedema is 0.0% *[WHO flags were used for accurate comparison with the previous surveys]*

Table 16 summarises the prevalence of acute malnutrition based on the mid-upper arm circumference (MUAC) measurements, which shows that GAM was 9.6% (8.8 – 10.4%), and SAM at a level of 1.7% (1.3 – 2.1%). The disaggregation by age-group confirmed higher prevalence among the 6 – 11 months and 12 – 23 months at 20.2% and 13.8%, respectively.

Table 16: Prevalence of Acute Malnutrition based on MUAC, by District, January 2018

District	Severe	Moderate	Global	Total (N)
Abim	11 (1.3 %) [0.7 - 2.4]	49 (5.6 %) [4.1 - 7.6]	60 (6.8 %) [5.2 - 8.9]	877
Amudat	9 (1.2 %) [0.6 - 2.2]	27 (3.5 %) [2.4 - 4.9]	36 (4.6 %) [3.4 - 6.4]	778
Kaabong	14 (1.6 %) [0.9 - 2.8]	75 (8.6 %) [6.3 - 11.7]	89 (10.2 %) [7.5 - 13.8]	869
Kotido	20 (2.4 %) [1.3 - 4.1]	86 (10.1 %) [7.9 - 12.9]	106 (12.5 %) [9.9 - 15.6]	851
Moroto	10 (1.5 %) [0.8 - 2.8]	59 (8.8 %) [6.2 - 12.5]	69 (10.3 %) [7.4 - 14.2]	667
Nakapiripirit	18 (2.2 %) [1.4 - 3.5]	106 (12.9 %) [9.7 - 16.9]	124 (15.1 %) [11.9 - 19.0]	822
Napak	12 (1.5 %) [0.9 - 2.6]	46 (5.9 %) [4.3 - 8.1]	58 (7.4 %) [5.5 - 10.1]	779
KARAMOJA	**94 (1.7 %) [1.3 - 2.1]**	**448 (7.9 %) [7.3 - 8.6]**	**542 (9.6 %) [8.8 - 10.4]**	5,643

The trend in prevalence of global acute malnutrition among children between 2010 and 2017 during the June and December assessments, are summarised in Figure 21. It shows the prevalence of malnutrition during the June round of assessments increased gradually from 11.5% in 2010 to 13.8% in 2017 whilst in December it increased from 9.8% to 10.4%.

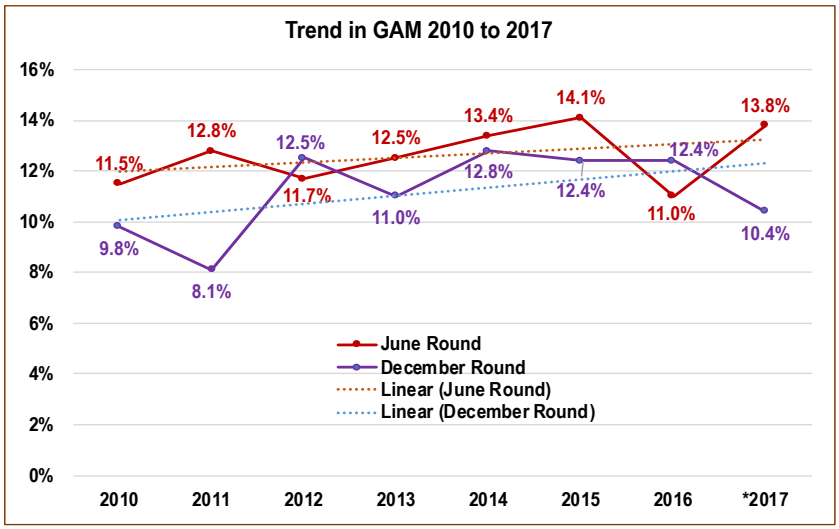

Figure 21: Trend in GAM among Selected Children in Karamoja 2010 – 2017
**December 2017 assessment was conducted in Jan 2018*

Stunting: Using the Height-for-Age index, the prevalence of chronic malnutrition (stunting) among children aged 6 – 59 months in sampled population is presented in Table 17. The prevalence of stunting was found at **34.0%** (32.6% - 35.5%), which was comparable to 34.9% reported in the December 2016 assessment. The highest prevalence was recorded in Kotido district where severe stunting peaked at 18.9%, whilst the lowest prevalence was in Amudat district. Disaggregated by

age-group, the most affected were the children of age groups 12 – 23 months (39.8%) and 24 – 35 months (38.4%).

Table 17: Prevalence of Stunting based on Height-for-Age z-Scores, by District, January 2018

District	Severe	Moderate	Stunting	Total (N)
Abim	80 (9.1 %) [7.3 – 11.3]	195 (22.2 %) [19.0 – 25.8]	275 (31.4 %) [27.5 – 35.5]	877
Amudat	48 (6.2 %) [4.6 – 8.3]	137 (17.6 %) [15.0 – 20.5]	185 (23.8 %) [20.5 – 27.4]	778
Kaabong	106 (12.2 %) [9.8 – 15.0]	202 (23.2 %) [20.6 – 26.1]	308 (35.4 %) [32.3 – 38.7]	869
Kotido	161 (18.9 %) [15.5 – 22.9]	215 (25.3 %) [21.6 – 29.3]	376 (44.2 %) [38.8 – 49.7]	851
Moroto	60 (9.0 %) [6.7 – 12.0]	173 (25.9 %) [21.7 – 30.7]	233 (34.9 %) [29.8 – 40.4]	667
Nakapiripirit	90 (10.9 %) [8.5 – 14.0]	175 (21.3 %) [18.4 – 24.5]	265 (32.2 %) [28.6 – 36.1]	822
Napak	82 (10.5 %) [8.0 – 13.7]	197 (25.3 %) [22.0 – 28.9]	279 (35.8 %) [32.4 – 39.4]	779
KARAMOJA	**627 (11.1 %) [10.2 – 12.1]**	**1,294 (22.9 %) [21.7 – 24.2]**	**1,921 (34.0 %) [32.6 – 35.5]**	5,643

Underweight: Using the Weight-for-Age index, the prevalence of underweight among children aged 6 – 59 months in sampled children is presented in Table 18. Overall, the prevalence of underweight was **23.3%** (22.3 – 24.2), which was slightly lower than 26.6% reported in December 2016. Highest prevalence was in Moroto district, whilst the lowest was in Abim district. The age group most affected by underweight was the 12 – 23 months (27.9%).

Table 18: Prevalence of Underweight based on Weight-for-Age z-Scores, by District, January 2018

District	Severe	Moderate	Underweight	Total (N)
Abim	34 (3.9 %) [2.6 - 5.8]	109 (12.4 %) [10.1 - 15.2]	(143 (16.3 %) [13.4 - 19.7]	877
Amudat	33 (4.2 %) [3.0 - 6.1]	140 (18.0 %) [15.5 - 20.8]	173 (22.2 %) [19.2 - 25.6]	778
Kaabong	42 (4.8 %) [3.5 - 6.6]	177 (20.4 %) [17.6 - 23.5]	219 (25.2 %) [21.9 - 28.9]	869
Kotido	65 (7.6 %) [5.9 - 9.9]	164 (19.3 %) [16.2 - 22.8]	229 (26.9 %) [22.9 - 31.3]	850
Moroto	41 (6.1 %) [4.3 - 8.7]	148 (22.2 %) [18.3 - 26.6]	189 (28.3 %) [24.0 - 33.1]	667
Nakapiripirit	53 (6.4 %) [4.5 - 9.1]	130 (15.8 %) [13.5 - 18.4]	183 (22.3 %) [18.9 - 26.0]	822
Napak	45 (5.8 %) [4.4 - 7.5]	131 (16.8 %) [13.9 - 20.3]	176 (22.6 %) [19.0 - 26.6]	779
KARAMOJA	**313 (5.5 %) [4.9 - 6.2]**	**999 (17.7 %) [16.9 - 18.5]**	**1,312 (23.3 %) [22.3 - 24.2]**	5,642

Table 19: Prevalence of Overweight, by District, January 2018

District	Severe	Overweight	Total (N)
Abim	4 (0.5 %) [0.2 - 1.2]	18 (2.1 %) [1.2 - 3.4]	877
Amudat	2 (0.3 %) [0.1 - 1.0]	7 (0.9 %) [0.4 - 2.0]	778
Kaabong	7 (0.8 %) [0.3 - 2.0]	13 (1.5 %) [0.7 - 3.2]	869
Kotido	1 (0.1 %) [0.0 - 0.9]	12 (1.4 %) [0.8 - 2.4]	851
Moroto	1 (0.1 %) [0.0 - 1.1]	4 (0.6 %) [0.2 - 2.0]	667
Nakapiripirit	1 (0.1 %) [0.0 - 0.9]	5 (0.6 %) [0.2 - 1.5]	822
Napak	0 (0.0 %) [0.0 - 0.0]	4 (0.5 %) [0.2 - 1.4]	779
KARAMOJA	**16) (0.3 %) [0.2 - 0.5]**	**63) (1.1 %) [0.8 - 1.5]**	**5,643**

Overweight: As summarised in Table 19, the prevalence of overweight among children age 6 – 59 months was only **1.4%** while severe overweight was **0.3%**. Highest proportion of overweight children were in Abim and Kaabong districts while Moroto, Nakapiripirit and Napak districts had the lowest prevalence. Disaggregated by age-group, overweight was more prevalent among children of age 12 – 23 months and 24 – 35 months (1.8% and 1.7%, respectively.

3.4.6: Common Childhood Illnesses

Illness in a child influences the appetite and normal metabolic processes, thus contributing to causation of malnutrition. Out of all the sampled children, 29% had not suffered from any diseases within the 2 weeks preceding the assessment. Amudat (60%) registered the highest proportion of children without illnesses during that period, while the lowest were Nakapiripirit (16%), Abim (17%) and Kaabong (18%).

As illustrated in Figure 22, fever/ malaria (47%) was the most common condition reported by mothers in the sub-region, followed by acute respiratory tract infection/ cough (34%) and diarrhoea (26%). At district level, burden of illness was highest in Kotido district but lowest in Amudat. Fever/ malaria was most prevalent among children in Nakapiripirit district (63%), ARI/ cough was more common among children in Abim district (47%) while diarrhoea was more common in Kotido district (39%). The prevalence of all these conditions was lowest among the children in Amudat district. The prevalence of skin and eye diseases is influenced by use of water for personal hygiene. The conditions were more prevalent in Kotido and Kaabong districts.

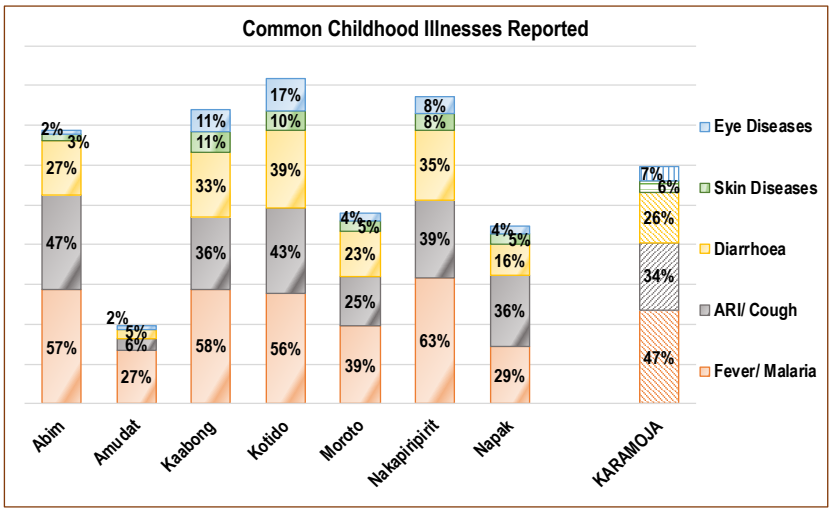

Figure 22: Reported Common Childhood Illnesses, January 2018

3.4.7: Use of Insecticide Treated Nets

The children who reportedly slept under an insecticide treated net the night preceding this assessment has been summarised in Figure 23, which shows use by 87% of the selected children in the sub-region. The finding reflected a significant increase from the 57% reported in the December 2016 assessment, when Moroto and Amudat had only 32% and 41%, respectively. The reported use of ITN by children in this assessment, was comparatively higher in Abim and Kotido districts but much lower in Amudat district (72%).

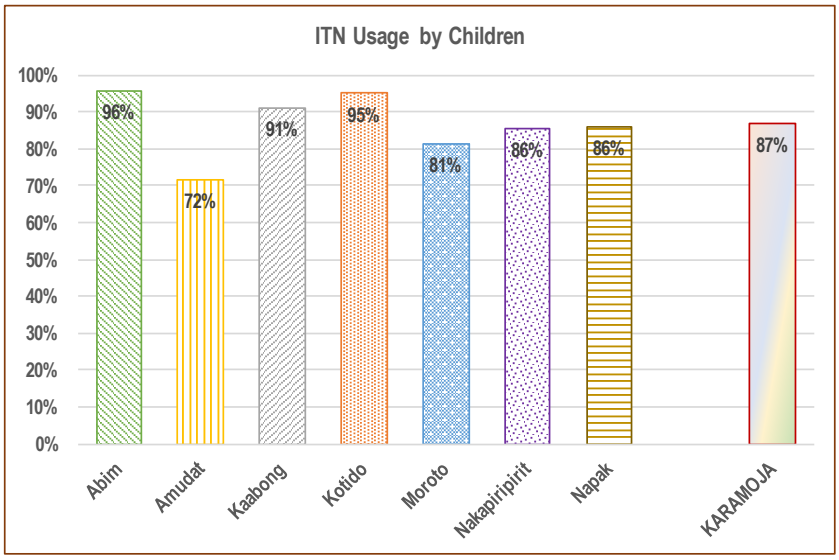

Figure 23: Reported Use of ITNs by Children in Karamoja, January 2018

3.4.8: Anaemia among Children

The prevalence of anaemia among children age 6 – 59 months has been summarised in Figure 24, which shows that 59% had some form of anaemia: 23% mild, 32% moderate and 4% had severe. It reflected a significant increase from the prevalence of 29.3% reported in December 2016, with mild, moderate and severe at 14.0%, 13.9% and 1.4%, respectively.

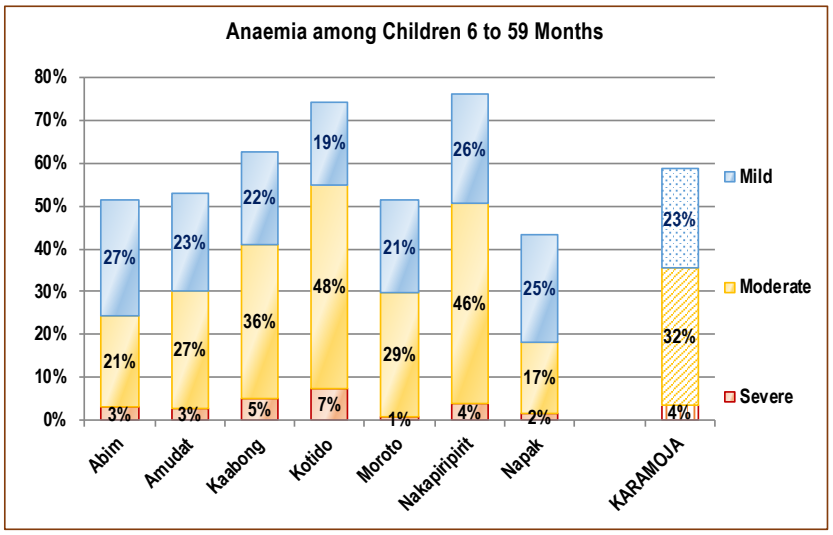

Figure 24: Prevalence of Anaemia among Children, January 2018

Prevalence of anaemia was highest in Nakapiripirit and Kotido districts but Napak district registered the lowest level (43%). The severe and moderate forms of anaemia were particularly more prevalent in Kotido district (7% and 48%, respectively) while the highest level of mild anaemia was registered in Abim district (27%).

3.5: Early Childhood Development

3.5.1: Child Playing with Household Objects and Toys

Figure 25 illustrates that about three-quarters of the 1,597 selected children in Karamoja sub-region (78%) were reportedly playing with household objects, which should be a normal part of the child's development. This was highest in Napak district but comparatively lower in Kaabong and Amudat districts (60% and 55%, respectively).

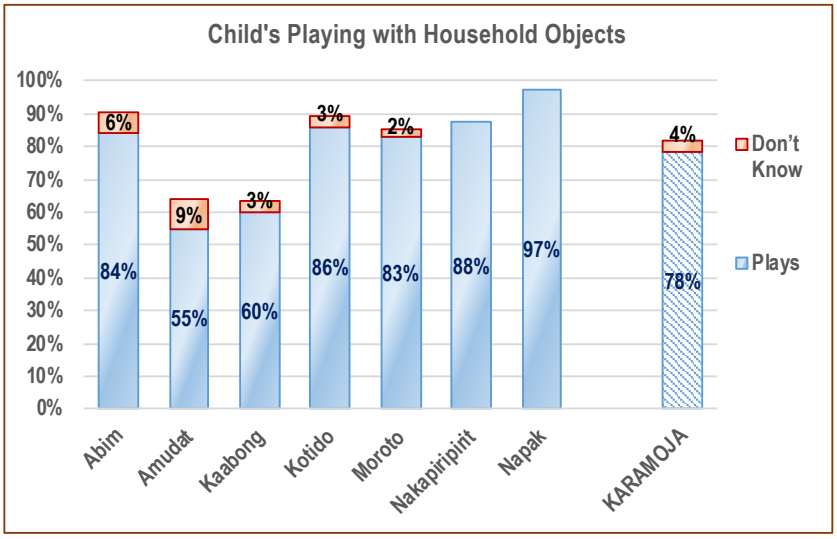

Figure 25: Reported Playing with Household Objects, January 2018

As illustrated in Figure 26, the assessment shows that more children in Karamoja sub-region had access to home-made toys for playing (48%) than the factory-made toys (18%). The finding was not very different from that of December 2016 assessment that reported 45% with home-made toys and 17% manufactured. The child playing with home-made toys was relatively more common in Kotido, Nakapiripirit and Napak districts but less common in Amudat, Kaabong and Moroto districts. Playing with factory-made toys was comparatively more common in Abim and Napak districts but less common in Kotido and Nakapiripirit districts.

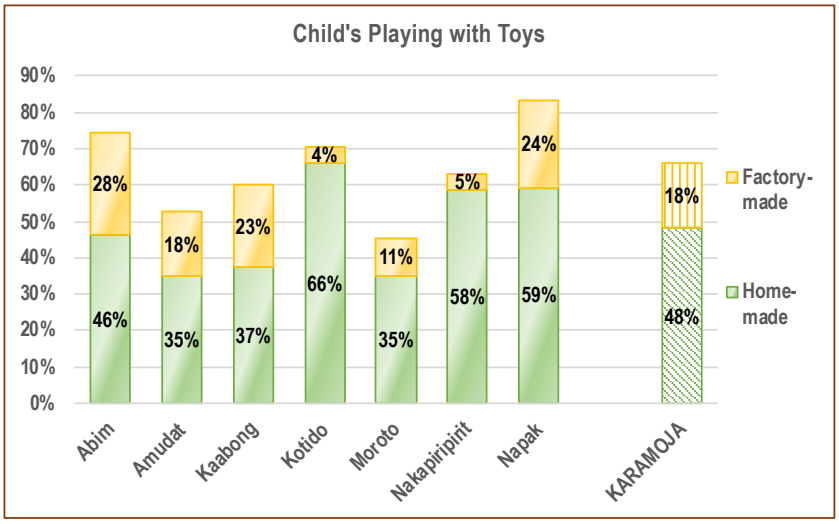

Figure 26: Child's Reported Playing with Toys, January 2018

3.5.2: Children's Access to Books

Of the 1,482 selected children in the sub-region, 88% were reported to have no books at all but as illustrated in Figure 27, only 3% had two or more books while 9% had one book. The finding reflected some improvement from the situation reported in December 2016 assessment of only 5% of households with children's books.

In the current assessment, Amudat and Kaabong districts had the highest proportion of children with one book (24% and 17%, respectively) while Kotido, Nakapiripirit and Napak districts registered the lowest (3% each). On the other hand, Kotido district registered the highest proportion of children with two or more books but Nakapiripirit district had the lowest.

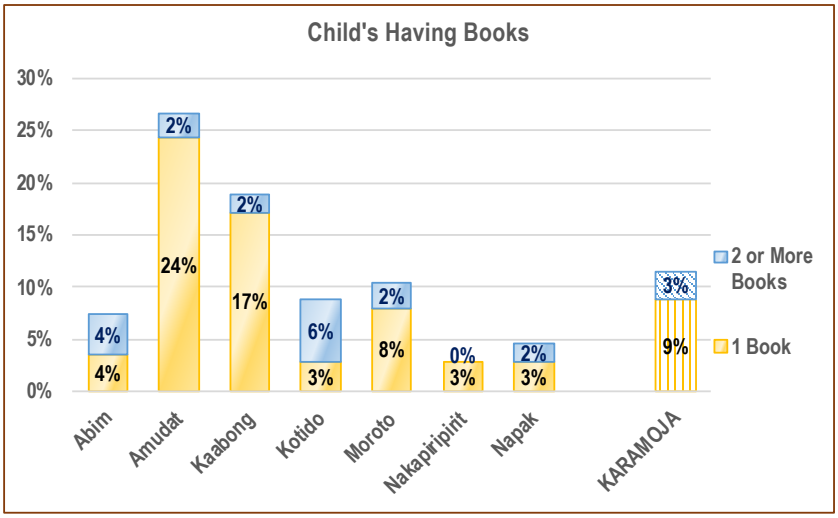

Figure 27: Number of Books being Accessed by Children, January 2018

The low performance in early childhood practices was mainly attributed by districts to low coverage of ECD centres, which in some cases were temporary structures. In addition, the centres were managed by un-trained volunteers.

3.5.3: Children Left by Caregivers

As illustrated in Figure 28, two-thirds of the selected children (68%) were left alone at home by the caregiver. This practice was relatively more common in Kotido and Nakapiripirit districts but less common in Amudat district. A slightly lower proportion of children in the sub-region (65%) were left with fellow children below the age of 10 years. This practice was relatively more common in Kaabong and Abim districts but also less common in Amudat district. One of the most common reasons given by mothers for leaving the child at home was in order to fetch water for household use. The December 2016 assessment revealed that 54.3% of children had been left alone or with other children at home compared to 77% in this assessment, a practice most common in Kotido (86%) but less common in Amudat district (55%).

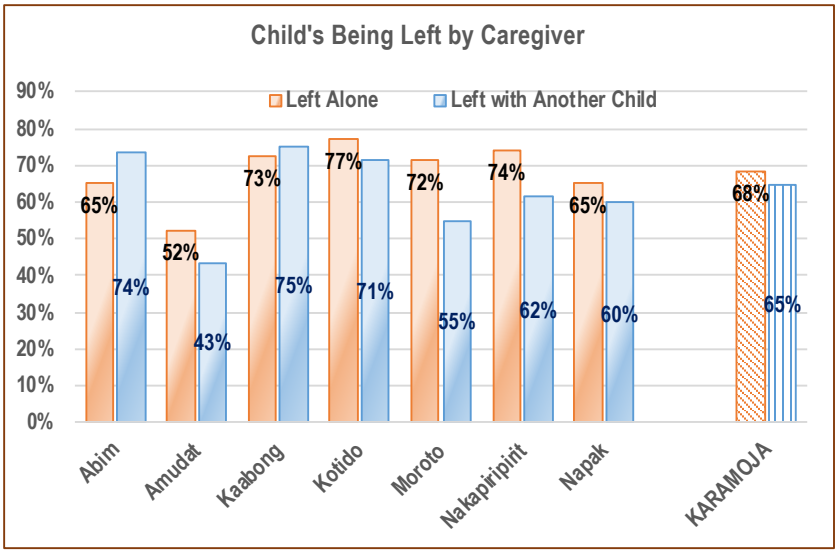

Figure 28: Children Left at Home by Caregivers, January 2018

Table 20 summarises the average number of days in a week that a child was left alone at home by the mother or caregiver. It shows that out of all the selected children in the sub-region,

approximately one-quarter (24.4%) was not left alone for even a day during the course of the week. This was more likely to happen in Amudat and Napak districts but less likely in Kaabong district. It is noteworthy that 43.2% of children were left alone at home for 5 or more days in a week, a practice that was comparatively more common in Abim and Kotido districts but less in Amudat district.

Table 20: Number of Days in a Week the Child was Left Alone, by District, January 2018

District	Number of Days					Total
	0	1 - 2	3 - 4	5 or More	Don't Know	
Abim	69 (24.1%)	8 (2.8%)	13 (4.5%)	165 (57.7%)	31 (10.8%)	**286**
Amudat	80 (39.2%)	42 (20.6%)	33 (16.2%)	32 (15.7%)	17 (8.3%)	**204**
Kaabong	41 (13.1%)	55 (17.5%)	36 (11.5%)	137 (43.6%)	45 (14.3%)	**314**
Kotido	44 (18.3%)	42 (17.4%)	16 (6.6%)	128 (53.1%)	11 (4.6%)	**241**
Moroto	34 (24.1%)	14 (9.9%)	22 (15.6%)	65 (46.1%)	6 (4.3%)	**141**
Nakapiripirit	37 (24.0%)	13 (8.4%)	45 (29.2%)	56 (36.4%)	3 (1.9%)	**154**
Napak	82 (33.5%)	22 (9.0%)	36 (14.7%)	102 (41.6%)	3 (1.2%)	**245**
KARAMOJA	**387 (24.4%)**	**196 (12.4%)**	**201 (12.7%)**	**685 (43.2%)**	**116 (7.3%)**	**1,585**

Table 21 summarises the average number of days in a week that a child was left at home with another child below age of 10 years by the mother or caregiver. It shows that out of all the selected children in the sub-region, 28.1% was not left with another child for even a day during the course of the week. This was more likely to happen in Amudat and Moroto districts but less likely to happen in Abim and Kaabong districts. Overall, 38.7% of children were left at home with other children for 5 or more days in a week. The practice was comparatively more common in Abim, Kotido and Kaabong districts but least in Amudat district.

Table 21: Number of Days the Child was Left with Another Child, by District, January 2018

District	Number of Days					Total
	0	1 - 2	3 - 4	5 or More	Don't Know	
Abim	37 (12.9%)	16 (5.6%)	26 (9.1%)	169 (59.1%)	38 (13.3%)	**286**
Amudat	95 (46.8%)	38 (18.7%)	19 (9.4%)	31 (15.3%)	20 (9.9%)	**203**
Kaabong	42 (13.5%)	68 (21.8%)	29 (9.3%)	138 (44.2%)	35 (11.2%)	**312**
Kotido	60 (24.8%)	33 (13.6%)	31 (12.8%)	109 (45.0%)	9 (3.7%)	**242**
Moroto	59 (41.8%)	15 (10.6%)	22 (15.6%)	40 (28.4%)	5 (3.5%)	**141**
Nakapiripirit	58 (37.7%)	25 (16.2%)	24 (15.6%)	46 (29.9%)	1 (0.6%)	**154**
Napak	94 (38.2%)	31 (12.6%)	36 (14.6%)	80 (32.5%)	5 (2.0%)	**246**
Total	**445 (28.1%)**	**226 (14.3%)**	**187 (11.8%)**	**613 (38.7%)**	**113 (7.1%)**	**1,584**

3.5.4: Primary School Attendance

There were 3,449 boys and 3,433 girls of primary school age in the assessment and as summarised in Figure 29, regular school attendance was reported for 51% and 46%, respectively. Among the boys, regular attendance was highest in Abim district (81%), with proportions above the sub-region's average only registered in Kaabong district, whilst the lowest regular school attendance among boys was registered in Kotido district (27%). Abim district reported the highest regular attendance among girls (80%), followed by the districts of Kaabong (69%), Nakapiripirit (50%) and Amudat (47%). Kotido district (17%) had the lowest proportion of girls who regularly attended school. The finding reflected a maintained level for Kaabong district, which had registered the highest proportion of households with boys (26%) and girls (35%) who did not attend school regularly during December 2016 assessment. However, districts like Kotido reflected a deterioration from that reported in December 2016.

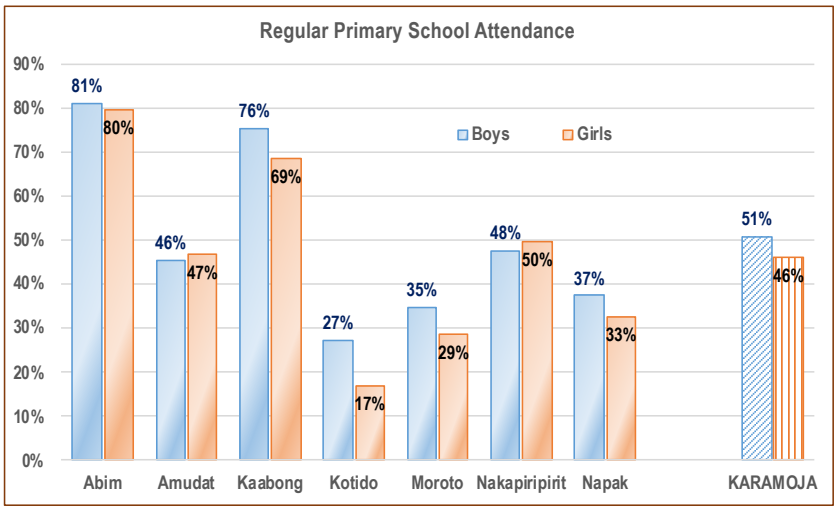

Figure 29: Reported Regular Primary School Attendance, January 2018

The cross-section of district key informants indicated that pupils in primary schools were not expected to pay any fees, textbooks were provided in schools and uniforms were not compulsory. In their opinion irregular attendance was related to early child marriages, child labour, lack of sanitary facilities and petty trade. Out migration was cited from Napak district among the reasons. Other reasons included parents' negative attitudes towards education, long distances to the available schools, delayed delivery of food to schools by UNWFP, unfriendly school environment and parents' failure to understand their role in the Universal Primary Education (UPE) programme.

The main reasons put forward by respondents for irregular attendance among the primary school age boys are summarised in Table 22. It shows that the main reason cited for irregular school attendance by boys was related to direct cost of education such as payment of school fees, uniforms, textbooks etc. (36.5%). This was relatively more common in Napak and Kaabong districts but less of a problem in Amudat and Kotido districts. Lack of interest was cited for 17.6% of the boys, especially those from Kotido district (41.7%). Domestic and household chores was cited for 13.2%, especially from Kotido and Amudat districts while child work for cash was more of a problem in Nakapiripirit district.

Table 22: Reasons for Irregular Primary School Attendance by Boys, by District, January 2018

District	Can't Pay Fees, Uniforms	Not Interested	Domestic Household Chores	Can't Pay Transportation	Child Work for Cash
Abim	13 (38.2%)	8 (23.5%)	4 (11.8%)	0	1 (2.9%)
Amudat	17 (20.0%)	3 (3.5%)	18 (21.2%)	26 (30.6%)	0
Kaabong	43 (54.4%	7 (8.9%)	9 (11.4%)	1 (1.3%)	4 (5.1%)
Kotido	12 (20.0%)	25 (41.7%)	14 (23.3%)	2 (3.3%)	2 (3.3%)
Moroto	16 (45.7%)	4 (11.4%)	4 (11.4%)	1 (2.9%)	1 (2.9%)
Nakapiripirit	30 (22.6%)	29 (21.8%)	14 (10.5%)	15 (11.3%)	26 (19.5%)
Napak	60 (61.2%)	16 (16.3%)	6 (6.1%)	5 (5.1%)	2 (2.0%)
KARAMOJA	**191 (36.5%)**	**92 (17.6%)**	**69 (13.2%)**	**50 (9.5%)**	**36 (6.9%)**

Table 23 summarises the main reasons by respondents for irregular attendance among girls of primary school age in Karamoja sub-region. It shows that involvement in domestic household chores was the commonest problem (38.2%), particularly in Nakapiripirit and Kotido districts. It was followed by the direct cost of education such as payment of school fees, uniforms, textbooks etc. (26.4%), especially in Kaabong and Moroto districts. Lack of interest was more of a problem for girls in Moroto district while child work for cash was a main issue in Kotido district.

Table 23: Reasons for Irregular Primary School Attendance by Girls, by District, January 2018

District	Can't Pay Fees, Uniforms	Domestic Household Chores	Not Interested	Child Work for Cash	Can't Pay Transportation
Abim	12 (27.9%)	9 (20.9%)	3 (7.0%)	1 (2.3%)	0
Amudat	19 (22.1%)	24 (27.9%)	5 (5.8%)	0	13 (15.1%)
Kaabong	21 (41.2%)	18 (35.3%)	2 (3.9%)	2 (3.9%)	1 (2.0%)
Kotido	12 (20.7%)	25 (43.1%)	6 (10.3%)	14 (24.1%)	0
Moroto	9 (32.1%)	5 (17.9%)	5 (17.9%)	1 (3.6%)	1 (3.6%)
Nakapiripirit	29 (21.5%)	70 (51.9%)	14 (10.4%)	4 (3.0%)	8 (5.9%)
Napak	31 (30.4%)	41 (40.2%)	12 (11.8%)	8 (7.8%)	7 (6.9%)
KARAMOJA	**133 (26.4%)**	**192 (38.2%)**	**47 (9.3%)**	**30 (6.0%)**	**30 (6.0%)**

3.6: Food Availability

3.6.1: Most Common Household Assets

Figure 30 illustrates that only 5% of all selected households in Karamoja sub-region owned 10 or more of the 21 enumerated household assets[17], 43% reportedly owned between 5 – 9 items, whilst half of the households owned between 1 and 4 of the listed items. Abim district (86%) registered the highest proportion of households with 5 or more listed items and Napak district (31%) had the lowest. Only 2% of the households did not own any of the listed items.

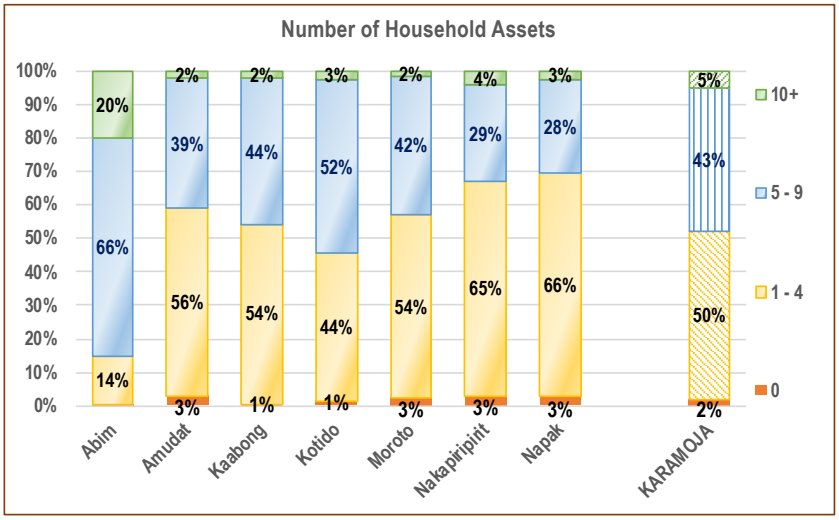

Figure 30: Reported Number of Household Assets Owned, January 2018

As illustrated in Figure 31, the most common household assets owned were the hoe (87%), panga/machete (72%), axe (47%) and mattress (32%), which was similar to the findings reported from the December 2016 assessment of hoe (86%), panga (71%), axe (45%) and mattress (27%). Comparatively more households from Abim district had the common assets than the average for Karamoja sub-region. The ox-plough was owned by only 14% of the households and was relatively more common in Kaabong (22%), Nakapiripirit and Kotido districts (24% each). Ownership of the cell phone was reported by 27% of all households in the sub-region, more common in districts of Kotido (34%), and Abim (35%) but lowest in Kaabong (17%). Radios were reported in 11% of the

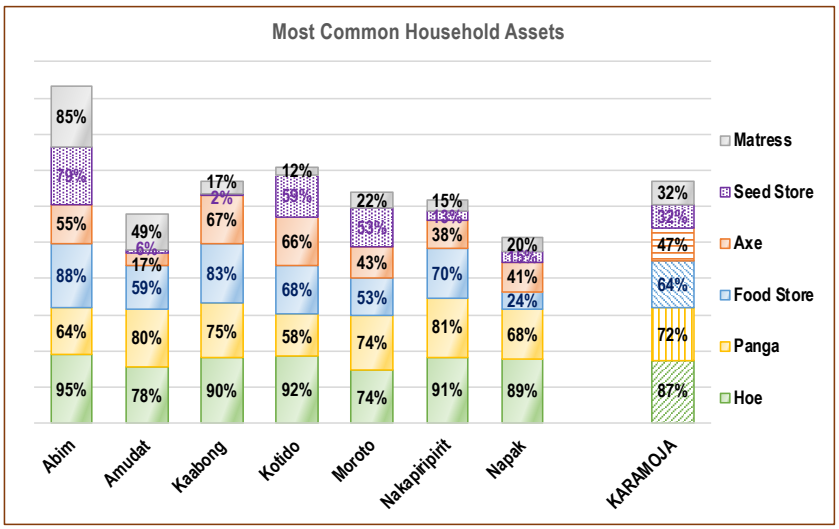

Figure 31: Most Common Assets in Selected Households, January 2018

[17] Bed, Table, Chairs, Mattress, Radio/Tape, Cell phone, Sewing machine, Bicycle, Automobile/car, Motorcycle, Television, Axe, Panga/Machete, Hoe, Ox-plough, Water tank, Seed store, Food store, Bee hives, Watering cans, Bucket irrigation equipment.

households, especially in Abim district (20%). Overall, 13% of households had bicycles, more common in Abim (26%) and Napak (25%) districts.

Food stores were owned by 64% of all households in the sub-region, more common in the districts of Abim (88%) and Kaabong (83%) but less common in Napak district (24%). Ownership of seed stores was reported by 32% of the households, more common in Abim district (79%) but least in Kaabong district (2%). It is worth noting that some households reported having a single structure that served as both a food and seed store.

3.6.2: Livestock Ownership

As illustrated in Figure 32, slightly more than half of households (55%) in the Karamoja sub-region owned livestock, which was not very different from 58% reported in the December 2016 assessment. Only one-fifth of the households in the sub-region reported ownership of high livestock holding, with highest proportion in households from Amudat and Nakapiripirit districts. Abim and Kaabong districts registered the highest proportion of households with negligible and low livestock holding. Nevertheless, it was observed that during the dry season like the time for this assessment livestock in Amudat, Moroto and Napak districts were far from the communities, in search of pasture and water.

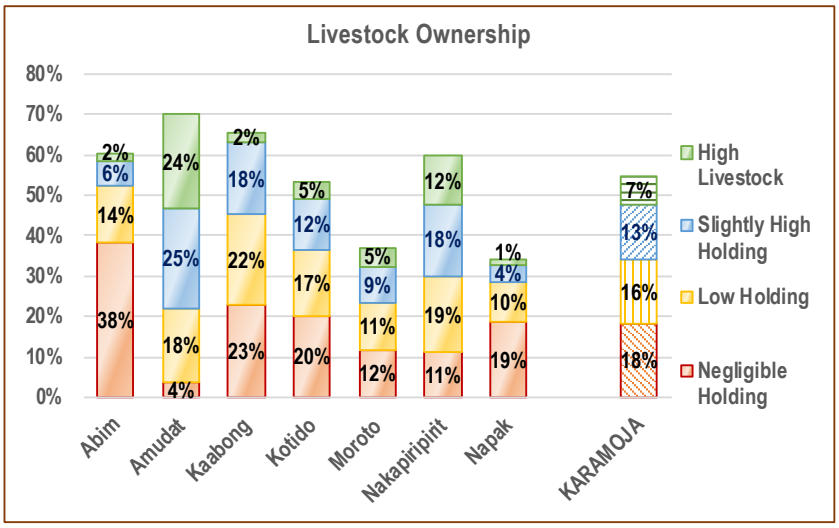

Figure 32: Reported Livestock Ownership by Households, January 2018

Table 24 shows that parasites/ diseases were the most common constraints cited in relation to livestock production, stated by 64.5% of all selected households in the sub-region that reflected an increase from 43% reported during the December 2016 assessment.

Table 24: Most Common Constraints to Livestock Production, by District, January 2018

District	Parasites/ Diseases	Shortage of Pasture/ Feed	Theft	Inadequate Vet. Services	Insecurity
Abim	309 (66.7%)	13 (2.8%)	63 (13.6%)	9 (1.9%)	0
Amudat	430 (85.0%)	17 (3.4%)	2 (.4%)	11 (2.2%)	2 (0.4%)
Kaabong	370 (76.0%)	5 (1.0%)	16 (3.3%)	4 (0.8%)	14 (2.9%)
Kotido	133 (34.8%)	91 (23.8%)	60 (15.7%)	30 (7.9%)	38 (9.9%)
Moroto	157 (62.1%)	34 (13.4%)	5 (2.0%)	29 (11.5%)	6 (2.4%)

District	Parasites/ Diseases	Shortage of Pasture/ Feed	Theft	Inadequate Vet. Services	Insecurity
Nakapiripirit	259 (52.4%)	119 (24.1%)	43 (8.7%)	45 (9.1%)	2 (0.4%)
Napak	157 (69.2%)	11 (4.8%)	34 (15.0%)	2 (0.9%)	4 (1.8%)
KARAMOJA	**1,815 (64.5%)**	**290 (10.3%)**	**223 (7.9%)**	**130 (4.6%)**	**66 (2.3%)**

It had been comparatively more of a problem in Amudat district (85%) but less common in Kotido district (34.8%). Shortage of pasture or animal feed was a more common problem for Kotido district (23.8%) while theft was of more concern in Kotido and Napak districts. Moroto district had the highest proportion of households faced by the problem of inadequate veterinary services while insecurity was of concern to more households in Kotido district.

3.6.3: Agricultural Production

Reported access by the selected households to land for agricultural production has been summarised in Table 25. It shows that 80.1% of the households had access to land for agriculture production, which was not markedly different from 82% reported in the December 2016 assessment. Access to land for agriculture was comparatively higher for households in the districts of Kaabong (97.2%) and Abim (93.6%) but lowest for those in Moroto district (51.1%). This was attributed to mountainous terrains in some sub-counties and location in the dry belt.

For those households that owned land, the average size of flat land was 2.3 acres with the range from 1.6 acres in Amudat to 3.5 acres in Abim district. The average size of upland type for sub-region was 2.2 acres, with a range from 1.1 acres in Amudat to 3.2 acres in Moroto district. The average size of swampy land at the sub-region level was 1.6 acres, with a range from 1.0 acres in Amudat district to 1.7 acres in Abim district. This type of land was less available with only households in Amudat, Abim Nakapiripirit and Napak districts reporting ownership of such land.

Table 25: Access, Type and Size of Land for Agricultural Production, January 2018

District	Access to Agricultural Land (%)	Mean Size of Land Owned (Acres)			
		Flat Land	Up-land	Swampy	Other
Abim	698 (93.6%)	3.5	2.3	1.7	1.3
Amudat	490 (68.4%)	1.6	1.1	1.0	0.8
Kaabong	701 (97.2%)	2.2	1.7	0	1.0
Kotido	641 (90.7%)	2.2	1.2	0	0
Moroto	338 (51.1%)	3.1	3.2	0	0
Nakapiripirit	669 (82.0%)	1.9	2.2	1.2	2.0
Napak	488 (73.9%)	2.3	1.8	1.3	0
KARAMOJA	**4,025 (80.1%)**	**2.3**	**2.2**	**1.6**	**1.2**

Figure 33 shows that out of 5,028 selected households in the sub-region, 78% reported cultivating legumes and staples with a range from 96% in Kaabong district to only 46% in Moroto district. Other districts with comparatively lower proportions than the sub-region's average included Amudat and Napak. Low cultivation in Moroto can be related to lower access to agricultural land by selected households coupled with mining activities being blamed for overshadowing cultivation activities in the district.

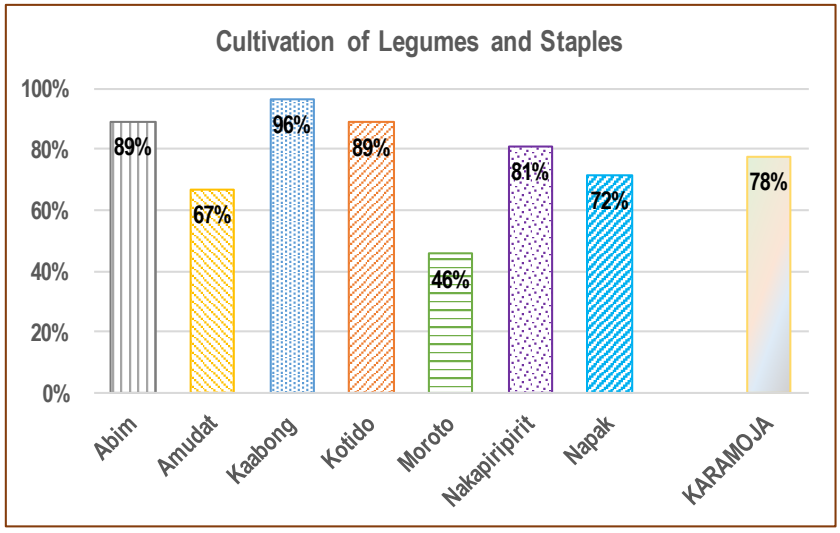

Figure 33: Reported Livestock Ownership by Households, January 2018

As illustrated in Figure 34, sorghum (77%) and maize (40%) were the most commonly cultivated crops in the sub-region, followed by beans (22%), potatoes (11%) and millet (5%). The finding was not markedly different from that of December 2016: sorghum (73%), maize (44%), beans (21%) and millet (8%). Amudat district (97%) registered the highest proportion of households cultivating maize while Abim district (12%) had the lowest. Sorghum was cultivated by 97% of households in Kotido district but only registered by 2% of those in Amudat district. Overall, 22% of the households in the sub-region cultivated beans, highest in Kotido district (28%) but lowest in Moroto district (18%). Millet was mainly cultivated by households in districts of Abim and Kotido while potatoes was predominantly cultivated by households in Abim district.

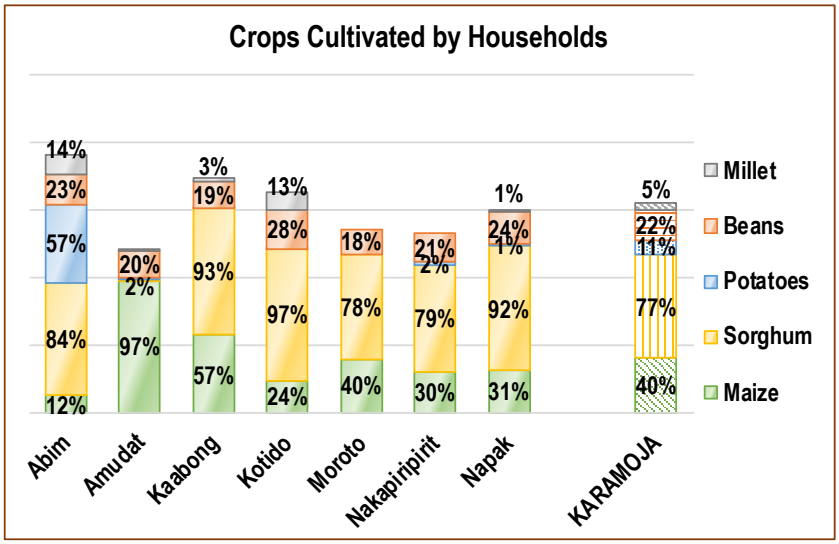

Figure 34: Reported Crops Cultivated by Households, January 2018

The decision-making for crop production at household level was reportedly done jointly by both spouses in 45% of the selected households in the sub-region, more common in Napak (71%) but less common in Moroto district (17%). The male partner was responsible for decision-making at 28% of the households, especially in Nakapiripirit district (50%) but lowest in Napak district (3%), whilst the female partner was responsible at 26%, more common in Moroto district (72%) but least in Kaabong district (13%). The assessment showed more consultative decision-making by both male and female in Napak compared to other districts.

Constraints to Crop Production

The reported main constraints to crop production in the 6 months prior to the assessment is summarised in Table 26. It shows that drought/ low rainfall (60.6%) was the predominant constraint and while still leading, reflected a decrease from 87% reported in the December 2016 assessment. Drought or low rainfall was a particularly prominent problem to households in Moroto district but comparatively less to those in Nakapiripirit district. Inadequate seeds and tools was cited most by households in Nakapiripirit district, while insufficient labour was mainly of concern in Abim and Napak districts.

Table 26: Reported Main Constraints to Agricultural Production, by District, January 2018

District	Infertile/ Marginal Land	Sickness/ Physical Inability	Inadequate seeds and tools	Insufficient Labour	Drought/ Low rainfall	Total N
Abim	44 (6.3%)	43 (6.2%)	42 (6.0%)	81 (11.6%)	357 (51.1%)	**698**
Amudat	6 (1.2%)	83 (16.9%)	3 (0.6%)	1 (0.2%)	341 (69.6%)	**490**
Kaabong	51 (7.3%)	23 (3.3%)	99 (14.1%)	29 (4.1%)	404 (57.6%)	**701**
Kotido	48 (7.5%)	16 (2.5%)	63 (9.8%)	40 (6.2%)	399 (62.2%)	**641**
Moroto	3 (0.9%)	4 (1.2%)	9 (2.7%)	3 (0.9%	308 (91.1%)	**338**
Nakapiripirit	58 (8.7%)	10 (1.5%)	127 (19.0%)	52 (7.8%)	315 (47.1%)	**669**
Napak	8 (1.6%)	0	15 (3.1%)	52 (10.7%)	315 (65%)	**488**
KARAMOJA	**218 (5.4%)**	**179 (4.4%)**	**358 (8.9%)**	**258 (6.4%)**	**2,439 (60.6%)**	**4,025**

3.6.4: Household Food Stocks

Table 25 shows that approximately half of all the selected households had food stock, a finding that was not markedly different from 48% reported in the December 2016 assessment. The assessment revealed that Kaabong district (86%) had the highest proportion of households with food stocks whilst Moroto district (5.3%) registered the lowest. The low proportion of households with food stocks from Moroto district could be related to the lower proportion of households that cultivated staples and legumes. The 2017 harvest was also generally poor in Moroto if compared to other districts, due to a prolonged dry spell and an outbreak of fall army worm. The estimated mean duration of available food stock for the sub-region is 12.4 days, with a range from 4.1 days in Moroto district to 18.2 days in Amudat district.

Table 27 also shows that "own production" was the main source of available food stock for the highest proportion of selected households (90.4%), highest in the Abim district (96.4%), but lowest in Napak district (63.4%). Markets was cited as source of food stock by only 7.2% of the households, mainly from Napak and Moroto districts (33.2% and 31.4%, respectively). It is possible that the reported increased mining activity by the households in Moroto district could have contributed to this pattern. Food distribution from World Food Programme and partners was cited as source of food stock mainly by households from Kaabong and Napak districts.

Table 27: Household Stock: Estimated Duration and the Sources, January 2018

District	Has Food Stock	Mean Duration (Days)	Main Sources of Food Stock					Total (N)
			WFP/ Partners	Own production	Gifts	Markets	Other	
Abim	587 (78.7%)	14.7	2 (0.3%)	566 (96.4%)	5 (0.9%)	14 (2.4%)	0	**746**
Amudat	185 (25.8%)	18.2	1 (0.5%)	173 (93.5%)	2 (1.1%)	9 (4.9%)	0	**716**
Kaabong	620 (86.0%)	11.2	13 (2.1%)	582 (93.9%)	8 (1.3%)	16 (2.6%)	1 (0.2%)	**721**
Kotido	385 (54.5%)	15.3	4 (1.0%)	353 (91.7%)	5 (1.3%)	23 (6.0%)	0	**707**
Moroto	35 (5.3%)	4.1	0	24 (68.6%)	0	11 (31.4%)	0	**662**
Nakapiripirit	480 (58.8%)	10.5	5 (1.0%)	438 (91.3%)	3 (0.6%)	31 (6.5%)	3 (0.6%)	**816**
Napak	235 (35.6%)	6.2	6 (2.6%)	149 (63.4%)	0	78 (33.2%)	2 (0.9%)	**660**
KARAMOJA	**2,527 (50.3%)**	**12.4**	**31 (1.2%)**	**2,285 (90.4%)**	**23 (0.9%)**	**182 (7.2%)**	**6 (0.2%)**	**5,028**

3.6.5: Current Food and Humanitarian Assistance

As summarised in Table 28, within a period of 6 months preceding the assessment, food aid was received by 10.5% of the sampled households and 1.7% received cash assistance from the World Food Programme. Beneficiaries of food aid were mainly from Nakapiripirit and Kotido districts, while most cash beneficiaries were in Kaabong and Amudat districts.

Of the beneficiaries of food aid, decision-making on what to do with food aid such as whether to sell, lend or share, was by only the women for 89% of households, jointly done by both women and men at 10% and by only men at 1%. Decision-making in relation to how the cash or voucher should be handled, was reportedly a joint one involving both male and female for 46% of households, by women only in 40% and by men only in 14% of the households.

Table 28: Household Food and Humanitarian Assistance, by District, January 2018

District	Food Aid	Cash	NONE	Total (N)
Abim	14 (1.9%)	6 (0.8%)	726 (97.3%)	**746**
Amudat	22 (3.1%)	21 (2.9%)	673 (94.0%)	**716**
Kaabong	35 (4.9%)	29 (4.0%)	657 (91.1%)	**721**
Kotido	117 (16.5%)	9 (1.3%)	581 (82.2%)	**707**
Moroto	2 (0.3%)	12 (1.8%)	648 (97.9%)	**662**
Nakapiripirit	312 (38.2%)	0	504 (61.8%)	**816**
Napak	24 (3.6%)	8 (1.2%)	628 (95.2%)	**660**
KARAMOJA	**526 (10.5%)**	**85 (1.7%)**	**4,417 (87.8%)**	**5,028**

Safety problems during the 2-month period preceding this assessment was minimal, with only 1% of the selected households reporting having faced problems on the way to the WFP site and 0.8% while at the programme site.

3.7: Food Accessibility

3.7.1: Income Earners and Sources

Table 29: Number of Household Income Earners, by District, January 2018

District	NONE	One Income Earner	Two or More Income Earners
Abim	188 (25.2%)	267 (35.8%)	291 (39.0%)
Amudat	152 (21.2%)	395 (55.2%)	169 (23.6%)
Kaabong	101 (14.0%)	291 (40.4%)	329 (45.6%)
Kotido	43 (6.1%)	340 (48.1%)	324 (45.8%)
Moroto	102 (15.4%)	242 (36.6%)	318 (48.0%)
Nakapiripirit	7 (0.9%)	312 (38.2%)	497 (60.9%)
Napak	85 (12.9%)	298 (45.2%)	277 (42.0%)
KARAMOJA	**678 (13.5%)**	**2,145 (42.7%)**	**2,205 (43.9%)**

The number of income[18] earners by district is presented in Table 29. The table shows that out of the selected households in the sub-region, 42.7% and 43.9% had one income earner and two or more income earners, respectively. Nakapiripirit district (60.9%) registered the highest proportion of households with 2 or more income earners but Amudat district had the lowest (23.6%). Abim district had the highest proportion of households without any income earner (25.2%), a finding similar to the December 2016 assessment when Abim peaked at 45%. Basing on availability of an income earner, the findings suggested relatively better economic access to food in Nakapiripirit, Kotido and Napak districts.

According to the respondents from selected households in Karamoja sub-region, the most important source of income was from the sale of natural resources such as firewood and charcoal. (Table 30). This was particularly prominent in households from Napak, Moroto and Nakapiripirit districts. The sale of livestock and/ or animal products constituted the most important source of income for majority of households in Amudat district. Brewing was the second most important source of household income in the sub-region, especially cited by those from Kaabong and Kotido districts. Non-agricultural wage labour was cited as the second most important source of income for the majority of households In Napak and Moroto districts. In Moroto district, this could be related to reported mining activities that were on the increase. It is important to note that 25% of households in Moroto also stated petty trade at market stalls, whackers etc. as 2nd most important source of income. The district officials related the petty trade and hawking, mainly done by children, to irregular primary school attendance.

[18] An income earner refers to a person who obtains money of a specific kind or level in return for labour or services

At the sub-regional level, agricultural wage labour was the third most important source of household income, especially in Amudat and Nakapiripirit districts. The sale of livestock and/ or animal products featured prominently in Moroto and Kaabong districts while gifts and begging were cited in Napak and Kotido districts.

Table 30: Most Important Sources of Household Income, by District, January 2018

District	Most Important Source	Second Most Important	Third Most Important
Abim	Food crop production/ sales (17%)	Brewing (18%)	Agricultural wage labour (24%)
Amudat	Sale of livestock and/ or animal products (56%)	Food crop production/ sales (16%)	Agricultural wage labour (16%)
Kaabong	Sale of firewood/ charcoal (23%)	Brewing (27%)	Sale of livestock and/ or animal products (20%)
Kotido	Sale of firewood/ charcoal (25%)	Brewing (20%)	Gifts/ begging (14%)
Moroto	Sale of firewood/ charcoal (46%)	Non-agricultural wage labour (construction etc.) (39%)	Sale of livestock and/ or animal products (25%)
Nakapiripirit	Sale of firewood/ charcoal (45%)	Brewing (18%)	Agricultural wage labour (18%)
Napak	Sale of firewood/ charcoal (46%)	Non-agricultural wage labour (construction etc.) (32%)	Gifts/ begging (15%)
KARAMOJA	**Sale of firewood/ charcoal (29%)**	**Brewing (17%)**	**Agricultural wage labour (11%)**

Remittance accounted for only 0.4% of the most important; 0.8% among 2nd most important and 1.5% among the 3rd most important sources of household income. In terms of origin, 31% were received from main town in the district; 22% from neighbouring district; 33% from other towns or districts within Uganda and 2% from outside the country.

3.7.2: Household Debt

Table 31: Household Debt, by District, January 2018

District	Have Debt	Have Interest	Mean Debt (UGX)
Abim	325 (43.6%)	161 (49.5%)	95,823
Amudat	95 (13.3%)	20 (21.1%)	74,389
Kaabong	191 (26.5%)	48 (25.1%)	46,769
Kotido	233 (33.0%)	107 (45.9%)	37,118
Moroto	284 (42.9%)	31 (10.9%)	46,163
Nakapiripirit	272 (33.3%)	76 (27.9%)	42,072
Napak	166 (25.2%)	73 (44.0%)	68,325
KARAMOJA	**1,566 (31.1%)**	**516 (33.0%)**	**58,548**

Debt is not necessarily bad for households but is indicative of stress when used to meet essential household needs, including for purchase of food. Table 31 presents the household debt by district. Current overall debt prevalence is 31.6%, which is similar to the December 2016 result of 31%. The highest proportion of households with debt was observed in Abim and Moroto districts while the lowest was in Amudat district. The December 2016 assessment reported Abim district (50%) had highest while Amudat (8%) was lowest. In the current assessment, 33% of those with debt had to pay interest especially those from Abim, Kotido and Napak districts. The

average sub-regional debt was UGX 58,548 with households in Abim district having registered the highest average amount whilst Kotido district had the smallest amount.

As illustrated in Figure 35, the main sources of credit for all debts and loans were the relatives (40%), traders and shop-keepers (21%), followed by Bank/credit institution/Micro-credit projects (17%). Relatives were prominently cited as the commonest source of credit for household debt in the districts of Kaabong (58%) and Kotido (47%) but less common in Abim district. Amudat and Moroto households relied predominantly upon traders or shop-keepers while those in Napak and Abim districts relied more on the credit and micro-credit institutions. Money-lenders were particularly an important source for households in Nakapiripirit district.

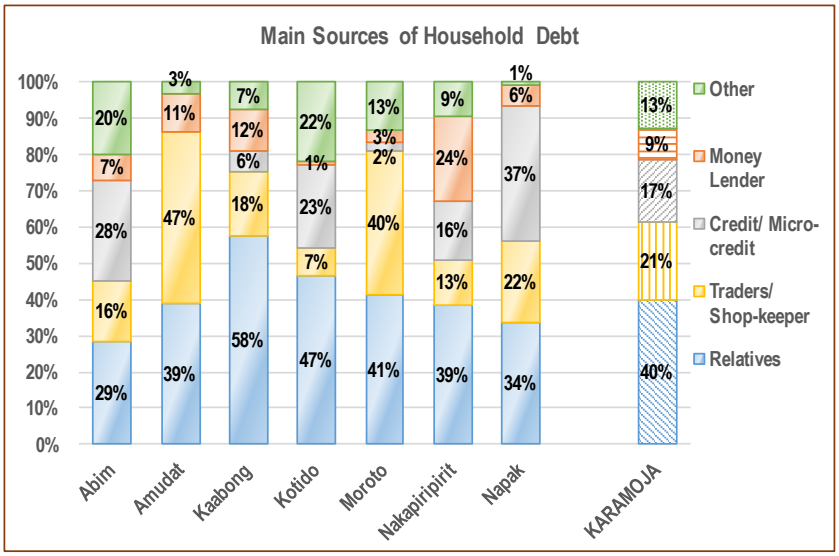

Figure 35: Main Sources of Funds for Household Debt, January 2018

Figure 36 shows that 48% of the households in the sub-region borrowed for purposes of buying food and 28% to cover health expenses. The finding was not markedly different from the December 2016 assessment when the two main reasons were 52% borrowed to buy food and 22% to cover the health expenses. Borrowing to purchase food was comparatively more common in Kaabong and Moroto districts, but less common in Abim and Kotido districts, which may reflect the stress associated with acquisition of food for household consumption.

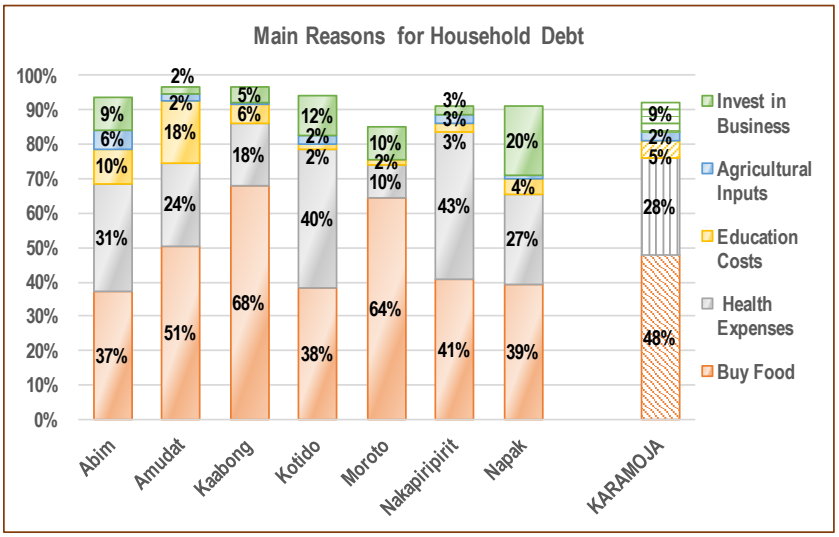

Figure 36: Main Reasons for Incurring Household Debt, January 2018

Borrowing to cover health expenses was relatively more common in Napak and Kotido districts but lowest in Moroto district (10%). It is noteworthy that 18% of the household debts in Amudat district were related to school and education costs while 20% in Napak district were related to investment in business.

3.7.3: Household Expenditure

Table 32: Most Commonly Purchased Food Items by Selected Households, by District, January 2018

Foods Purchased	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit	Napak	KARAMOJA
Cereals	259 (34.7%)	548 (76.5%)	376 (52.1%)	451 (63.8%)	650 (98.2%)	633 (77.6%)	515 (78.0%)	**3,432 (68.3%)**
Tubers	147 (19.7%)	71 (9.9%)	146 (20.2%)	251 (35.5%)	407 (61.5%)	445 (54.5%)	225 (34.1%)	**1,692 (33.7%)**
Pulses	581 (77.9%)	175 (24.4%)	468 (64.9%)	626 (88.5%)	625 (94.4%)	617 (75.6%)	490 (74.2%)	**3,582 (71.2%)**
Fruits & vegetables	276 (37.0%)	219 (30.6%)	253 (35.1%)	154 (21.8%)	248 (37.5%)	458 (56.1%)	184 (27.9%)	**1,792 (35.6%)**
Fish/ Meat/ Eggs/ Poultry	483 (64.7%)	79 (11.0%)	453 (62.8%)	299 (42.3%)	353 (53.3%)	330 (40.4%)	401 (60.8%)	**2,398 (47.7%)**
Oil, fat, butter	602 (80.7%)	626 (87.4%)	634 (87.9%)	640 (90.5%)	628 (94.9%)	675 (82.7%)	457 (69.2%)	**4,262 (84.8%)**
Milk, cheese, yogurt	32 (4.3%)	170 (23.7%)	109 (15.1%)	53 (7.5%)	197 (29.8%)	378 (46.3%)	73 (11.1%)	**1,012 (20.1%)**
Sugar/salt	651 (87.3%)	624 (87.2%)	707 (98.1%)	658 (93.1%)	636 (96.1%)	714 (87.5%)	608 (92.1%)	**4,598 (91.4%)**
Tea/Coffee	109 (14.6%)	584 (81.6%)	58 (8.0%)	30 (4.2%)	77 (11.6%)	110 (13.5%)	41 (6.2%)	**1,009 (20.1%)**
Other meals/ snacks consumed	34(4.6%)	4 (0.6%)	194 (26.9%)	156 (22.1%)	170 (25.7%)	61 (7.5%)	116 (17.6%)	**735 (14.6%)**
Total (N)	**746**	**716**	**721**	**707**	**662**	**816**	**660**	**5,028**

Table 32 shows that the main food items purchased included Cereals, Sugar/ salt, Oil, fat, butter and Pulses. These foods were mainly purchased in the districts of Moroto, Kotido, Napak and Nakapiripirit, which may be related to the higher level of household Income earners.

Table 33 shows for all purchased food items, Amudat district had comparatively higher absolute expenditure while Kotido district had the lowest monthly food expenditure.

Table 33: Food Expenditure Profiles by District, January 2018

Food Category	KARAMOJA	Highest	Average Monthly Expenditure (UGX)					Lowest
Cereals	35,590	Amudat (66,269)	Kaabong	Abim	Napak	Nakapiripirit	Kotido	Moroto (25,402)
Tubers	7,378	Amudat (14,168)	Abim	Moroto	Kaabong	Nakapiripirit	Kotido	Napak (5,142)
Pulses	15,893	Abim (30,156)	Amudat	Moroto	Napak	Nakapiripirit	Kaabong	Kotido (11,517)
Fruits and vegetables	7,198	Amudat (10,309)	Napak	Abim	Nakapiripirit	Kaabong	Kotido	Moroto (5,782)
Fish/ Meat/ Egg/ Poultry	10,370	Abim (14,005)	Kotido	Moroto	Amudat	Kaabong	Nakapiripirit	Napak (7,115)
Oil/Fat/Butter	6,572	Amudat (10,281)	Abim	Nakapiripirit	Moroto	Kotido	Kaabong	Napak (3,709)
Milk and Milk Products	9,166	Amudat (24,255)	Abim	Kaabong	Moroto	Kotido	Nakapiripirit	Napak (3,968)
All Food	**59,643**	**Amudat (97,049)**	**Moroto**	**Abim**	**Nakapiripirit**	**Napak**	**Kaabong**	**Kotido (45,228)**

Findings from the December 2016 assessment registered the highest average expenditure in Amudat district and the lowest in Napak district. In this assessment, the average monthly expenditure on cereals for the sub-region was UGX 35,590 but households in Amudat spent on average UGX 66,269 whilst those in Moroto district spent on average UGX 25,402.

As illustrated in Figure 37, only 42% of the selected households heavily depended upon markets to get more than three-quarters of their food. It marked an increase from 14% reported from the December 2016 assessment, mainly in Moroto, Amudat and Napak. Moroto district (92%) registered the highest proportion of households with high market dependence whilst Kaabong (17%) had the lowest. Overall, Kaabong district (38%) registered the highest proportion of households with low dependence on markets for food.

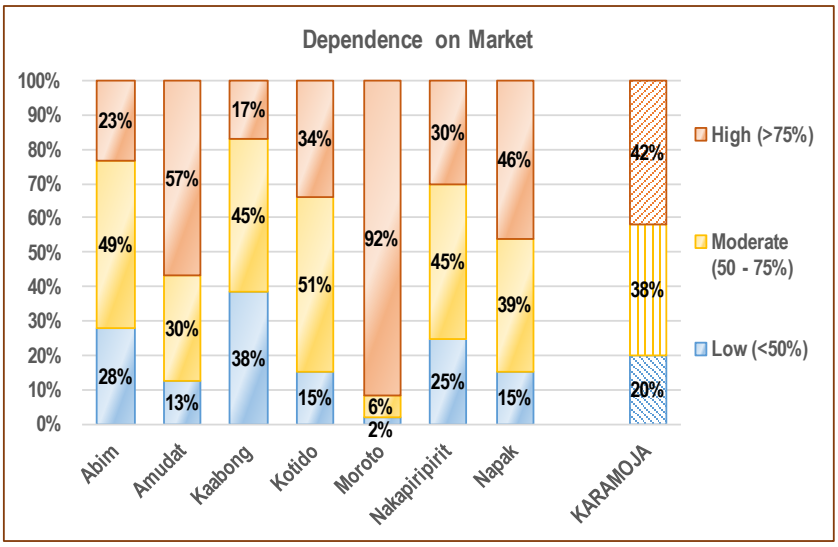

Figure 37: Dependence on Markets by Households, January 2018

The Food Expenditure Share[19] is presented in Figure 38. The figure shows that about 37% of households in the sub-region were in the categories of moderately food insecure and severely food insecure, which was not markedly different from 34% reported in the December 2016 assessment. In this assessment, Napak, Moroto and Amudat registered the highest proportion of households that were moderately and severely food insecure, while Abim district had the lowest proportion.

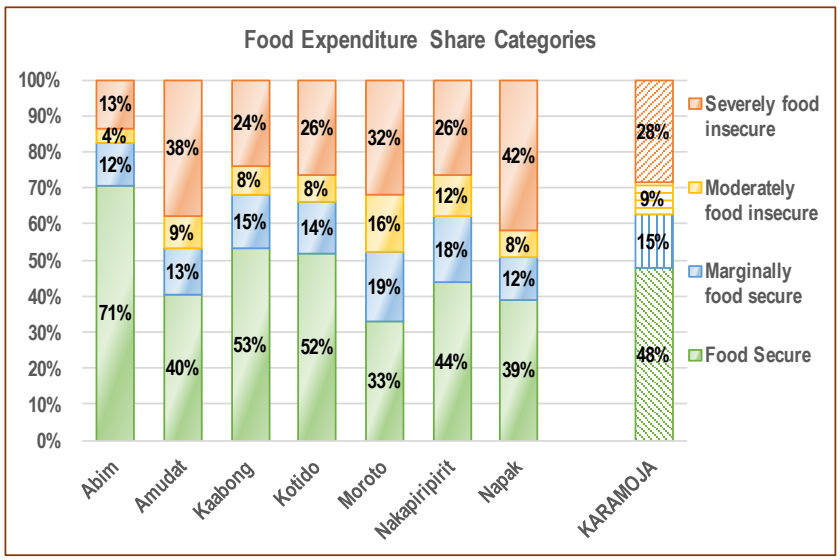

Figure 38: Food Expenditure Share Categories of Households, January 2018

[19] The Food Expenditure Share refers to the percentage of total household expenditure that is allocated to food. The higher the percentage of total expenditure allocated by the household to food, the greater the food insecurity. For instance, households that spent <50% of total household expenditure on food were regarded as food secure; 50 - <65% as marginally food secure; 65 - <75% as moderately food insecure; and >75% as severely food insecure.

The finding of households spending proportionately more on food than the other essential non-food items indicates higher likelihood of challenges related to food access.

3.8: Food Utilisation

3.8.1: Food Consumption

Figure 39 shows that 57% of households in the sub-region had acceptable Food Consumption Score[20], which was similar to the finding of 58% during December 2016 assessment. Kotido and Moroto districts had the highest proportion of households with acceptable FCS while Kaabong and Napak districts registered the lowest proportions. The study findings showed a significant association between the number of income earners in the household and the food consumption scores, whereby the higher the number of income earners, the more likely to be in the acceptable consumption score.

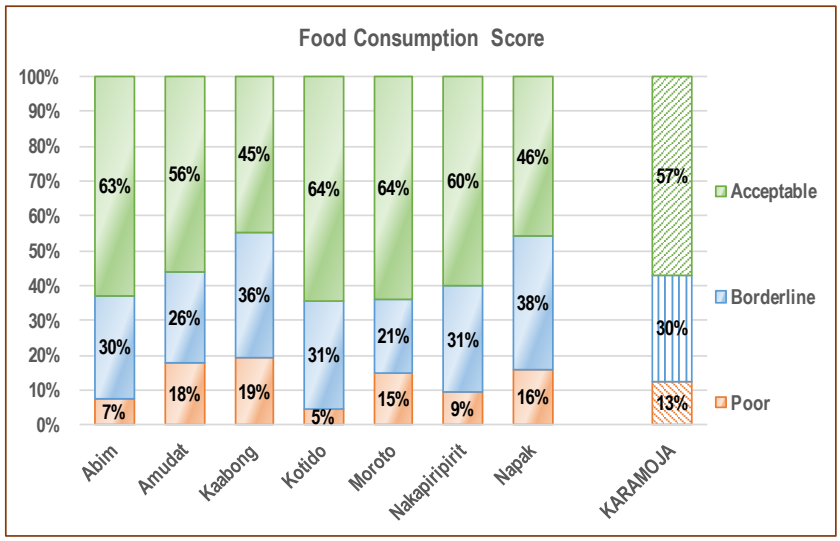

Figure 39: Household Food Consumption Scores January 2018

Figure 40 illustrates the trend in Food Consumption Scores for the harvest season (December round of assessments) from 2012 to 2017 (the December 2017 round of assessment was conducted in January 2018). It shows that apart from a slight increase to 61% in 2013, the acceptable food consumption pattern has been relatively stable over the 5-year period between 2013 and 2017 albeit with a declining trend from 2012.

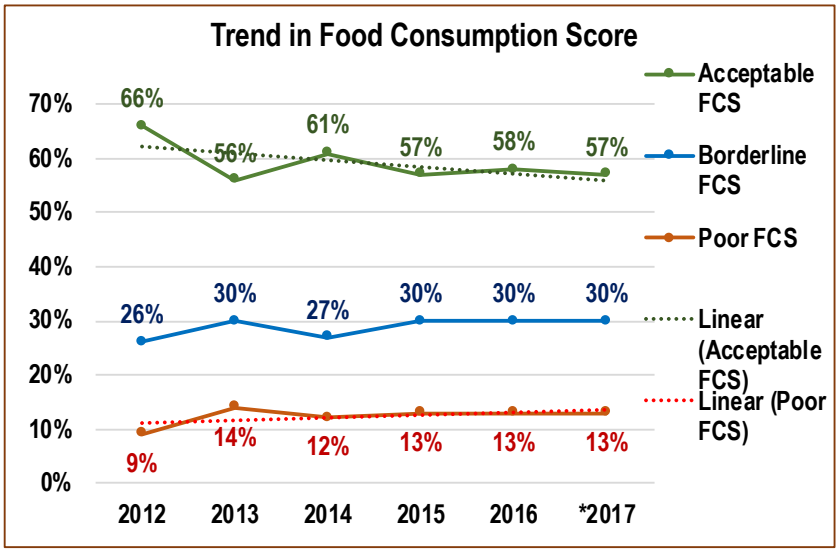

Figure 40: Trend in Food Consumption Score, December Round 2012 – 2017
**December 2017 assessment was conducted in Jan 2018*

[20] The Food Consumption Score (FCS) is a composite score based on dietary diversity, food frequency and relative nutrition importance of different food groups.

This could reflect the responsiveness of interventions being made to address challenges faced by households in the Karamoja sub-region.

3.8.2: Household Dietary Diversity

Figure 41 shows that 52% of the selected households in the sub-region had a low Dietary Diversity Score[21], which reflects a slight increase from 49% reported in the December 2016 assessment. Abim and Amudat districts registered the highest proportion of households with low score but it was least in Kotido district. Nakapiripirit district (13%) registered the largest proportion of households with high dietary score. This could be related to the finding of high food aid and level of income earners in Nakapiripirit district.

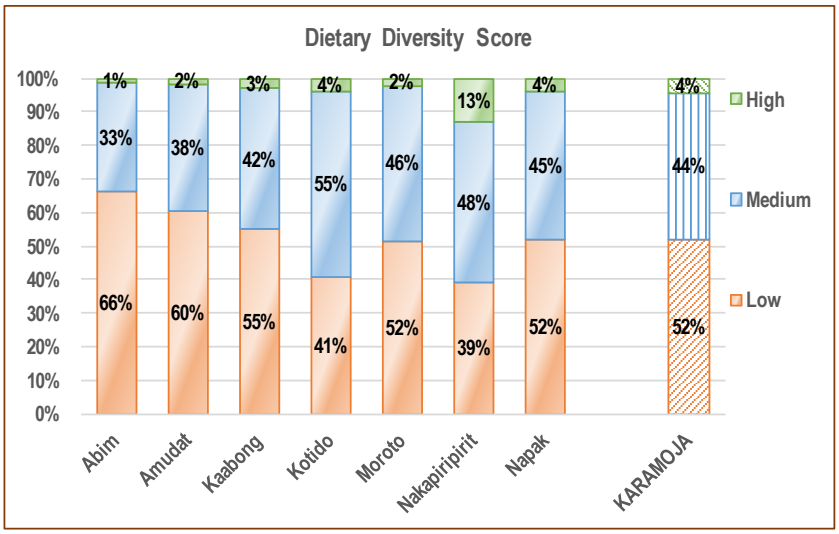

Figure 41: Household Dietary Diversity Scores, January 2018

3.9: Stability

3.9.1: Main Shocks to Households

As illustrated in Figure 42, the main shocks to household food security in Karamoja sub-region included Sickness/ Disease (34%), High Food Prices (27%), and Floods, Heavy Rains, drought (13%). This was comparable to the findings from December 2016 when high food prices (45%) and harsh weather (22%) constituted the main shocks. Sickness was a big problem to households in

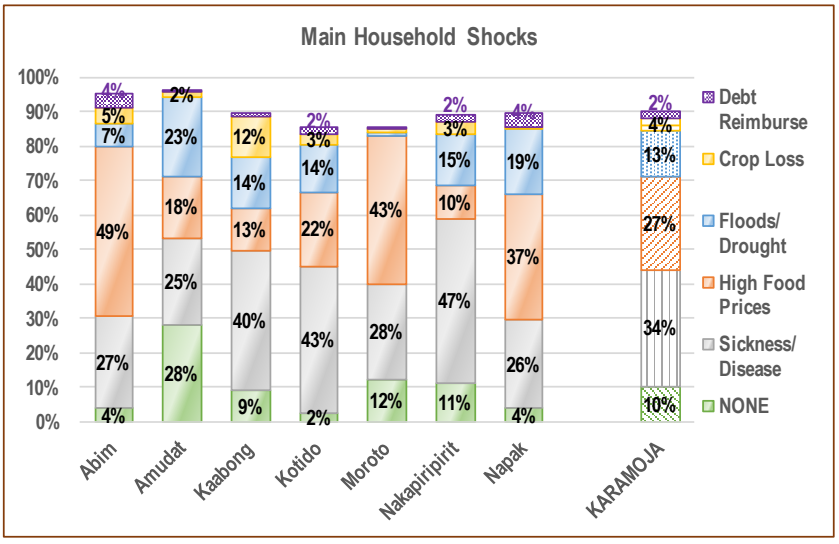

Figure 42: Main Shocks Experienced by Households, January 2018

[21] The Household Diet Diversity Score (HDDS) is a simple count of food categories consumed in the household in the past 7 days, based on 7 food groups which is then classified as Low (HDDS <4.5), Medium (4.5<HDDS<6) or High (HDDS > 6). The higher the HDDS, the more diversified diet is, among households.

Nakapiripirit and Kotido while high food prices mainly affected Abim and Moroto districts. Harsh weather conditions affected mainly Amudat and Napak districts, while crop loss was of particular concern in Kaabong district. Debt reimbursement affected comparatively more households in Abim and Napak districts.

3.9.2: Food Consumption Coping Strategies

Figure 43 shows that the most commonly applied food consumption coping strategies were the consumption of less preferred food, borrowing of food, reducing the number of meals consumed per day, reducing the size of portions consumed and reducing the quantity of food consumed by adults. Kaabong and Nakapiripirit districts had comparatively larger proportion of households that applied the food consumption coping strategies while Abim district registered the lowest proportions.

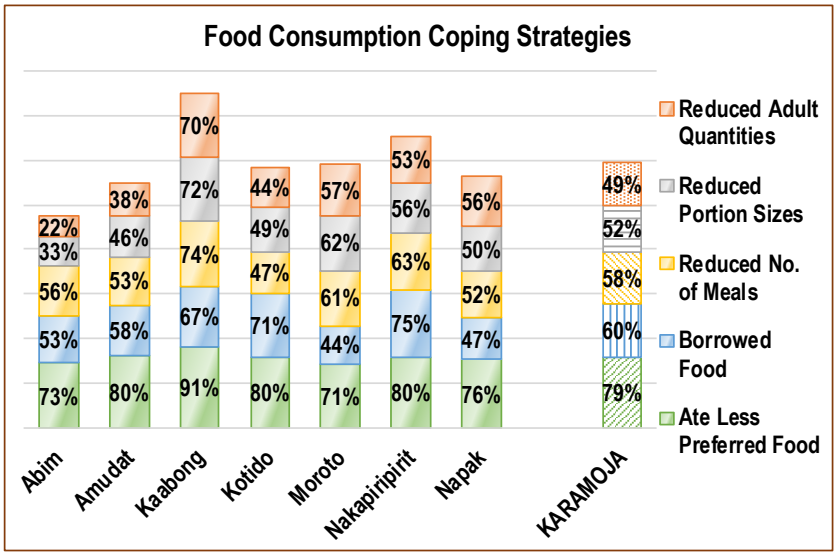

Figure 43: Main Food Consumption Coping Strategies, January 2018

The Food Consumption 'Reduced' Coping Strategy Index (RCSI)[22] measures the behaviours adopted by households when they have difficulties covering their food needs. Figure 44 shows that 9% of households employed high coping, which was only slightly higher than 7% reported in the December 2016 assessment. The largest proportion of households were from Kaabong district whilst Kotido district registered the smallest proportion.

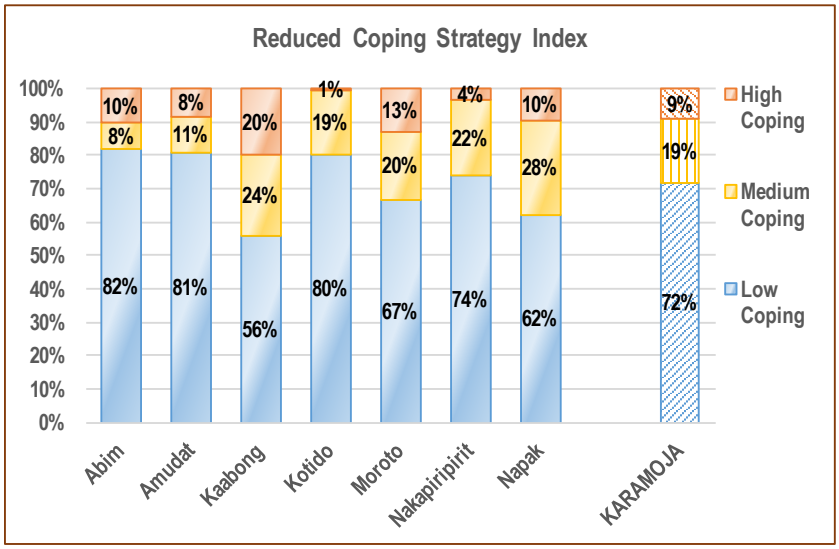

Figure 44: Reduced Coping Strategy Index for Households, January 2018

[22] The reduced coping strategies index (rCSI) is used to compare the hardship faced by households by measuring the frequency and severity of the food consumption behaviours they engage in when faced with shortages of food. It is calculated using standard food consumption-based coping strategies.

3.9.3: *Livelihood Coping Strategies*

Figure 45 shows that one-quarter of all selected households did not apply any livelihood coping strategies[23], which was equivalent to the finding during the December 2016 assessment. In this assessment, it was more common in Napak district but less in Abim district. At the sub-region level, 46% of the households were applying emergency coping, which was more pronounced in Kaabong and Kotido districts.

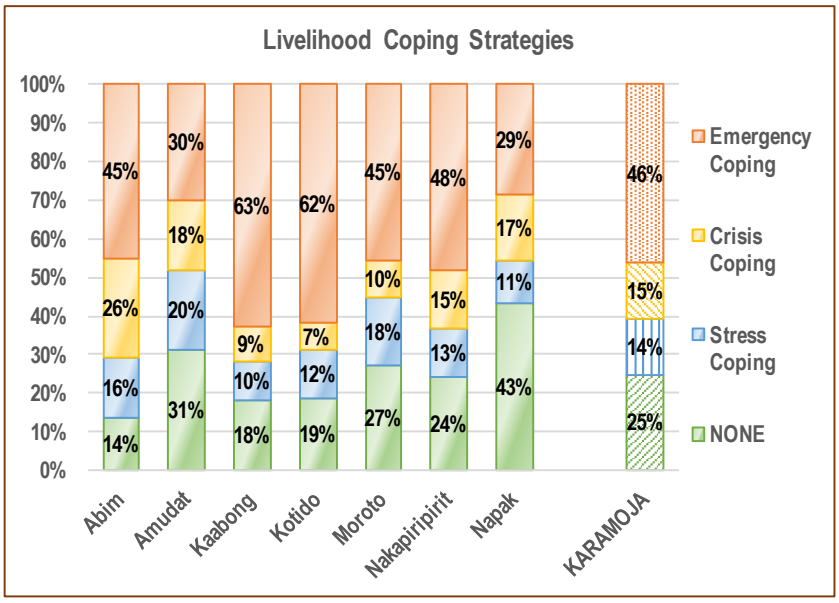

Figure 45: Livelihood Coping Strategies for Households, January 2018

3.10: Final Food Security Classification

The Food Security Index combines the Food Expenditure, Food Consumption Score and Livelihood coping strategies. Figure 46 shows that only 56% of households were food secure (Food secure + marginally food secure). The finding was almost similar to that of December 2016 when 55% of households were food secure. In this assessment, Napak and Kaabong districts registered the highest levels of food insecure households whilst Abim district had the lowest.

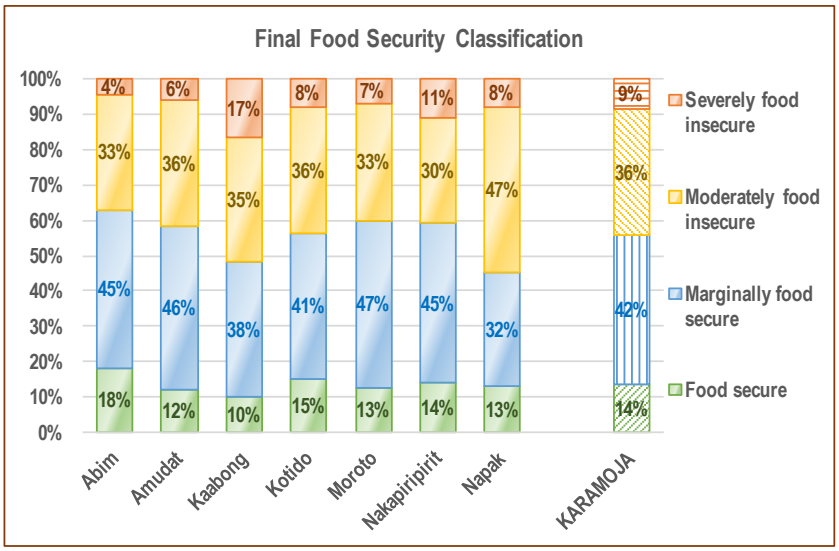

Figure 46: Main Reasons for Incurring Household Debt, January 2018

[23] Livelihoods-based coping strategies reflect longer term coping capacity of households and the various strategies applied can be categorized as 'stress', 'crisis' or 'emergency' coping depending on the severity weights. Stress coping strategies indicate reduced ability to deal with future shocks due to a current reduction in resources or increase in debts, which progresses to crisis coping whilst emergency coping is at the peak. Stress coping strategies include: Sale of household assets/goods; spending savings; sale of more animals than usual; Borrow or purchase of food on credit; Borrow money. Crisis coping strategies include: Sale of productive assets; withdrwal of children from school; Reduce expenses on health and education; Harvest of immature crops; Consumed seed stock; Emergency Coping strategies include: Sale of house or land; Begged; Engaged in illegal income activities such as theft or prostitution.

The study findings showed a significant association between the number of income earners in the household and the food security status, whereby the higher the number of income earners, the more likely the household was food secure. Findings also showed a significant association between borrowing to buy food and food security status whereby, households that borrowed to buy food were more likely to be food insecure when compared to those that did not borrow to buy food. On the other hand, households that had debt were less likely to be in the category of severely food insecure when compared to those that did not have debt. There was also a significant association between coping at household level and food security whereby, those with high coping (high RCSI) were more likely to be food insecure than those with low coping.

The comparison of food insecurity in Karamoja sub-region (moderately food insecure + severely food insecure households) in 2016 and 2017 (from the January 2018 assessment) is summarised in Table 34. Overall, there was minimal change at the sub-region level in proportion food insecure households, but significant deterioration was observed in Amudat and Napak districts. On the other hand, marked reduction in the proportion of food insecure households was registered in Abim and Moroto districts.

Table 34: Food Security Situation in 2016 and 2017

District	Food Insecure Households	
	Dec 2016	Jan 2018
Abim	54%	▼ 37%
Amudat	25%	▲ 42%
Kaabong	59%	▼ 52%
Kotido	47%	▼ 44%
Moroto	60%	▼ 40%
Nakapiripirit	47%	▼ 41%
Napak	37%	▲ 45%
KARAMOJA	**45%**	**◀▶ 44%**

3.11: Mortality

3.11.1: Crude Mortality Rates

Table 35: Crude Mortality and Under-five Mortality Rates in Karamoja, January 2018

District	CMR	Confidence Interval	Classification	Under-5 MR	Confidence Interval	Classification
Abim	0.70	[-0.94 - 2.35]	Normal	0.44	[-0.86 - 1.75]	Normal
Amudat	0.61	[-0.92 - 2.14]	Normal	1.00	[-0.96 - 2.97]	Normal
Kaabong	0.80	[-0.95 - 2.56]	Normal	0.63	[-0.93 - 2.18]	Normal
Kotido	0.57	[-0.91 - 2.06]	Normal	0.91	[-0.96 - 2.78]	Normal
Moroto	0.84	[-0.96 - 2.64]	Normal	0.77	[-0.95 - 2.5]	Normal
Nakapiripirit	0.60	[--0.92 - 2.12]	Normal	0.57	[-0.91 - 2.05]	Normal
Napak	0.73	[-0.94 - 2.39]	Normal	0.68	[-0.94 - 2.28]	Normal
KARAMOJA	**0.82**	**[-0.95 - 2.59]**	**Normal**	**0.70**	**[-0.94 - 2.34]**	**Normal**

Table 35 summarises the Crude Mortality and Under-five Mortality Rates for the Karamoja sub-region, disaggregated by district. The overall 180-day recall estimate for the crude mortality rate (CMR) across the Karamoja sub-region as a whole was **0.82** deaths per 10,000 per day [95% CI: -0.95 – 2.59]. The under-5 mortality rate (U5MR) was **0.70** deaths per 10,000 per day [95% CI: -0.94 – 2.34]. On basis of the guidelines for interpretation of mortality, the rates were "normal". All the districts registered CMR below 1.00 and only Amudat district registered U5MR of 1.00.

3.11.2: Reported Main Causes of Death

As illustrated in Figure 47, the suspected leading causes of death for the whole population were "Malaria (fever of 2-3 days standing)" (24%), Lower respiratory tract infection (8%), accidents (8%), gun-shots (6%) and diarrhoea (2%). Not surprisingly, the cause of death could not be clearly identified for more than half of cases (52%) and categorised as "unknown" or "other

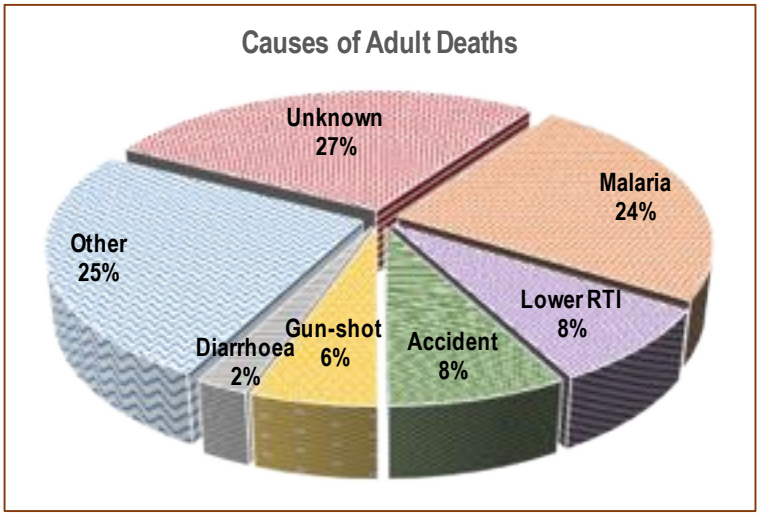

Figure 47: Main Causes of Death among Adults, January 2018

As illustrated in Figure 48, the leading causes of death among the under-5 children were "Malaria (fever of 2-3 days standing)" (40%), diarrhoea (9%), measles and lower respiratory tract infections (3% each). The causes of death for approximately 45% of cases could not clearly identified and hence labelled "Unknown" and "Others".

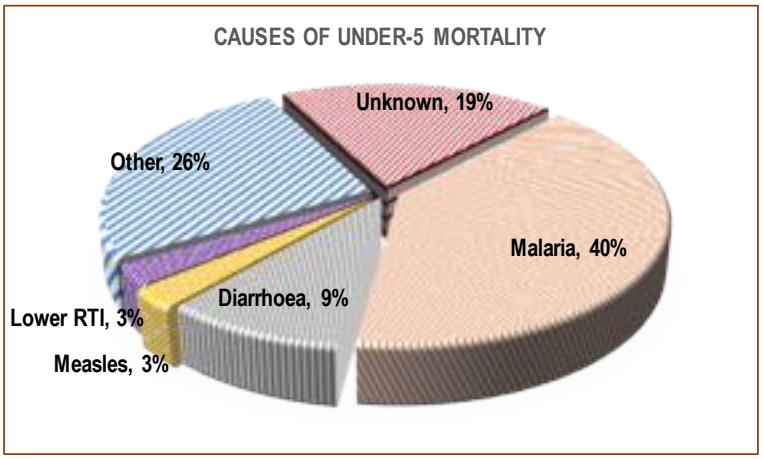

Figure 48: Main Causes of Death among Children, January 2018

4. Findings from Qualitative Assessment in Kotido District

4.1: Common Infant Feeding Practices

The findings presented in the subsequent sections were from Focus Group Discussions (FGD) involving the mothers, fathers and community leaders.

4.1.1: Early Initiation of Breastfeeding and Pre-lacteal Feeds

Most women and men in Kokuwam, Rengen, and Kanawat sub-counties reported the immediate initiation or early initiation of breastfeeding within one hour of birth. However, in Nakapelimoru sub-county, initiation was delayed until next day for any child born at night as reflected in the statement by one mother in the FGD.

> *"Initiation is done immediately if the child is born during day and named, but those delivered at night are not given breastmilk."* (Mother, women's FGD, Nakapelimoru)

The study further explored mothers' knowledge on the importance of feeding new-born babies on colostrum. The findings showed that it was not only the mothers with knowledge on importance of colostrum but most men were knowledgeable on the benefits and importance of colostrum to a baby as indicated in the following statements from the FGDs:

> *"It is good as it helps to strengthen the baby…."* (Father, men's FGD, Chilapus, Rengen)
>
> *"It is a source of strength and life to the child…."* (Father, men's FGD, Kanawat, Loseer)

All the above responses were confirmed with information from key informants which also indicated that initiation of breastfeeding was done within an hour of birth or could be extended beyond one hour if there was a reasonable cause relating to the mothers' conditions as indicated by key informants in Loseer. They also indicated that children were fed on colostrum and no pre-lacteal feeds given.

Participants were further questioned to explore their knowledge on the recommended period before the baby was put on the breast after birth. The respondents demonstrated relatively high knowledge with regards to the recommended duration before the child could be breast fed after birth. This was revealed by most mothers and fathers reporting that children should be breastfed immediately after birth or within an hour after birth. Overall, the results suggested optimal breastfeeding practices that may be attributable to effective behaviour change communication at both community and facility levels. The fact that some women did not commence breastfeeding because the child was born at night, before a name was given is an indication of strong cultural

values still prevalent in the study communities, which negatively affect the breastfeeding practices and indicators in Karamoja sub-region. Not initiating before a child is given a name is among the barriers to optimal breastfeeding, linked with negative neonatal health outcomes, including increased risk of illness and mortality. However, maternal and paternal knowledge of the need for colostrum feeding and the timing of breastfeeding initiation were relatively high in this study community, which suggested that mothers gave pre-lacteals for reasons other than colostrum avoidance.

The findings highlight the need for strengthened behaviour change communication interventions and strategies, to ensure improved breastfeeding knowledge, beliefs, and social norms. There is need for sensitisation of the leaders, and elders who are custodians of culture on the importance of the first hour and success of breastfeeding related to early initiation to enable starting the child on breastmilk even though they have not been given a name, or when born at night.

4.1.2: Breastfeeding and Complementary Feeding Practices

I. Introduction of Soft, Semi-solid and Solid Foods

UNICEF and WHO (2010), recommends that children be exclusively breastfed during the first 6 months of life and that children be given solid or semi-solid complementary food in addition to continued breastfeeding from age 6 months until 24 months or more. In view of the above, this study explored mothers' knowledge and practice on exclusive breastfeeding and introduction of soft, semi-solid or solid foods. In general mothers and fathers stated that children were exclusively breast-fed for 6 months and there after solid foods were introduced. For instance, a respondent from one of the focus group discussions categorically stated as follows:

> *"Exclusive breastfeeding is done up to 6 months…."* (Mother, women's FGD, Kanawat, Loseer)

II. Types of Complementary Foods Given

Overall, most babies were fed on porridge, milk, and beans soup, which was revealed in both fathers' and mothers' focus group discussions. Only a few malnourished children were reportedly fed on soy meal, plumpy nut, rice and cooking oil provided by United Nations World Food Programme and partners operating in the area or white sorghum.

Other foods fed to children included posho (maize meal), sorghum, silver fish (*Omena*), eggs, millet bread, meat, and green vegetables. Butter was particularly more common in Nakapelimoru sub-county and groundnut paste in Loseer sub-county. Local brew (*nyebutia)* was given to children instead of milk due to lack of livestock especially in Chilapus, Rengen sub-county. The key informants interviewed confirmed that some of the complementary foods being fed to children included milk, beans soup, porridge, mashed foods, eggs and greens. Whereas oil is purchased by most households, the assessment did not determine whether this was given to children as part of complementary foods.

III. Cessation of Breastfeeding

Majority of the mothers stated that they stopped breastfeeding their children when they reached the age of 2 years. This was confirmed with responses from the men's FGDs which showed that children were breastfed continuously in the community up to two years of age. The important reason cited by mothers for stopping breastfeeding before 2 years, was when the mother got pregnant. The children at this age were not given any special meals but rather, just consumed the main foods that the adult household members routinely ate.

IV. Frequency of Feeding Children

The majority of respondents interviewed from Nakapelimoru, Rengen and Loseer stated that they fed their children once a day. The only situations where children were fed twice tended to be when there was left-over food given in the morning that was served as breakfast. One meal was usually eaten in the evening when the whole family gathered because of scarcity of food. This was observed to be much less than the recommended minimum frequency.

Information from FGDs was noted to have been inconsistent, with some of the respondents interviewed reporting that households normally had three to four meals in a day. The number of meals was apparently greatly influenced by the seasons, being higher during the harvest and lower during the lean season. These findings from the community members should be used as a basis for development of sensitization messages targeting the leaders. The messages should engage community leaders from the lowest level possible as a strategy to effectively address the problem of malnutrition.

V. Types of Foods Prepared

The main types of food prepared included beans, green vegetables, sorghum bread, millet bread, and silver fish while meat was only consumed "once in a while". As a general principle, the food was mainly prepared once in a day. The reasons behind such feeding patterns were related to the seasons as reflected in the following statements from FGDs:

> *"When we have just harvested, we eat even three times a day but in scarcity like now we eat once…."* (Father, men's FGD, Nakapelimoru)
>
> *"The different seasons affect meal patterns. During rainy season, there is enough food like different types of vegetables, cucumber, which are easily available, so we eat three or even four times a day, but during the dry season, it is very difficult to get food thus eating once a day...."* (Mother, women's FGD, Kanawat, Loseer)

The study noted inconsistence between knowledge on infant and young child feeding and actual practices in the selected communities.

4.2: Community's Perceptions and Knowledge on Nutrition

4.2.1: Perceptions about Malnutrition

In general, there were differences in the perception of malnutrition among the individuals interviewed as reflected in the following statements from the FGDs:

> *"Under nutrition refers to the limited food in the body making one malnourished…."* (Father, men's FGD, Kokuwam)
>
> *"Under nutrition is hunger due to lack of food…."* (Mother, women's FGD, Kanawat, Loseer)
>
> *"Under nutrition is when the child is weak, has diarrhoea, is sickly and looks to be underweight..."* (Mother, women's FGD, Kacheri, Kokuwam)

Mothers of malnourished children revealed a better insight and understanding about under nutrition. They stated that under nutrition occurs when there was no child spacing, when the child lacked a balanced diet, when feeding and care of a child were taken over by other members of the household, when a child was born with low birth weight and low milk production from mother. Other reasons given included poor hygiene practices, low food intake, recurring illnesses and alcoholism of parents. However, the comparatively high level of knowledge could be related to the nutrition education accessed at the nutrition rehabilitation units.

This observation was confirmed when the respondents were specifically asked to mention the type of messages given to them by health workers when they visited facilities, reflected in the following statements:

> *"…sanitation and hygiene, good preparation of meals, exclusive breastfeeding, having a balanced diet, visiting the health unit, stop selling of foods and not sharing food for the malnourished children with other members…."* (Mother, women's FGD, Chilapus, Rengen)
>
> *"Mercy Corps, UNICEF and health workers teach mothers to feed their children on different foods such as beans, eggs, milk. Health education is done in community for parents to take care of their children's health…."* (Key Informant, Kokuwam)
>
> *"Caritas promotes bathing children, digging pit latrines, encouraging mothers to feed their children on a variety of foods like meat, eggs, beans, and they are told to feed twice a day. They encourage breastfeeding of children up to 2 years and breastfeeding mothers are encouraged to eat well so as to produce enough breastmilk and to supervise feeding of their children…."* (Key Informant, Nagolopose, Loseer)

4.2.2: Perceptions on the Causes of Malnutrition

Majority of the participants interviewed perceived under nutrition as "hunger due to lack of food making someone anaemic" or "when there was limited food in the body as well as starvation due

to lack of food", or "eating the same foods without variety", and "weakness due to diarrhoea, sickness and therefore underweight".

> *"Hunger due to lack of food, eating the same food and no variety..."* (Mother, women's FGD, Kanawat, Loseer)

According to the selected key informants, under nutrition was related to hunger and lack of food, caused by little or no rain or alcoholism of parents who used money to drink instead of buying food. It also occurred due to lack of variety of foods to eat and resorting to greens (*nyekorete*) only, or the sale of food resulting into lack of food at home to eat.

> *"Lack of food in the community…."* (Key Informant, Chilapus)

The study revealed that selected community members were knowledgeable about the signs and symptoms of under nutrition among children. For instance, respondents from among the men and women were able to mention sunken eyes, peeling of skin, lack of appetite, pot belly, dullness, diarrhoea, brown hair, pale eyes, low weight, swollen body, withered body, swollen legs, thin and sickly child.

4.2.3: Perceptions on the Consequences of Malnutrition

I. Consequences of Malnutrition on the Child

Responses from both women's and men's focus group discussions indicated stunting, loss of weight, mental impairment, sickness, weakness and ultimately death among the overall results of under nutrition, as reflected in the following statements:

> *"Death, sickness, and child not wanted among other children."* (Father, men's FGD, Nakapelimoru)

> *"Death, illness, stunted growth, taking too long to walk, general body weakness, takes long to talk and loss of appetite."* (Mother, women's FGD, Chilapus, Rengen)

Among the selected key informants, the results cited also included poor appetite, recurring illness, child neglect, irritability and delayed physical and mental development.

> *"Death, the child is sickly, lacks appetite, has low weight and general weakness of individual."* (Key Informant, Chilapus)

II. Consequences of malnutrition on family

Consequences of under nutrition on family mentioned in the focus group discussions included: shame and insults from community, stress to the parents and increased family expenditure to take care of child, which ultimately resulted in poverty within the home. On this list was added time wastage in the treatment process, selling off animals and other household items, increased medical care expenditure and isolation of family in community, which were mentioned by the key informants:

"Shame, backbiting by community members and insults from other men. They say… you are fat, yet your child is dying…" (Father, men's FGD, Nakaperimoru)

"The family members experience a lot of stress, increased poverty because of spending too much money on medication and there is shame upon the mothers." (Key Informant, Kalokeri)

The selected key informants particularly highlighted that the communities with high levels of malnutrition tended to have low productivity, more people with poverty and high levels of morbidity.

4.2.4: Perceptions on Practices for Positive Deviant Children

Participants were requested to state what they considered to be good practices for mothers to raise normal children in relation to personal hygiene, safe water and food and sanitation. The respondents were also asked about health promotion and prevention of diseases; good care seeking practices and maternal nutrition.

Personal Hygiene: With regard to good practices on personal hygiene, the respondents at FGDs and key informants mentioned regular bathing and brushing of teeth, bathing children, sweeping the homes, washing hands before and after eating, regular washing of clothes with soap and clean water, and regular cutting of finger nails.

Safe Water and Food: With regard to good practices on safe water, the FGDs and key informants mentioned use of clean water from the borehole, boiling drinking water, keeping/storing drinking water in clean containers, proper preparation of food, covering food, and warming left over food.

Sanitation: With regard to good practices on sanitation, the FGDs and key informants mentioned building latrines, burying children's faeces, washing hands after cleaning children, having utensil drying racks *(ngikeroi)*, washing cooking utensils, sweep the compounds of homesteads, having bath shelters, fetching water in clean containers with lids, and slashing and clearing of bushes.

4.2.5: Perceptions on Health Promotion and Disease Prevention

With regard to good practices on health promotion and prevention of diseases, the FGDs and key informants mentioned among the key practices, the use of mosquito nets to prevent malaria, taking children for immunization, and family planning.

With regard to good care and seeking practices, the FGDs mentioned taking children to health centres when they fall sick, early treatment of diseases among children, bathing of sick child, giving a variety of foods (balanced diet) and feeding children three times a day and continuous growth monitoring.

Contrary to the quantitative findings, the key informants mentioned that most parents would first go to the VHT when their children were sick and if they did not have medicine or the children failed to improve, referral was then made to the health facility.

> *"The parents take their children to the VHT who gives them medication and if the child does not recover, then he/she is referred to the health centre."* (Key Informant, Losogot)
>
> *"The VHT in his village gives medicines for illnesses he can treat and for others he refers the patient to the health facility. He also gives health education to mothers on how to properly feed the sick child."* (Key Informant, Kokuwam)

With regard to good practices on maternal nutrition, the FGDs and key informants mentioned proper feeding in pregnancy and while breastfeeding, making at least four antenatal care visits during a pregnancy, delivering from a health care facility, good child spacing, not overworking pregnant women and breastfeeding mothers, and letting pregnant women eat tamarin and any other foods they felt like eating at that stage.

Participants mentioned promotional activities that were being implemented for improved child care and feeding practices, which among others included: good nutrition for mothers when pregnant and breastfeeding; use of condoms as a means of family planning; exclusive breastfeeding for 6 months, hand washing with soap and water; bathing children; enriched food preparation for children; continued breastfeeding up to 2 years; immunization of children; digging and using pit latrines; use of mosquito nets; warming food before eating or feeding children; washing of cooking utensils; covering food; and drinking clean water.

A number of interventions were being implemented with support from the partners like UNICEF, Caritas and Mercy Corps with focus on the high impact interventions as reflected in the following statements:

> *"Mothers are taught how to make food for the weaned children like adding eggs, silver fish, groundnut paste in porridge. Promoting the practice of feeding children on a variety of food which is clean and warming left overs before they are eaten. Women are also encouraged to eat a variety of food when pregnant and breastfeeding."* (Key Informant, Kalokeri)
>
> *"Mothers are taught how to prepare food for the children, how to breastfeed frequently and proper attachment of a child to the breast."* (Key Informant, Kacheri, Kokuwam)

4.3: Food Situation in the Study Areas

4.3.1: Sources and Means of Accessing Food

Focus group discussions revealed that most of the selected respondents from households in Kotido obtained their food from agricultural production. They also gathered wild fruits and vegetables for home use and sale at the market but in addition accessed food from markets. This was particularly indicated by a mother in the following statement:

"It is easy because we have a market nearby where we can access things like salt, soda ash etc. there is also free movements to green belts from where we can cultivate on large scale..." (Mother, women's FGD Rengen, Chilapus)

The study also found out that most households relied heavily on brewing, collecting firewood, and burning charcoal for sell through petty trade to obtain money to buy food. Important to note was the trend of specialisation of activities that earned money for buying food. The women were engaging more in brewing, petty trade in market, agricultural labour and selling firewood than the men who were more engaged in casual labour, in construction industry and other sectors, hunting, charcoal burning, begging and sale of livestock.

It was also noted that households relied on food support from the relief agencies and government, including the communities with malnourished women and children. This was reflected in the following statements from the respondents:

"It was difficult to get food but in the following year, it became easier since government started providing food to the malnourished children and the mothers…." (Mother, women's FGD, Nakaperimoru, Kalokeri)

"When there is no rain, government and other partners bring for us food…." (Father, men's FGD, Rengen, Chilapus)

4.3.2: Lean Period/ (Periods of Food Scarcity)

The months of April, May, June and July were regarded as the periods in the year when most households experienced food scarcity. This was attributed to the dry spell that characterizes those months. Both mothers and fathers mentioned May and June to be the months when they experienced severe food shortage, as reflected in the following statements:

"February to May has been difficult because of too much sunshine…." (Mother, women's FGD, Kacheri, Kokuwam)

"In the period March to July, it has been difficult to get food because of drought and increased food prices. e.g. a cup of beans was costing 300 now it costs 1,000…." (Mother, women's FGD, Kanawat, Loseer)

There was also difficulty in obtaining food during the planting and weeding season as indicated in the statement from the following respondent:

"The hardest period for the family is from May to June, during planting and weeding seasons…." (Father, men's FGD, Rengen, Chilaus).

On the other hand, opinions on when food scarcity occurred most varied with in sub counties as summarised in Table 36. It therefore suggested that these sub-counties may have experienced varied times for onset of the rainy season despite being within the same landscape.

Table 36: Season of Food Scarcity by Sub-county

Sub-county	Months of Food Scarcity
Logoret	June to July
Kokuwam	February to June
Nakaperimoru	May to August
Rengen	May to July
Loseer	March to July

4.3.3: Coping Strategies During Food Scarcity

The study found that most of the households fed on wild fruits and vegetables during the periods of scarcity. Wild fruits such as *tamarin* and wild vegetables such as *nyekorete, nyekamongo ngiru seeds and nyekayeriyerq.* They also ate cabbage leaves picked from the market and beans got through purchase from causal labour money as reflected the following statement:

> *"We gather wild vegetables like nyekorete, nyekamongo, nyekayeriyer, tamarins, beans, and cabbage leaves…."* (Mother, Women FGD, Kanawat, Loseer)

> *"Beans are bought when money is available..."* (Father, men's FGD, Kokuwam)

Participants from Nakapelimoru, Logoret and Rengen mentioned that under tough conditions, they resorted to eating residue of local brew, which was normally meant for cows and goats, as human food.

In most of the communities, milk, blood and meat were consumed once in a while especially for those people who owned livestock. Important to note here was that responses related to eating of animal protein during difficult times were mentioned only in the Men's FGD which could reflect the gender-related factors with regard to decisions on expenditures and types of foods eaten in households. The women mainly mentioned wild fruits, vegetables, seeds and the grains in their discussions.

4.3.4: Perceptions on Foods not Recommended for Consumption in Lean Period

Most men mentioned that animal products were consumed during lean periods including blood, meat, butter, eggs, skin, milk, intestines and urine of animals. However, in some communities they did not consume animal products, as reflected the following statement from a respondent:

> *"None of the animal products are consumed because the animals also lack what to eat..."* (Mother, women's FGD, Kacheri, Kokuwam)

4.3.5: Decision-making on Child Feeding

Majority of the participants from the male and female focus group discussions, mentioned that mothers determined what food a child ate because they were the primary caregivers.

Majority of the participants also mentioned that the mothers were responsible for the decision regarding taking of milk. The men were more concerned with ensuring that cows that could be milked were available for the household. Some participants did indicate that some children asked for the milk themselves.

4.3.6: Livestock Products Consumed and Preparation Methods

Milk: Majority of participants mentioned that milk was boiled, taken fresh, or fermented to make it sour or at times was mixed with blood to make "*nyacharakan*".

Beef: was boiled, fried, roasted or sun dried and kept for future use.

Butter: This was made from milk and usually cooked, filtered then eaten or mostly used for frying food.

Blood: They left the blood to clot or mixed and stirred in milk, some households boiled the clotted blood, others took it fresh or roasted it.

Eggs: these were usually boiled and eaten.

Cow's Urine: They get cows urine, mixed in milk and took or at times put it in milk to produce more butter as they churned.

Skin: This was sliced into pieces and cooked or roasted.

4.3.7: Trends of access to food since last election or the last 5 years

The participants mentioned that the period since the last elections had been difficult for them in terms of food security due to persistent drought as a result of changed weather patterns.

> *"The years after 2011 have proved to be very difficult in terms of food security. There has been much drought, pests and diseases on crops from the garden."* (Father, men's FGD, Kokuwam).
>
> *"Persistent drought has led to failure to produce adequate food."* (Father, men's FGD, Nakaperimoru)

Participants from Kokuwam and Loser mentioned that these years had been difficult due to the fact that food aid or relief supply had become limited and reduced in quantity. In Rengen, participants indicated that bad disease outbreaks not only for animals and crops but also those affecting humans like HIV and AIDS had infested their land and made people too weak to produce food. They also indicated that tsetse fly outbreak killed many animals and added onto this was the

cattle theft and recovery intervention that had greatly affected their livelihood as reflected in the following statement:

> *"It was very difficult because many animals died due to diseases, too much drought, cattle theft is high and government is biased in the cattle recoveries. When one person steals cattle, all members in that community suffer…."* (Father, men's FGD, Logoret)

> *"Disarmament has become a bad omen because there is disaster in the land…."* (Father, men's FGD, Loseer)

5. Conclusion

The prevalence of Global Acute Malnutrition (GAM) of **10.4%** and Severe Acute Malnutrition (SAM) of **2.5%** were noted to be "serious"/ "high" and of public health significance according to the World Health Organisation's classification. This finding reflects a decrease from 12.4% and 3.4% respectively, reported from the December 2016 assessment. The prevalence of stunting of **34.0%**, was of public health significance in the category of "serious/ high" and was not markedly different from 34.9% reported in December 2016. Prevalence of under-nutrition on basis of the Body Mass Index among non-pregnant women in Karamoja sub-region was 5.3% and 15% were at risk of becoming undernourished.

There was a strong association between levels of education amongst heads of households and mothers with wasting, stunting and underweight in children below the age of five years. Family size on the other hand, had a strong association with underweight. This assessment has also shown that children still breastfeeding at 2 years of age were more likely to be stunted and underweight than those who had already stopped by that age. The households without toilet facilities were more likely to have children with wasting, stunting and underweight. Those with VIP and pit latrines were less likely to have children with stunting and underweight compared to those with open pit type of toilets. Households that utilised less than 20 litres of water per person per day, were more likely to have children with wasting and underweight. This assessment also revealed that a child with an illness within the preceding two weeks, and specifically fever/ malaria was more likely to be stunted. History of diarrhoea in the child was strongly associated with wasting, stunting and underweight.

Six in ten children (59%) had some form of anaemia: 23% mild, 32% moderate and 4% severe, which reflected a significant increase from the overall prevalence of 29% reported in December 2016. Overall, 46% of sampled women had some form of anaemia: 22% mild, 23% moderate and 1% severe, which was slightly higher than 40.3% reported in the December 2016 assessment. Findings from this study showed that the crude mortality rate (CMR) across the Karamoja sub-region of **0.82** deaths per 10,000 per day and under-5 mortality rate (U5MR) of **0.70** deaths per 10,000 per day, were not of public health significance (normal for stable situations). The leading causes of death for the whole population were malaria (fever of 2 – 3 days standing), lower respiratory tract infections and gun-shots while among under-five children were malaria and diarrhoea.

More than half the households (57%) had acceptable food consumption score, similar to the finding of 58% in the December 2016 assessment. Overall, Food Security classification showed just more than half (56%) of the households were food secure, a finding almost similar to 55% reported in December 2016. This assessment revealed that households that did not have any livestock were more likely to have stunted children compared to those that owned livestock. There was a strong association between cultivation of legumes and staples as well as food expenditure share and the prevalence of underweight. On the other hand, households without food stocks were more likely to have children with underweight and wasting, compared to those with food stocks. The households with a high coping strategy index were more likely to have children with wasting compared to those with lower index. The livelihood coping strategy had a strong association with prevalence of stunting at household level. The study also revealed that there was a strong association between number of household assets and the prevalence of both stunting and underweight, the lower the number of assets, the higher the prevalence.

6. Recommendations

A. Food Security

1) Implement climate smart agricultural practices, including, introduction of short maturing drought resistant crops, sustainable land management practices, crop rotation, intercropping cereals with legumes and diversification of agriculture to ensure minimum production levels amidst increasing climate variability;

2) Improve access to more land for agriculture production through re-settlement of communities from *Manyatta* settings and high plains, to the vast virgin land. This could be done through sensitization and awareness creation of communities given the benefits of obtaining enough foods coupled with improved agronomic practices and timely planting of crops;

3) Promote good post-harvest handling practices to reduce agricultural losses. This could be achieved through awareness creation on storage for future consumption, controlled sell of food after harvesting, Improved food management after harvest to avoid wastage among other interventions. In addition, the conventional practices could be combined with local post-harvest handling techniques;

4) Advocate for the construction of water harvesting structures and/or establishment of irrigation systems for improved crop and livestock production in the region;

5) Promote further investment in the livestock sector for the predominantly pastoral communities, e.g. through construction of dams, training on hay making, improved livestock breeds, etc. for improved household food security. This could be done through scaling up of the Para-Vet capacity enhancement programme, a joint programme supported by Government and FAO;

6) Scale up the Village Saving and Loan Associations but with oversight and keen interest from the leaders to provide guidance to the communities on efficiency of handling revolving funds, income generation grants and loans to avoid defaulting and failing to pay back; and

7) Introduce by-laws to regulate sale and consumption of alcohol and simultaneously implement a sensitization campaign on the dangers of alcohol.

B. Nutrition

8) Re-focus the supplementary feeding programmes to conduct more education for the caretakers and raise awareness on appropriate health, hygiene and caring practices, rather than simply distribution of food. Outreach services should be expanded to reach at least 90% of moderately malnourished children, with appropriate strategies to improve coverage of therapeutic feeding programmes;

9) Support and expand the interventions to increase supplementation of pregnant women with iron/folate especially in relation to duration of intake; as well as to promote consumption of diversified diets by pregnant women as a preventive strategy to the high anaemia prevalence in the sub-region;

10) Strengthen linkage between programmes aiming to reduce and/or prevent malnutrition and increasing community access to safe and clean water and sanitation, and reducing disease incidence, particularly diarrhoeal disease, respiratory infections and fever. Districts should make specific efforts to increase access to water given the distance mothers have to travel in search of clean and safe water as well as improve latrine coverage in the sub-region;

11) Promote early childhood development and complementary feeding practices among the communities since caring practices are a key factor in young child nutrition and health status;

12) Strengthen routine immunisations, de-worming and supplementation of vitamin A for all children and support the health clinics to provide Child Health Cards. Districts should promote campaigns to maintain high levels of de-worming and Vitamin A supplementation given their relatively low coverage in situations of poor feeding practices coupled with poor hygiene and sanitation practices.

13) Advocate for the central government to consider supplementing young children with Iron given the high prevalence of anaemia in this age group; and

14) Strengthen the routine surveillance activities that are integrated in the local government structures up to the sub-county levels, to allow early detection of changes in food security, nutrition and health status in order to scale down the bi-annual surveys.

C. Research

15) Include all the district development programmes in the next assessment and not only NUSAF in order to determine the impact of district development programmes on improved food and nutrition situation; include the number of individuals attending FAL classes in next assessment;

16) Improve training for enumeration teams with emphasis on probing for instance on livestock ownership because communities do not always speak the truth when it comes to ownership of livestock, the migratory nature of livestock, the difference between firewood and shrubs etc.;

17) The questions should be regularly reviewed and updated prior to the assessment to improve quality of responses, for instance to access to safe water which includes distance and functionality of the water sources should be included in the questionnaires;

18) Disseminate the FSNA results at national level to include implementing partners, donors Office of the Prime Minister and the relevant sectors as well as up to sub-county and community levels to include the health workers who can provide feedback to communities to instigate change; and

19) Harmonise all survey indicators and conduct fewer surveys due to community fatigue. This could be done through coordination meetings to unify the indicators.

7. Appendices

Appendix 7.1: Summary Indicator Table

INDICATOR	MOROTO	KAABONG	KOTIDO	NAPAK	NAKAPIRIPIRIT	AMUDAT	ABIM	KARAMOJA DEC 2016	KARAMOJA JAN 2018
% Disabled or Chronically ill	5	8	9	6	6	3%	6	10	**6.2**
% Female headed Households	17	28	16	33	20	4%	7	20	**17.2**
% HH Head, no formal education	76.3	75	88	76.1	72	90	17	74	**70.3**
% Polygamous households	49	51	59	52	51	57	24	44	**48.7**
% Extremely Vulnerable HHs	1	20	11	5	21	2	3	88	**9.5**
% NUSAF registered	6	28	36	16	12	10	9	93	**16.7**
% Regular school attendance, boys	35	76	28	37	48	46	81		**51**
% Regular school attendance, girls	29	69	17	33	50	47	80		**46.1**
% Accessed care at Health Centers	83	94	99	90	89	58	75		**83.1**
% Accessed care from VHTs	1	0	0.4	1	6	25	2		**5.2**
% Accessed safe/clean water sources	97	85	98	94	86	83	99	91	**91.9**
% utilised > 20lpppd	17	9	26	13	21	24	47		**22.7**
% HHs with toilet facilities	13	58	32	15	22	11	77	27	**27.4**
% HHs with VIP/Pit Latrine	74	99	29	56	10	58	31		**26.2**
% Women without formal Education	79	85	91	77	81	89	24	83	**74.5**
% women with ≥ 7 live births	4	15	11	8	10	11	18		**10.7**
% took iron/folate in last pregnancy	98	91	99	97	90	81	98		**93**
% women took iron/folate ≥ 3m	56	31	18	70	33	29	43		**39.8**
% Women with anemia	31	55	64	35	60	40	42	40.3	**46**
% Women with under-nutrition	8.2	4.6	2.5	5.3	5.0	9.0	2.6		**5.2**
% Women with over-nutrition	2.9	2.3	2.9	2.4	2.6	8.6	5.0	2	**3.8**
% Measles vaccination (with card)	62	61	91	75	87	75	73	75	**75**
% DPT3 vaccination (with card)	63	55	90	74	87	71	74	84	**74**
% Vitamin A (with card)	54	54	78	57	77	60	68	82	**64**
% De-wormed (with card)	45	49	71	49	70	58	57	84	**57**
% Initiating breastfeeding in 1st hour	82	90	97	84	92	69	79	85	**84.7**
% Exclusive breastfeeding	90	86	93	97	93	97	94	91	**94**
% Continued BF at 1 year	96	86	90	90	90	76	90		**90**
% Continued BF at 2 years	75	70	65	65	65	36	65		**65**
% Timely introduction of CF	61	74	70	85	81	69	79		**74.3**
% Minimum Dietary Diversity	5	12	11	10	15	3	2		**9**
% Minimum Acceptable Diet	2	9	7	3	8	2	4	0	**5**

INDICATOR	MOROTO	KAABONG	KOTIDO	NAPAK	NAKAPIRIPIRIT	AMUDAT	ABIM	KARAMOJA DEC 2016	KARAMOJA JAN 2018
% Minimum Meal Frequency	36	71	51	30	35	56	40	36	**45**
% Children with anemia	51	63	74	44	70	53	52	29	**59**
% Children with malaria/Fever	39	58	56	29	63	27	57	44	**28.6**
% Children with diarrhoea	23	33	39	16	35	5	27	23	**15.9**
% ITN Usage Coverage	81	91	95	86	86	72	96	57	**86.9**
% Accessing TSFP	72	85	88	59	77	20	63		**72**
% Accessing OTC	30	17	7	13	3	20	38		**13**
% Accessing MCHN programme	39	50	44	69	64	47	39	53	**50.2**
% Global Acute Malnutrition	15	10.2	8.1	8.6	11	15	6.2	12.5	**10.4**
% Severe Acute Malnutrition (SAM)	4.3	2.2	2.8	1.4	3	3	1.3	3.4	**2.5**
% Stunting in children	34.9	35.4	44.2	35.8	32	28	31.4	34.9	**34**
% Underweight	28.3	25.2	26.9	22.6	22	22	16.3	26.6	**23.3**
% Children left alone at home	72	73	77	65	74	61	65		**68.3**
% Left with another child <10years	54	75	71	60	62	43	74		**64.8**
% Played with home-made toys	35	38	66	59	58	35	46	45	**48.2**
% Played with factory-made toys	11	23	4	24	5	18	28	17	**17.7**
% Children with reading books	10	19	9	5	3	26	8	5	**12**
% Access to agricultural land	51	97	91	74	82	68	94	82	**80**
% HHs with Food stocks	86	86	54	36	59	26	79	48	**50.3**
% HHs with livestock	86	35	57	66	40	30	40	58	**55.9**
% HHs that cultivated	46	96	89	72	82	68	89		**80.1**
% Food Expenditure Share > 65%	48	32	34	50	24	47	83	34	**37.5**
% HHs with debt	43	27	33	25	33	13	44	31	**31.1**
Amount of current debt, UGX (Mean)	46,163	46,769	37,118	68,325	42,072	74,389	95,823	60,000	**58,548**
% HHs Borrowed to buy food	64	68	38	39	41	51	37	52	**47.7**
% HHs with 2 and more income earners	48	86	46	45	61	79	30	38	**43.9**
% HHs with Acceptable Food Consumption Score	64	45	64	46	60	56	63	58	**57**
% HHs with High Dietary Diversity Score	2	3	4	4	11	2	34	5	**4.2**
% HHs that experienced NO shock	12	9	2	11	13	28	4		**10.2**
% HHs on emergency coping	45	63	62	29	48	30	45	45	**46.3**
% HH with NO livelihood coping	27	18	19	43	24	31	14	25	**24.9**
% HHs food secure	60	48	56	45	56	58	63	55	**55.7**
% HHs food Insecure	40	52	44	55	41	42	37	45	**44.2**

Appendix 7.2: Explaining the Food Security Index

A food security index was calculated, at household level, as an average of the scores obtained from the Food Consumption, Food Expenditure, and livelihood coping indicators. Each household was then assigned to a Food Security Index group viz. Food Secure, Marginally Food Secure, Moderately Food Insecure, and Severely Food Insecure.

The food security index is based on an algorithm, which combines, at the household level, the results for each of the reported food security indicators (Food Consumption Score, Food Expenditure Share, and Livelihood Coping Strategies).

Converting food security indicators into a 4-point scale

A central stage of the methodology involves converting the outcomes of each of the 3 indicators into a standard 4-point classification scale. The 4-point scale assigns a score (1-4) to each category. Once all the indicators have been converted to the 4-point scale, the **overall food security classification** for a household can be calculated as below and as shown in Table 37:

1. The '*summary indicator of Current Status*' *was taken to be the equivalent of the Food Consumption Score* (i.e. the 4-point scale scores) in the **Current Status** domain (CS).
2. Calculate the '*summary indicator of Coping Capacity*' by averaging the household's scores (i.e. the 4-point scale scores) for the Food Expenditure Share and the Livelihood Coping Strategy Index in the **Coping Capacity** domain (CC).
3. Average these results together: (CS+CC)/2.
4. Round to the nearest whole number (this will always fall between 1 and 4). This number represents the household's overall food security outcome.
5. The resulting Food Security Index is categorized as shown in Table 38.

Table 37: Calculation of the Food Security Index

	Current status (CS)	**Coping Capacity (CC)**		Formula	**Final Food security outcome for household**	**Overall food security classification**
	Household Food consumption group*	Food Expenditure Share category**	Livelihood Coping Strategy Categories ***			
Example indicator score	3	1	4	CS = 3 CC = (1+4)/2 = 2.5	(3+2.5)/2 = 2.75; ***Round off to 3***	Moderately Food Insecure

*Acceptable, Borderline or Poor;
** Food Secure, Marginally Food Secure, Moderately Food Insecure or Severely Food Insecure;
*** No coping, Stress coping, crisis coping or Emergency coping.

Table 38: Overall Food Security Classification Categories

	Food Secure	Marginally Food Secure	Moderately Food Insecure	Severely Food Insecure
Food Security Index	Able to meet essential food and non-food needs without engaging in atypical coping strategies	Has minimally adequate food consumption without engaging in irreversible coping strategies; unable to afford some essential non-food expenditures	Has significant food consumption gaps, OR marginally able to meet minimum food needs only with irreversible coping strategies	Has extreme food consumption gaps, OR has extreme loss of livelihood assets that will lead to food consumption gaps, or worse.

Appendix 7.3: Interpretation of Mortality Rates

In the interpretation of mortality, the guidelines summarised in Table 39 have been used.

Table 39: Guideline for Interpretation of Mortality

CMR = deaths/10,000/day	Mortality Rate forUnder-5 Age Group
<1 = Under control	1 = Normal in a developing country
≤1 = Serious condition	≤2 = Emergency phase: under control
≤2 = Out of control	>2 = Emergency phase: in serious trouble
≥4 = Major catastrophe	>3 = Emergency phase: out of control

Appendix 7.4: Associations with Childhood Malnutrition

Factors independently associated with GAM of children and final food security status of households were assessed using binary logistic regression. Dichotomous variables were created for nutrition status as well as food security status. Weight for height z-scores were used to compute a binary variable denoting whether or not a child is malnourished, using the -2 standard deviation (SD) as the cut-off. Children with weight for height z-scores less than -2 were coded 1 (wasted), while those with weight for height z-scores equal to or greater than -2 were code 0 (not wasted). Final food security classification results were used to compute a binary variable (1=food insecure, 0=food secure) denoting whether or not a household is food insecure. Binary logistic regression was then carried out with the nutrition of children and food security status of households as the dependent variables.

Category	Indicator	Wasting	Stunting	Underweight
Household and social demographics	Age of household head	✗	✗	✗
	Education level of household head	✓	✗	✓
	Gender of household head	✗	✗	✗
	Household family size	✗	✗	✓
	Household number of assets	✗	✓	✓
	Mother's education level	✓	✓	✓
	Disability of household head	✗	✗	✗
	Chronic illness of household head	✗	✗	✗
	Extremely Vulnerable Household	✗	✓	✗
Illness and health environment	Illness in the child	✗	✓	✗
	Fever/malaria in the child	✗	✓	✗
	Diarrhoea in the child	✓	✓	✓
	ARI/ cough in the child	✗	✗	✗
	Initiation of breastfeeding	✗	✗	✗
	Timely introduction of complementary feeding	✗	✗	✗
	Continued breastfeeding at 1 year	✗	✗	✗
	Continued breastfeeding at 2 years	✗	✓	✓
	Minimum Dietary Diversity	✗	✗	✗
	Minimum Meal Frequency	✗	✗	✗
	Minimum Acceptable Diet	✗	✗	✗
	Quantity of water per person per day	✓	✗	✓
	Access to toilets by the household	✓	✓	✓
	Type of household toilet facility	✗	✓	✓
	Household Food Consumption patterns	✗	✗	✗

Category	Indicator	Wasting	Stunting	Underweight
Household Food Security	Household Dietary Diversity score	✗	✗	✗
	Livestock ownership	✗	✓	✗
	Cultivation of legumes and staples	✗	✗	✓
	Food Expenditure Share	✗	✗	✓
	Household food stocks	✓	✗	✓
	Household dependence on the market	✗	✗	✗
	Household Coping Strategy Index	✓	✗	✗
	Livelihood coping strategy	✗	✓	✗
	Household Food Security situation	✗	✗	✗

Appendix 7.5: Plausibility Checks

Plausibility Check for: Abim.as

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (1.5 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0**
(p=0.399)							
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**10**
(p=0.000)							
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (3)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (6)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.			and	and	and	or	
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.00)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.01)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.02)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**0**
(p=0.120)							
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**10** %

The overall score of this survey is 10 %, this is good.

Plausibility Check for: Amudat.as

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (1.0 %)
Overall Sex ratio (Significant chi square) (p=0.197)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0**
Age ratio(6-29 vs 30-59) (Significant chi square) (p=0.000)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10**
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (5)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.06)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.01)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.11)
Poisson dist WHZ-2 (p=0.331)	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0**
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**10** %

The overall score of this survey is 10 %, this is good.

Plausibility Check for: Kaabong.as

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (1.7 %)
Overall Sex ratio (Significant chi square) (p=0.009)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**4**
Age ratio(6-29 vs 30-59) (Significant chi square) (p=0.000)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10**
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (3)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (5)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.01)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.10)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.12)
Poisson dist WHZ-2 (p=0.118)	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0**
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**14** %

The overall score of this survey is 14 %, this is good.

Plausibility Check for: Kotido.as

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data	Incl	%	0-2.5	>2.5-5.0	>5.0-7.5	>7.5	
(% of out of range subjects)			0	5	10	20	**0** (1.6 %)
Overall Sex ratio	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**0**
(p=0.973)							
Age ratio(6-29 vs 30-59)	Incl	p	>0.1	>0.05	>0.001	<=0.001	
(Significant chi square)			0	2	4	10	**10**
(p=0.000)							
Dig pref score - weight	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (3)
Dig pref score - height	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7	8-12	13-20	> 20	
			0	2	4	10	**0** (7)
Standard Dev WHZ	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.							
.	Excl	SD	>0.9	>0.85	>0.80	<=0.80	
			0	5	10	20	**0** (1.03)
Skewness WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (-0.13)
Kurtosis WHZ	Excl	#	<±0.2	<±0.4	<±0.6	>=±0.6	
			0	1	3	5	**0** (0.03)
Poisson dist WHZ-2	Excl	p	>0.05	>0.01	>0.001	<=0.001	
			0	1	3	5	**1**
(p=0.038)							
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**11** %

The overall score of this survey is 11 %, this is good.

Plausibility Check for: Moroto.as

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (1.6 %)
Overall Sex ratio (Significant chi square) (p=0.261)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0**
Age ratio(6-29 vs 30-59) (Significant chi square) (p=0.000)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10**
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (5)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Standard Dev WHZ	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.07)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.08)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.06)
Poisson dist WHZ-2 (p=0.109)	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0**
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**10** %

The overall score of this survey is 10 %, this is good.

Plausibility Check for: Nakapiripirit.as

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (1.1 %)
Overall Sex ratio (Significant chi square) (p=0.676)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0**
Age ratio(6-29 vs 30-59) (Significant chi square) (p=0.000)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10**
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (3)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (6)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (5)
Standard Dev WHZ	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.05)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.08)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.00)
Poisson dist WHZ-2 (p=0.679)	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0**
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**10** %

The overall score of this survey is 10 %, this is good.

Plausibility check for: Napak.as

Standard/Reference used for z-score calculation: WHO standards 2006

(If it is not mentioned, flagged data is included in the evaluation. Some parts of this plausibility report are more for advanced users and can be skipped for a standard evaluation)

Overall data quality

Criteria	Flags*	Unit	Excel.	Good	Accept	Problematic	**Score**
Flagged data (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (0.5 %)
Overall Sex ratio (Significant chi square) (p=0.542)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0**
Age ratio(6-29 vs 30-59) (Significant chi square) (p=0.000)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10**
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (3)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (5)
Standard Dev WHZ .	Excl	SD	<1.1 and	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.04)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.08)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**1** (-0.32)
Poisson dist WHZ-2 (p=0.145)	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0**
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**11** %

The overall score of this survey is 11 %, this is good.