Food Security and Nutrition Assessment in 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
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
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
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
UNICEF	United Nations Children's Fund
UNWFP	United Nations World Food Programme
WHO	World Health Organization
WHZ	Weight-for-Height Z Scores

Executive Summary

Introduction

The Karamoja Food Security and Nutrition Assessment of June 2017 was conducted in all the seven districts of Abim, Amudat, Kaabong, Kotido, Moroto, Nakapiripirit and Napak. The main purpose was to establish status of the key indicators as of June 2017 to inform program planning and decision-making as well as contribute towards the continuous monitoring and evaluation processes. It was designed as a cross-sectional household survey using two-stage cluster sampling based in SMART methodology. However, to complement findings from the quantitative survey, a qualitative assessment was also conducted in Amudat district. There were 248 clusters in the sub-region survey comprising of 5,108 households with 6,611 children and 4,894 women of child-bearing age.

Household Demographics and Related Factors

Majority of household heads (64%) were within the age group of 20 – 39 years and 29% were in the age group of 40 – 49 years, whilst only 1% of the households were headed by teenagers, especially in the districts of Moroto (2%). About one-third of household (30%) were female-headed that is associated with vulnerability, which was more pronounced in Moroto (50%) and Nakapiripirit (42%). At the sub-regional level, polygamy was 46% but found to be more common in the districts of Kaabong (61%), Amudat, Moroto and Nakapiripirit (51% each). The average number of people in most households ranged between 4 and 6 but up to 35% of households had 7 or more people, especially from Kaabong, Nakapiripirit and Kotido districts. There were 6% of households headed by persons with disability, which was more common in Nakapiripirit district (13%) and only 0.8% by persons with chronic illness, more common in Moroto and Kotido districts (1.4% and 1.3%, respectively.

Overall, 66% of household heads had not gone through any formal education, especially in the districts of Kotido (87%), Amudat (82%) and Napak (75%). There was a gender disparity, with more females (75%) without formal education than the males (63%). Regular school attendance was reported by 62% and 53% of the boys and girls, respectively. Abim district (92%) had the highest record of regular attendance while Napak district registred the lowest (37%). The main reasons for irregular school attendance related to direct cost of education (48% and 34% for boys and girls, respectively), followed by opportunity costs such as domestic household chores and child work for cash.

One quarter of the sampled households in the sub-region were registered beneficiaries of the Northern Uganda Social Action Fund, mainly from the districts of Kotido (49%) and Kaabong (47%). In terms of assets, 49% of households owned between 5 and 9 out of the 21 enumerated household assets. The most commonly listed items were the

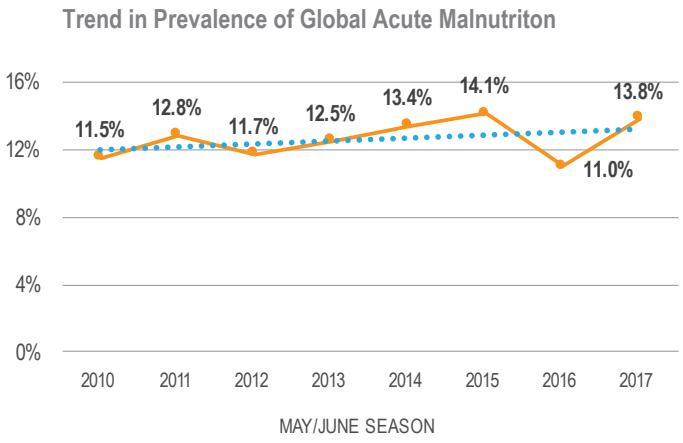
hoe (92%), Panga/ machete (74%), food store (57% and the axe (54%). Households in Abim, Nakapiripirit and Kaabong districts had relatively more assets than those from the other districts. Food stores were more common in Kotido (85%), Nakapiripirit (77%) and Abim (72%). The mobile cell phone was owned by 23% of households, especially from districts of Amudat (30%) and Abim (28%).

Nutrition of Mothers

Most of women sampled (86%) were in the age group 20 – 39 years with teenage mothers constituting only 5%, but more common in the districts of Abim (8%) and Amudat (6%). Like heads of households, 72% of the women had no formal education especially from Kotido (90%) and Amudat (81%). Iron supplementation during the previous pregnancy was reported by 76% of the women, especially from districts of Kotido (93%), Abim (85%) and Moroto (83%), whilst Nakapiripirit district recorded only 65%. Among the non-pregnant women, 39% were underweight especially from districts of Nakapiripirit and Napak (47% each), followed by Moroto (43%). On the extreme end, 4% were either overweight or obese particularly from the districts of Abim and Moroto (5% each). Messages on infant feeding, nutrition and health were received by 82% of the women, mainly from Abim (94%) and Kotido (92%) but lowest from Amudat (55%). Main message themes received were on hand washing before and after food preparation but few on complementary feeding and maternal nutrition.

Under-five Child Nutrition

The overall prevalence of global acute malnutrition was 13.8% highest in Moroto and Kotido districts (18.5% each) and lowest in Abim (11.1%), whilst the severe acute malnutrition was 2.9%. There was a gender disparity, with boys (16.8%) having a higher prevalence than girls (10.8%). Disaggregated by age, it was highest among the children age 6 – 11 months (17.9%) and age 12 – 23 months (16.1%), which could be attributed to the poor complementary feeding practices. The prevalence of underweight was 27.7%, with higher levels registered in districts of Moroto (35.9%) and Kotido (33.1%) but lowest in Amudat (20.1%). Stunting in the sub-region was at 32.6%, higher in the districts of Moroto and Kaabong (40.9% and 40.5%, respectively), but lowest in Abim (23.7%). Only 1.9% of the children were overweight or severely overweight, higher in districts of Kotido (3.3%), Nakapiripirit (2.4%) and Kaabong (2.3%).



As illustrated in the adjacent figure, the trend in prevalence of GAM showed over the last 7 years, the prevalence in the lean season has stabilized at serious levels (10-15%).

Initiation of breastfeeding within one hour of birth was reported by 82% of the mothers, especially from districts of Nakapiripirit and Abim (94% and 89%, respectively) but was lowest in Napak (64%). Exclusive breastfeeding of infants age 0 – 5 months was high (94%), particularly in Abim and Napak districts (100% and 97%, respectively). Nevertheless, findings from qualitative assessment pointed towards delay in initiation of breastfeeding and the practice of giving pre-lacteal feeds to babies as well as milk and other foods before the age of 6 months. At the age of 12 – 15 months, 90% of children in sub-region were still breastfeeding, especially from Abim and Napak districts, but was lowest in Kaabong. By the age 20 – 23 months, 58% of children were still breastfeeding especially those from Moroto, Napak and Nakapiripirit districts but the practice was lowest in Abim district.

Timely introduction of complementary foods was reported for 74% of children in the sub-region, higher among those from Kaabong and Napak districts (88% and 86%, respectively) but comparatively lower in Amudat (57%). Minimum dietary diversity was 5.7% in the sub-region but disaggregated by age, noted to highest among children age 12 – 17 months (15.2%) but lowest among age 18 – 23 months (2.8%). Minimum meal frequency was 19.9%, higher among children age 6 – 11 months (60.9%) but lowest among those age 18 – 23 months (6.9%). The Minimal Acceptable Diet was 4.1% for the sub-region, higher among children age 12 – 17 months (11.3%) but lowest among those age 18 – 23 months (1.8%).

Child Health

Only one-quarter of the sampled children from the sub-region were reportedly free of any disease or symptoms within 2 weeks preceding the assessment. Fever/ malaria was the commonest (54%), followed by acute respiratory tract infection (ARI)/ cough (38%) and diarrhoea (30%). Kaabong and Nakapiripirit districts recorded the highest prevalence of illnesses within the sub-region whilst the lowest was in Amudat.

Immunisation among children age 6 – 59 months was very high, with 97% of children having received DPT3, though verifiable evidence from the Child Health Card was available for 68% while 29% was based on mother's or caretaker's report. Measles vaccination was at 96%, verified with Child Health Card for 66% of the children. The absence of Child Health Cards was particularly marked in the districts of Kaabong, Moroto and Nakapiripirit.

Vitamin A supplementation among children age 6 – 59 months was at 86% in the sub-region, verified with the Child Health Card for 60% and ranged from 67% in Amudat to 98% in Abim district. Routine treatment of intestinal worms among children age 12 – 59 months was 80% in the sub-region, verified with the Child Health Card for 54% and ranged from 59% in Amudat to 89% in Kaabong district.

Executive Summary

Household Water and Sanitation

Nine out of ten households in the sub-region had access to relatively safe sources of water, especially from districts of Moroto and Abim whilst households from Kaabong district had approximately one-quarter (24%) that accessed from less safe sources. Treatment of drinking water was only practiced by 10% of households from the sub-region, mainly by boiling (78%) and through chlorination (21%).

Overall, 58% of households in the sub-region did not have any toilet facilities and among those with the facilities, 8% was shared with other households. Lack of toilets was higher in districts of Amudat (84%), Moroto (73%) and Napak (71%) whilst sharing was more common in Moroto and Nakapiripirit districts. The open pit without a super structure was main facility for 55% of those with toilets, especially in districts of Kotido (90%) and Kaabong (84%).

Food Availability

Slightly more than half (54%) of households in the sub-region owned livestock, especially in districts of Amudat, Abim, Kaabong and Kotido. Parasites/ diseases (66%) were cited as the main constraint to livestock ownership, followed by shortage of pasture (10%). Most households (87%) reported having access to land for agriculture production of average size 2.34 acres. Maize and sorghum were the most commonly cultivated crops by the households (77% and 57%, respectively), followed by beans (35%). The main constraint to crop production was drought/ low rainfall (71%), inadequate seeds/ tools (10%) and insufficient household labour (6%).

Only one-quarter of the households reported having food stocks that was estimated to last about only 14 days. The main source was markets (48%), own production (36%) and food distribution (15%). Food and humanitarian assistance had been received by 31% of the households in form of food aid (28%) and cash (3%). Most beneficiaries were from the districts of Kaabong and Kotido (49% and 41%, respectively).

Access to Food

Majority of households (84%) had at least one income earner, especially from the districts of Kotido and Moroto. The predominant sources of income in the sub-region were agriculture wage labour (22%), sale of firewood/ charcoal (20%) and food crop production/ sales (11%). Only households in Amudat district reported sale of livestock and animal products as the most important source of income. Only 28 households reported receipt of remittances from the main town in the district.

About one-third (34%) of households reported having debt, especially from the districts of Moroto (43%), Napak (39%), Abim (37% and Kaabong (36%). Abim district had the highest (84%) of loans with interest whilst Amudat district had the lowest. The main sources of debt were relatives (37%), bank/ credit institutions (27%) and traders/ shop-keepers (18%). The main reason for household debt was purchase of food (56%), especially in districts of Kaabong (67%), Kotido (64%) and Moroto (59%). Debts for business investment was comparatively more common in Abim, Napak and Kotido districts.

There was high dependence by households on the markets for food (65%) especially from districts of Moroto (85%) and Amudat (75%) but comparatively lower in Napak (39%). About 38% of households in the sub-region were moderately insecure or severely food insecure based on the food expenditure share. This was more especially in districts of Napak, Kotido and Nakapiripirit.

Food Utilisation

More than half the households in the sub-region (55%) had acceptable food consumption score, especially from the districts of Amudat (76%), Nakapiripirit (69%) and Kaabong (62%). Overall 10% of households had high dietary diversity score, which was more marked in Moroto and Kotido districts (16% and 13%, respectively). Low dietary diversity scores were mainly from households in Amudat and Napak districts.

Stability

The main shocks reported by household included high food prices (29%), floods, heavy rains, drought (26%) and sickness/ disease (25%). High food prices was mainly cited by households in Abim and Amudat districts whilst the problem of floods was mainly from Kotido and Napak districts.

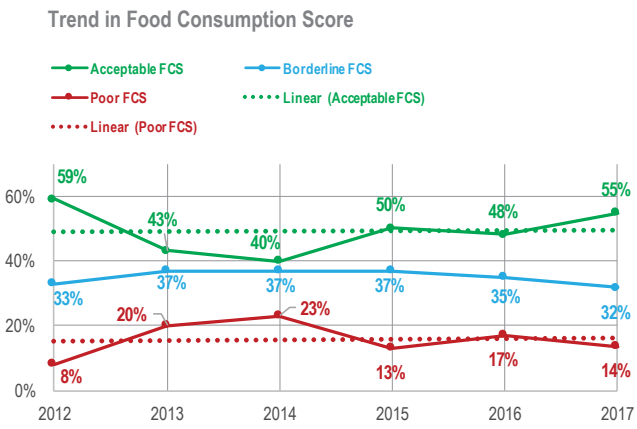
High coping strategies was employed by 16% of households in the sub-region, especially from the districts of Nakapiripirit (35%), Kotido (24%) and Moroto (20%). The main strategies being employed were consumption of less preferred food (81%) and reduction in number of meals (78%). About one-fifth (21%) of the households did not apply any coping strategies. However, 48% were in the emergency coping mode, especially in districts of Kaabong (80%), Nakapiripirit (55%) and Moroto (50%).

Food Security Situation

Overall, Food Security classification showed nearly half (46%) of the households in Karamoja sub-region were food insecure of which (9%) were severely food insecure. These findings showed an improvement from that reported in June 2016 of 50%. There has however been an improvement in the food security situation Kaabong district that recorded 45% of households with food insecurity, 8% severely insecure.

Trend in Food Security

As illustrated in the adjacent figure, there was some improvement in Food Consumption between June 2016 and 2017 which raised it back to the level reported in 2012 of 59%. However, the trend analysis clearly showed that generally, the food consumption was stable over the 6-year period between 2012 and 2017. The possible reason for the 2017 increase could be attributed to increased humanitarian assistance to 31% of households.



Executive Summary

Association between Nutrition and Household Food Security Indicators

Category	Indicator	Wasting	Stunting	Underweight
Household and social demographics	Gender of household head	✓	✓	✓
	Mother's education level	✓	✓	✓
	Mother's nutritional status by MUAC	✓	✓	✓
	Disability or 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	×	×	×
	Quantity of water per person per day	✓	✓	✓
	Access to toilets by the household	✓	✓	✓
Household Food Security	Household Food Consumption patterns	✓	×	✓
	Household Dietary Diversity score	×	×	×
	Livestock ownership	✓	✓	✓
	Food Expenditure Share	×	×	✓
	Household dependence on the market	×	×	×
	Household Coping Strategy Index	✓	✓	✓
	Household Food Security situation	✓	×	✓

Recommendations

General Recommendations

1. Implement climate smart agricultural practices , including, introduction of drought resistant crops, sustainable land management practices, intercropping cereals with legumes and diversification of agriculture. to ensure minimum production levels amidst increasing climate variability. **Priority areas:** Abim *(Nyakwae); Kaabong (Loyoro, Kalapata, Lodiko, Kaabong East, Lokori); Moroto (Rupa, Katikekile, Tapac, Nadunget)*

2. Promote good post-harvest handling practices to reduce agricultural losses and increase yields from plantations. In addition, the conventional practices could be combined with local post-harvest handling techniques. **Priority areas:** Abim *(Nyakwae)*; Kaabong *(Loyoro, Kalapata, Lodiko, Kaabong East, Lokori)*; Moroto (*Rupa, Katikekile, Tapac, Nadunget, Moroto municipality*

3. Faced with rising temperatures and increasing unpredictability of rainfall, further construction of water harvesting structures and/ or establishment of irrigation systems will remain fundamental for crop and livestock production in the region. **Priority areas:** Abim (*Nyakwae*); Moroto (*Rupa, Katikekile, Tapac, Nadunget, Moroto municipality*)

4. Implement initiatives to raise awareness on climate change and scale-up information dissemination on weather/seasonal forecasts and related production information in order to improve farmers' capacities to adapt to climate change. **Priority areas:** Abim (*Nyakwae*);

5. For predominantly pastoral communities, further investment in the livestock sector e.g. through dams, improved livestock breeds, etc. will remain important for household food security. **Priority areas:** Kaabong (*Loyoro, Kalapata, Lodiko, Kaabong East, Lokori*; Amudat district

6. Given an expected delay in harvests, sustain/scale-up safety nets and food/cash for assets programmes in the pre-harvest period to ensure household food security, particularly in the most affected sub-counties is sustained. **Priority areas:** Moroto (*Rupa, Katikekile, Tapac, Nadunget, Moroto municipality*) – more to be added based on analysis

7. Sustain interventions, in immunization and childcare services to reduce child morbidity. **Priority areas:** Kaabong (*Loyoro, Kalapata, Lodiko, Kaabong East, Lokori*)

8. Introduce by-laws to regulate sale and consumption of alcohol and simultaneously implement a sensitization campaign in the dangers of alcohol. **Priority areas:** Kaabong district (all sub-counties), Moroto district (all sub-counties)

District Specific Recommendations

ABIM

Key Recommendations

Agriculture:

- Introduction of more resistant crops like cassava and sweet potatoes to improve food security
- Target post-harvest handling practices to reduce losses, especially proper storage
- Strengthen extension services

Climate change

- Planting of quick-maturing and drought-resistant crops
- Irrigation during prolonged drought
- Awareness raising on changes in season calendar and alternation sources of livelihoods for farmers

Alcohol consumption

Regulation of sales and consumption of alcohol to reduce dependency

AMUDAT

Key Recommendations

Agriculture:

- Introduction of perennial crops
- Promote mixed farming
- Mobilize and sensitize communities to change their mind set about cassava production/planting
- Promote post-harvest handling practices at the household level

Climate change:

Promote sustainable land management practices, such as water and soil conservation technologies

KAABONG

Key Recommendations

Agriculture:

- Planting of drought, disease resistant and quick-maturing crops
- Invest more in post-harvest handling, storage and value addition
- Further support marketing

Climate change:

- Improve management of feeds and water resources

Livestock:

- Increase livestock investment
- Provide further information about breed improvement
- Support vector and disease control

Health/child care:

- Improve immunization and outreach services
- Increase childcare services

KOTIDO

Key Recommendations

Agriculture:

- Promotion of drought resistant and fast growing crop varieties
- Introduction of drought resistant breeds of livestock
- Construction of water harvesting structures to promote irrigation

Agriculture/Program area

Allocation of more funding to support implementation of food security programs and production

MOROTO

Key Recommendations

Agriculture:

- Plant quick-maturing crops
- Intercropping cereals with legumes
- Diversification of agriculture
- Use of local post-harvest handling techniques such as cow dung, urine and integrate it with conventional methods
- Combine crop with livestock production
- Promotion of mushroom growing_

Climate change:

- Introduction and use of appropriate technology (use of irrigation techniques appropriate for use by communities, water harvesting jugs)

Livestock:

- Promote the rearing of small ruminants at household level especially for women

Resilience:

Dissemination of early warning information to communities
Scaling up food for work and other safety net interventions

NAKAPIRIPIRIT

Key Recommendations

Agriculture:

- Introduction of suitable cash and crop promotion, especially rice, simsim, G-nuts, watermelon
- Diversification of crops livestock
  - Drought resistant and short maturing
  - Disease and pets tolerant
  - High yielding and palatable
- Post-harvest handling and value addition

Climate change:

- Support and build irrigation structures

Livestock:

- Invest more in livestock development, especially in terms of breed development and value addition

Policies:

Disseminate/focus on food security
By-laws and Ordinances

NAPAK

Key Recommendations

Agriculture:

- Encourage two seasons production in wet belt zones
- Diversify production through inclusion of high value crops (simsim, millet, root drops, oil crops amd legumes) and short-maturing crops

Climate change:

- Share weather forecast with farmers
- Promote agro-forestry to promote climate change
- Deploy extension staff at district and sub-county levels in disseminating forecasts information, which is only-technical in nature

Alcohol consumption:

- Reduce alcohol consumption in HHs

Policies/partnerships

- Involve relevant departments in dissemination of policy issues (i.e. nutrition policy)
- Regulate settlements in land management

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 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 to provide basis for timely, objectively verifiable interventions and response.

In this assessment of June 2017, quantitative household surveys were conducted in all the seven districts in the sub-region namely: Abim, Amudat, Kaabong, Kotido, Moroto, Nakapiripirit and Napak. However, in order to complement and gain better understanding of findings from the quantitative survey, a qualitative assessment was also conducted in Amudat District.

1.2: Rationale

The purpose of the assessment was to establish the current status as of June 2017, of the key indicators related to food security, nutrition and health, including Water and Sanitation Hygiene (WASH) in all the 7 districts of Abim, Amudat, Kaabong, Kotido, Moroto, Nakapiripirit and Napak. This was achieved by carrying out the mid-year round of quantitative household-level food security and nutrition assessments using the SMART methodology as well as application of qualitative research methodology in Amudat district.

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 processes and thus contribute towards the continuous program monitoring and evaluation processes.

1.3: Objectives

The specific objectives of the assessment were as follows:

i) Determine the prevalence of malnutrition among children age 6 – 59 months;

ii) Determine the coverage of health interventions such as routine DPT/ Pentavalent and Measles immunization coverage, and Vitamin A supplementation among children under five years;

iii) Determine the incidence of common diseases (diarrhoea, fever and Acute Respiratory

1. Background

Infections) among the target population, two weeks prior to the assessment and access to/ uptake of health services for treatment;

iv) Assess current infant and young child feeding (IYCF) practices among children aged 0 – 23 months;

v) Assess/ Analyse factors associated with malnutrition with special emphasis on Amudat district;

vi) Assess the current food security status of households, using standard indicators such as food consumption score, dietary diversity score, and coping strategies of the general population in Karamoja;

vii) Analyse factors that determine household food security status;

viii) Assess community assets through a community questionnaire;

ix) Analyse gender issues affecting household food security and child nutrition status;

x) Determine the coverage of food security assistance provided to households; and

xi) Recommend through consultations with relevant stakeholders, appropriate course of action by the Government, UNICEF, United Nations World Food Programme and other stakeholders based on the findings of the assessment.

2. Methodology

2.1: Scope

The Karamoja Food Security and Nutrition Assessment comprised of quantitative surveys 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 Amudat 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 include the interval in which the real value among the study population is contained with a 95% confidence. A sensitivity analysis was conducted of indicators by age category, most likely to respond to the gender-specific interventions.

The qualitative assessment in Amudat 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. 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. 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 or entire household refused to participate, it was registered as a refusal and not replaced.

2. Methodology

The actual parameters taken into consideration during sample size calculation has been summarised in Table 1.

Table 1: Parameters used for Sample Size Calculation

	District						
	Nakapiripirit	Moroto	Napak	Kotido	Abim	Kaabong	Amudat
Estimated prevalence (%)	8.3	13.7	13.6	12.1	6.7	12.8	10.9
± Desired precision (%)	2.5	3.5	3.5	3.5	2.5	3.5	3
Design Effect	1.3	1.5	1.5	1.5	1.5	1.5	1.3
Children to be included	**662**	**605**	**602**	**537**	**627**	**572**	**587**
Number of Children per cluster	**19**	**18**	**18**	**16**	**18**	**17**	**17**
Average household size	5	5	5	5	5	5	5
<5 population (%)	20	20	20	20	20	20	20
Non-response households (%)	3	3	3	3	3	5	5
Households to be included for Anthropometry and Health module	758	694	689	628	719	655	672
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 yrs	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 populn.	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
"Estimated Population (6 - 23 months)"							
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**	**11**

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

Table 2: Summary of Selected Clusters and Households in the June 2017 Assessment

District	Clusters	Households	Children	Women
Abim	35	773	911	667
Amudat	38	696	991	662
Kaabong	35	700	936	676
Kotido	35	665	963	667
Moroto	35	777	986	802
Nakapiripirit	35	765	896	721
Napak	35	732	928	699
KARAMOJA	**248**	**5,108**	**6,611**	**4,894**

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. The food security module was administered to all the selected households, 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 (copy is attached in Appendix 6.4)
- Children with physical disabilities were assessed but findings from anthropometry was excluded

For qualitative data collection, two male and female Enumerators were recruited from Amudat, 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 District Health Officer, District Production Officer and 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 village health teams. 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 UNWFP 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: Data Analysis

The quantitative data was downloaded from the World Food Programme servers 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.

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 WHO 2006 Standards. Results based on the NCHS references has been reported in the Appendix to enable comparison with previous surveys.

Food security data was handled systematically to generate the household wealth index from ownership of household property using the principal components analysis. The factors associated with malnutrition and food security were independently associated with GAM, and was assessed using binary logistic regression, being a dichotomous variable. Multinomial logistic regression was used for analysis of the household food consumption diversity.

Qualitative data

The standard procedure for analysis of qualitative data was employed, which 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) 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.

2.6: Limitations and Potential Biases

1) Heavy rains denied access to some selected villages due to bad roads such as Namogosit in Kamoru Parish, Panyangara Sub-county, Kotido District;

2) The Pokot of Amudat District are a cross-border, migratory community along the Uganda – Kenya border. Thus, some selected villages were found to have migrated across the border;

3) 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;

4) In some instances, timely transmission of the data was not possible from the field as originally planned, nevertheless data was later uploaded after the survey teams returned to Kampala.

Findings from the Quantitative Survey

3.1: Household Demographic Profile

3.1.1: Characteristics of Selected Households

Age Distribution of Household Heads

In the sampled population, about 2 out of every 3 household heads (64%) was within the age-group of 20 – 39 years and 29% were in the 40 – 49 years age group (Figure 1). Higher vulnerability is associated with the very young heads of household in age group 15 – 19 years and the very old in age group of 60 years and above. Only 1% of household heads were within the age group of 15 – 19 years, especially in Moroto district while 6% were in the age group above 60 years, particularly Nakapiripirit and Kotido districts.

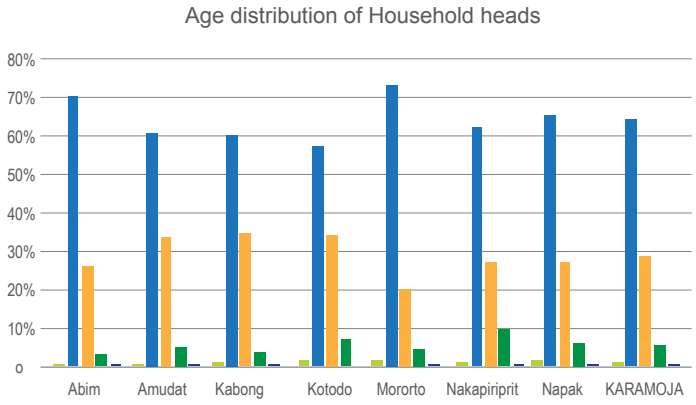


Figure 1: Age Distribution of Household Heads in Karamoja FSNA, June 2017

Gender and Polygamy

Up to 30% of the sampled households in the region were female-headed, more pronounced in Moroto, Nakapiripirit and Napak districts but lowest in Amudat district (Figure 2). This was lower than 36% reported in the previous year's assessment. On the other hand, 46% of the household heads were in a polygamous relationship, which was higher than 39% in the previous assessment. Household polygamy was lowest in Abim district and highest in Kaabong district, with higher than the sub-region average level in Amudat, Moroto and Nakapiripirit districts. Vulnerability has been linked to female-headed as well as the polygamous households.

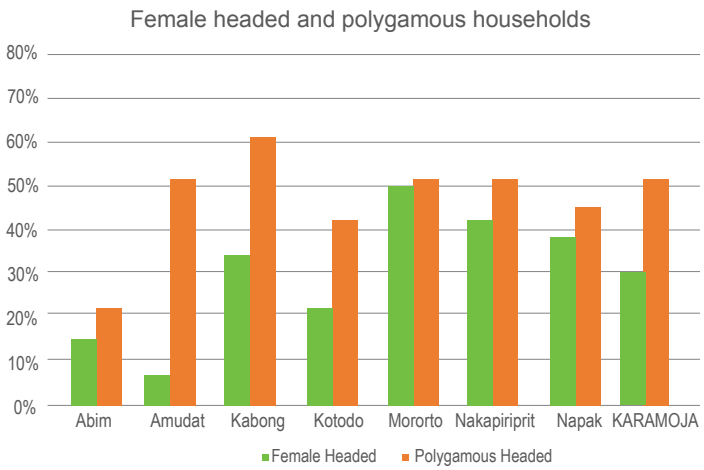


Figure 2: Gender of Household Heads and Polygamy Status, June 2017

Household Family Size

The number of people who eat from the same household has a bearing on food security and as illustrated in Figure 3, it ranged between four and six people for the majority of selected households in the sub-region. It is worth noting that more than one-third of selected households (35%) reported having seven or more people in the household, particularly prominent in Kaabong, Nakapiripirit and Kotido districts. Only 2.5% of the households reported having either one or two people, which was more notable in Abim district.

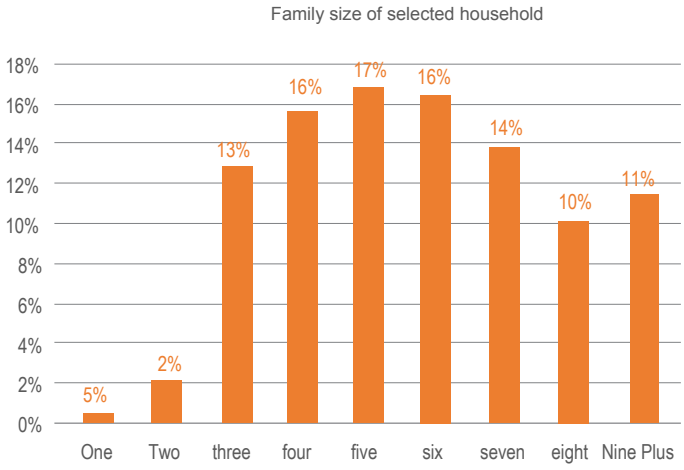


Figure 3: Average Family Size of the Selected Households, June 2017

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. Overall, 66% of household heads had never gone through any formal education, with higher than the sub-regional average in the districts of Kotido, Amudat, Napak and Moroto while Abim had the highest proportion of educated household heads (Figure 4). This finding was similar to the previous year's assessment. Disaggregated by gender, there were more female household heads without any formal education (75%) compared to the males (63%) but equivalent proportion with primary level education (20% each). At secondary and tertiary levels of education, there were more male household heads than female.

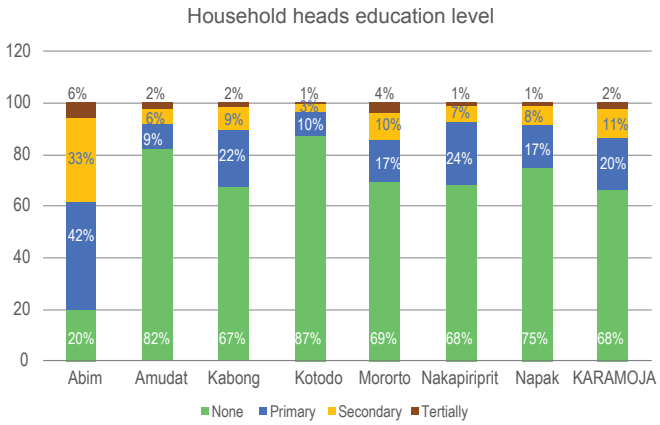


Figure 4: Highest Education Level of Household Heads, June 2017

School Attendance by Household Children

There were 4,093 boys and 3,564 girls of primary school age, regular school attendance being reported for 62% and 53%, respectively. Among the boys, regular attendance was highest in Abim district (92%), proportions above regional average in districts of Kaabong (72%), Nakapiripirit 68% and Moroto (65%). The lowest regular school attendance among boys was registered in Napak district with 37%. Abim district reported the highest regular attendance among girls (89%), with relatively good attendance in Nakapiripirit (68%), Moroto (56%) and Amudat (53%) whilst Kotido district registered the lowest with only 26%.

Findings from the Quantitative Survey

As illustrated in Figure 5, the main reasons for irregular school attendance was related to direct cost of education such as payment of school fees, uniforms, textbooks etc. that was 48% among the boys and 34% among girls. The second most important reason was related to the opportunity costs such as domestic and household chores as well as child work for cash of food. Nevertheless, lack of interest was put forward by 15% and 11% of the boys and girls, respectively.

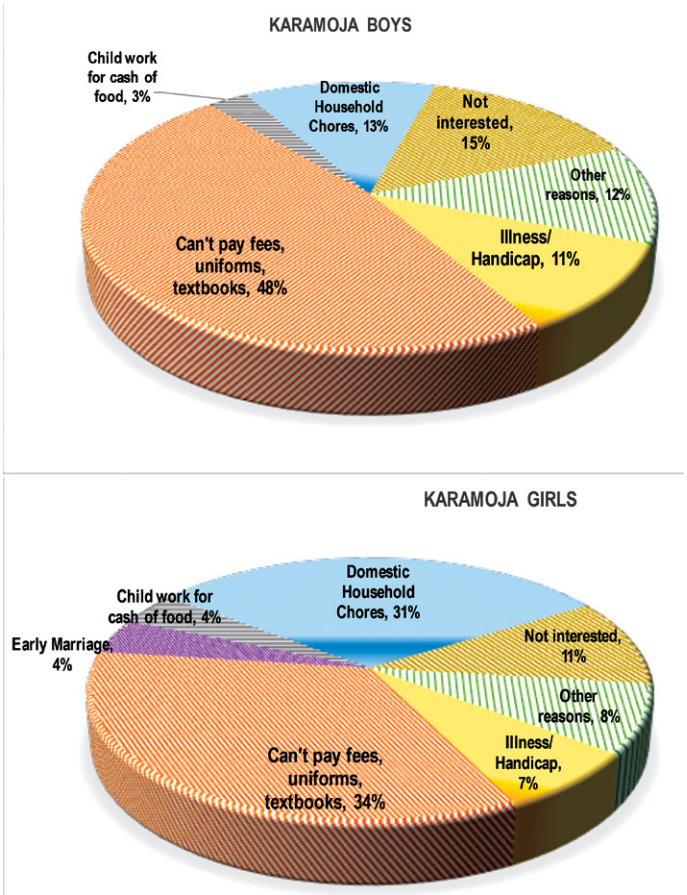


Figure 5: Reasons for Irregular Attendance of School by Boys and Girls

3.1.2: Conditions of the Household

Disability and Chronic Illnesses

Disability and chronic illness are associated with reduced ability to work, which in turn influences the food security level in the household. As illustrated in Figure 6, out the sampled households 6% were headed by persons with disability while 0.6% were headed by persons with chronic illnesses. Nakapiripirit district (13%) reported the highest proportion of households headed by persons with disability, while Abim, Kaabong, Moroto and Napak each had 4%.

Moroto district (1.4%) and Kotido district (1.3%) had the highest proportion of households headed by persons suffering from chronic illnesses whilst Kaabong district with 0.3% had the lowest (Figure 6). The sub-regional level of disability and chronic illness among household heads of 6.8% was relatively lower than during the previous year's assessment that reported 11%.

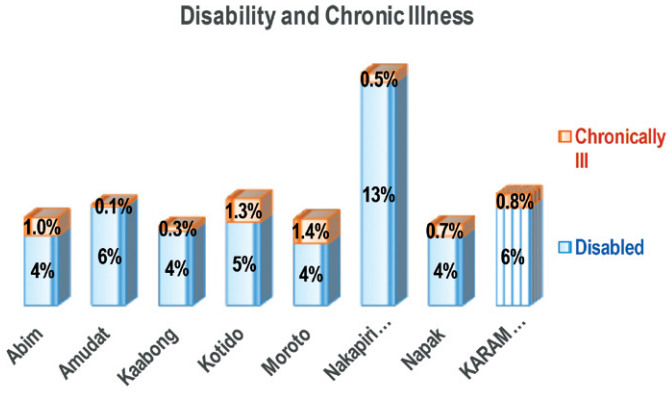


Figure 6: Reported Disability and Chronic Illness among Household Heads

NUSAF Households

As illustrated in Figure 7, out of the sampled households in the sub-region, one-quarter (25%) were registered under the Northern Uganda Social Action Fund (NUSAF), with largest proportions in the districts of Kotido (49%), Kaabong (47%) and Napak (32%). Amudat districts had only 5% of the selected households registered as beneficiaries of NUSAF.

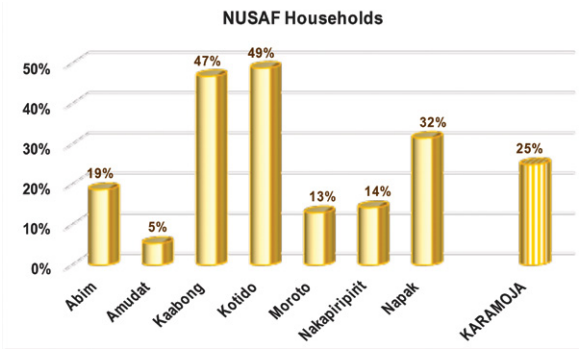


Figure 7: The NUSAF Registered Households, June 2017

3.1.3: Household Asset Ownership

Most Common Household Assets

Almost half of the selected households in Karamoja (49%) owned between 5 and 9 of the 21 enumerated household assets[1], whilst another 44% of households owned between 1 and 4 of the listed items. As illustrated in Figure 8, the seven most commonly listed items were the hoe, panga/machete, food store, axe, seed store, mattress and chairs.

1 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 in Abim, Nakapiripirit, Kaabong and Kotido districts had relatively more assets than the sub-regional average while Napak and Amudat had fewer assets. The ox-plough was owned by only 18% of the households, but relatively more common in Kaabong (36%), Nakapiripirit (30%) and Kotido district (28%). Ownership of the cell phone was reported by 23% of all households in the sub-region, more common in Amudat (30%) and Abim district (28%), while radios/ tape recorders were in 12% of the households.

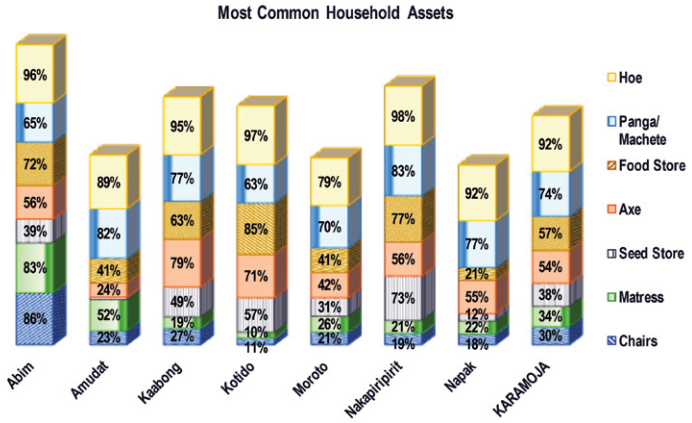


Figure 8: Most Common Assets in the Selected Households, June 2017

Ownership of Food and Seed Stores

Slightly over half of the selected households in the sub-region (57%) reported ownership of food stores, more common in Kotido (85%), Nakapiripirit (77%) and Abim (72%) whilst only 21% of households in Napak district had (Figure 8). Seed stores were owned by 38% of the households, more common in Nakapiripirit (74%) and Kotido (57%) while in Amudat district only 4% of the households owned seed stores.

3.2: Nutrition

3.2.1: Mothers' Nutritional Status

Mothers' Age Distribution

Most of the women sampled (86%) were in the age category 20 – 39 years; followed by those in 40 – 59 years at 9% and 15 – 19 years at 5%. This finding was the same across all districts in Karamoja as shown in Figure 9. Teenage mothers are still growing and are nutritionally at higher risk. There were comparatively more teenage mothers in Abim and Amudat districts but fewer in Kaabong and Nakapiripirit districts.

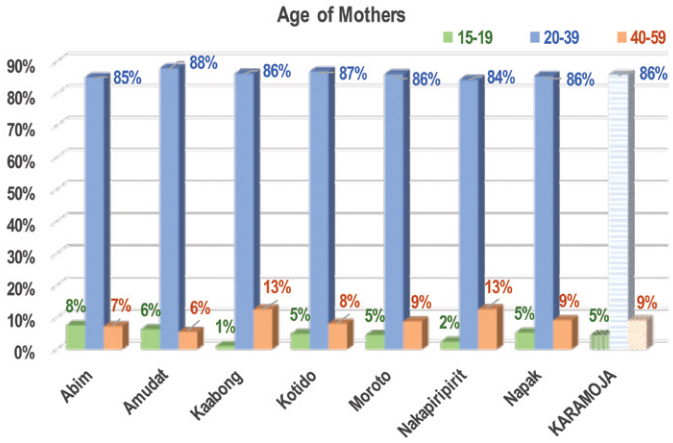


Figure 9: Age Distribution of the Selected Mothers, June 2017

Mothers' Educational Level

Several studies have shown a strong relationship between education level of the mother and the child's nutrition status. Figure 10 shows that 72% of mothers in Karamoja sub-region did not have any formal education, which is almost the same proportion as that reported in 2016 of 75%. The highest proportion of women without formal education was mainly from Kotido and Amudat at 90% and 81% respectively and lowest in Abim district at 31%. This report depicts the same findings as those the 2016 assessment where the districts of Kotido (94%) and Amudat (85%) had the highest proportion of women without formal education while Abim (27%) had the lowest.

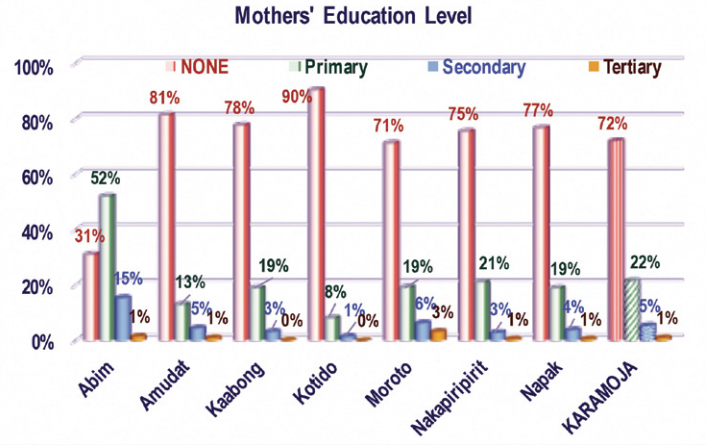


Figure 10: Highest Level of Mothers' Education, June 2017

Iron Supplementation

Iron supplementation during pregnancy is among the strategies being promoted to reduce prevalence of anaemia. As illustrated in Figure 11, approximately three-quarters of the selected women (76%) reported taking iron tablets or syrup during the last pregnancy. The districts of Kotido (93%), Abim (85%) and Moroto (83%) registered higher proportion than the sub-region's average whilst Nakapiripirit district had the lowest (65%).

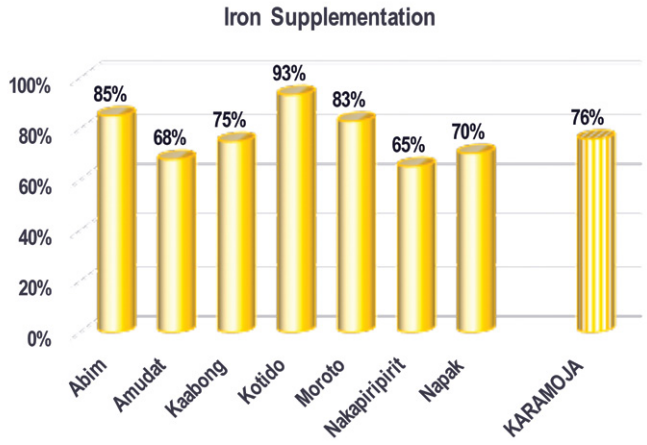


Figure 11: Iron Supplementation in pregnancy, June 2017

the district of Nakapiripirit has jumped from 28% to 47%, which calls for further investigations of this development. The lowest prevalence of underweight was observed in the district of Abim (27%) which also has the lowest prevalence of stunting. On the opposite end, 4% of the women were either overweight or obese, especially from the districts of Moroto and Abim (5% each).

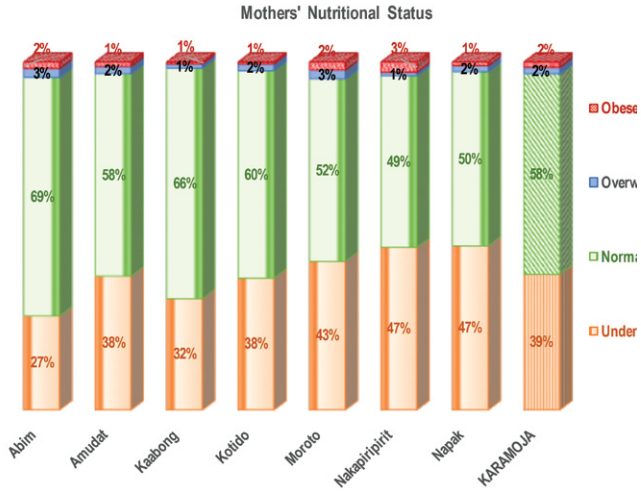


Figure 12: Mothers' Nutritional Status by BMI, June 2017

Mothers' Body Mass Index

Figure 12 shows that 58% of non-pregnant women in Karamoja sub-region had normal body mass index indicating good nutritional status. The rates of underweight showed a gradual increase from 30% in June 2016 to 39% in 2017. The high proportion of underweight women were found in the districts of Nakapiripirit (47%), Napak (47%) and Moroto (43%). These findings confirm those of June 2016 where the Moroto and Napak had the highest proportion of underweight women. Surprisingly,

Findings from the Quantitative Survey

Education on Health and Nutrition

Table 3: Key Messages from Maternal Education

Focus Area	Key Messages	% (n)	%
Breastfeeding	Breastfeeding Initiation	1,740	43%
	Exclusive breastfeeding	1,912	48%
	Frequency of Breastfeeding	1,123	28%
Complementary Feeding	***Frequency, Amount, Thickness, Variety***	982	24%
	Active Feeding	1,194	30%
	Micronutrient Powder Use	792	20%
Maternal Nutrition	Variety of Food during pregnancy/ breastfeeding	1,286	32%
	Malaria during pregnancy	1,218	30%
	Frequency of Feeding	1,257	31%
	Deworming during pregnancy	988	25%
Hygiene and Sanitation	Hand washing before food preparation	2,047	51%
	Hand washing before feeding	2,051	51%
	Hand washing after cleaning child	1,652	41%
	Hand washing after toilet use	1,738	43%
	Safe and clean water use	1,235	31%
	Wash & dry home utensils	1,113	28%
	Proper disposal of faeces	1,073	27%
KARAMOJA		**4,019 (82%)**	

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 4,894 women assessed, only 82% had received such messages and support with the highest proportion reported from Abim (94%) and Kotido (92%) and lowest in Amudat (55%) and Napak (77%). Other districts of Kaabong (86%), Moroto (87%) and Nakapiripirit (84%), showed high proportion of mothers who had received the messages and support.

As summarised in Table 3, the highest proportion of mothers received messages on "Handwashing before and after food preparation" (51%), followed by "Exclusive Breastfeeding" (48%), Breastfeeding Initiation (43%) Handwashing after cleaning the child (41%) and "Handwashing after toilet use" (43%). Noteworthy, messages on Complementary Feeding and Maternal Nutrition were reportedly received by less than one-third of the sampled mothers.

3.2.2: Nutritional Status of Children

Distribution of Sampled Children

Table 4: Distribution of Selected Children for Anthropometry by Gender and District

District	Male	Female	Total
Abim	440 (48.9%)	459 (51.1%)	**899 (15%)**
Amudat	434 (49.9%)	435 (50.1%)	**869 (14.5%)**
Kaabong	447 (51.1%)	427 (48.9%)	**874 (14.6%)**
Kotido	421 (48.8%)	426 (51.2%)	**847 (14.2%)**
Moroto	418 (49.1%)	433 (50.9%)	**851 (14.2%)**
Nakapiripirit	420 (52.2%)	385 (47.8%)	**805 (13.5%)**
Napak	384 (46.3%)	446 (53.7%)	**830 (13.9%)**
KARAMOJA	**2,968 (49.3%)**	**3,054 (50.7%)**	**5,975**[1]

As summarised in Table 4, overall, the demographic sex ratio comprised of nearly equal proportion of males and females. The overall ratio of 1:1 female to male indicates that there was no selection bias in the survey.

Prevalence Acute Malnutrition

The results presented in Table 5 are based on weight-for-height z-scores and the presence of nutritional oedema. For the overall region, the prevalence of Global Acute Malnutrition (GAM) was **13.8%** [95% CI: 12.8 – 14.8%] and Severe Acute Malnutrition (SAM) was **2.9%** [95% CI: 2.4-3.5%]. GAM was highest in Moroto and Kotido districts (18.5% each) but lowest in Abim district (11.1%), followed by Kaabong and Nakapiripirit (11.8% each). For children 6 to 59 months of age, the prevalence of acute malnutrition was higher amongst the boys (16.8%) than girls (10.8%).

[WHO flags were used for accurate comparison with the previous surveys]

Table 5: Prevalence of Severe, Moderate and Global Acute Malnutrition by District

	N	Severe (95% CI)	Moderate (95% CI)	Global (95% CI)
Abim	899	**2.9 %** (1.8 - 4.7)	**8.2 %** (6.8 - 9.9)	**11.1 %** (9.1 - 13.5)
Amudat	869	**3.2 %** (2.2 - 4.6)	**8.9 %** (7.0 - 11.1)	**12.1 %** (9.9 - 14.7)
Kaabong	874	**2.1 %** (1.3 - 3.3)	**9.7 %** (7.9 - 11.8)	**11.8 %** (9.8 - 14.0)
Kotido	847	**3.5 %** (2.1 - 5.9)	**15.0 %** (12.5 - 17.9)	**18.5 %** (15.6 - 21.9)
Moroto	851	**4.5 %** (3.1 – 6.5)	**14.0 %** (11.7 - 16.6)	**18.5 %** (15.7 – 21.6)
Nakapiripirit	805	**2.0 %** (1.1 - 3.8)	**9.8 %** (7.9 - 12.0)	**11.8 %** (9.6 - 14.4)
Napak	830	**1.8 %** (1.1 – 2.9	**10.9 %** (9.1 - 13.0)	**12.7 %** (10.7 - 12.7)
KARAMOJA	5,975	**2.9 % (2.4 – 3.5)**	**10.9 % (10.0 – 11.9)**	**13.8% (12.8 - 14.8)**

The prevalence of oedema is 0.0%

Findings from the Quantitative Survey

When GAM is disaggregated by age, children 12-23 months and 6-11 months had the highest prevalence of malnutrition at 16.1% and 17.9% respectively. The possible causes of high levels of malnutrition in the 2 age groups could be attributed to the poor complementary feeding practices among this age group.

The trend in prevalence of global acute malnutrition among children between 2015 and 2017 has been summarised in Figure 13. It showed the prevalence of malnutrition was 14% in June 2015, dropped to 11.2% in June 2016 but increased again to 13.8% in 2017. It also shows that there was marginal increase in the districts of Kotido, Moroto, Abim and Nakapiripirit.

Using the Weight-for-Age index, the prevalence of underweight among children aged 6 – 59 months in sampled children is presented in Table 6. Overall, the prevalence of underweight was found at **27.7%** with the highest prevalence found in Moroto and Kotido at 35.9% and 33.1% respectively, whilst the lowest was in Amudat at 20.1%. The prevalence of underweight was found to be higher than that reported in the June 2016 Assessment of 22.4%.

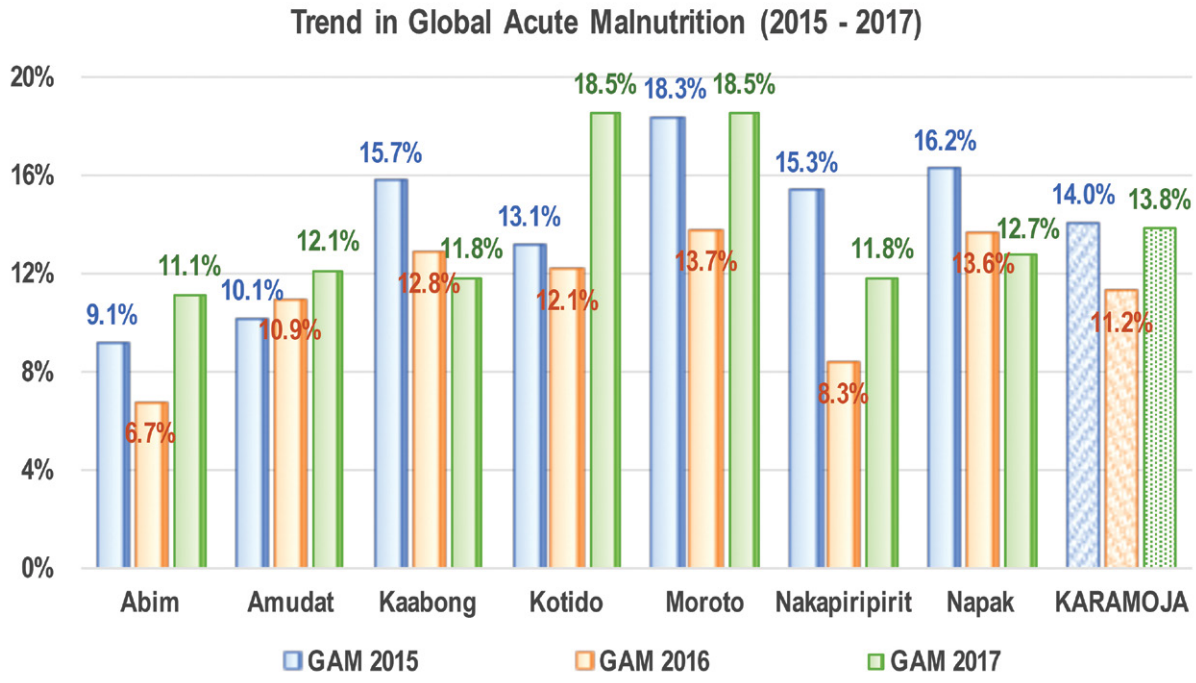


Figure 13: Trend in Prevalence of Global Acute Malnutrition June 2015 to 2017

Table 6: Prevalence of Underweight in Children of Age 6 - 59 Months

District	Severe underweight (<-3 z-score)		Moderate underweight (>= -3 and <-2 z-score)		Prevalence of underweight (<-2 z-score)		N
	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	
Abim	48	5.3 [4.1 - 5.3]	147	16.4 [14.6 - 18.4]	195	21.7 [19.5 - 24.1]	898
Amudat	52	5.9 [4.7 - 7.4]	125	14.2 [12.1 - 16.5]	177	20.1 [17.5 - 22.9]	882
Kaabong	86	9.9 [7.8 - 12.5]	180	20.7 [17.7 - 24.1]	266	30.6 [26.7 - 34.7]	870
Kotido	81	9.6 [7.4 – 12.3]	199	23.5 [20.2 – 27.1]	280	33.1 [29.0 – 37.3]	847
Moroto	101	12.0 [9.7 – 14.7]	202	23.9 [21.2 – 26.9]	303	35.9 [32.5 – 39.3]	845
Nakapiripirit	51	6.4 [4.7 – 8.6]	136	17.0 [14.1 – 20.4]	187	23.4 [20.0 – 27.1]	799
Napak	76	9.2 [7.3 – 11.5]	169	20.4 [17.5 – 23.7]	245	29.6 [26.0 – 33.4]	829
KARAMOJA	**497**	**8.3 [7.5 – 9.2]**	**1,159**	**19.4 [18.4 – 20.5]**	**1,656**	**27.7 [26.5 – 29.0]**	**5,973**

Using the Height-for-Age index, the prevalence of chronic malnutrition (stunting) among children aged 6 – 59 months in sampled children is presented in Table 7. The prevalence of stunting was found at **32.6%** with the highest prevalence found in Moroto and Kaabong at 40.9% and 40.5% respectively. The lowest was observed in Abim and Amudat at 23.7% and 26%, respectively. The prevalence of stunting was found to be higher than that reported in the June 2015 Assessment of 28%.

Table 7: Prevalence of Stunting in Children Age 6 – 59 Months

District	Severe stunting (<-3 z-score)		Moderate stunting (>= -3 and <-2 z-score)		Prevalence of stunting (<-2 z-score)		N
	n	% [95% CI]	n	% [95% CI]	n	% [95% CI]	
Abim	72	8.0 [6.6 – 9.7]	141	15.7 [13.9 – 17.7]	213	23.7 [21.6 - 26.0]	899
Amudat	70	7.9 [5.9 - 10.6]	159	18 [15.1 – 21.3]	229	26 [22.4 - 29.9]	882
Kaabong	159	18.2 [15.9 – 20.8]	195	22.3 [18.9 - 26.1]	354	40.5 [36.6 - 44.5]	874
Kotido	121	14.3 [12.1 - 16.8]	179	21.1 [18.2 - 24.4]	300	35.4 [31.4 - 39.6]	847
Moroto	148	17.4 [14.8 - 20.4]	200	23.5 [20.5 - 26.8]	348	40.9 [37.4 - 44.4]	851
Nakapiripirit	94	11.7 [9.6 - 14.1]	149	18.5 [16.1 - 21.2]	243	30.2 [27.5 - 33.0]	805
Napak	94	11.3 [9.1 - 14.0]	171	20.6 [18.5 - 22.9]	265	31.9 [28.9 – 35.2]	830
KARAMOJA	**758**	**12.7 [11.9 – 13.5]**	**1,194**	**19.9 [18.9 – 21.1]**	**1,952**	**32.6 [31.1 – 33.9]**	**5,991**

Findings from the Quantitative Survey

Prevalence of Overweight

As illustrated in Figure 14, the prevalence of overweight among children age 6 – 59 months was at **1.4%** while severe overweight was 0.5%. Greater than the sub-regional average prevalence of overweight was in Kotido and Nakapiripirit districts while Kaabong, Kotido and Nakapiripirit had the highest levels of severe overweight. The lowest prevalence of both severe and overweight was registered in Napak district with 0.1% and 0.5%, respectively.

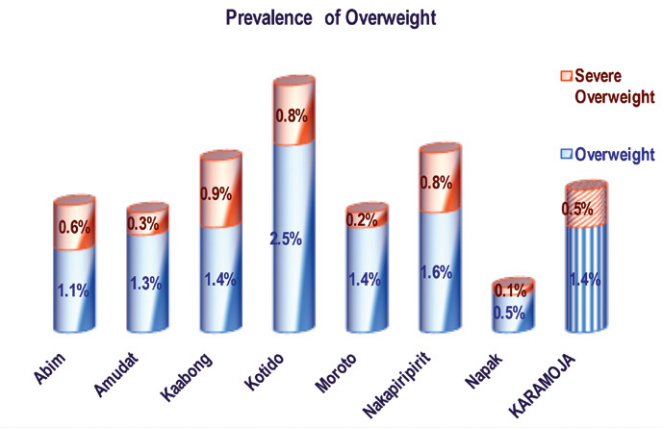


Figure 14: Prevalence of Overweight in Children, June 2017

3.2.3: Breastfeeding Practices

Initiation of Breastfeeding

Early initiation of breastfeeding, within one hour of birth, protects the newborn from acquiring infection and reduces newborn mortality among other benefits. Table 8 shows that **82%** 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 is similar to that reported in the 2016 FSN Assessment of 80%. The rates of breastfeeding initiation were above the sub-regional average in the districts of Nakapiripirit (94%) and Kaabong (87%), Kotido (84%) and Abim (89%) whilst it was lowest in Napak at 64%. This finding could be attributed to the implementation of the Baby Friendly Hospital Initiative programme in the districts of Nakapiripirit and Kaabong. The survey also found out that only 0.7% of children did not breastfeed at all.

Table 8: Summary of the Breastfeeding Indicators for Karamoja Sub-region, June 2017

Age Group	Abim n (%)	Amudat n (%)	Kaabong n (%)	Kotido n (%)	Moroto n (%)	Nakapiripirit n (%)	Napak n (%)	KARAMOJA n (%)	N
Timely BF Initiation *[0-23 months]*	812 (89%)	759 (77%)	813 (87%)	813 (84%)	812 (83%)	845 (94%)	589 (64%)	**5443 (82%)**	6611
Exclusive Breastfeeding *[0-5 months]*	11 (100%)	79 (94%)	45 (94%)	75 (95%)	109 (92%)	81 (93%)	95 (97%)	**495 (94%)**	525
Continued BF at 1 year *[12-15 months]*	89 (98%)	84 (88%)	47 (80%)	107 (89%)	71 (89%)	69 (89%)	73 (95%)	**540 (90%)**	601
Continued BF at 2 years *[20-23 months]*	32 (46%)	30 (50%)	36 (56%)	36 (55%)	36 (71%)	41 (65%)	42 (69%)	**253 (58%)**	433

Exclusive Breastfeeding under 6 Months

Exclusive breastfeeding for 6 months confers many benefits to the infant and mother such as protection against gastrointestinal infections, among other benefits. Table 8 shows that **94%** of infants 0–5 months of age were fed exclusively with breast milk. This finding shows an increase from that reported in June 2016 of 80%. The rates of exclusive breastfeeding were higher in the districts of Abim and Napak at 100% and 97%, respectively. Surprisingly, whereas Napak had the lowest proportion of mothers initiating breastfeeding, the rate of exclusive breastfeeding was relatively high compared to the other districts.

Continued Breastfeeding at 1 Year

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 8, only **90%** of children 12–15 months of age were fed breast milk during the previous day, with proportions higher than the sub-regional average having been attained by Abim and Napak districts. Continued breastfeeding at one year was lowest in Kaabong district.

Continued Breastfeeding at 2 Years

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 8 shows that **58%** of children 20–23 months of age had been fed breast milk the previous day. Higher proportions than the regional average was registered by Moroto, Napak and Nakapiripirit districts whilst continued breastfeeding at 2 years was lowest in Abim district.

3.2.4: Complementary Feeding Practices

Introduction of Solid, Semi-solid or Soft Foods

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. Figure 15 shows **74%** of infants 6–8 months of age received solid, semi-solid or soft foods during the day prior to the assessment. Higher than regional level average was registered by Kaabong, Napak and Kotido districts whilst Amudat had the lowest proportion. The finding from this assessment showed an increase from that reported in the 2016 Assessment of 71%.

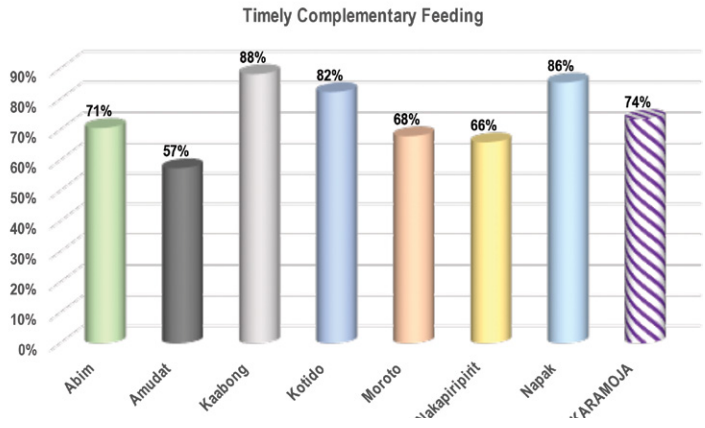


Figure 15: Timely Introduction of Complementary Feeding, June 2017

Findings from the Quantitative Survey

Minimum Dietary Diversity

Dietary diversity is a proxy for adequate micronutrient-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. Table 9 shows that **5.7%** 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 (9.4%) and Nakapiripirit at 8.2%. The lowest was observed in the districts of Amudat (3.5%) and Napak (3.7%).

Table 9: Minimum Dietary Diversity by Age Group and District

Age Group	Abim n (%)	Amudat n (%)	Kaabong n (%)	Kotido n (%)	Moroto n (%)	Nakapiripirit n (%)	Napak n (%)	KARAMOJA n (%)	N
6 – 11	7 (5.3%)	12 (8.8%)	18 (22.5%)	9 (9.9%)	13 (11.4%)	13 (11.5%)	12 (10.6%)	**84 (10.7%)**	782
12 – 17	16 (14%)	8 (7.2%)	29 (28.7%)	22 (13.9%)	18 (14.1%)	28 (21.5%)	12 (9.4%)	**133 (15.2%)**	873
18 – 23	15 (2.4%)	11 (1.7%)	31 (4.8%)	12 (2.2%)	18 (2.7%)	29 (4.7%)	7 (1.2%)	**123 (2.8%)**	4,331
Total	**38 (4.4%)**	**31 (3.5%)**	**78 (9.4%)**	**43 (5.4%)**	**49 (5.4%)**	**70 (8.2%)**	**31 (3.7%)**	**340 (5.7%)**	**5,986**

Minimum Meal Frequency[2]

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. Table 10 shows that only **19.9%** 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 reporting high proportion of children falling under this category are Amudat (27.6%) and Nakapiripirit (24.2%) with the lowest reported in the district of Nakapiripirit with 14.8%.

Table 10: Minimum Meal Frequency by Age Group and District

Age Group	Abim n (%)	Amudat n (%)	Kaabong n (%)	Kotido n (%)	Moroto n (%)	Nakapiripirit n (%)	Napak n (%)	KARAMOJA n (%)	N
6 – 11	77 (59%)	98 (70%)	50 (62.5%)	47 (51.6%)	67 (58.8%)	79 (69.9%)	58 (51.3%)	**476 (60.9%)**	782
12 – 17	56 (48%)	74 (66.7%)	46 (45.5%)	66 (41.8%)	53 (41.4%)	84 (64.6%)	42 (33.1%)	**421 (48.2%)**	873
18 – 23	38 (6.1%)	74 (11.5%)	45 (7%)	32 (5.9%)	38 (5.7%)	45 (7.3%)	25 (4.1%)	**297 (6.9%)**	4,331
Total	**171 (20%)**	**246 (27.6%)**	**141 (17.1%)**	**145 (18.3%)**	**158 (17.5%)**	**208 (24.2%)**	**125 (14.8%)**	**1,194 (19.9%)**	**5,986**

2 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

Minimum Acceptable Diet

The 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. Table 11 shows that only **4.1%** of children 6–23 months of age received a minimum acceptable diet with the highest proportion reported in the districts of Nakapiripirit (6.6%) and Kaabong (6.1%) and lowest in the district of Napak at 2.1%.

Table 11: Minimum Acceptable Diet by Age Group and District

Age Group	Abim n (%)	Amudat n (%)	Kaabong n (%)	Kotido n (%)	Moroto n (%)	Nakapiripirit n (%)	Napak n (%)	KARAMOJA n (%)	N
6 – 11	5 (3.8%)	11 (7.9%)	14 (17.5%)	8 (8.8%)	13 (11.4%)	12 (10.6%)	7 (6.2%)	**70 (9.0%)**	782
12 – 17	13 (11%)	8 (7.2%)	18 (17.8%)	20 (12.7%)	10 (7.8%)	22 (16.9%)	8 (6.3%)	**99 (11.3%)**	873
18 – 23	8 (1.3%)	7(1.1%)	18 (2.8%)	8 (1.5%)	11 (1.7%)	23 (3.7%)	3 (0.5%)	**78 (1.8%)**	4,331
Total	**26 (3.0%)**	**26 (2.9%)**	**50 (6.1%)**	**36 (4.5%)**	**34 (3.8%)**	**57 (6.6%)**	**18 (2.1%)**	**247 (4.1%)**	**5,986**

3.2.5: Coverage of Selective Feeding Programs

MCHN Programme

The Maternal, Child Health and Nutrition (MCHN) is a stunting prevention programme. The programme focuses on prevention of malnutrition through blanket nutrition support to expectant women, lactating mothers and children under 2 years of age. Figure 16 shows that only 66% of children were enrolled in the programme with the highest enrolment reported in Abim district (80%). Napak with 68%, was the only other district that registered a proportion above the sub-regional average, whilst Kaabong and Nakapiripirit districts had the lowest (55% and 58%, respectively). The average enrolment for the sub-region in June 2017 reflected an increase from that reported in June 2016 of 47%.

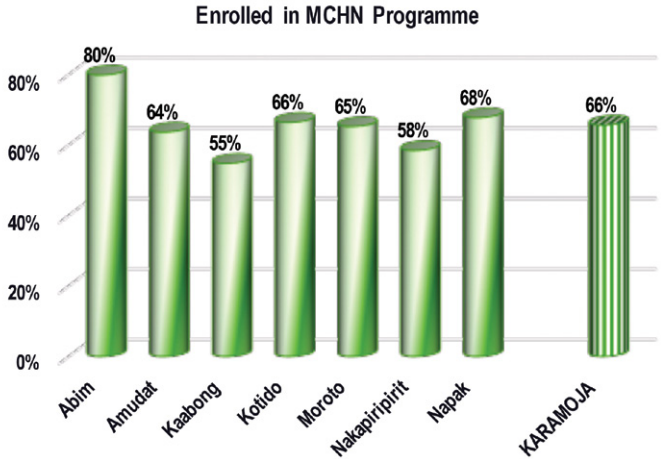


Figure 16: Enrolment of Children in the MCHN Programme, June 2017

3.3: Child Health

3.3.1: Prevalence of Childhood Diseases/ Illnesses

Commonest Illnesses in the Region

Illness in a child influences the appetite and normal metabolic processes, thus contributing to causation of malnutrition. As illustrated in Figure 17, only one-quarter of the sampled children were free of any disease or symptoms within the two weeks period preceding the assessment. Fever/ malaria was the most common reported problem (54%), followed by acute respiratory tract infections/ cough (38%) and diarrhoea (30%).

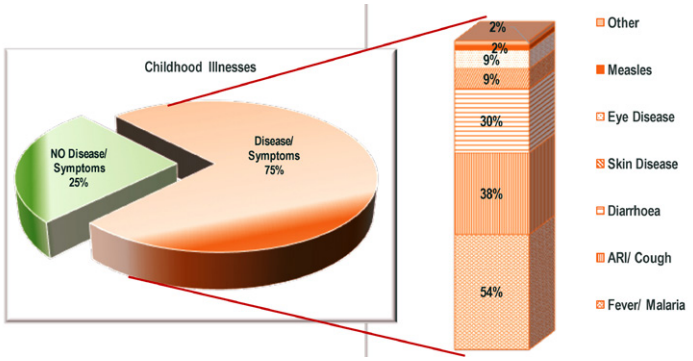


Figure 17: Common Childhood Illnesses in the Region, June 2017

The prevalence of fever/ malaria was not consistent with the reported very high usage of mosquito nets by children. Nevertheless, it was not surprising due to the more general nature of question asked that lumped all different types of fever. At the regional level, 94% of children had slept under a mosquito net during the night preceding the assessment with a range from 91% in Moroto to 98% in Napak district. The prevalence of skin and eye diseases is influenced by use of water for personal hygiene and the finding of 9% each was relatively low when compared to the reported access to safe water by the households.

Common Illnesses in the Districts

As illustrated in Figure 18, households in Kaabong and Nakapiripirit districts recorded the highest prevalence of illnesses within the sub-region whilst Amudat district had the lowest. Fever/ malaria was relatively more prevalent in Nakapiripirit and Moroto while ARI/ cough and diarrhoea were more prevalent in Kaabong and Nakapiripirit. Also, worth noting was the very high prevalence of skin disease, eye disease and measles that was reported by the households in Kaabong district compared to the sub-regional average.

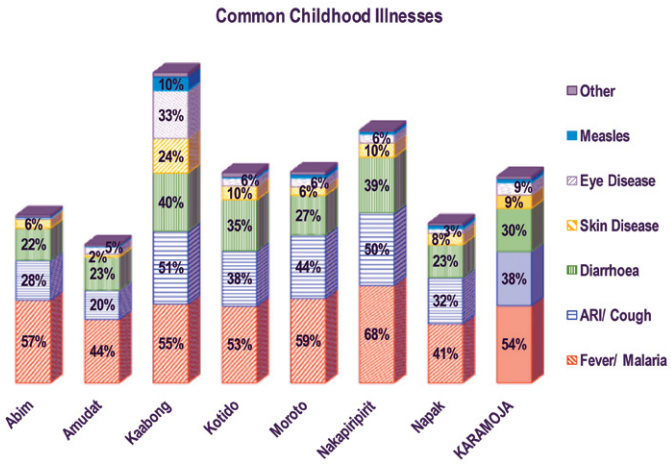


Figure 18: Common Childhood Illnesses in the Districts, June 2017

Access to Health Care and Treatment

The majority of household members in the region (84%) mostly got treatment when sick from the health centres, which are relatively more accessible (Figure 19). In Kotido and Nakapiripirit districts where there is no hospital, 99% and 98% respectively, got treatment from the health centres. Up to one-third of households in Moroto district and one-quarter of those in Amudat district reported going to the hospital when sick. Whereas Kaabong district has a hospital, only 5% of the selected households reported going to the hospital when sick. Utilisation of VHTs' services was more pronounced in the districts of Moroto, Amudat and Abim.

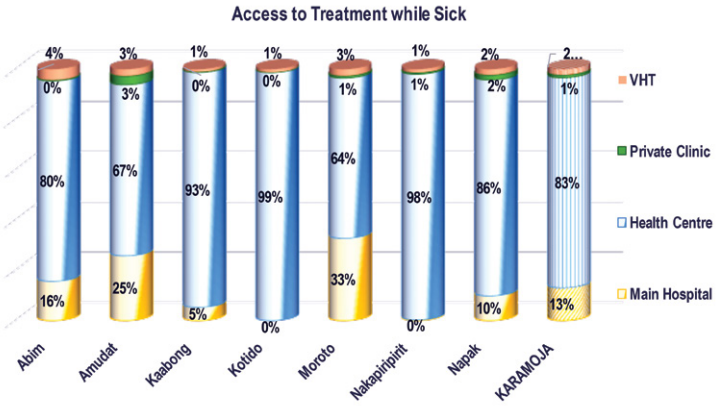


Figure 19: Place of Access to Treatment by Household Members, June 2017

3.3.2: Coverage of Childhood Immunizations

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 Figure 20, overall 97% of the children had received DPT3 with verifiable evidence from the Child Health Card available for 68% but for 29% being based on the mother's or caretaker's report. The highest proportion of children was in Abim district (99%) while districts below the sub-regional average included Amudat (94%) and Kaabong (95%).

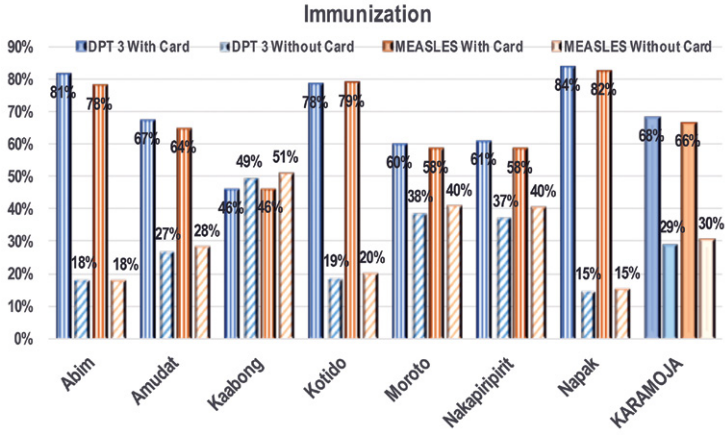


Figure 20: Immunisation of Children in the Region, by District, June 2017

Measles vaccination is carried out at 9 months of age and overall 96% of children in the sub-region had been immunised, 66% of them with verifiable evidence on the Child Health cards and 30% based on the mother's or caretaker's report. The range was from 92% in Amudat district to 99% in Moroto district. Abim was the only other district with a proportion lower than the sub-regional average. The proportion of children without evidence from Child Health Cards was higher in Kaabong, Moroto and Nakapiripirit districts.

3.3.3: Coverage of Vitamin A Supplementation & De-Worming

Vitamin A supplements is provided every 6 months to children between the age of 6 and 59 months. Out of the selected households, 86% of the children aged 6 to 59 months had received vitamin A supplements within the previous six months, 60% had Child Health Cards for verification while 26% was based on mother's or caretaker's report (Figure 21). The highest was Abim district (98%) and districts below the sub-regional average included Amudat (67%), Napak 79% and Nakapiripirit (85%).

Medicines for treatment of intestinal worms is provided every 6 months to children aged between 12 and 59 months. Overall, 80% 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 54%. The highest was in Kaabong district (89%) and districts below the sub-regional coverage included Amudat (59%) and Napak (78%). Lack of Child Health Cards was most marked in Kaabong, Moroto and Nakapiripirit districts.

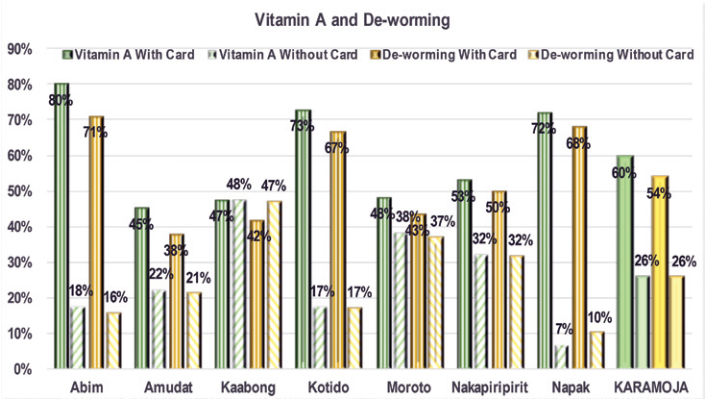


Figure 21: Vitamin A and De-worming in the Region by District, June 2017

3.4: Water, Sanitation and Hygiene

3.4.1: Household Access to Safe Water

Overall, 90% of selected households in the sub-region accessed water from relatively safe sources such as boreholes fitted with hand pumps, piped water through taps, protected wells and springs (Figure 22). Moroto, Kotido and Abim districts had the largest proportion of households with access to safe water. Kaabong, Nakapiripirit and Amudat districts had the largest proportion of households that accessed water from relatively unsafe sources such as surface water (from river, dam, run off etc.) and open, un-protected wells or springs.

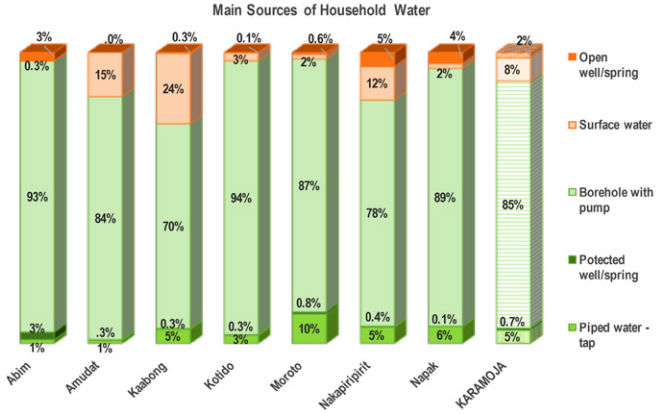


Figure 22: Reported Main Sources of Household Water, June 2017

3.4.2: Household Utilization of Water

Treating of drinking water was only reported by 10% of selected households in the region (Figure 23), with the practice more common in Moroto (21%) and Abim district (17%). The main method of water treatment was by boiling (78%), with a range from 40% of the households in Kotido to 95% each in Nakapiripirit and Amudat districts. Chlorination was used by comparatively more households in Kotido, Napak and Moroto districts.

The recommended amount of water for basic household hygiene and sanitation is at least 15 litres per person per day. As illustrated in Figure 24, about three-quarters (76%) of the selected households in Karamoja sub-region reported use of less than 15 litres of water per person per day, with a range from 44% in Abim to 88% in Amudat district. Only Abim district had the proportion of households below the sub-regional average.

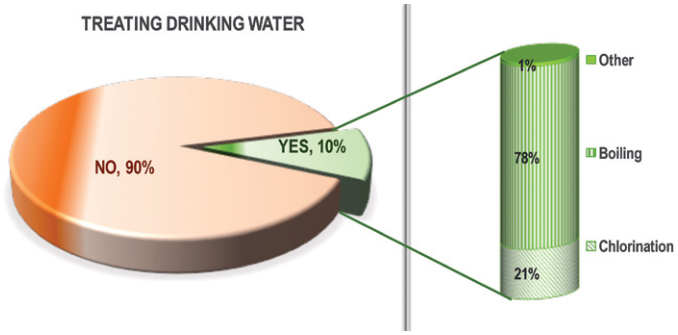


Figure 23: Household Treatment of Drinking Water, June 2017

Household Fuel

Firewood was the main type of fuel utilised by 90% of the selected households in the sub-region and was the predominant fuel in Kaabong (99% of households). Charcoal was reported by 8% of the households, with comparatively more use by the households in Moroto and Abim districts. Only 8 households from Amudat district reported the use of kerosene.

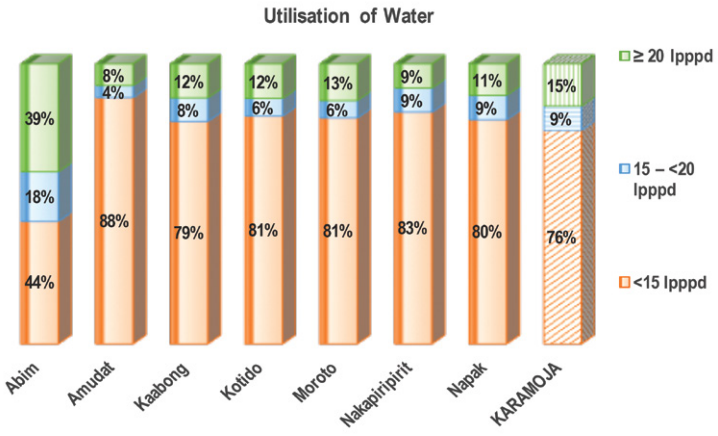


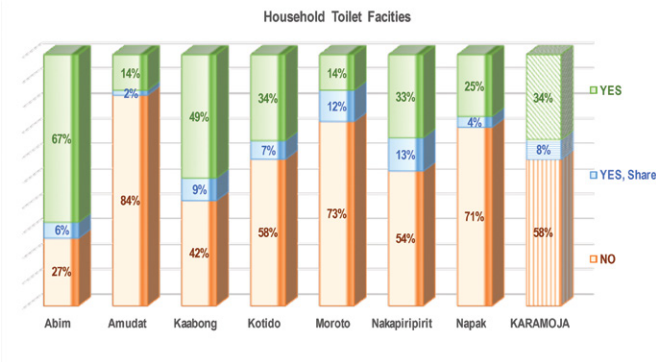
Figure 24: Reported Household Utilisation of Water, June 2017

3.4.3: Household Sanitation Facilities and Practices

Availability of Toilet Facilities

Overall, 58% of all selected households in the sub-region did not have any toilet facilities and out of the those who had, 8% was being shared with other households (Figure 25). The lack of toilet facilities was more common in Amudat, Moroto and Napak districts. The reported sharing of toilet facilities with other households was more common in Moroto and Nakapiripirit districts but much less common in Amudat district.

Figure 25: Availability of Toilet Facilities in

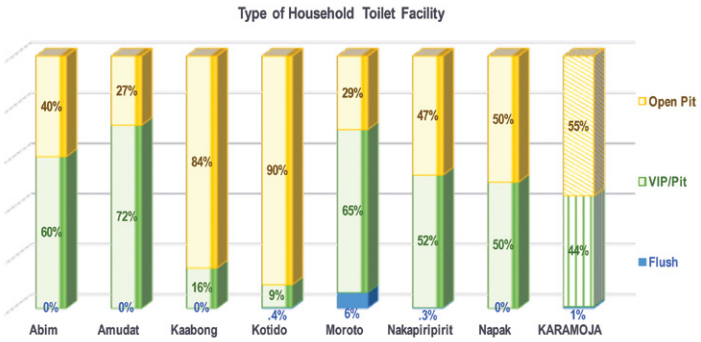


Selected Households, June 2017

Type of Household Toilet Facilities

The open pit without a super structure, which is of a lower quality constituted the main type of facility for 55% of the selected households with toilets in the region (Figure 26). Kotido district (90%) and Kaabong (84%), had more households with this type of toilet facility than the sub-regional average. Of the households with toilets, Amudat, Moroto and Abim districts had the greatest proportion with good quality facilities. Flush toilets were only relatively common in Moroto district (6%).

Figure 26: Type of Available Toilet Facility in



Selected Households, June 2017

3.5: Food Security

3.5.1: Food Availability

The analysis of food availability focused on livestock ownership, access to agricultural land and cropping practices as well as household food stocks.

Livestock Ownership

As illustrated in Figure 28, slightly more than half of households (54%) in the Karamoja sub-region owned livestock and reflected an increase from that reported in June 2016 of 47%. Amudat, Abim, Kaabong and Kotido districts had higher proportion of households owning livestock than the sub-regional average. There was an outstanding increase in the district of Kaabong from 42% in 2016 to 57% in 2017. There were more households with TLU greater than 5 in Amudat district which was noted to have contributed to continuous access to milk by children in the households.

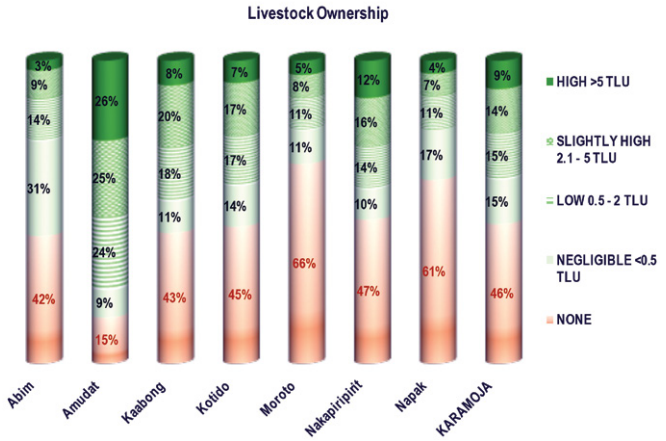


Figure 28: Livestock Ownership by District, June 2017

As illustrated in Figure 29, the main constraint reported by households that owned livestock was parasites/ diseases at 66%, which reflected a drop from that reported in June 2016 of 72%. This was reported across the 7 districts with the highest being Kaabong (83%), Napak (77%) and Amudat (73%). Meanwhile, lack of pastures for their animals was among the key constraints cited in the districts of Kotido (15%), Amudat (15%), Moroto (13%) and Nakapiripirit (12%).

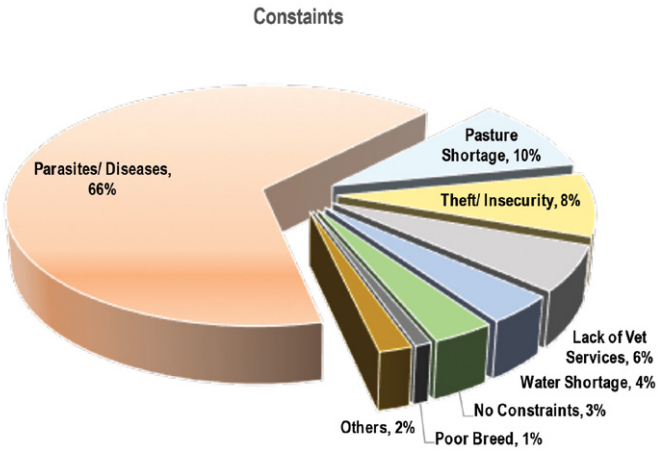


Figure 29: Constraints to Livestock Production, June 2017

Agriculture Production

Most households (87%) reported having access to land for agriculture production, which is almost like the proportion reported in June 2016 of 90% (Table 13). For those households owning land, the average size of flat land of 2.34 acres with the range from 1.33 acres in Amudat to 3.09 acres in Kotido district. The average size of upland type was 0.32 acres for the region, with range from 0.04 acres in Amudat to 0.97 acres in Moroto district. Swampy land was less available with only households in Abim and Kaabong districts reporting ownership of 0.21 and 0.13 acres, respectively.

Findings from the Quantitative Survey

Table 12: Access to, and Size of Land for Agricultural Production

District	Access to Agricultural Land (%)	Mean Size of Land Owned (Acres)		
		Flat Land	Upland	Swampy
Abim	92%	2.43	0.11	0.21
Amudat	84%	1.33	0.04	0.02
Kaabong	92%	2.48	0.54	0.13
Kotido	97%	3.09	0.14	0.0
Moroto	73%	2.39	0.97	0.01
Nakapiripirit	93%	1.84	0.20	0.05
Napak	76%	2.85	0.28	0.08
KARAMOJA	**87%**	**2.34**	**0.32**	**0.01**

Findings showed that sorghum and maize were the most commonly cultivated crops at 77% and 57% respectively, followed by beans at 35%, which reflected slight improvement from June 2016: sorghum (71%), maize (50%) and beans (30%). Districts with higher proportion of households cultivating maize above the sub-region average included Amudat, Kaabong and Moroto; while sorghum production was observed to be high above sub-regional average in almost all districts apart from Amudat at 5%. Meanwhile all districts equally cultivated beans ranging from 23% in Nakapiripirit to 41% in Kaabong. Most crops grown occupied 0.5 to 1.5 acres. Noteworthy, whereas the district of Napakipirit had highest proportion of households owning only an average of 1.8 acres, they did cultivate more crops than all the other districts with higher acreage. The main constraint to crop production in the 6 months prior to the assessment was drought/low rainfall (71%), which reflected an increase from that reported in June 2016 of 30%. Meanwhile, inadequate seeds/tools and insufficient household labour were the next cited constraints to crop production at 10% and 6%, respectively.

Household Food Stocks

As summarised in Table 14, food stocks in households was reportedly low with only 25% reporting having some in their household, which was similar to 24% reported in June 2016.

Table 13: Household Food Stocks and Expected Duration

	Food Stock 2016	Food Stock 2017	Mean Days of Stock 2016	Mean Days of Stock 2017
Abim	28%	21%	44	40
Amudat	9%	6%	44	24
Kaabong	15%	55%	21	14
Kotido	25%	16%	7	11
Moroto	9%	9%	11	10
Nakapiripirit	48%	29%	18	4
Napak	35%	38%	10	7
KARAMOJA	24%	25%	19	14

The food stocks were mainly from Markets (48%), Own Production (36%) and UNWFP/ Partner food distribution (15%). The highest proportion of households with food stocks was mainly in Kaabong (55%), followed by Napak (38%) whilst the lowest was in Amudat (6%) and Moroto (9%). Generally, most households (67.8%) had less than one bag (50kg) of maize and/or sorghum still available in their stock. Notably, there was an overwhelming increase in the district of Kaabong in the proportion of households with available food stocks. Whereas Abim had lower food stocks than the other districts, the mean days of stock were highest at 40. The possible reasons for the lower food stocks in the sub-region include the fact that the survey was conducted in the typical lean season.

The assessment explored decision-making at household level and it was revealed that on the issues related to crop production, 39% indicated it was jointly done by the spouses, and 30% each by the Man or Woman alone (spouse).

Current Food and Humanitarian Assistance

As illustrated in Figure 30, the survey results revealed that about one-third (31%) of the sampled households received assistance from UNWFP in the 6 months prior to the assessment through Food Aid (28%) and Cash (3%). The support was mainly provided to the districts of Kaabong (49%), Kotido (41%) and Napak (34%).

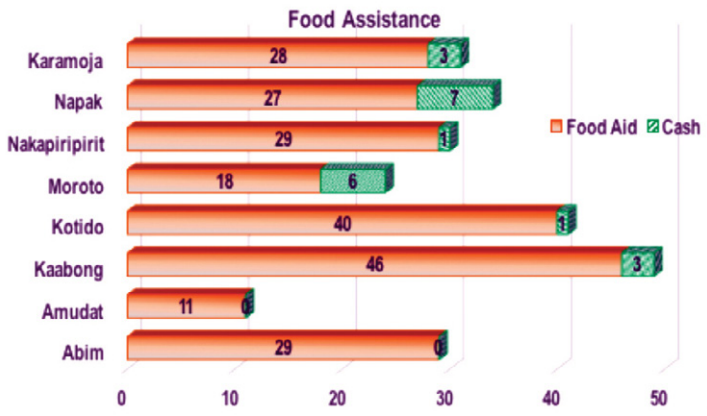


Figure 30: Current Food and Humanitarian Assistance, June 2017

Respondents were asked who decided on what to do with the cash/voucher in terms of when, where and what to buy and the majority indicated that women (53%) did so, 41% reported it was both the women and men together and only 6% indicated it was the men. Regarding who decided what to do with the food aid such as sell, trade, lend or share a portion of it, 77% indicated it was women, for 20% it was the women and men together, and only 4% the men. Meanwhile, only 87% had no safety problems to, at and from the WFP programme sites, while 6% reported having safety issues while going to the site, 5% at the site and 2% while travelling from the site.

3.5.2: Household Access to Food

Household Income Earners

Majority of households (84%) had at least one income earner, whilst 16% of households in the sub-region did not have any income earners (Figure 32). The percentage of households with 2 or more income earners was higher than sub-regional average in Nakapiripirit and Kotido districts. Napak and Kaabong districts each with 31%, had the highest proportion of households without any income earner. Findings suggest relatively better economic access to food in Kotido, Moroto and Amudat districts with only Kotido district still maintaining this status as report in June 2016.

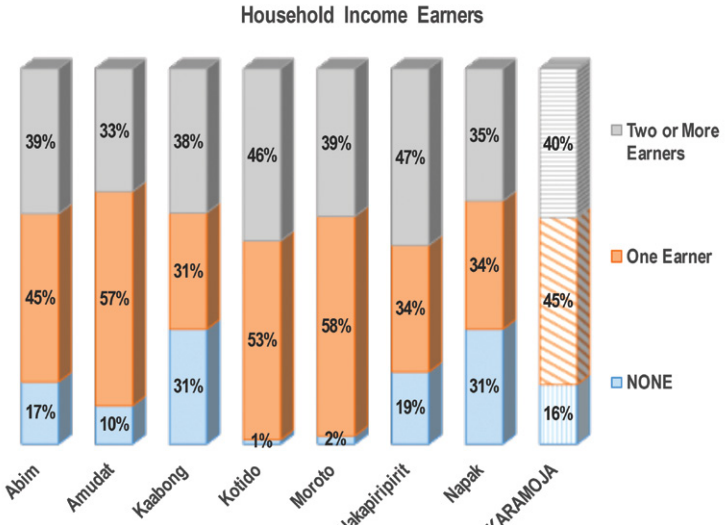


Figure 31: Household Income Earners, June 2017

Household Income Sources

Households were categorised into 3 main income sources as shown in Table 15.

Table 14: Most Important Income Sources in Karamoja Sub-region, June 2017

District	Most Important Income Source	Second Most Important	Third Most Important
Abim	Agriculture wage labour (30%)	Food crop production/ sales (22%)	Brewing (12%)
Amudat	Sale of livestock/ animal products (31%)	Petty trade (17%)	Agricultural wage labour (12%)
Kaabong	Agriculture wage labour (22%)	Brewing (19%)	Sale of firewood/ charcoal (17%)
Kotido	Agriculture wage labour (33%)	Sale of firewood/ charcoal (27%)	Non-agricultural wage labour (12%)
Moroto	Sale of firewood/ charcoal (41%)	Non-agricultural wage labour (16%)	Agriculture wage labour and Salaries (9% each)
Nakapiripirit	Agriculture wage labour (31%)	Food crop production/ sales (25%)	Sale of firewood/ charcoal (24%)
Napak	Agriculture wage labour (36%)	Sale of firewood/ charcoal (33%)	Non-agricultural wage labour (8%)
KARAMOJA	**Agriculture wage labour (22%)**	**Sale of firewood/ charcoal (20%)**	**Food crop production/ sales (11%)**

The predominant income sources at the sub-regional level were Agriculture wage labour (22%), Sale of firewood/ charcoal (20%) and Food crop production/ sales (11%). At the district level, Amudat households reported the sale of livestock and animal products as the most important source whilst those from Moroto cited sale of firewood or charcoal. The sources of income were mainly agricultural production dependent and natural resource dependent, which tend to be ad-hoc, sporadic and low paying.

With regards to who (men or women) in the household were mainly engaged in off-farm income activities, the assessment revealed that it was dominated by men (49%), followed by women (26%) while both men and women accounted for 25%. In relation to the question on who within the households decided what to do with the generated income, 49% indicated decision-making was by the couple, 23% by the men and 28% by the women.

Only 28 households received remittances, from main town in the district (46%) and neighbouring district. This was mainly so in the districts of Kotido, Napak and Nakapiripirit.

Household Debt

As summarised in Table 16, about one-third (34%) of households in the sub-region reported having debt with the highest proportion being observed in Moroto (43%), Napak (39%), Abim (37%) and Kaabong (36%) while the lowest was in Amudat (15%) and Kotido (27%). In terms of amount, the

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average sub-regional debt was UGX 101,861 with households in Moroto district having registered the highest amount whilst Kotido district had the smallest amount.

On whether the debtors had to pay interest on the current loan, almost half of the households (48%) responded positively, with the highest proportion being from Abim (84%) and the lowest in Amudat district (10%). The amount owed in interest ranged from UGX 14,682 in Amudat to UGX 60,870 in Moroto district. Whereas debt is viewed as not necessarily bad for households, it is indicative of stress when used to meet essential household needs, including for purchase of food.

Table 15: Household Debts, by District during the June 2017 Assessment

District	% with Debt	Mean Amount (UGX)	% with Interest	Mean Interest (UGX)
Abim	37%	116,548	84%	25,836
Amudat	15%	57,581	10%	14,682
Kaabong	36%	70,829	33%	20,177
Kotido	27%	35,712	34%	17,333
Moroto	43%	204,330	55%	60,870
Nakapiripirit	35%	82,947	34%	17,681
Napak	39%	71,254	52%	20,729
KARAMOJA	34%	101,861	48%	30,727

As illustrated in Figure 32, the main source of credit for all debts and loans was from relatives (37%), followed by Bank/credit institution/Micro-credit project (27%) and Traders/shop-keeper (18%). Specific to relatives cited as the commonest source of credit for household debt, the districts of Kaabong (61%) and Kotido (54%) and Amudat 40% had higher than the regional average from this source. Abim (68%) and Napak 32% had the highest proportion of household that accessed their credit from the bank and related institutions.

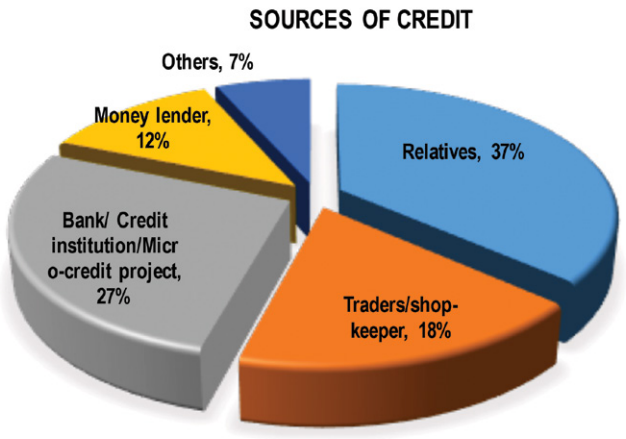

Figure 32: Main Sources of Credit for Households, June 2017

Main Reasons for Debt

As illustrated in Figure 33, at the sub-regional level most of the debt in households (56%) was borrowed for purposes of buying food, 19% was to cover health expenses, 9% for the school and educational costs; and 7% for buying agricultural inputs. Kaabong district registered the highest percentage of households that borrowed to buy food (67%), with Kotido (64%) and Moroto (59%) above the regional average whilst Abim and Amudat had the lowest (47% each).

This could reflect the stress associated with acquisition of food for household consumption. Borrowing to cover health expenses was comparatively higher in Napak (26%), Abim (25%), Kotido (24%) and Nakapiripirit (21%) but lowest in Kaabong district (8%). It is noteworthy that 26% of the household debts in Amudat district related to school and education costs but only 2% was for agricultural inputs. The districts of Moroto (11%) and Kaabong (10%), had the highest proportion of household debts due to agricultural inputs while Kotido had none at all. Debts for business investment was higher in Abim, Napak and Kotido districts.

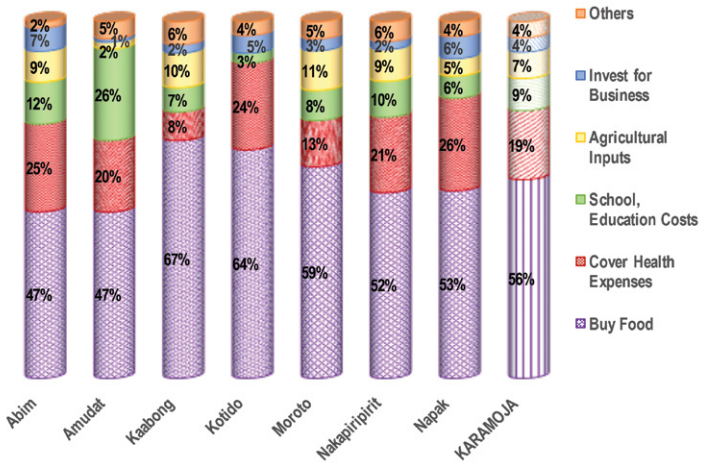

Figure 33: Main Reasons for Household Debt, June 2017

Household Food Expenditure Profiles

The main food purchased included Cereals (91%), Sugar/salt (86%), Oil, fat, butter (75%) and Pulses (69%). These foods were mainly purchased in the districts of Moroto (89%), Kotido (88%), and Nakapiripirit (81%), which was found to be in line with the findings under Household Income earners. The findings showed that the more income in households, the higher the possibility of purchasing food (higher expenditures on food).

Table 16: Food Expenditure Profiles by District, June 2017

Food Category	Karamoja	Highest	Average Monthly Expenditure (UGX)					Lowest
Cereals	34,211	Kaabong (45,603)	Amudat	Abim	Nakap-iripirit	Moroto	Napak	Kotido (20,625)
Tubers	10,581	Abim (15,366)	Moroto	Napak	Kaabong	Amudat	Kotido	Nakapiripirit (6,598)
Pulses	17,007	Abim (33,682)	Amudat	Moroto	Kaabong	Nakapiripirit	Kotido	Napak (9,370)
Fruits and Vegetables	6,079	Amudat (9,197)	Kaabong	Moroto	Abim	Nakapiripirit	Napak	Kotido (3,400)
Fish/Meat/Egg/ Poultry	9,415	Amudat (14,871)	Kaabong	Moroto	Abim	Nakapiripirit	Kotido	Napak (4,440)
Oil/fat/butter	7,439	Amudat (11622)	Abim	Kaabong	Moroto	Nakapiripirit	Kotido	Napak (3,617)
Milk and Milk Products	8,297	Abim (17,720)	Kotido	Amudat	Kaabong	Moroto	Nakapiripit	Napak (2,817)
All Food	107,179	Abim (149,661)	Amudat	Kaabong	Moroto	Nakapiripirit	Kotido	Napak (60,890)

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Table 17 shows that the districts of Abim and Amudat had relatively higher absolute expenditure on food while Kotido and Napak had lower monthly food expenditure. Further analysis showed that whereas more households in Abim had significantly higher expenditure on milk and milk products, pulses, and tubers; those in Amudat spent more on fruits and vegetables, and oil/fat/butter, whilst Kaabong had higher expenditures on cereals. On the other hand, access to food appeared to be a challenge in the districts of Kotido and Napak, due to the low expenditures on the different food categories, an observation similar to the findings in June 2016.

Dependence on Markets for Food

Table 18 shows dependence on the market by district, with 65% of households relying heavily on markets compared to 40% reported in June 2016.

Table 17: Dependence on Market by Households, by District

	Dependence on Market						Total
	Low (<50%)		Moderate (50 - 75%)		High (>75%)		
	n	%	n	%	n	%	N
Abim	52	7%	176	23%	545	71%	773
Amudat	18	3%	158	23%	520	75%	696
Kaabong	88	13%	240	34%	372	53%	700
Kotido	35	5%	162	24%	468	70%	665
Moroto	23	3%	96	12%	658	85%	777
Nakapiripirit	47	6%	270	35%	448	59%	765
Napak	147	20%	302	41%	283	39%	732
Total	**410**	**8%**	**1,404**	**28%**	**3,294**	**65%**	**5,108**

High dependence on market was mostly in the districts of Moroto (85%) and Amudat (75%) but lowest in Napak at 39%. High dependence on market was not influenced by household head gender as both male- and female- headed households had almost the same percentages of 64% and 65% respectively. Not surprisingly, households with Able-bodied head depended more highly on the market than those with disabled and chronically ill head at 65% compared to 59% and 58%, respectively. The findings imply high vulnerability to food insecurity due to exposure to food price fluctuations that are typically high during the lean season, given the limited incomes and earning potential among the households.

Food Expenditure Share

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.

As illustrated in Figure 34, about 38% of households in the sub-region were in the categories of moderately food insecure and severely food insecure. Analysis showed that Napak, Kotido and Nakapiripirit districts had the highest percentage of households with Food Expenditure Share >65% (i.e. Moderately & Severely Food Insecure). The finding of households spending proportionately more on food than the other essential non-food items indicated higher likelihood of food access challenges at the time of assessment.

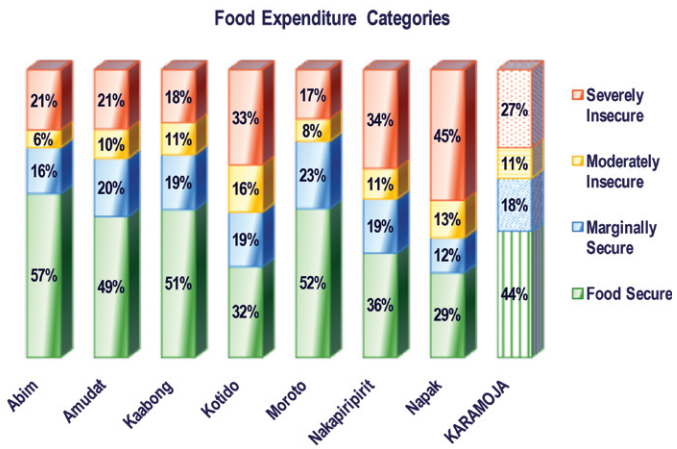

Figure 34: Main Food Expenditure Categories June 2017

3.5.3: Food Utilization

Food Consumption

More than half (55%) of households in the sub-region had acceptable Food Consumption Score (FCS), 32% borderline and 14% poor (Figure 35). The districts of Amudat (76%), Kaabong (62%) and Nakapiripirit (69%) had the highest proportion of households with acceptable food consumption score. Napak (26%), Kotido (21%) and Moroto district (17%) had the highest proportion of households with poor food consumption scores above the sub-regional average. The findings indicated an improvement from that reported in June 2016 where only 47% of household had acceptable FCS.

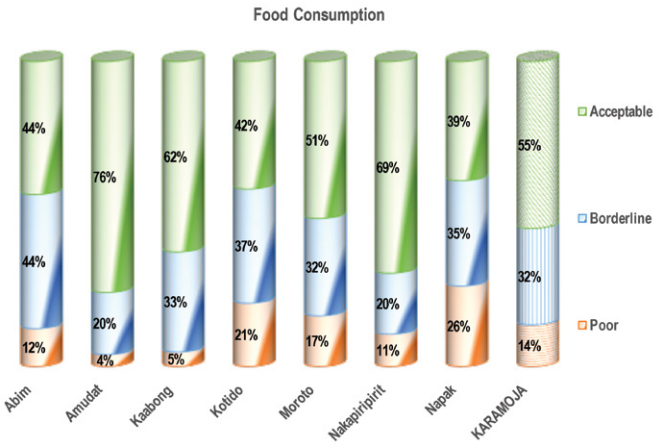

Figure 35: Food Consumption Score by District, June 2017

Findings from the Quantitative Survey

Dietary Diversity

Figure 36 shows that only 10% of all households in the sub-region were within the category of High Dietary Diversity Score (HDDS) above 6, while 49% was under the Medium category of above 4.5 but below 6 HDDS; and 40% were in the Low category of less than HDDS of 4.5. Households from Moroto had the highest level of dietary diversity (16%), followed by Kotido (13%). Amudat (57%), Napak (54%) and Kotido district (44%) had higher than the sub-region's average proportion of households with low HDDS of below 4.5. The proportion of households found to have low diet diversity score dropped from 46% in 2016 to 40% in 2017.

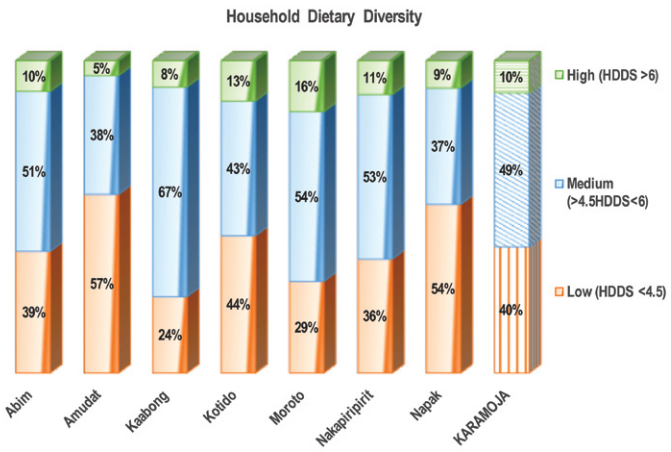

Figure 36: Household Dietary Diversity by District, June 2017

3.5.4: Stability

Main Shocks to Households Food Security

As illustrated in Figure 37, the main shocks to household food security in Karamoja sub-region included High Food Prices (29%), Floods, Heavy Rains, drought (26%) and Sickness/Disease (25%). High food prices was mainly reported in Abim (43%), Amudat (35%) and Nakapiripirit (32%) while Floods, Heavy Rains, drought was in Kotido (51%) and Napak (35%) and Sickness/Disease in Nakapiripirit (41%) and Amudat (28%). The proportion of households falling under the high food prices reduced from 36% in 2016 to 29% in 2017.

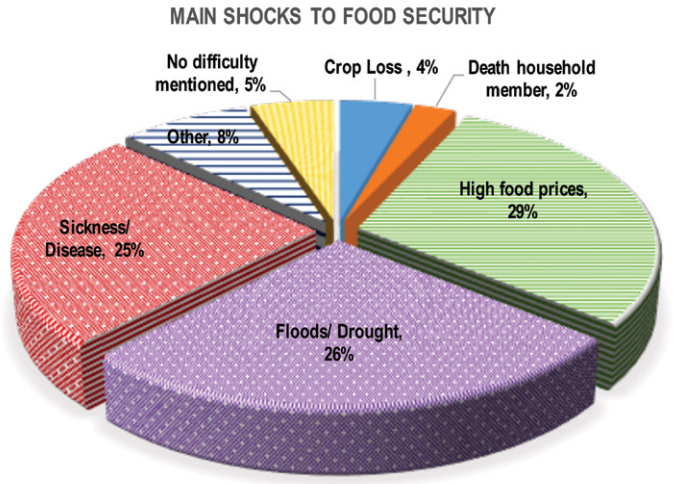

Figure 37: Main Household Shocks to Food Security, June 2017

Food Consumption Coping Strategies

Figure 38 shows 16% of the households had high food consumption coping strategy particularly more marked in Nakapiripirit (35%), Kotido (24%) and Moroto (20%). The percentage recorded higher than that of the June 2016 assessment (23%). The lowest level of household Food Consumption Coping computed was observed in Abim (91%) and Amudat (85%) districts. The findings suggest stress in food acquisition especially in Nakapiripirit, Kotido, Moroto and Kaabong districts.

Table 19 shows the most commonly applied food consumption coping strategies were: consumption of less preferred food (81%), reduction of number of meals (78%) and reduction of portion sizes (73%). Specific to consumption of less preferred food as the main applied coping strategy, was reported in the districts of Kaabong (95%) and Kotido (90%) and lowest in Moroto (75%).

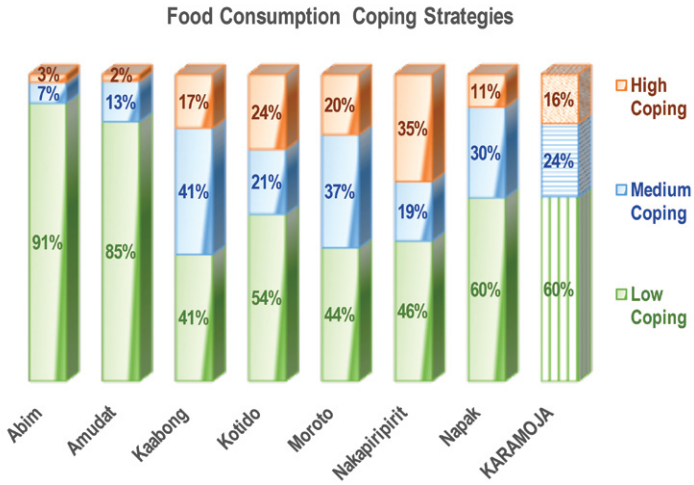

Figure 38: Household Food Consumption Coping Strategies, June 2017

Table 18: Applied Household Food Consumption Coping Strategies

Food Consumption Strategy	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit	Napak	KARAMOJA
Consumed less preferred food	81%	75%	95%	90%	75%	78%	77%	81%
Borrowed food	52%	55%	88%	59%	66%	60%	42%	60%
Reduced number of meals	65%	61%	92%	94%	81%	81%	73%	78%
Reduced portion sizes	52%	58%	89%	92%	76%	76%	73%	73%
Reduced adult quantities	32%	47%	82%	81%	75%	70%	69%	65%
Total	**56%**	**59%**	**89%**	**83%**	**75%**	**73%**	**67%**	**72%**

Findings from the Quantitative Survey

Livelihood Coping Strategies

Approximately one-fifth only (21%) of households did not apply any coping strategies (Figure 39). The districts that recorded higher proportions of households with no coping strategy included Napak (34%) and Amudat (29%). Kaabong district had the lowest proportion of households without coping strategies (only 3%).

Overall, almost half of all households in the sub-region were applying emergency coping strategies. This was most marked in Kaabong (80%), Nakapiripirit (55%) and Moroto (50%). Nevertheless, the June 2016 assessment reported 39% of the households were under emergency coping strategy and the districts affected included Kotido, Abim and Kaabong suggesting chronic food insecurity, continued asset depletion and/or loss of dignity among the households and their members.

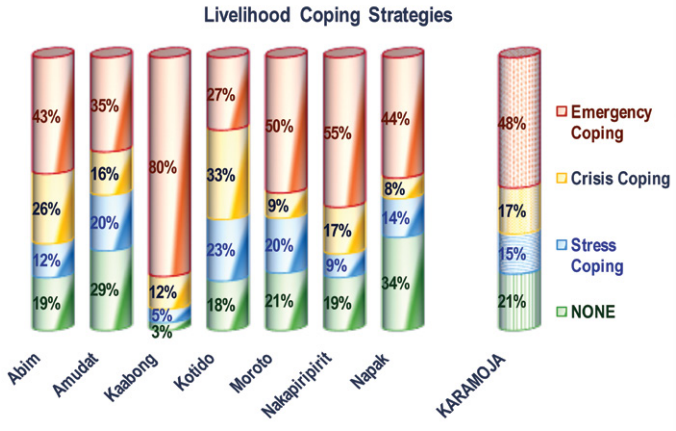

Figure 39: Household Consumption Coping Strategies, June 2017

3.5.4: Final Classification of Food Security

The Food Security Index that combines the Food Expenditure, Food Consumption Score and Livelihood coping strategies showed that only 54% of households were food secure (Food secure + marginally food secure) whilst **46%** were food insecure (Figure 40). The districts that reported highest levels of food insecure households included: Napak (62%), Kotido and Abim (53%).

Findings also showed that the households whose head was either chronically ill (75%) or disabled (62%) were more prone to food insecurity that those with able-bodied household heads (57%). On the other hand, households with female heads were more food insecure than those with male heads.

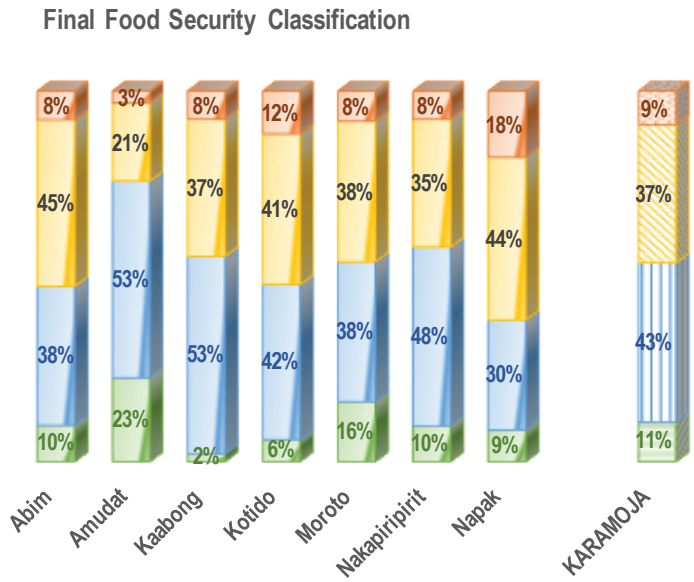

Figure 40: Household Food Security Status, June 2017

3.6: Mortality

3.6.1: Mortality rates

Table 19: Crude and Under-5 Mortality Rate for Karamoja, June 2017

	CMR	CI	Under 5 MR	CI
Karamoja	0.86	-0.96 - 2.68	0.99	-0.96- 2.94
Abim	0.69	-0.94 - 2.32	0.84	-0.96 - 2.63
Amudat	0.20	-0.67- 1.07	0.43	-0.86 - 1.72
Kaabong	1.24	-0.94 - 3.48	1.52	-0.90 - 3.94
Kotido	0.87	-0.96 - 2.69	1.31	-0.93 - 3.55
Moroto	0.87	-0.96 - 2.70	0.60	-0.92 - 2.13
Nakapiripirit	1.38	-0.92- 3.64	1.63	-0.87- 4.14
Napak	0.63	-0.93 - 2.19	0.65	-0.93 - 2.23

The analysis of mortality rates was based on 30,158 individuals included in the survey for who all information was recorded. This included 7,574 children aged 0- 59 months, 525 of whom were born during the recall period. The recall period was 6 months (180 days) from 30th December 2017). A total of 393 deaths were recorded during this time, including 109 children under five and 284 people over five years of age.

The point prevalence estimate for the crude mortality rate (CMR) across the Karamoja sub-region as a whole was **0.86** deaths per 10 000 per day [95% CI: -0.96 – 2.68]. The under-5 mortality rate (U5MR) was **0.99** deaths per 10 000 per day [95% CI: -0.96 – 2.94]. Both of these were below the emergency thresholds of 1 and 2 respectively. The districts of Nakapiripirit and Kaabong however recorded CMR above the threshold of 1. The details are as shown in Table 20.

3.6.2: Causes of Death

a) Crude Mortality

The leading causes of death for the whole population were "Malaria (fever of 2-3days standing)" (58%), Lower respiratory tract infection (11%) and "unknown" (12%). Malaria was mainly reported in the districts of Abim (71%), Kotido (79%) and Napak (60%) while LRTI was reported in Abim (14%), Amudat (25%) and Napak (20%).

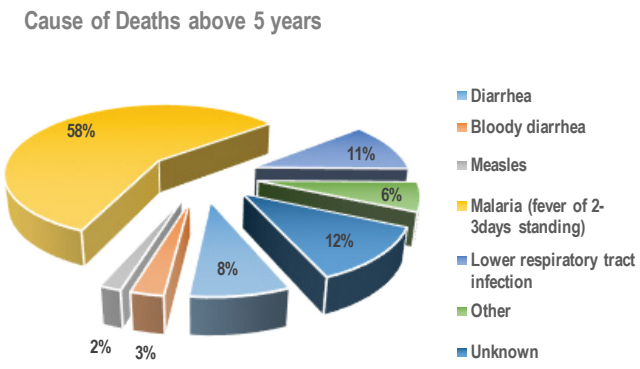

Figure 41: Causes of Deaths above 5 Years, June 2017

b) Under 5 Mortality

In the under-5s, the leading causes of death were "Malaria (fever of 2-3days standing)" (23%), Unknown (20%) and Others (20%). Malaria as the main cause of death was reportedly high in all the districts except Kaabong 10% and Napak (17%). Other causes of deaths among under-fives included "bitten by the dog", "hunger", "killed by unknown killers", "premature birth", "snake bite", "spinal cord infections" and "Tuberculosis" which were all equally distributed among the 7 districts.

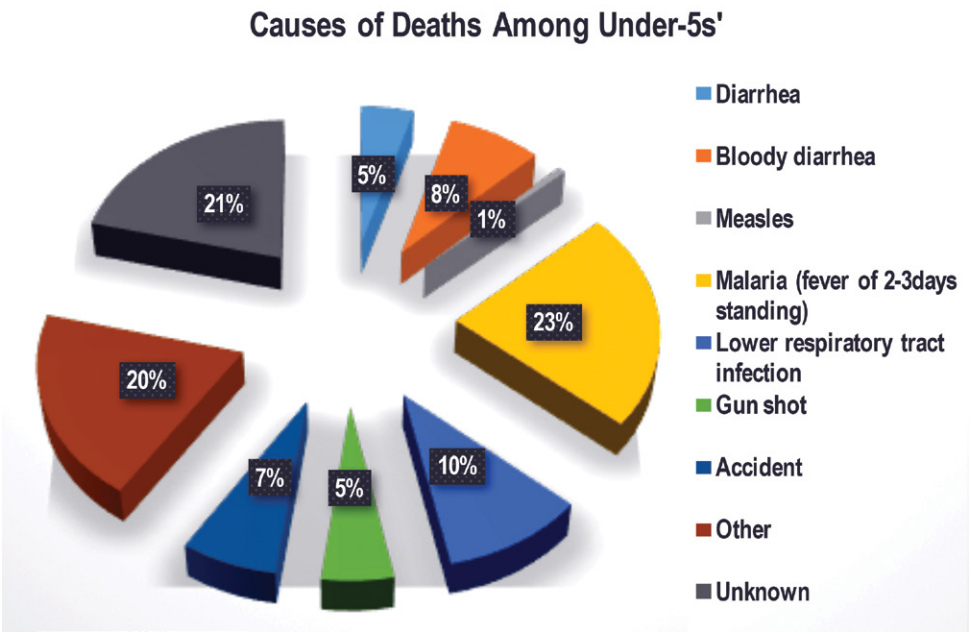

Figure 42: Causes of Deaths among Under-five Children

Findings from Qualitative Assessment in Amudat District

4.1: Common Infant Feeding Practices

The findings are from the Focus Group Discussions (FGD) involving mothers, fathers and community leaders.

4.1.1: Early Initiation of Breastfeeding and Pre-lacteal Feeds

Most women in Amudat, Looro and Karita sub-counties reported delayed initiation of breastfeeding, which was partly due to the fact that they gave pre-lacteal feeds immediately after delivery. The pre-lacteals given to new-borns included a solution of Aloevera roots mixed with water that is given to babies until after the mother's breasts started to produce milk. Other women reported giving their newly born baby a solution of red soil from the bottom of kitchen cooking stove with water. One participant stated this:

> *"We dig down under the kitchen stove and remove red soil and mix with water and give the baby to drink until the mother starts to produce milk in her breasts. This concoction is called 'chepotantu'…"* (Mother, mothers FGD Looro Sub-county)

According to the above statements, the practice of giving pre-lacteals to newborn babies is deeply entrenched in people's value system, and this was corroborated with the findings from the fathers FGD. One of the participants in the Fathers FGD said:

> *"We dig the finest soil below the stove, mix with water and give immediately after birth …"* (Father, fathers' FGD Amudat Sub-county)

There were also mothers in Amudat who reportedly delayed initiation of breast feeding of the newly born baby for at least 2 hours, because a sheep had to first be slaughtered for the mother to eat. In addition, there was a belief that early breastfeeding would delay coming out of the placenta. Nevertheless, this observation contradicted what the key informants in Looro and Amudat indicated. The key informants indicated that mothers who delivered normally without any complications would breastfeed their newly born babies immediately after birth or after 30 minutes as recommended by health workers. It was also observed that majority of men were not knowledgeable about what happened to the baby immediately after birth since they were

not usually present during delivery. This was confirmed by one of the participants in Karita Sub-county who said:

> *"We do not know what happens to the newly born babies because we are never present during delivery of the baby…"* (Father, fathers' FGD Karita Sub-county)

There is a belief that the baby cannot be put on the breast before evidence that the milk had started to flow. Examples were cited of a few children breastfed immediately after birth, by the co-wife/ step mother until breast milk from the baby's mother started to flow. This was mentioned by one of the participants who said:

> *"We give the co-wife to breast feed before mother's milk flows, because the baby cannot be put on breast without any milk flowing …"* (Mother, mothers FGD Karita Sub-county).

There was also the practice of giving cows' or goats' milk to babies in situations where mothers were perceived not to have enough breast milk. This was confirmed by the key informant in Looro, who said:

> *"Mothers may not have milk to breastfeed and hence milk from cows is given or introduced to the baby immediately …"* (Community leader, Kongorok Village, Looro Sub-county)

The study further explored mothers' knowledge on the importance of feeding colostrum to the newborn babies. The findings showed that majority of mothers in Looro, Karita and Amudat were aware of the importance of colostrum. Those who knew said it protected the baby from diseases like pneumonia, made the baby healthy, helped the mother release placenta, stopped bleeding and enabled baby's growth, opened the baby's lungs, and provided the baby with energy. The knowledge about colostrum could be attributed to health education sessions during antenatal care. However, despite being knowledgeable on the importance of colostrum, their babies were not fed on colostrum. Participants were further interrogated on the recommended duration before initiation of breastfeeding after birth of the child. Most mothers in Looro stated that babies should be breastfed within less than an hour, the mothers in Amudat Town Council stated within 30 minutes after birth, while mothers of malnourished children stated that the baby should be breastfed immediately. Nevertheless, the knowledge did not influence practice since most mothers did not actually initiate breastfeeding within one hour after birth.

4.1.2: Breastfeeding and Complementary Feeding Practices

Introduction of Soft, Semi-solid and Solid Foods

UNICEF and WHO (2010), recommend children to be exclusively breastfed during the first 6 months of life, then given solid or semi-solid complementary food in addition to continued breastfeeding from age 6 months until 24 months or more. The study explored mothers' knowledge

and practice on exclusive breastfeeding and introduction of solid foods. In general mothers and fathers stated that babies should be exclusively breastfed for 6 months, thereafter solid foods were introduced. This was knowledge confirmed by one of the key informants in Amudat who said:

> ***"After the first six months, a child is fed on cow's milk mixed with herbs …"*** (Community Leader, Amudat Sub-county).

Nevertheless, some key informants gave contradicting information that indicated the practice of late introduction of solid foods:

> ***"At seven months of age, a child is given porridge mixed with milk …"*** (Key informant, Karita Sub-county)

Early introduction of solid foods before six months was also confirmed by few participants who stated that a child should be breastfed exclusively for 5 months. This was corroborated by the key informant who said;

> ***"At the age of 5 months we introduce solid foods and milk and tea …"*** (Community Leader, Kongorok village, Looro Sub-county)

One participant also mentioned that a child is fed on solids immediately after delivery in the event that the mother died during delivery. One of the mothers indicated that she didn't know when to introduce solid foods and she had never heard about it.

Majority of the mothers of malnourished children mentioned having obtained information from the health education sessions and one mentioned having heard from the radio that solid food should be introduced when baby was 6 months old. This finding suggested that the health facilities and radios were important channels for disseminating appropriate nutrition information to mothers in the study community.

Types of Complementary Foods

Overall, most babies were fed on cow's milk, cow's milk mixed with porridge, tea, posho (maize meal), beans and meat as revealed from the FGDs involving both fathers and mothers. Only a few malnourished children were reportedly fed on fermented sorghum and soy meal provided by United Nations agencies operating in the area. Other foods cited for feeding children included pumpkin, eggs and green vegetables in Karita and Amudat sub-counties; irish potatoes, silver fish (***omena***) and tea mixed with herbs in Looro Sub-county. The described normal diet for children included both plant and animal protein and carbohydrates, vegetables, but was devoid of fruits.

Examples of foods not given to children included: alcohol, alcohol residue, dry meat, whole milk, wild vegetables (***silangwa***) and wild fruits (***makuw, akadelewa, oron,taran, angalalelo***). They intimated that these foods caused diarrhoea, the white ants made people sick and caused diarrhoea, while mushrooms were poisonous. Boiled maize was toohard to chew, mutton/ sheep meat was considered not appropriate because it made babies over sleep and hence failed to breast feed.

Findings from Qualitative Assessment in Amudat District

Cessation of Breastfeeding

Majority of mothers stated that they stopped breastfeeding when children clocked one and half years or when the child refused breastfeeding. They also usually stopped the baby from breasting when they got pregnant. The approaches used to stop babies from breastfeeding included:

- Putting Aloevera on breast, which was mentioned by participants from Amudat sub-county;
- Going to visit other relatives and friends so that the mother was separated from the child;
- Applying red pepper (chilli) or cow dung on breasts, which was mainly mentioned by participants from Karita sub-county;
- Mother slept alone and away from the baby;
- Baby was given to other people to feed on solid foods.

Frequency of Feeding Children

Majority of mothers stated they fed children 3 times a day (in Kalita and Looro sub-counties) or 4 times (Amudat sub-county) while others stated that the child was fed whenever it cried. One mother stated she sometimes spent the whole day without feeding her children. Only one mother from Karita sub-county stated that she fed her child 8 times in a day, which is the recommended frequency. In relation to milk consumption, children were reportedly fed 4 times a day on 4 cups of milk in Amudat sub-county, while those in Looro sub-county were fed on 2 cups four times a day. Majority of mothers reported boiling the milk while a few others first stored to make it sour.

4.2: Community's Perceptions and Knowledge on Nutrition

4.2.1: Perceptions about Malnutrition and Under-nutrition

Malnutrition was referred to as ***Chongulio,*** which meant 'very thin', ***Kikaran*** meant 'very light body', while ***Loorodo*** meant 'no flesh on the body' in the local dialects. In general, there were differences in the individual perceptions of malnutrition during the various focus group discussions and key informant interviews. Majority of the participants perceived under-nutrition in relation to eating poorly or only one type food, being thin and sickly as well as irresponsibility of parents such as those who abused alcohol. This has been summarised in the Textbox.

However, mothers of malnourished children in Looro and Kalita sub-counteis had a better insight/ knowledge about under-nutrition. They stated that under-nutrition was when the child lacked a balanced diet, was thin, had retarded growth and distended stomach. This level of knowledge may be attributed to the health education they had accessed at the health centre.

Perceptions of Malnutrition or Under-nutrition

- Child who lacks food
- Child who hasn't breastfed enough
- Child who falls sick all the time
- Child is not eating well
- Child born sickly
- Lack of enough food
- Child whose mother sleeps with many partners and drinks alcohol
- Baby is ever sick
- Thin baby or premature baby
- No balanced diet
- Loss of body weight
- Retarded growth
- Distended abdomen

4.2.2: Perceptions on Care Seeking Practices

The Focus Group Discussions involving mothers of malnourished children in Amudat and Looro sub-counties as well as for the fathers in Looro sub-county revealed that participants were aware of the importance of referral to hospital for the child with malnutrition and being fed on nutritious foods. This was confirmed by the Key Informants in the following statements:

> ***"A sick child should be taken to hospital for medication …"*** (Community Leader, Amudat Sub-county)

> *"Always take a sick child to hospital for treatment ..."* (Community Leader, Kongorok Village, Looro Sub-county)

Some mothers from Looro sub-county stated that they would take a sick child to members of the Village Health Team (VHT) for screening and would give the baby food all the time. Nevertheless, according to the majority of mothers in Amudat and Kalita sub-counties and the fathers in Amudat sub-county, a malnourished child should be given local herbs such as ***mantar, chepkalamot, ketpooro*** or taken to the traditional healer. This was confirmed by key informant in Karita Sub-county who indicated herbs as the first option and hospital only when the child did not improve:

> *"The sick child should be treated by giving herbs and if the child does not recover then take it to hospital"* (Key informant, Karita Sub-county)

A few members stated that such a child should be taken to elderly women who could prescribe medicine and provide advice on the appropriate remedy. On the other hand, participants from Kalita seemed more informed on appropriate feeding of a malnourished child compared to those from Amudat sub-county. The responses included the child being fed frequently on nutritious foods such as eggs and soup as well as importance of alternating types of food given to the child, being kept always be warm and ensuring the food was from healthy sources.

4.2.3: Perceptions on Prevention of Malnutrition

Majority of the fathers and mothers in the FGDs mentioned bathing and cleaning the child, and the mother as the appropriate interventions to prevent malnutrition. Other considerations put forward included: taking the baby for check-up at hospital, sleeping under mosquito net, being close to the baby, feeding the child, cleaning baby's utensils, cutting nails of the baby, washing hands before and after a meal, massaging the baby's stomach to move worms, and cleaning the breast before feeding the baby.

A few men indicated that a child should be given fruits while some women especially from Amudat sub-county stated cleaning the household compound as an important measure to prevent under-nutrition. Other participants perceived going for antenatal care and sleeping under mosquito net as interventions to prevent malnutrition. Breastfeeding was only mentioned by a few women who had children that were malnourished.

4.3: Community's Perceptions on Causes and Consequences of Malnutrition

4.3.1: Perception on Causes of Malnutrition

According to the key informants, lack of food was the main cause of under-nutrition. However, it could also be caused by prolonged period of serving food to the child and laziness of the child's mother especially when they took long to feed, as reflected in the following statements:

> *"Lack of nutritive food …"* (Community Leader, Kongorok village, Looro Sub-county)

> *"People do not have anything to eat in the house …"* (Community Leader Awalinga village, Amudat Sub-county)

> *"Under-nutrition occurs due to laziness of the mother in the house …"* (Community Leader, Awalinga village, Amudat Sub-county)

> *"Laziness of mother can cause under-nutrition …"* (Key informant Karita Sub-county)

Other participants in the FGDs stated the lack of good feeding, lack of available foods, lack of good nutritive foods or eating only one type of food. Also stated was among the causes was poor hygiene and sanitation as well as poor food preparation methods. Poor health and care-seeking practices also emerged among the causes of malnutrition as reflected in the following statements:

> *"When a mother gives a child food that is not ready or well prepared …"* (Community Leader Awalinga Village, Amudat Sub county)

> *"At times the child is sick and is not taken to hospital …"* (Community Leader, Awalinga village, Amudat Sub-county)

4.3.2: Perceptions on Consequences of Malnutrition

In general, almost all participants in the 4 selected sub-counties considered death as the main consequence of malnutrition, a fact that was also confirmed by the key informants interviewed in all the sub-counties. Participants from Amudat sub-county also stated anaemia and stress, as well as reduced cognitive ability as consequences of malnutrition while those from Kalita sub-county mentioned skin rashes and retarded growth. Among the other consequences stated were: change in hair colour, stress diarrhoea and reduced immunity, which could be reflected in the following statement a key informant:

> *"Continuous illness of a child is a consequence of undernutrition"* (Key informant, Kalita Sub-county)

Among consequences to the family identified by participants were: stress to family members, domestic violence, accusation of women as being responsible for the symptoms of malnutrition and abdicating of responsibilities by the men. The participants also highlighted the possibility of the family being stigmatised by the local community because of having a malnourished child as well as feeling

degraded. This can be summed up in the following statement from a key informant:

> *"Shame and divorce among married family members can result ..."* (Community leader, Awalinga village, Amudat Sub-county)

The FGD participants and key informants from Amudat Sub-county also mentioned the increased household expenditure for treating the malnourished children. This could translate into decline in household saving and the sale of household assets such as animals.

4.3.3: Perceptions on Care of Positive Deviant Children

Participants were requested to state what they considered to be good practices by mothers to raise normal children in relation to basic parameters namely: personal hygiene, safe water and sanitation; health promotion and prevention of diseases; good care-seeking practices and maternal nutrition. The responses on each parameter has been summarised and presented:

Personal hygiene

- Mother and child should have regular bath;
- Mother and child should wear clean clothes and comb their hair;
- Washing of hands before and after eating;
- Washing hands after using a toilet and before meals.

Safe water

- Drinking of water from the bore-hole;
- Boiling of drinking water;
- Storage of water in clean containers

Sanitation

- Using pit latrines;
- Burying stool/faeces in the ground (mentioned by participants in Kalita);
- Washing hands before and after toilet use;
- Cleaning the compound of homesteads;
- Having clean toilets.

Health promotion and prevention of diseases

- Children sleeping under a mosquito net;
- Immunisation of children (Mentioned mainly by participants in Looro);
- Attending antenatal care during pregnancy.

Good care seeking practices

- Taking children to health centres or hospital when sick or ill;
- Feeding children on a balanced diet;
- Giving herbs to children that are ill or sick (mentioned mainly by mothers).

Maternal nutrition

- Responses from the men seemed to reflect a better understating of maternal nutrition compared to those of mothers. The men stated need for a well-balanced diet to improve health, though a some stated that it was important for the mother to take herbs during pregnancy. The female participants in Karita Sub-county mentioned cooking food, covering left-over foods and washing plates among the important interventions for maternal nutrition.

Overall, participants were knowledgeable about the good practices for mothers to raise normal children in relation to personal hygiene, safe water and sanitation; health promotion and prevention of diseases. However, there was a knowledge gap with regard to maternal nutrition, albeit the relatively higher level of knowledge among men. The finding was unexpected, given the fact that women have more opportunity to receive health education. It could reflect the bias of health education interventions towards child health, and limited focus on maternal nutrition.

4.3.4: On-going Activities for Improved Child Care and Feeding Practices

The study explored from participants some of the existing promotional activities being implemented at community level for improved child care and feeding practices. The following were mentioned, which could either reflect the limited number of interventions or limited knowledge on the existing ones:

1. Mothers delivering from hospitals;
2. Mothers visiting health facilities regularly;
3. Breastfeeding exclusively for 6 months; and
4. Sleeping under mosquito net

4.4: Food Situation in the Study Areas

4.4.1: Sources and Means of Accessing Food

Focus group discussions revealed that most households from the selected communities gathered wild fruits such as ***Makany***, tamarind and vegetables including ***sokoria***. They also grew crops and hired out labour to obtain food. One of the FGD participants in Looro and Amudat TC confirmed this by stating:

> ***"I cultivate land for others to get money to buy maize flour ..."*** (Father, fathers FGD Looro, Sub-county)

> ***"We plant beans and maize to get food ..."*** (Mother, mothers FGD Amudat TC)

It was also found that most households sold charcoal, collected firewood and poles that they sold to acquire money to buy food. They also sold livestock such as goats and cows as well as honey to get money for buying food. This was indicated by one of the mothers in the FGD:

> ***"We sell firewood, charcoal and cut trees into poles for sale ..."*** (Mother, mothers' FGD, Amudat)

The focus group discussions revealed that some households in Looro were earning income from gold and marble mining especially among men. Other sources of income mentioned included selling milk, soft drinks, beers and aloevera in order to buy maize flour. One of the FGD participants confirmed this by stating:

> *"We sell milk to get money for buying food such as posho from soldiers …"* (Father, fathers' FGD Karita Sub-county).

It was evident that most households get their food through buying from the markets as indicated by one of the participants

> *"We sell Aloevera to buy food from the market …"* (Mother, mother's FGD Amudat)

4.4.2: Lean Period (Periods of Food Scarcity)

The months of January, May, June, July and September 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. The focus group discussions revealed that most of the livestock were emaciated due to lack of forage and water, whilst most households did not have disposable income and thus lacked food for sustenance. Both FGDs by mothers and fathers mentioned January and September as the months when severe food shortage was experienced. They indicated that during the 2 months no rain was received and therefore no cultivation could take place. This was confirmed by the following statements from participants in the FGD:

> *"The period of May to June is very difficult to obtain food because it very dry …"* (Father, fathers FGD, Amudat)

> *"January to September was very difficult because of drought, no rain for cultivation, no food, stocks getting depleted …"* (Mother, mothers' FGD Amudat)

Table 20: Season of Food Scarcity by Sub-county

Sub-county	Months of Food Scarcity
Looro	June, July
Amudat	April to June, January to September
Amudat TC	June to March
Karita	March to April

Nevertheless, there were different opinions from the selected sub-counties on when food scarcity occurred, as indicated in Table 21. The finding therefore suggested that the sub-counties may be experiencing varied onset of the rainy season despite being in the same geographical area.

4.4.3: Coping Strategies During Food Scarcity

It was revealed that most households fed on wild fruits and vegetables during the seasons of food scarcity. The examples of wild fruits cited included ***akatet, tigas,oron, kinyat, odukumo, akadelwali, kinyat, aurwing, oron loma, ngabol*** and the wild vegetables such as ***sokorio.*** This was reflected in the statements at the FGDs mothers and fathers:

> *"We gather wild fruits such as akatet, oron and ikinyat…"* (Mother, mothers FGD, Karita Sub-county)

> *"We eat wild fruits like loma which are bitter round and kinyat which are sweet round small fruits which turn bitter after a few seconds …"* (Father, fathers FGD Amudat)

The communities in the study area also fed on blood of the livestock that they kept, which was mainly mentioned by the participants from Karita sub-county. They also fed on edible mushrooms, roots and tubers of certain trees as well as shrubs such as ***tapondo***. The participants from Karita sub-county also mentioned that under tough conditions, they requested individuals brewing local beer to give them the dregs (spent grain/ residues). The residues would be dried, crushed and used to make bread similar to maize meal commonly known as ***posho/ ugali*** in Uganda. Other ways of coping during the periods of food scarcity mentioned included borrowing money from friends and relatives to buy food. This was reported to be more common in FGDs of the women as reflected in the following statement:

> *"We borrow money from friend and relatives …"* (Mother, mothers' FGD Karita Sub-county)

In Looro sub-county, some people survived by consuming white ants while in Karita they consumed milk. A few of the others reportedly relied on soy porridge provided by the United Nations World Food Programme. There were also households especially in Looro sub-county that sold their chicken in order to get money to buy food.

4.4.4: Perceptions on Foods not Recommended for Consumption During Lean Period

Most participants mentioned wild mushrooms among foods not suitable because most were poisonous. Some of the participants at the FGDs revealed that the communities had a negative perception on pork to the extent that they thought it had a pungent smell and could cause vomiting, skin rash and a running stomach (diarrhoea). A few indicated they were evangelical Christians and therefore not expected to eat pork.

The women FGD participants did not find baboons suitable for consumption because of having features similar to human beings, as reflected in the following statement:

> *"Baboons look like humans and have breasts… We cannot eat them"* (Mother, mothers' FGD Looro Sub-county)

Fish was regarded to be expensive and not easily accessible while donkey meat was considered to have a bad flavour. Some women from Looro sub-county declared mutton had a bad smell and could easily cause nausea. They also argued that it could make mothers ill, as mentioned by one of the participants in the following statement:

> *"Sheep makes a mother sick and the smell can make me vomit …"* (Mother, mothers FGD Karita, Sub-county)

They also mentioned meat of ducks and Turkey could make mothers sick and cause diarrhoea. Monkeys were a taboo for expecting mothers while snakes could

not be eaten because they were regarded as poisonous by their ancestors:

> ***"I do not eat snake because our ancestors said they are poisonous ..."*** (Father, fathers' FGD Amudat Sub-county)

Chicken and rabbits were scarce during the lean periods and not available in adequate quantities for household members.

4.4.5: Decision-making on the Child Feeding

Majority of participants mentioned that mothers determined what food the child ate because they were the primary caregivers, which was stated by FGDs of both men and women. The men specifically stated that mothers knew what to feed their children, while men had the role of providing for them, as confirmed by one of the FGD participants:

> ***"I am the one who decides because the father is not involved in preparing or looking for food ..."*** (Mother, mothers' FGD) Looro Sub-county)

Some men indicated that since mothers were the ones who prepared food, they were in a better position to decide what the child ate:

> ***"Women know better since we (men) are not involved in preparing the food ..."*** (Father, fathers FGD, Karita Sub-county)

On the other hand, majority of participants mentioned that the mother or elder sister was responsible for the decision regarding taking of milk. The men were more concerned with ensuring cows that could be milked were available for the household. Some participants did indicate that some children do ask for the milk themselves.

4.4.6: Livestock Products Consumed and Preparation Methods

Milk: Majority boiled and drank, while others mixed it in blood, or churned it to become sour by putting it in gourd for 4-5 days.

Beef: Most households dried the beef, while others boiled and fried, or smoked it on fire and boiled especially in Lokoma.

Goat milk: They made butter and ghee from goat milk, while some churned the milk for 3 days to separate the fat from curd.

Blood: They would leave the blood to clot or mix and stir it in milk, but some boiled clotted blood, while others especially in Looro sub-county would drink the blood directly from the cow.

Cow's curd: They got cows curd from the mouth of the cow and squeezed to get a liquid which was consumed directly as medicine known as "***ngomughion***". This was specifically stated by one participant from Amudat Sub-county as reflected in the following:

> ***"Chewing curd is got from mouth of the cow and squeezed to get a liquid which they consume directly as medicine known as "ngomughion"...*** (Father, fathers FGD Amudat Sub-county)

4.4.7: Trend in Access to Food Since Last Election (the Last 5 Years)

- The participants mentioned the period between 2012 and 2013 was characterized by good harvest due to the heavy rains and thus they were able to grow food crops whilst the forage plants for animals were replenished.
- Majority of the mothers benefited from "food for work" in Karita and Looro sub-counties. Mothers in Looro specifically mentioned they obtained food from "food for work" for instance, constructing dams for food. Others asked food from the elders, fetched water and food from World Food Program. The participants also mentioned they got money from politicians to buy food during elections.
- They also mentioned cattle rustling that had occurred and affected their livelihood. They only had the option of Rwanu project, good Samaritans, and NUSAF II and food for work, which involved digging dams as a requirement to get food. They also got food for elderly people from Kantu Health Centre III.

Discussion and Conclusions

5.1: Discussion

Food Availability

Land was not a major problem since most households (87%) reported access to land for agriculture, with average size of 2.34 acres of flat land. However, some households faced challenges to land access that included land conflicts following communal land ownership system and non-ownership of land by women. Most women did not own land and therefore could not make decisions on the type of food to be cultivated on such land.

On the other hand, there was very limited variety of crops grown as only sorghum was widely grown in all districts except Amudat, while relatively larger quantities of maize were grown in Amudat, Kaabong and Moroto districts. Noteworthy, these 2 crops were sold off upon harvesting, leaving little or none for home consumption. Whereas beans constituted the main crop being grown that could provide plant protein, only 35% of the households in the sub-region reported its cultivation. Equally important was the almost total lack of fruits and vegetables among the locally cultivated foods. This finding could be related to practice of mono-cropping that is traditionally widespread among the farming communities. The main constraints to food production cited included drought/ low rainfall (71% of households), inadequate/improved seeds and tools to till the land (10%), as well as insufficient household labour (6%). Poor rainfall patterns have been a historical factor that affect agricultural production in the sub-region. Other constraints cited included pests like the army worm, changing weather changing conditions due to climate change and the inability of the soil to retain moisture well enough to sustain growing crops. These were further compounded by the socio-cultural factors. For instance, among the communities in Karamoja, household dependence ratio was high (due to big household sizes), linked with polygamy. In addition, there was negative attitude towards food availability: “Karimojong are pastoralists and not agriculturalists”, which rendered them lazy to cultivate land.

In general, there were very low food stocks in the sub-region, with only one-quarter of households having enough to last for an average of 14 days at the time of assessment. This was not surprising given the lean season when the survey was conducted coupled with poor post-harvest handling as well as storage facilities. Of critical importance was the lack of local storage at household and community level for produce in the harvest season that would enable the population to easily access food in the lean period. Markets constituted the source of almost half of the food stocks, followed by own production whilst food distribution accounted for 15%. The main food and humanitarian assistance reported comprised of food aid mainly to the districts of Kaabong, Kotido, Nakapiripirit and Abim.

Livestock ownership was reported by about half of the households in the sub-region (54%), especially from the districts of Amudat, Kaabong, Kotido and Nakapiripirit. The overwhelming constraint to livestock ownership was parasites/ diseases (66%), with lack of veterinary services (6%) and lack of pasture for animals (10%). It was also observed that there were notable deaths among most animals that people mainly relied on for survival during dry seasons. These were the same constraints mentioned in the last assessment, which calls for identifying sustainable solutions to livestock production in the sub-region.

On the other, the District Local Governments had recruited and deployed many high calibre officers at both district and sub-county levels to support the scale up of agricultural production services. The officers included Agriculture and crop production, Animal Husbandry, Veterinary, entomology, commercial services and vermin control. Funding for the agricultural services had been obtained from NARO with support from South Korea and Japan. The districts were also in the process of establishing Land Boards to facilitate land allocation among households to address challenges of communal land ownership in the region. In addition, districts were in the process of establishing water catchment areas such as mini-lakes from which water would be drawn and distributed to farms.

On further analysis of the factors, districts most affected in relation to food availability were **Moroto, Amudat** and **Napak.**

Household Access to Food

Most households in the sub-region (84%) had at least one income-earner, mainly in the districts of Kotido, Moroto and Amudat.

The district officials confirmed low incomes at household level, since some individuals were not earning partly due to low crop/ livestock yields and few alternative sources of income especially during the lean period. The predominant sources were either agriculture production dependent, natural resources dependent or livestock dependent which were affected by low crop/ livestock yields especially during the lean period. This was compounded by poor business skills that affected households' access to funds for buying food during the lean period. Most activities tended to be adhoc, sporadic and low-paying with consequences of not necessarily providing better access to food. Furthermore, most individuals did not have regular sources of income which led them to borrow money to feed their families.

Reported household debt was highest among the households from Moroto, Napak, Abim and Kaabong districts. Of concern were almost half of all the households with debt, which had interest on the loans mainly from Abim, Moroto and Napak districts. While most of the debts were acquired from relatives (37%), a substantive proportion was obtained from banks and credit institutions (27%). Whereas debt is not necessarily bad for households since it can potentially be used to augment agricultural production and other income generating activities, it is worrisome that 56% of all debt was for purchase of food and 19% to cover health expenses.

There was very high dependence on the markets for food, deriving over three-quarters of food consumed in the household, which was mainly in districts of Moroto (85%), Amudat (75%) Abim (71%) and Kotido (70%). In view of the limited incomes and earning potential at household level, the finding reflected high

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vulnerability to food insecurity since food prices tend to fluctuate and increase during the lean season. Also notable were the high food prices, coupled with lack/poor market structures, long distances and/or poor road networks to the food access points. The poor road network particularly affected access to food variety as well as the ability to sell their produce at fair prices to other districts/regions. Given the scenario, reliance primarily on foods from the markets made most households in the districts food insecure. Having to borrow money by some individuals to cover food expenses worsened this situation, while for others, lack of security and limited information flow regarding such facilities affected their ability to access credit.

The higher the percentage of total expenditure allocated to food, the greater the food insecurity. On basis of the Food Expenditure Share, 38% of households in the sub-region were food insecure, especially from Napak, Kotido and Nakapiripirit districts. The spending by households of proportionately more on food than the other essential non-food items indicated higher likelihood of food access challenges at the time of assessment.

On further analysis of the factors, districts most affected in relation to household access to food were **Napak and Abim**.

Food Utilization

There was a high prevalence of diseases among children under the age of five years, with 75% having symptoms within two weeks preceding the assessment. The most prevalent conditions included malaria/fever, Acute Respiratory Tract Infection/Cough and diarrhoea partly due to poor hygiene and sanitation practices. Overall, the districts of Kaabong and Nakapiripirit recorded the highest prevalence of illnesses. Child caring practices and health seeking behaviours especially among children and men was poor. The men complained about lack of their prioritization at the health facilities, since the focus in all facilities was given to mothers and children. This had led them to seek alternative services from traditional healers, which in most cases was not as effective. On the other hand, health facilities and Supplementary Food Outreaches were reportedly far from communities especially those in Amudat while some of the OTC and ITC sites were not functional.

On a more positive note, there was very high level of immunisation among the children though Child Health Cards' utilization was comparatively low, which could be attributed to low documentation of the services on such cards especially in Kaabong, Moroto and Nakapiripirit districts. Vitamin A supplementation and deworming levels were good, within the national target. Nevertheless, Amudat and Napak had relatively lower levels of both vitamin A supplementation and deworming among children.

About 9 out of every 10 households in the sub-region had access to relatively safe water, especially from Moroto, Kotido and Abim districts. Most sub-counties had considerably improved access to safe water because of partners like UNICEF digging more boreholes, though "as a district we are aware, we are not yet where we want to be." The districts reported inadequate safe water because most boreholes had broken down and the functional ones had little or no water due to low water tables. Access to unsafe household water was more common in Kaabong, Amudat and Nakapiripirit districts. Treating of drinking water is not a common practice in the

sub-region, which should underscore the importance of ensuring access to relatively safe sources of household water.

Latrine coverage (58%) and utilization was observed to still be a challenge in the sub-region which was more marked in Amudat, Moroto and Napak districts despite partner involvement in providing support to establish latrines and sensitize communities on their use. Nevertheless, this could be attributed to lower than expected geographical coverage by the partners. Among those with toilets, the open pit without a superstructure was the main type of facility for 55% of households, especially from Kotido and Kaabong districts. More specifically, Amudat district had failed to register any improvements in sanitation especially in chepkarart sub-county. Poor hygiene and sanitation practices could be attributed to strong cultural beliefs related to latrine use.

In general, the infant and young child feeding practices were poor, with the Minimum Acceptable Diet (MAD) of only 4.1%. Whereas the initiation of breastfeeding was quite high, information from the qualitative assessment revealed use of pre-lacteal feeds and inadequate practice of exclusive breastfeeding (mixed feeding) for infants of age 0 – 5 months. In addition, there were cultural practices and taboos that negatively influence the infant and young child feeding practices.

In relation to the Food Consumption patterns, 55% of households in the sub-region had acceptable scores, especially from Amudat, Kaabong and Nakapiripirit districts. Whereas it reflected some improvement from the previous year, households in Moroto, Kotido and Napak districts had poor scores. On the other hand, households from Moroto had the highest level of dietary diversity, followed by Kotido and Amudat districts. Low dietary diversity scores were recorded in Amudat, Napak and Kotido districts. The reasons for the low dietary scores included ignorance on different foods and their functions in the body as well as food utilization, poor food storage, poverty, and competing household demands. This situation was further compounded by inadequate knowledge on food choices, preparation and production as the available types of food did not have all the necessary nutrients. In addition, adults tended to eat more food, which affected what the children were to eat. Also notable was the rampant alcohol consumption in the sub region that reportedly affected food availability and utilization. There was processing of food grown into alcohol to be consumed by households which therefore resulted in starving children.

On further analysis of the factors, districts most affected in relation to food utilisation were **Amudat and Napak**.

Stability

The main shocks cited by households included high food prices (29%), floods/ drought (26%) and sickness/disease (25%). More specific to sicknesses/ disease at the community level, HIV was cited and reported to be notably high in Kakomongole sub-county. High food prices are particularly pertinent within the context of high dependence on the market by households for food, which results in increased vulnerability to food insecurity. High food consumption coping strategy was reported more by the households from Nakapiripirit, Kotido and Moroto districts, which reflected stress in food acquisition. Most households were consuming less preferred food and reducing the number

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of meals. Only one-fifth of households did not apply any coping strategies, but almost half (48%) were in the emergency coping mode. Most affected were households from Kaabong, Abim and Nakapiripirit districts.

On further analysis of the factors, districts most affected in relation to food stability were **Kotido, Kaabong** and **Nakapiripirit**.

Feeding of Infants and Young Children

Overall, the findings from qualitative assessment suggested sub-optimal breastfeeding practices underpinned by strong cultural beliefs and values prevalent in the study communities, as well as perceptions like inadequate breast milk that influenced provision of pre-lacteal feeds and mixed feeding. Provision of pre-lacteal feeds and mixed feeding (breastfeeding and giving milk or other foods to a baby of less than 6 months age) constitutes sub-optimal breastfeeding practice that has been linked with negative health outcomes, including increased risk of illness and mortality. However, there was relatively high level of maternal knowledge on importance of colostrum and the timing of breastfeeding initiation in this study community. The communication gap was related to beliefs, attitudes, values and skills to facilitate adoption of recommended practices.

These findings highlight urgent need for developing behaviour change communication interventions that improve breastfeeding knowledge, beliefs, and social norms. To prevent pre-lacteal feeding, programs should focus on helping mothers adopt beliefs that they can produce enough colostrum and breast milk to feed infants in the first hours of life. These programs should also eradicate a deeply-rooted norm of feeding babies with Aloevera mixed with water or red soil with water by emphasizing that breast milk contains all the water and nutrients a baby needs to be healthy, both immediately following birth and in the six months thereafter. It was evident from the study that the practice of exclusive breastfeeding was not uniform in the community. This was partly due to early introduction of solid and semi-solid foods or drinks before the recommended six months of age. The findings also implied that health facilities and the mass media could to a large extent provide channels for promoting exclusive breastfeeding as well as timely and appropriate introduction of complementary foods.

Over all, the mothers displayed relatively high level of knowledge about recommended infant feeding practices. Nevertheless, the study demonstrated inconsistences between the knowledge on infant feeding and actual practices in the selected communities. The findings from the study revealed the fact that some mothers of malnourished children gave herbs and consulted traditional healers as the first line of care-seeking and would only go to health facilities when there was no improvement. This contributes towards low access to health facility care as well as the severity of cases when they eventually go for care. The findings from the study revealed that the selected community prioritised household hygiene and sanitation over appropriate diet/ feeding in relation to prevention of malnutrition. This could probably reflect the type of community education interventions that tend to focus on water, hygiene and sanitation.

Demographic Factors

The district officials confirmed the validity of findings related to absenteeism among girls or boys at school. However, they expressed the need to understand why the main focus was on women's education and not men since they could also played a critical role in child nutrition.

5.2: Conclusions

Nutrition Situation in Karamoja Sub-region

The Global Acute Malnutrition (GAM) prevalence of 13.8% was of public health concern 'serious/high' according to WHO standards and reflected an increase increased from 11% reported in June 2016. The prevalence of GAM was more pronounced above the sub-regional average in the districts of Kotido (18.5%) and Moroto (18.5%). Further analysis showed consistence with higher enrollment to Supplementary and Therapeutic Feeding Centers in the districts of Kotido, Moroto and Napak. More specifically, the GAM in Kotido that increased from 12.1% to 18.5% rhymed with the deterioration in food security situation in the district with 53% of households reported being food insecure. Considering gender patterns, prevalence of malnutrition was more among boys (17%) than girls (10.9%) which could be explained by the fact that boys are forced to become more independent faster than the girls and hence the girls' feeding patterns were observed to be better than boys. As illustrated in Figure 43, the trend in prevalence of GAM showed over the last 7 years, the prevalence in the lean season has stabilized at serious levels (10-15%).

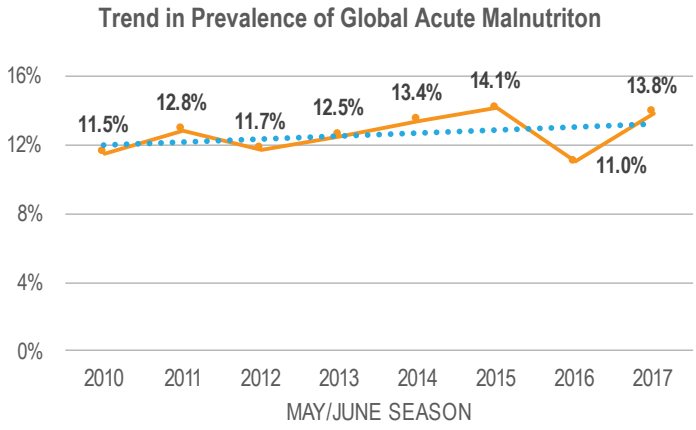

Figure 43: Causes of Deaths above 5 Years, June 2017

The prevalence of stunting was 32.6%, which according to WHO standards was 'critical/very high' (Above 30%). The highest prevalence of stunting was in the districts of Kaabong (40.5%) and Moroto (40.9%). These rates were found to be higher than 28% reported in the June 2016 assessment. The prevalence of underweight on the other hand was 27.5%, which reflected an increase from that of 22.4% in June 2016. Underweight among children was more pronounced in the districts of Moroto (35.9%), Kotido (33.1%) and Kaabong (30.6%). This level was according to the WHO standards, 'serious/high'. Overweight among children was 1.9%, whilst among the women with children aged 0 – 59 months was 4%, both not at a level of public health concern. Under-weight among women was 39%, which according to WHO standards was at the level of 'serious/high'. Underweight among women was more pronounced in the districts of Nakapiripirit (47%), Napak (47%) and Moroto (43%).

Based on the prevalence of malnutrition (Wasting, Stunting, underweight in children and women) found in the Karamoja sub-region, the districts more affected included

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Moroto, Kotido and Kaabong with the districts of Nakapiripirit and Napak being more at risk.

Several factors were re-analysed to find out the actual causes of malnutrition among children the significant ones included: Female headed households [Moroto (50%), Nakapiripirit (42%) and Napak (38%)]; households without toilet facilities [Amudat (84%), Moroto (73%) and Napak (71%)], and households using less than 15 litres of water person per day [Amudat (88%), Nakapiripirit (83%), Kotido and Moroto (81%)]. Those showing very significant differences ($p<0.05$) included households not owning livestock [Moroto (66%), Napak (61%), Nakapiripirit (47%)], households with high coping (RCSI above 28) [(Nakapiripirit (41%), Kaabong (28%) and Kotido and Moroto (27%)], households with mothers without formal education [Kotido (90%), Amudat (81%), Kaabong (78%), Napak (77%)] and those with mothers found to be malnourished [Nakapiripirit (47%), Napak (47%) and Moroto (43%)]. Members of the districts on the other hand reported the main causes of the malnutrition included knowledge gaps, changing life style like "youth do not want to eat greens"; diseases, poor infant and young child feeding practices. Also cited was food insecurity, limited food access, poor family planning leading to high fertility among women, ignorance on the best nutrition practices, poor health access and health seeking behaviour and alcoholism. Other causes of malnutrition included inadequate funds to support farmers, low coverage of services in hard to reach locations (mountainous and mobile communities) as well as delays in immunization programmes. In addition, socio-cultural factors such as polygamy and low education among mothers contributed to the high levels of malnutrition. Furthermore, women used the malnourished children to obtain therapeutic food from different sites. The practice not only promoted human rights abuse but also affected children in the long run in terms of development and psychological wellbeing.

Food Security Situation

Overall, Food Security classification showed nearly half (46%) of the households in Karamoja sub-region were food insecure of which (9%) were severely food insecure. These findings showed an improvement from that reported in June 2016 of 50%. There has however been an improvement in the food security situation Kaabong district that recorded 45% of households with food insecurity, 8% severely insecure.

The possible factors driving food insecurity in the region included drought/low rainfall reported by 71% of households leading to reduced food availability in the region with only 25% of households reporting having any food stocks expected to last for an average of 14 days and corresponding reduction in access owing to an increase in food prices. In addition, households did not diversify the crops grown over the 2-year period predisposing households to the risk of crop failure and constrains the ability to diversify diets for improved nutrition. Reports from the district leadership showed that most of the crops were grown for sale coupled with poor post-harvest handling, climate change; ignorance/illiteracy; poor food utilization; instability; poor food storage and poor quality crops. In addition, insect infestation and theft coupled with high market prices and selling of crops at "open gate" prices following a "bumper" harvest as well as common cultural functions greatly contributed to household food insecurity. It was also noted that long

maturing crops like cassava could not save the situation due to "open grassing". The gender-related issues were particularly under-scored especially with regards to utilization of the land since the women did not own land.

Overall, there was a strong association between the final food security score and malnutrition in the district (<0.05) and even stronger association between the Reduced Coping Strategy Index and Food Consumption Group with the level of malnutrition at the households. However, there was significant relationship between the Food Expenditure Share Categories and household malnutrition.

Trend in Food Security

As illustrated in Figure 44, there was some improvement in Food Consumption between June 2016 and 2017 which raised it back to the level reported in 2012 of 59%. However, the trend analysis clearly showed that generally, the food consumption was stable over the 6-year period between 2012 and 2017. The possible reason for the 2017 increase could be attributed to increased humanitarian assistance to 31% of households.

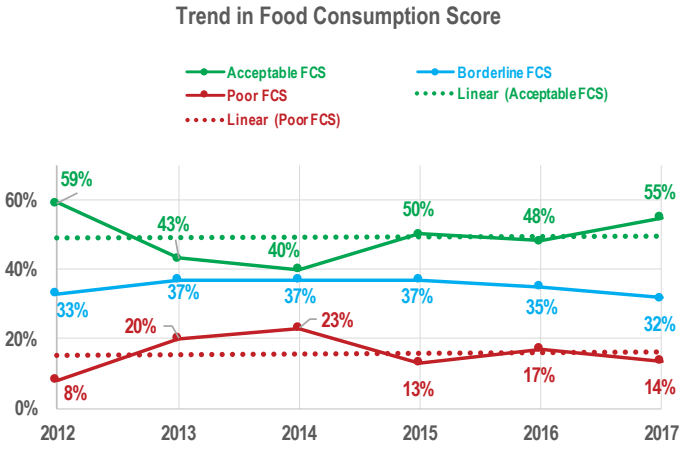

Figure 44: Causes of Deaths above 5 Years, June 2017

Correlation Analysis

a) Household Demographics

Nutritional Status and Gender of Household Head: There was a significant relationship between the gender of household head and prevalence of malnutrition (p=0.022). The prevalence of malnutrition among children in female headed households was 16% compared to 13% among male headed households.

Nutritional Status and Education of Mother: There was significant relationship between the education level of the mother and child malnutrition (p=0.000). The prevalence of malnutrition of children whose mother had no formal education was 16% compared to 2% among those with tertiary, 6% secondary and 12% primary level of education.

Nutritional Status and Mother's Nutrition: Mother's nutritional status by MUAC had a significant relationship with malnutrition among children under age of five years (p=0.000). Children whose mothers were under the category of severe malnutrition were more likely to have acute malnutrition (22%) compared to 13% among those whose mothers had normal nutritional status.

b) Illness and Health Environment

Nutritional Status and Illness: There was significant relationship between history of illness within the two weeks preceding the assessment (p = 0.001). Sick children in preceding two weeks were more likely to be malnourished (15%) compared to the non-sick children (11%)

Nutritional Status and Fever/ Malaria: There was a strong relationship between children suffering from fever and being malnourished (p = 0.005). Children who

Discussion and Conclusions

suffered from fever/ malaria within two weeks preceding the assessment were more likely to be malnourished (15%) compared to those who were not sick (13%). However, more than half of the children (54%) in the survey reported fever, so this association may be a reflection of high prevalence. Fever was self-reported by the caregiver and not clinically verified; the survey did not record cases of diagnosed malaria separately.

Nutritional Status and Diarrhoea: The mean weight for height Z-scores were significantly associated with having suffered from diarrhoea in the two weeks prior to the assessment ($p<0.000$). Children with histoty of diarrhoea within that period were more likely to have acute malnutrition (17%) compared to those without a history of diarrhoea (13%).

Nutritional Status and Acute Respiratory Tract Infection/ Cough: There was no significant correlation between ARI/Cough and malnutrition.

Nutritional Status and Household Water: Whereas wasting (mean weight for height Z-score) was not significantly associated with the source of household water source ($p>0.05$), there was a significant relationship between the amount of water used per person per day and malnutrition ($P=0.034$). The prevalence of malnutrition was 15% among children living in households using <15 litres of water per person per day compared to 13% among those living in households utilising 20 or more litres per person per day.

Nutritional Status and Access to Toilets: There was significant relationship between access to toilet facilities and malnutrition ($p=0.022$). The prevalence of wasting in households without toilet facilities was 15% compared to 13% among those with toilet facilities.

c) Household Food Security

Nutritional Status and Household Food Consumption Patterns: Food consumption patterns at household level was associated with malnutrition (wasting) among children under-5 years old ($p=0.013$). Children from households with poor food consumption pattern were more likely to suffer from acute malnutrition (16%) compared to those living in households with acceptable food consumption patterns (13%).

Nutritional Status and Household Dietary Diversity: There was no significant relationship between the household dietary diversity score and malnutrition in children under age of five years. This was partly due to the fact that this indicator may not be sufficient to capture dietary intake at individual level, particularly for young children, as it does not inform on intra-household food distribution practices.

Nutritional Status and Food Availability (proxy Livestock Ownership): There was significant relationship between livestock ownership and childhood malnutrition ($p=0.000$). Surprisingly, the prevalence of malnutrition was higher for children living in households with a large number of animals (TLU greater than 5) at 17% and no livestock (16%) compared to those in households with Negligible (11%), Low (12%), and Slightly high (12%) holdings.

Nutritional Status and Food access (proxy by Food Expenditure Share and Dependence on Markets): The results indicated the high dependence on market and Food Expenditure Share were not significantly associated with higher risks of acute malnutrition among the children under age of five years.

Recommendations

Food Availability

1. Strengthen effective extension services to cover all villages in the districts that include promotion of two planting seasons in wet belt zones and the following:
   a) Improving knowledge and skills among farmers on growing of disease/drought resistant and high yielding crops;
   b) Setting up demonstration centres for farmers, supplying genuine farming inputs such as seeds and ensuring quality assessment of the seeds distributed;
   c) Diversification of production through mixed farming with focus on legumes, locally available fruits and vegetables;
   d) Control of pests and diseases such as army worms;
   e) Post-harvest handling practices such as proper use of foods during harvest season, storage technologies and preservation; and
   f) Use of more efficient agricultural equipment.
2. Support re-stocking of animals in communities where cultivation has failed, create a data-base for monitoring the re-stocking activities and strengthen veterinary services, including monitoring of animal diseases;
3. Construct water catchment areas in all villages for the households to obtain water for cultivation and feeding their animals especially during the dry seasons, and advocate for establishment or strengthening of irrigation to supplement rainfall;
4. Sensitize the communities and influence their practices on:
   a) Growing fast maturing crops such as pumpkins, sweet potatoes and pawpaw;
   b) Food storage for future consumption and better storage technologies;
   c) Proper use of foods during the harvest season and reduced selling so that some is left to take households through to the next harvest season;
   d) Value addition to the commonly grown crops;
   e) Role of gender in crop production; and
   f) Use of modern family planning methods to reduce the household size and thus contribute towards food security in the households.
5. Promote research to support the districts obtain other high yielding crop varieties, educate the communities on climate change and seasons, and strengthen the District

Recommendations

Early Warning Systems (DEWS);

6. Put in place a clear land ownership policy and advocate for dialogue among communities to settle land conflicts;
7. Set up District Land Boards to address the challenges related to land ownership, promote dialogue to address the on-going land conflicts and put in place interventions to increase effective land utilization;
8. Educate and support the communities on:
   a) Introduction of weather resistant variety of crops and improved seeds with high yields;
   b) Good storage methods and post-harvest handling;
   c) Group marketing concepts; and
   d) Diversification of foods grown and consumed.
9. Advocate for By-laws or ordinances to limit the indiscriminate sale of food;
10. Sensitize and involve men as the land-owners and key decision-makers, on the following:
    a) Production and storage of food at the household level;
    b) Joint participation in decision-making; and
    c) Joint ownership of household assets e.g. land, livestock etc.
11. Advocate for the establishment of granaries at household and silos at community levels to ensure food security and sensitize the communities on their importance, including cereal bulking;
12. Reduce sell of food crops by advocating for introduction of cash crops as alternative crops for sale to generate income; and
13. Advocate for the initiation or strengthening of NAADS pilot project in the districts.

Recommendations for Accessibility

1. Advocate to the ministry/department responsible for road construction and maintenance to improve the road networks in the sub-region;
2. Improve food accessibility the following, among others:
   a) Establish community markets at each sub-county to support diversification of household incomes;
   b) Educate and support communities on Income Generation Activities;
   c) Build community level business competence and skills;
   d) Advocate for commercialization of agriculture;
   e) Introduce Community/ Village Savings and Loans Associations to facilitate agriculture loans for farmers;
   f) Scale up the food/cash for work programmes; and
   g) Advocate for the formation of cooperatives to support storage and purchase of food at fair prices.
3. Encourage households to have separate gardens of food and cash crops;

4. Advocate for support from the UNWFP to provide food assistance to persons living with HIV; and
5. Strengthen livelihood programs such as Income Generation Activities at community level and advocate for increased funding to promote agriculture mechanization;

Recommendations for Utilization

1. Encourage health workers to strengthen integrated child days' activities, improve documentation and make use of child health cards for every service provided to children below age of 5 years;
2. Strengthen the functionality of OTC and ITC sites so that all malnourished children are effectively and efficiently managed;
3. Mobilize support in the form of grants to establish model sanitation villages such as the initiative started in 2 villages of Loroo sub-county, Amudat district and in addition:
    a) Strengthen community sensitization and education on hygiene and toilet usage;
    b) Repair all broken-down boreholes to enable access to clean water; and
    c) Promote water harvesting during the wet season.
4. Establish By-laws to facilitate reduction on alcohol consumption and strengthen community sensitization and education on the following among others:
    a) Different foods and their functions in the body;
    b) Proper child caring and health seeking behaviours;
    c) Good feeding practices among children and women; and
    d) Utilization of safe water in the households.
5. Intensify supervision of the implementing partners as well as strengthen coordination and reporting among development partners like UNICEF, WFP, Save the Children etc. for improved health and nutrition situation; and
6. Advocate for support from the district leadership on:
    a) Population growth control; and
    b) Prevention and control of diseases at community level including those related to HIV.
7. Educate the community and train VHTs as well as peer mothers on nutrition, sanitation and hygiene, dietary diversification and monitoring of the immunization schedules;
8. Strengthen the nutrition programmes e.g. community Infant and Young Child Feeding (cIYCF) by the District Health Department with support from partners like UNICEF, Save the children and WFP, to specifically address poor feeding habits;
9. Increase access to health and nutrition services through mobile clinics and sustainable integrated outreaches to:

Recommendations

a) Improve disease prevention and management;

b) Strengthen and scale-up nutrition screening; and

c) Improve the Community Based Supplementary Feeding Programme.

10. Advocate for support from the UNWFP to continue the MCHN programme for improved maternal and child nutrition outcomes; and

c) Strengthening the school feeding programmes;

d) Holding dialogue with caregivers at village level to emphasize the importance of education;

e) Development of a tool to track absent pupils and teachers by the District Education department;

f) Strengthening supervision in schools; and

g) Advocating for By-laws on education ordinance.

2. Include nutrition education in the Adult Literacy Classes.

Recommendations on Stability

1. Support the communities to correctly predict the cultivation periods, encourage relocation to more productive areas and put in place rapid response to disasters;

Recommendations on Demographic Factors

1. Improve regular school attendance of children by:

a) Advocating for establishment community schools and posting of teachers to such schools;

b) Provide sanitary pads to school girls to reduce of absenteeism;

Appendices

Appendix 6.1: Summary Table

	Indicator	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit	Napak	Karamoja (Average)
Demo-graphics	% Disabled or Chronically ill	5%	6%	5%	6%	5%	13%	5%	**6%**
	% Female Headed Households	15%	7%	34%	21%	50%	43%	38%	**30%**
	% No formal education	20%	83%	68%	87%	70%	68%	75%	**66%**
Food Availability	% Have access agric land	92%	84%	92%	97%	73%	94%	76%	**87%**
	% Have Food stocks	21%	6%	55%	16%	8%	29%	38%	**25%**
	% Have no livestock	43%	15%	44%	46%	67%	49%	62%	**47%**
Food access	% Food Exp Share > 65%	27%	31%	30%	49%	25%	45%	58%	**38%**
	% Have debt	37%	15%	36%	27%	43%	35%	40%	**34%**
	Amount of current debt, UgX (Mean)	116,000	57,000	71,000	36,000	204,000	83,000	71,000	**102,000**
	% Borrowed to buy food	47%	47%	67%	64%	59%	52%	53%	**56%**
	% At least one income earner	84%	90%	69%	99%	98%	81%	69%	**84%**
	Household Asset Score (Mean)	7.2	4.1	5.0	4.7	4.1	5.2	3.8	**4.9**
Food Utilization	% Use at least 15 lpppd	0.0%	0.3%	2.6%	1.2%	3.3%	3.9%	18.6%	**4.3%**
	% Households with no toilet facilities	27%	84%	42%	59%	73%	54%	71%	**58%**
	% Use unsafe water	3%	15%	25%	3%	2%	16%	5%	**10%**
	% Never consumed protein foods	11%	10%	2%	12%	8%	8%	19%	**10%**
	% Never consumed Hem Iron foods	47%	72%	15%	53%	41%	66%	51%	**49%**
	% Acceptable FCS	44%	76%	62%	42%	52%	69%	39%	**55%**
	Household DDS (mean)	4.8	4.4	5.2	4.7	5.1	4.9	4.4	**4.8**
	% Low HDDS	39%	57%	24%	44%	29%	37%	54%	**40%**
	GAM rate	11.1%	12.1%	11.8%	18.5%	18.5%	11.8%	12.7%	**13.8%**
	% Meet MMF	20.0%	27.6%	17.1%	18.3%	17.5%	24.2%	14.8%	**19.9%**
	% Meet MDD	4.4%	3.5%	9.4%	5.4%	5.4%	8.2%	3.7%	**5.7%**
	% Meet MAD	3.0%	2.9%	6.1%	4.5%	3.8%	6.6%	2.1%	**4.1%**
Stability	% Experienced no shock	7%	6%	2%	1%	14%	3%	3%	**5%**
	Food-Coping Strategy Index (Mean)	10.4	9.9	23.2	23.1	22.5	25.5	17.9	**18.9**
	% Stress coping	12%	20%	5%	23%	20%	9%	14%	**15%**
	% Crisis coping	26%	16%	12%	33%	9%	17%	8%	**17%**
	% Emergency coping	43%	35%	80%	27%	50%	55%	44%	**48%**
	% No livelihoods coping	19%	29%	3%	18%	21%	19%	34%	**21%**
Final FS classification	**% Food Insecure**	53%	24%	45%	53%	46%	43%	62%	**46%**
	Food Secure	10%	23%	2%	6%	16%	10%	9%	11%
	Marginally Food Secure	38%	53%	53%	42%	38%	48%	30%	43%
	Moderately Food Insecure	45%	21%	37%	41%	38%	35%	44%	37%
	Severely Food Insecure	8%	3%	8%	12%	8%	8%	18%	9%

Appendix 6.2: 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 23:

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 24.

Table 21: Calculation of the Food Security Index

	Current status (CS)	Coping Capacity (CC)				
	Household Food consumption group*	Food Expenditure Share category**	Livelihood Coping Strategy Categories ***	Formula	**Final Food security outcome for household**	**Overall food security classification**
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 22: 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.

Appendices

Appendix 6.3: 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 (% of out of range subjects)	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (2.1 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.526)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (11)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (12)
Standard Dev WHZ	Excl	SD	<1.1	<1.15	<1.20	>=1.20	
.	and	and	and	or			
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.03)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.17)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.02)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.129)
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: 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** (2.5 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.893)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-7 0	8-1 2	13-20 4	> 20 10	**0** (4)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (9)
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	<1.1 and	<1.20 or	>=1.20	
.	Excl	SD	>0.9	>0.85 >0.80	<=0.80 0	5	10 20 **0** (1.06)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.06)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**1** (0.23)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.105)

OVERALL SCORE WHZ = 0-9 10-14 15-24 >25 13 %

The overall score of this survey is 13 %, this is good.

Comparison it can be helpful to copy/paste part of this report into Excel)

Appendices

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	Accep	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** (2.2 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.499)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0. 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.165)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
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	**2** (8)
Standard Dev WHZ . .	Excl Excl	SD SD	<1.1 and >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	**0** (0.97)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.03)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.10)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.961)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**2** %

The overall score of this survey is 2 %, this is excellent.

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 (% of out of range subjects	Incl	%	0-2.5 0	>2.5-5.0 5	>5.0-7.5 10	>7.5 20	**0** (2.4 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.864)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
Dig pref score - MUAC	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (6)
Standard Dev WHZ . .	Excl Excl	SD SD	<1.1 and >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	**0** (1.08)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.13)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.03)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.125)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**10** %

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

Appendices

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** (2.4 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.607)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
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 Excl	SD SD	<1.1 and >0.9 0	<1.15 and >0.85 5	<1.20 and >0.80 10	>=1.20 or <=0.80 20	**0** (1.09)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (0.05)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.02)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001	**3** (p=0.001)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**13** %

The overall score of this survey is 13 %, 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** (2.0 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**0** (p=0.217)
Age ratio(6-29 vs 30-59) (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (4)
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 an	<1.15 and	<1.20 and	>=1.20 or	
.	Excl	SD	>0.9 0	>0.85 5	>0.80 10	<=0.80 20	**0** (1.03)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.04)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.15)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.341)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**10** %

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

Appendices

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** (0.8 %)
Overall Sex ratio (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**4** (p=0.031)
Age ratio(6-29 vs 30-59 (Significant chi square)	Incl	p	>0.1 0	>0.05 2	>0.001 4	<=0.001 10	**10** (p=0.000)
Dig pref score - weight	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (2)
Dig pref score - height	Incl	#	0-7 0	8-12 2	13-20 4	> 20 10	**0** (7)
Dig pref score - MUAC	Inc	#	0-7 0	8-12 2	13-20 4	> 20 10	**2** (8)
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** (1.00)
Skewness WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.03)
Kurtosis WHZ	Excl	#	<±0.2 0	<±0.4 1	<±0.6 3	>=±0.6 5	**0** (-0.14)
Poisson dist WHZ-2	Excl	p	>0.05 0	>0.01 1	>0.001 3	<=0.001 5	**0** (p=0.120)
OVERALL SCORE WHZ =			0-9	10-14	15-24	>25	**16** %

The overall score of this survey is 16 %, this is acceptable.

Appendix 6.4: Mothers' Mid-Upper Arm Circumference (MUAC)

District	MUAC Category						TOTAL (N)
	Severe	Moderate	Mild	Normal	Overweight	Obese	
	Count (%)	Count (%)	Count (%)	Count (%)	Count (%)	Count (%)	
Abim	27 (4.0%)	8 (1.2%)	12 (1.8%)	260 (39.0%)	331 (49.6%)	29 (4.3%)	667
Amudat	23 (3.5%)	15 (2.3%)	22 (3.3%)	324 (48.9%)	255 (38.5%)	23 (3.5%)	662
Kaabong	20 (3.0%)	16 (2.4%)	15 (2.2%)	335 (49.9%)	273 (40.6%)	13 (1.9%)	672
Kotido	21 (3.2%)	18 (2.7%)	34 (5.1%)	382 (57.5%)	206 (31.0%)	3 (0.5%)	664
Moroto	48 (6.2%)	31 (4.0%_	33 (4.3%)	371 (48.1%)	262 (33.9%)	27 (3.5%)	772
Nakapiripirit	53 (7.4%)	31 (4.3%)	34 (4.7%)	370 (51.3%)	218 (30.2%)	15 (2.1%)	721
Napak	38 (5.4%)	16 (2.3%)	38 (5.4%)	380 (54.4%)	213 (30.5%)	14 (2.0%)	699
KARAMOJA	**230 (4.7%)**	**135 (2.8%)**	**188 (3.9%)**	**2,422 (49.9%)**	**1,758 (36.2%)**	**124 (2.6%)**	**4,857**

Appendix 6.5: The Local Events Calendar

6.5.1: Abim District FSNA June 2017

Calendar Of Local Events													
Month	Annual Events	Events Per Month And Per Year											
		2012	Age	2013	Age	2014	Age	2015	Age	2016	Age	2017	Age
January	1st New Year Slicing Of Potatoes				53		41		29		17		5
February					52		40		28	Elections	16		4
March	Women's Day				51		39		27		15		3
April	Good Friday Easter Sunday				50		38		26		14		2
May	Labour Day				49		37		25		13		1
June	Marty's Day Dry Season				48		36		24		12		0
July	Millet And Maize Harvest		59		47		35		23		11		
August			58		46	National Id And Registration	34		22		10		
September			57		45		33		21		9		
October	Independence Day		56		44		32		20		8		
November			55		43		31		19		7		
December	Christmas		54		42		30		18		6		

Note: The figures indicate age in months

6.5.2: Amudat District FSNA June 2017

Events Per Month And Per Year													
Month	Annual Events	2012		2013		2014		2015		2016		2017	
		Events	Age*	Events	Age*	Events	Age*	Events	Age*	Events	Age*	Events	Age*
January	1St New Year				53		41		29		17		5
February	Back To School Campaign				52		40		28	General Elections	16		4
March					51		39		27		15		3
April	Good Friday Easter Monday; Planting Of Maize And Beans; Back To School Campaign				50		38		26		14		2
May	Labour Day				49		37		25		13		1
June	First Weeding Season				48		36		24		12		0
July	Second Weeding Season; Pokot Cultural Day			59		47		35		23		11	
August	Back To School Campaign			58		46		34		22		10	
September	Harvesting			57		45		33		21		9	
October	Independence Day			56		44		32		20		8	
November				55		43		31		19		7	
December	Christmas	Male Circumcision		54		42		30		18		6	

Note: The figures indicate age in months ; r = row; col = column

6.5.3: Kaabong District FSNA June 2017

Calendar Of Local Events												Accurate As Of June 2017	
Month	Annual Events	Events Per Month And Per Year											
		2012	Age	2013	Age	2014	Age	2015	Age	2016	Age	2017	Age
January	1St New Year				53		41		29		17		5
February					52		40		28	Presidential/ Parliamentary Elections	16		4
March	Early Planting				51		39		27		15		3
April					50		38		26		14		2
May	Labour Day				49		37		25		13		1
June	Weeding And Late Planting				48		36	Man Claiming To Be A Rain Maker Showed Up And Wanted Community To Pay To Receive Rain	24		12		0
July			59		47		35		23		11		
August	Green Harvest		58		46		34		22		10		
September			57		45		33		21		9		
October	Main Harvest World Food Day		56		44		32		20		8		
November	Festivities		55		43		31		19		7		
December	Christmas		54		42		30		18		6		

Note: The Figures indicate age in months

6.5.4: Kotido District FSNA June 2017

Calendar Of Local Events		Accurate As of June 2017											
Month	Annual Events	Events Per Month and Per Year											
		2012		2013		2014				2016		2017	
		Events	Age*	Events	Age*	Events	Age*	Events	Age*	Events	Age*	Events	Age*
January	1St New Year Nrm Day (Museveni's Day)				53		41		29		17		5
February	Preparation Of Gardens				52		40		**28**	National Elections	**16**		4
March	Women's Day Preparation Of Gardens				51		39		27		15		3
April	Good Friday Easter Monday Planting Begins				50		38		26		14		2
May	Labour Day				49		37		25		13		1
June	Weeding				48		36		24		12		0
July	Cultural Day Weeding		59		47		35		23		11		
August			58		46		34		22		10		
September	Harvesting		57		45		33		21		9		
October	Independence Day World Food Day		56		44		32		20		8		
November			55		43		31		19		7		
December	Christmas		54		**42**	Tracing Jie Roots (Moruama Ayeche)	**30**		18		6		

Note: The Figures Indicate Age In Months
*Accurate As Of June 2017

Appendices

6.5.5: Nakapiripirit District FSNA June 2017

Calendar Of Local Events		Accurate As Of June 2017											
Month	Annual Events	Events Per Month And Per Year											
		2012	Age	2013	Age	2014	Age	2015	Age	2016	Age	2017	Age
January	1st New Year -Yearly Cultural Ceremony(Akeru) -Clearing The Fields -Thatching And Renovation				53		41		29		17		5
February	1st Ploughing/ Digging				52		40		28		16		4
March	-Womens Day -Beginning Of Rainy Season&Planting				51		39		27		15		3
April	-Easter/Good Friday -Weeding				50		38		26		14		2
May	-Hunger Season Peak				49		37		25		13		1
June	-Martyrs Day -Harvesting Beans				48		36		24		12		0
July	Grannary (Ekeru)Building/ Renovations		59		47		35		23		11		
August	Harvesting The Rest Of The Foods		58		46		34		22		10		
September			57		45		33		21		9		
October	-Independence Day -Dry Season Begins		56		44		32		20		8		
November			55		43		31		19		7		
December	-Christmas -Hunting -Cutting Grass		54		42		30		18		6		

6.5.6: Napak District FSNA June 2017

Calendar Of Local Events		Accurate As Of June 2017									
Month	Annual Events	Events Per Month And Per Year									
		2012	2013	Age	2014	Age	2015	Age	2016	Age	2017	Age
January	1st New Year			53		41		29		17		5
February				52		40		28	National Census	16		4
March				51		39		27		15	Death Of Woman Mp	3
April	Good Friday Easter Sunday			50		38		26		14	Bye Election Wmp	2
May	Labour Day			49		37		25		13		1
June				48	June 3Rd,Martyrs Day	36		24		12		0
July			59	47		35		23		11		
August			58	46	National Census	34		22		10		
September			57	45		33		21		9		
October	Independence Day		56	44		32		20		8		
November			55	43		31		19	Hh Registration-WFP	7		
December	Christmas		54	42		30		18	Hh Registration-WFP	6		

Note: The Figures Indicate Age In Months

6.5.7: Moroto District FSNA June 2017

Calendar Of Local Events		Accurate As Of June 2017											
Month	Annual Events	Events Per Month And Per Year											
		2012	Agey	2013	Age	2014	Age	2015	Age	2016	Age	2017	Age
January	1St New Year				53		41		29		17		5
February					52		40		28	National Census	16		4
March					51		39		27		15	Raid Of Market Day Death Of Woman MP	3
April	Good Friday Easter Sunday				50		38		26		14	Bye Election WMP	2
May	Labour Day				49		37		25		13		1
June					48	June 3Rd,Martyrs Day	36		24		12		0
July			59		47		35		23		11		
August			58		46	National Census	34		22		10		
September			57		45		33		21		9		
October	Independence Day		56		44		32		20		8		
November			55		43		31		19	Hh Registration-WFP	7		
December	Christmas		54		42		30		18	Hh Registration-WFP	6		

Note: The Figures Indicate Age In Months

1 The sample included only the children age 6 to 59 months

Appendices

For more information related to analysis, data collection, tools and analysis software, please contact:

AME Unit,
World Food Programme Uganda, or IBFAN Uganda