





Nutrition Surveillance Karamoja Region, Uganda Round 6, September 2011



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Table of Contents

1	Introdu	ction	5
	1.1	Background Information	5
	1.2	Nutrition surveillance Methodology	6
2	Results	§	7
	2.1	Anthropometric Indicators	7
	2.1.1	Nutrition Indicators December 2009 – September 2011	8
	2.1.2	Nutrition Indicators by Livelihood	9
	2.1.3	CDC Calculator	10
	2.1.4	Treatment for Malnutrition	11
	2.2	Health Indicators	12
	2.2.1	Morbidity Results	12
	2.2.2	ITN Possession and use results	14
	2.3	Food Security Indicators	15
	2.3.1	Main Food source	15
	2.3.2	2 Current HH income source and expenditure	16
	2.3.3	B Household Food Consumption Score (FCS)	17
	2.3.4	Household Dietary Diversity Score (HDDS)	19
	2.3.5	6 Child meal	19
	2.3.6	Household consumed foods according to HDDS	20
	2.3.7	Food group consumption by 6-59 months children	20
	2.3.8	B Exclusive breast feeding	21
	2.3.9	Coping mechanism	22
	2.4	Water, Sanitation and Hygiene (WASH) Indicators	22
	2.4.1	Primary water sources	22
	2.4.2	2 Water treatment	23
	2.4.3	Time to water source	24
	2.4.4	Hand Washing Practice	24
	2.4.5	6 Human waste disposal	25
3	Conclu	sions	26
	3.1	Nutrition and Health	26
	3.2	Food Security	26
	3.3	Water, Sanitation and Hygiene (WASH)	27
4	District	key findings	27
5	Recom	mendations	28







- Global Acute malnutrition (GAM) in Karamoja Region in September 2011 was at 9.1% (7.9-10.4, 95% Cl) this is a reduction from May 2011 12.8% (11.0-14.9 95% Cl)
- There was no significant decrease (p=0.062) in SAM in Karamoja, from 2.8% (2.1- 3.9 95% CI) to 1.9% (1.4 -2.5 95% CI).
- The prevalence of **GAM** was highest in agricultural livelihood zones **10.5%** (8.0-13.7 95% CI), agropastoral had the highest prevalence of **SAM 3.0%** (1.6-5.5 95% CI).
- **GAM** levels in Nakapiripirit reduced from **20.4**% (16.0-25.6 95% CI) to **11.2**% (8.6-14.6 95% CI) and **SAM** reduced from **5.6**% (3.5-6.9 95% CI) in May 2011 to **1.8%** (0.9-3.4 95% CI) in September 2011.
- GAM levels in Kotido reduced significantly (p=0.001). from 14.1 % (10.5-18.8 95% CI) in May 2011 to 6.7% (5.0-8.9 95% CI) in September 2011
- Moroto/Napak showed a higher prevalence of both GAM 12.5 %(9.4-16.5 95% CI) and SAM 4.3% (2.4-7.6 95% CI) in September 2011 round.
- Malaria was the most frequent disease followed by ARI and diarrhoea among illness recorded
- Across the region, child morbidity remained high at 68.4%, Kaabong recorded the highest prevalence of ARI (71.2%) while Moroto/Napak had the highest prevalence of Malaria 78.4 % Measles vaccination and vitamin A supplementation across the region is 93.8% and 95.1% which is above the national target of 85% and 91% respectively.
- ITN ownership across the region was greater than 70% in September 2011 except Moroto/Napak with 53.1%
- Across Karamoja, cultivation (56.6%) was the main food source while purchasing follows at 31.8% as the second dominant main source of food.
- Exclusive breastfeeding among infants across Karamoja was 61% which is just above 1% higher than the national 60% EBF rate and it ranges from 32.6% in Amudat and 89.3% in Kotido.
- Main source of water across the region (85.2%) is dominated by borehole ranging from 69.4% in Kaabong to 93.5% in Nakapiripirit. Compared to the September 2010 (74.6%) borehole coverage as source of water source showed an improvement.



Introduction





1.1 Background Information

Located in North Eastern Uganda, Karamoja region is divided in to seven administrative units (districts) that overlap into three main livelihood zones (agricultural, agro-pastoral and pastoral, **Figure 1**).

District population estimate are: Nakapiripirit – $176,142^{1}$; Amudat - $104,859^{1}$; Moroto (including Napak) - $322,057^{2}$; Kotido - $170,738^{3}$; Kaabong - $266,707^{4}$; and Abim - $111,989^{4}$.

The sixth round of nutrition surveillance in Karamoja region was conducted through August/September 2011 in collaboration with District Health Offices (DHOs). Data were collected from 15-19/08/2011 in south Karamoja (Nakapiripirit, Amudat and Moroto/Napak) and from 31/08/2011-5/09/2011 in North Karamoja (Abim, Kaabong and Abim).

Figure 1: Karamoja Regional map by Livelihood zones.



Karamoja is a Uni-modal region having one rainy season between April and October (**Figure 2**). According to FEWs NET August and July-December/2011, rains have continued to increase in Karamoja since late July. This has provided adequate pasture and water for livestock throughout the region, especially in the pastoral and agro-pastoral areas, enabling households to easily access milk for household consumption and sell in areas close to urban centers. Generally, crop conditions across the agricultural and agro-pastoral areas remain good, which augur well for a good harvest in September. Nonetheless, continued good performance of rainfall through August is necessary. Overall, households in the pastoral and agro-pastoral areas of Amudat, Kaabong, Kotido, Moroto, Nakapiripirit and Napak are likely to remain stressed (IPC Phase 2) through September but improve to minimal food insecurity after the main harvest in September/October

The first season harvest has started in northern Uganda and food supplies (e.g. beans and sweet potatoes) have increased in the market. The harvest of most crops such as maize, beans, millet, sweet potatoes, rice, and groundnuts are expected to be average due to average rains received.

Harvests of pulses and vegetables are increasingly improving household food security in Karamoja. The main cereal harvest starting in September is expected to further bolster food access. However, the continued closure of livestock markets in Amudat and Nakapiripirit districts due to foot and mouth disease (FMD) remains a concern.

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WFP 2009 village population data

Samaritan Purse 2009 village population data

Kotido district 2009 village population data

World Vision 2009 village population data





Figure 2: Seasonal calendar and critical events timeline

lodal	First rai	ny season	Dry s	eason	Se	econd rainy s	eason			Dry seas	on		Rainy season
Bin	Weeding	First seaso	n harvests	Land	prep., crop sowing	Weeding	Second se	ason ha	rvests	Land sowing i	prep; di n east &i	ry north	Crop cultivation
Ap	 pr 11 May	 Jun	 Jul	Aug	 Sep	 Oct	Nov	Dec	Ja	un .	Feb	 Mai	Apr 12
modal amoja)		Rai	ny season					ļ	Dry se	ason			
(Kar	Land prep., sorghum sowin	gWeeding	Millet sov	wing th	Weeding		Crop har	vests					
	Lean Season	(agric./agropasto	ral areas)						Lea	in Season	(pastor:	al area	s)

The nutrition surveillance system was designed:

- to monitor the overall nutritional status of children aged between 6 and 59 months,
- to identify rates of acute malnutrition among children 6 to 59 months of age,
- to monitor health and morbidity, food security (FS), and water, sanitation and hygiene (WASH) factors linked to acute malnutrition,
- to collect data three times a year in May, August/September and December,
- to build the capacity of district nutrition focal persons (DNFP) and health workers on implementing and running a nutrition surveillance system, and
- to strengthen DHOs skills to identify acute malnutrition trends, through the monitoring of aggravating factors of acute malnutrition, and contributing to the design of appropriate interventions accordingly.

1.2 Nutrition surveillance Methodology

Household was the sampling unit and the sample size was 480 for each district.

A **multi-stage cluster sampling** method was used to select the 480 households per district with a 30 clusters of 16 households design.

For each given district, **village populations** were entered in ENA software for random selection of clusters.

For selected villages with more **than 4 manyattas**⁵, a ballot system was used to randomnly select **4 manyattas** and systematic random sampling used to select **4** households from each selected manyatta.

In villages with **3 manyattas**, 6 households are selected from one manyatta and remaining 10 from the two manyattas (5 households from each), for **2 manyattas** in the village 8 households selected from each while villages with only **one manyatta** had all the 16 households selected from it.

In places with **no manyatta** settings, the village was divided into four segments based on locally accepted boundaries and 4 households selected from every segment using systematic random sampling.

Nutrition security questionaire was administered to all selected households and anthropometric measuresments carried on households with children 6 – 59 months.

Data was entered in ENA for SMART (May 4th, 2011 version) to determine nutritional indicators of Weight for Height (WHZ), Weight for Age (WAZ) and Height for Age (HAZ) z-scores using WHO 2006 Standards. Design weights were added to each district (total population divided by number of respondents) to perform a regional weighted analysis using EPIINFO 3.5.3. CDC Calculators using MS Excel 2007 were employed to identify 85% probability threshold estimates, and to perform two surveys t-test to compare September 2011

⁵ Manyatta is a cluster of traditional Tukul huts, which can accommodate up to 300 people individually and communally surrounded by briar enclosure







results with results obtained from former rounds. NCHS 1977 reference in **Annex 6** are presented in order to compare earlier survey results with the current ones.

Data on children identified with flagged reference values for WHZ were checked, confirmed to be correct, therefore analysis was run without exclusion. Malnourished children identified during the survey were referred to the appropriate nutrition program according to their WHZ.

2 Results

A total of 2,858 out of 2,880 households were interviewed and 2,936 children 6 to 59 months were measured. The table below gives relevant information on households interviewed, children measured, replaced households, absent households and missing children.

	Kaabong	Kotido	Abim	Moroto/Napak	Amudat	Nakapiripirit	Karamoja
Households interviewed	480	478	480	461	480	479	2,858
Children measured	525	582	462	463	458	445	2,935
Replaced households	0	0	0	0	0	0	0
Absent households	0	2	0	19	0	1	22
Missing children	0	9	0	1	2	0	12

Table 1: Information related to sample size, replaced/absent households and missing children

Regional gender ratio was 0.95:1, male to female respectively. Age ratio (6-29 months/30-59 months) was 1.45. At district level, Nakapiripirit and Kotido with an age ratio equal to 1.89 and 1.68 respectively (above an expected value of 1.0) contributed to the high age ratio across the region. A high age ratio indicates an over representation of children below 30 months. In Karamoja, age estimation is more difficult with children closer to 59 months because of an often poor parental recall of birthdays and lack of documented birthdates using documents such as immunization cards. Therefore, concerns of including children older than 59 months, larger/taller children are presumed to exceed 59 months and are excluded from screening which may lead to the high age ratio. As per our field observation, most households with children over 40 months, a mother has two additional children below 30 months; this may provide added explanation to the high age ration.

2.1 Anthropometric Indicators

- GAM in Karamoja was 9.1% (7.9 10.4 95% CI) and SAM 1.9% (1.4 2.5 95% CI) based on weigh for height Z-scores (WHO Standards)
- Moroto/Napak showed a higher prevalence of GAM 12. 5% (9.4 -16.6, 95% CI) and SAM 4.3% (2.4 7.6 95% CI).Chronic stunting was 49.7% (42.9 56.4 95% CI) and underweight 33.3% (28.0 38.9 95 CI).
- Nakapiripirit district showed the second highest prevalence of GAM 11.2% (8.6 -14.6 95% CI). This is a significant decrease from May 2011 where the district recorded the worst indices of both GAM 20.4% (16.0 25.6 95% CI) and SAM 5.6% (3.5 6.9 95%).

Table 2: W/H – Z (wasting) amor	g 6- to 59-month children pe	er district, WHO 2006 Growth Standards
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Indicator	Kaabong	Kotido	Abim	Moroto/Napak	Amudat	Nakapiripirit	Karamoja
GAM W/H < -2 z and/or oedema	8.6% (5.9 - 12.4)	6.7 % (5.0 - 8.9)	6.9% (4.2 - 11.3)	12.5% (9.4 - 16.5)	9.2% (6.3 - 13.1)	11.2% (8.6 - 14.6)	9.1% (7.9-10.4)
SAM W/H < -3 z and/or oedema	1.1% (0.5 - 2.7)	0.5% (0.2 - 1.6)	1.9% (0.8 - 4.9)	4.3% (2.4 - 7.6)	2.0% (0.9 - 4.1)	1.8% (0.9 - 3.4)	1.9% (1.4-2.5)



Table 3: H/A-Z (Stunting) and W/A-Z (Underweight) among 6 to 59 month children per district, WHO2006 Growth Standards

Indicator	Kaabong	Kotido	Abim	Moroto/Napak	Amudat	Nakapiripirit	Karamoja
Stunting	29.0%	42.8%	26.6%	49.7%	17.5%	38.2%	34.2%
H/A< -2 z-score	(21.6 - 37.6)	(37.0 – 48.8)	(20.4 - 34 .0)	(42.9 - 56.4)	(11.5 - 25.7)	(31.9 - 45.0)	(31.5-37.0)
Underweight	18.9%	25.6%	15.6%	33.3%	15.1%	29.0%	22.9%
W/A< -2 z-score	(13.2 - 26.2)	(21.2 - 30.5)	(12.5 - 19.3)	(28.0 - 38.9)	(10.3 - 21.6)	(22.9 - 35.9)	(21.2-24.7)

Table 4: MUAC Results of Children >65cm per district

Indicator	Kaabong	Kotido	Abim	Moroto/Napak	Amudat	Nakapiripirit	Karamoja
GAM	6.1%	7.9%	6.3%	16.4%	4.6%	16.0%	9.4 %
(<125 mm)	(4.3-8.6)	(5.3-11.7)	(3.4-11.3)	(12.1-21.9)	(2.7-7.6)	(11.7-21.4)	(8.2-10.7)
SAM	1.5%	1.5%	1.1%	3.2%	1.1%	3.6%	2.0%
(<115 mm)	(0.7 - 3.4)	(0.8-3.0)	(0.5-2.5)	(1.9-5.3)	(0.5-2.5)	(2.0-6.5)	(1.5-2.6)

Classification of malnutrition categorized by interpretation levels shown in **Table 5** are based on the following⁶:

- Wasting: acceptable (0-5%) / poor (5%-10%) / serious (10%-15%) / critical (greater than 15%);
- Stunting: acceptable (less than 20%) / poor (20%-30%) / serious (30%-40%) / critical (greater than 40%);
- Underweight: acceptable (less than 10%) / poor (10%-20%) / serious (20%-30%) / critical (greater than 30%).

Table 5: GAM expressed according to the WHO classification of malnutrition prevalence

Indicator	Kaabong	Kotido	Abim	Moroto/Napak	Amudat	Nakapiripirit	Karamoja
Wasting	poor	Poor	poor	serious	Poor	Serious	Poor
Stunting	Poor	critical	Poor	critical	acceptable	critical	Serious
Underweight	Poor	Serious	Poor	critical	Poor	Serious	serious

2.1.1 Nutrition Indicators December 2009 – September 2011

In order to compare data with former rounds of nutritional surveillance, all previous anthropometric data was re-analysed using the current version of ENA for SMART May 2011.

Compared to the years May 2011 round, the rate of GAM has decreased in all districts.

The rate of GAM for the September 2011 and September 2011 has not shown any significant change (p=0.714) from 9.5% (7.7-11.4 95% CI) to 9.1% (7.9-10.4 95% CI).

Additionally, rates of Sam showed no significant change (p=0.657) between the two surveys (September-10 and September-2011) 1.9% (0.9-5.7 95% CI) to 1.9% (1.4 - 2.5 95% CI).

Figure 3 and **Figure 4** gives shows the rates (with Confidence Intervals) of Global Acute and Severe Acute malnutrition identified since December 2009 up to the current round in September 2011.

⁶ WHO. 2000. WHO Complementary feeding: Family foods for breastfed children.





Figure 3: GAM Rates per district from December 2009 to September 2011

Figure 4: SAM Rates per District from December 2009 to September 2011



2.1.2 Nutrition Indicators by Livelihood

In order to give a more comprehensive understanding of malnutrition across the three livelihood zones, weighted analysis was done and the prevalence of GAM was high in agricultural zone 10.6%(7.4 - 13.7 95%) CI) while agricultural Livelihood zones had a higher prevalence of SAM 2.7% (1.2 - 4.1 95% CI) though the situation appears more less similar as shown in **Table 6** below.

INDICATOR	AGRICULTURAL	AGROSPASTORAL	PASTORAL
GAM	10.6%	9.4%	9.8 %
W/H< -2 z and/or	(7.4 – 13.7)	(6.9 – 11.8)	(7.7 – 12.0)
SAM	2.7%	2.6%	1.5%
W/H < -3 z and/or	(1.2 – 4.1)	(0.9 – 4.2)	(0.6 – 2.5)

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Table 6: Stunting and underweight weighted analysis by livelihood zones, WHO 2006 standards

INDICATOR	AGRICULTURAL	AGROPASTORAL	PASTORAL
Stunting	39.8%	37.2%	36.6%
H/A< -2 z	(36.1 - 43.5)	(33.9 – 40.6)	(33.3 – 39.8)
Underweight	24.7%	25.2%	25.7%
W/A< -2 z	(18.6 – 30.9)	(20.8 – 29.5)	(21.2 – 30.3)

2.1.3 CDC Calculator

In order to increase precision and overcome the potential limitation of the small samples in a survey location, the CDC calculator was used to further analyse the prevalence of GAM and SAM for each district i.e. the probability for survey results to exceed a determined threshold for GAM and SAM rates, and results were calculated taking into account the number of clusters, the design effect, and GAM and SAM point estimates (WHO standards, no exclusion).

Table 7: Prevalence of GAM Probability thresholds

Threshold Value	KAABONG	KOTIDO	ABIM	MOROTO/NAPAK	AMUDAT	NAKAPIRIPIRIT
5.0%	99.7%	96.5%	90.0%	100.0%	99.9%	100.0%
7.0%	86.4%	38.9%	<mark>47.7%</mark>	100.0%	93.9%	99.9%
7.5%	77.0%	23.5%	<mark>36.7%</mark>	99.9%	88.2%	99.7%
10.0%	20.5%	0.6%	6.6%	93.8%	34.1%	79.7%
11.0%	9.0%	0.1%	2.9%	81.5%	17.2%	55.3%
12.0%	3.6%	0.0%	1.3%	61.4%	7.6%	30.4%
12.5%	2.2%	0.0%	0.8%	50.0%	4.9%	20.7%
15.0%	0.2%	0.0%	0.1%	9.7%	0.4%	1.6%
17.5%	0.0%	0.0%	0.0%	0.9%	0.0%	0.1%
18.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%
20.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%
22.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 8: Prevalence of SAM Probability thresholds

Threshold Value	Kaabo	ong	Kotido	Abim	Moroto/Napak	Amudat	Nakapiripirit
0.25%	99.	8%	88.2%	100.0%	100.0%	100.0%	100.0%
0.5%	93.	1%	50.0%	99.7%	100.0%	100.0%	100.0%
1.0%	57.	1%	11.8%	90.8%	100.0%	95.7%	95.0%
1.5%	28.	0%	2.8%	68.7%	100.0%	76.4%	69.7%
1.6%	24.	1%	2.2%	63.9%	100.0%	71.2%	63.0%
2.0%	13.	0%	0.8%	45.8%	99.8%	50.0%	38.3%
2.5%	6.0)%	0.2%	28.4%	98.2%	28.7%	17.6%
3.0%	2.8	3%	0.1%	17.1%	92.1%	15.4%	7.4%
4.0%	0.6	5%	0.0%	5.9%	61.4%	4.1%	1.2%
4.3%	0.4	1%	0.0%	4.3%	50.0%	2.7%	0.7%
5.0%	0.2	2%	0.0%	2.1%	27.3%	1.1%	0.2%
7.5%	0.0)%	0.0%	0.2%	1.4%	0.0%	0.0%
Legend		Impo	ssible	Improbabl	e Probable	Very prot	bable





2.1.4 Treatment for Malnutrition

A total of 131 **malnourished children were identified and referred** to health centres during data collection process (41 SAM and 90 MAM referrals, **Table 9**).

Table 9: Children (6 to 59 months) referred to nutrition treatment programs during surveillance

	Kaabong	Kotido	Abim	Moroto/Napak	Amudat	Nakapiripirit	Karamoja
OTP	5	5	4	12	5	10	41
SFP	8	10	8	18	15	31	90
Total	13	15	12	30	20	41	131



Table 10: Children (6 to 59 months) surveyed currently enrolled treatment for malnutrition at the time of the survey

	Abim	Amudat	Kaabong	Kotido	Moroto/Napak	Nakapiripirit	Karamoja
OTP	4	4	8	15	6	7	44
SFP	24	5	20	40	71	29	189
Tot TFP	28	9	28	55	76	36	232

2.2 Health Indicators

2.2.1 Morbidity Results

Occurrence of illness within the two weeks prior the survey was high in four districts (above 80% in Kaabong and Moroto/Napak and above 70% in Kotido and Amudat, and above 60% in Abim and Nakapiripirit). Abim had the least 6 to 59 month children being affected by a disease within the two weeks the survey In Karamoja, there has been a small increase in the reported cases of illness in the region among children aged 6-59 months from May 2011, this is mainly due to increases in reported malaria and acute respiratory illness.

Table 11: Occurrence of illness among 6- to 59-month children (in the past 2 weeks prior the survey)

	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit	Karamoja
	62.6%	71.8%	88.0%	74.2%	81.0%	63.1%	73.8%
Illness	(58.1-67.0)	(67.7-76.0)	(85.2-91.8)	(70.7-77.8)	(77.4-84.5)	(58.6-67.6)	(72.3-75.4)

Of those children that reported illness, malaria was the most frequently reported disease **(Table 12)** followed by acute respiratory infection (ARI) and diarrhoeal illness.

Moroto/Napak recorded the highest prevalence of malaria at 78.6%, while Kotido had the least 64.6%. Kaabong recorded the highest prevalence of diarrhoea 48.9% and ARI 71.2% among children 6 to 59 months two weeks prior to the survey as shown in **Table 12** below.

Table 12: Diagnosis for children with recorded illness in past 2 weeks

lliness	Abim	Amudat	Kaabong	Kotido	Moroto/Napak	Nakapiripirit	Karamoja
Malaria	64.7%	65.6%	65.6%	64.6%	78.6%	74.0%	68.9%
ARI	57.4%	62.9%	71.2%	50.9%	63.6%	46.1%	59.5%
Diarrhoea	35.2%	34.0%	48.9%	41.4%	44.1%	45.9%	41.7%
Others	1.3%	1.5%	3.3%	5.4%	6.7%	3.6%	3.6%

Malaria cases increased from 61.0% to 68.7% from May to September. Increases were seen in Nakapiripirit, Moroto, Kotido and Amudat, while decreases in reported cases were found in Kaabong and Abim.

Acute respiratory illness increased throughout Karamoja from May (52.7%) to September (59.5%). Increases were seen in Moroto, Kaabong, Abim and Amudat with decreases Nakapiripirit and Kotido.

Alternatively, reported cases of **diarrhoea** across the region have dropped from 53.3% to 41.7%. Nakapiripirit, Moroto, Kotido and Kaabong all reported decreases in the reported cases of diarrhoea, while Abim and Amudat reported similar rates.





Figure 5: Reported cases of Diarrhoea, Malaria and ARI from May 2010 to September 2011

The use of ORS in the management of diarrhoea was high in Kotido 89.4%, Moroto /Napak 88.5%, Kaabong 83.6%, Amudat 77.6%, Nakapiripirit 76.8% and low in Abim 70.5%. Carers of children who did not receive ORS during episodes of diarrhoea were asked reasons why ORS was not provided, responses included a lack of awareness on availability and preparation. In a number of cases while some children did not get ORS because of ORS being out of stock at the village health units as shown in the **Figure 6** below.



Figure 6: Reasons provided by cares for not using ORS with children with Diarrhoea

Vitamin A is essential for the immune response of children to illness as well as the prevention of xeropthalmia (night blindness). Measles continues to be a major factor related to child morbidity and mortality in developing contexts. Through adequate immunization and widespread (herd) immunity the risk of this illness is significantly reduced. Coverage levels of measles vaccination and Vitamin A were included into the surveillance round to assess whether adequate coverage is reached in Karamoja to prevent these illnesses. The reporting mechanism includes coverage with a card, which was viewed by the enumerators and without a card, relying on mother's memory.

Overall coverage for these two health initiatives was above Ministry of Health requirements for Uganda as per Tables 13 and 14.





Table 13: Measles Vaccination in Karamoja per district

	Abim	Amudat	Kaabong	Kotido	Moroto/Napak	Nakapiripirit	Karam oja
With Card	62.3%	49.5%	33.7%	83.1%	65.8%	44.7%	57.2%
Without Card	31.4%	42.8%	59.5%	13.2%	31.4%	44.7%	36.6%
Total	93.7%	92.3%	93.2%	96.4%	97.3%	89.5%	93.9%

Table 14: Vitamin A coverage in Karamoja per district

_	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit	Karamoja
With Card	61.0%	45.2%	30.5%	83.3%	53.7%	37.8%	52.8%
Without Card	33.3%	46.3%	67.8%	13.2%	42.4%	52.3%	41.8%
Total	94.4%	91.5%	98.3%	96.6%	96.1%	90.1%	94.7%

2.2.2 ITN Possession and use results

The use of Insecticide Treated bed Nets (ITNs) has shown to reduce the burden of malaria and associated morbidity and mortality among children. ITNs have also shown to improve the nutritional status of the children⁷.

ITN ownership across the region was above 70% in September 2011 except Moroto/Napak with 53.1% which has been recording declines from December 2009 (80%) to 35.6% in May 2011 .Moroto however showed a slight increase from 35.6% in May 2011 to 53.1% in September 2011.Most of the households gave responses for non possession of ITN as shown in the Table 16 below.

Of households that reported owning a mosquito net, over 85% of the children less than 5 years across the region in September 2011 slept under the ITN .In Moroto/Napak, despite the fact that an average number of households possessed ITN nets, their ITN use by children less than 5 years was 89.4. (**Table 15**)

	Abim	Amudat	Kaabong	Kotido	Moroto/Napak	Nakapiripiri
ITN ownership	95.8%	71.0%	70.0%	80.5%	53.1%	84.6%
child less than five	90.5%	89.0%	96.5%	89.4%	91.5%	87.1%
child above five	28.6%	35.6%	89.3%	22.9%	33.7%	28.6%
Mother	92.3%	96.4%	88.5%	91.4%	92.7%	97.5%
Father	64.0%	26.2%	18.5%	32.7%	27.0%	63.9%
None	5.7%	0.0%	0.0%	0.8%	1.5%	0.0%

Table 15: Insecticide Treated Net ownership and use at household level

⁷ Friedman, J. F., P. A. Phillips-Howard, et al. (2003). "Impact of permethrin-treated bed nets on growth, nutritional status, and body composition of primary school children in western Kenya." <u>Am J Trop Med Hyg</u> **68**(4 Suppl): 78-85.



A significant percentage of ITN was destroyed in Kotido (78.5%), Abim (60%) and Amudat (54.7%), which might require distributing ITN in the near future. The other main reason of not owning ITN is due to the fact that most HH never received and high in Kaabong and Nakapiripirit. (**Figure 7**)



Figure 7: Reasons for non-possession of ITN by households

2.3 Food Security Indicators

2.3.1 Main Food source

Cultivation was the highest reported '*main food source*' throughout the region in September 2011 (56.6%), followed by purchasing which contributed (31.8%) while food aid unexpectedly contributed low (4.3%) in the whole region of Karamoja, hunting/gathering was at 4.2% (**Table 16**)

Main Food Source	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit	Karamoja
Food Aid	0.0%	0.0%	1.5%	0.0%	0.0%	0.0%	0.2%
Barter	0.0%	1.5%	0.2%	0.8%	0.7%	0.0%	0.5%
Borrowing	0.0%	0.6%	0.2%	1.3%	3.3%	4.0%	1.5%
Cultivation	94.0%	30.6%	55.8%	57.9%	47.7%	53.2%	56.6%
Food aid	0.0%	4.2%	14.2%	0.4%	4.8%	1.3%	4.1%
Hunting/gathering	0.0%	3.3%	6.3%	4.6%	9.3%	2.1%	4.2%
Other	0.0%	0.6%	0.2%	0.0%	3.3%	1.3%	0.9%
Purchasing	6.0%	59.2%	21.7%	34.9%	31.0%	38.2%	31.8%

Table 16: Main Source of Food for households per district

The September 2011 results are in stark contrast to May 2011 where purchasing food was the main source of household food with 54.8% and cultivation was only 32.0%. Nakapiripirit and Kotido had the greatest decreases in the need for families to purchase food from May (82.3% and 75.3%, respectively) to September 2011 (38.2% and 34.9% respectively).

In **Moroto**, cultivation has increased from 14.6% in May 2011 to 47.7% in September. Purchasing declined from 65.8% in May 2011 to 31.0% in September 2011.

In **Kotido**, showed the greatest increase in cultivation 2.7% in May 2011 to 57.9% in September 2011, buying dropped from 75.3% to 34.9% during the same period.





Kaabong has remained relatively stable in regards numbers of households relying on purchasing and cultivation, 21.6 and 55.8% respectively. While the percentage of households relying on food aid increase from 5.6% in May to 14.1% in September.

Amudat also remained relatively stable with the purchasing food decreasing from 61.0% in May to 59.1 in September 2011. Cultivation increased gradually from 14.3% in September 2010 to 30.6% in September 2011.

In **Abim**, buying remains the main food source. However, there was an increase from 79.7% in May 2011 to 94.0% in September 2011.



Figure 8: Main sources of Household food from May 2010 to September 2011

2.3.2 Current HH income source and expenditure

The region depends mainly on cash for work (37.3%) and selling charcoal/firewood (23.5%) as the main current income sources followed by sell of crops (11.5%) and selling kwete (9.1%).

Selling charcoal/firewood was the main *'current income source'* for the districts of Kaabong (32.9%), Kotido (45.6%), Moroto/Napak (43.4%), Nakapiripirit (33.2%). Abim relied mainly on *'cash for work'* (64.0%) for current income while Amudat a greater percentage was selling livestock which stood at 42.7%. Across the livelihoods Cash for work was dominant in agricultural (45.1%) while selling Charcoal/firewood was high in Pastoral and Agro pastoral at 34.4% and 32.45% respectively.







The majority of income is spent on food (93.4%) in the region; Kaabong (88.1%), Kotido (97.9%), Abim (94.2%), Moroto (97.0%), Amudat (95.0%) and Nakapiripirit (88.8%). Health and Education took a percentage of 3.6% and 2.4% in the whole region.



Figure 10: Main Household Expenditure per district - September 2011

2.3.3 Household Food Consumption Score (FCS)

The regional acceptable total FCS in September 2011 was at 52.0%, while moderate and poor were at 32.3% and 15.7% respectively.

Abim since September 2010 has decreased the percentage of households with a poor and borderline FCS from 6.0% to 0.4% and 56.2% to 25.8% respectively in September 2011. At the same time Abim has increased the households with 'acceptable' FCS from 3708% to 73.6%.

The districts of Abim (73.8%), Amudat (86.9%), Kotido (30.8%) and Nakapiripirit (52.4%) had an increase in percentage of households under acceptable range in September 2011 compared to May 2011 which was at



48.3%, 26.7%, 16.3% and 45.3% respectively. Moroto had the majority of households under moderate (47.3%) and poor (41.2%) while acceptable total FCS was only at 11.5%.



Figure 11: Food Consumption Score per Districts in Karamoja

On weighted analysis by livelihood zones in Karamoja, agricultural zones had the highest acceptable total FCS of 51.1%. Alternatively Agro-pastoralist had the highest percentage (25.3%) of households with a "poor" food consumption score.



Figure 12: Food Consumption score for Livelihood Zones, Karamoja







2.3.4 Household Dietary Diversity Score (HDDS)

All the six districts had their mean HDDS falling within the medium classification. Amudat had the highest mean HDDS (5.7). Moroto continues to be of concern with the lowest mean HDDS of 3.4 (**Table 17**). There was no significant change in the regions mean HDDS between September 2010 (4.3) Compared with May 2011, all have seen small increases in their dietary diversity. No significant changes are noted between the mean HHDS in September 2011 (4.4) and September 2010 (4.3).

The mean HHDS is similar between all livelihood zones in Karamoja, yet as per May 2011, Pastoralists continue to have the highest percentage of households with poor HDDS (**Table 18**).

HDDS	Abim	Amudat	Kaabong	Kotido	Moroto/Napak	Nakapiripirit	Karamoja
Low (≤3)	8.5%	9.4%	38.5%	48.5%	58.6%	37.4%	33.3%
Medium	78.1%	35.4%	44.6%	33.1%	39.3%	49.3%	46.7%
High (≥6)	13.3%	55.2%	16.9%	18.4%	2.2%	13.4%	20.0%
HDDS	45	57	42	43	34	4 1	44
mean	4.0	0.7	- 	7.0	0.4	7.1	¬.T

Table 17: Household Diet Diversity Score per district

Table 18: Household Dietary Diversity per Livelihood Zone

	Agricultural	Agro-pastoral	Pastoral
Low (≤3)	23.4%	37.8%	38.9%
Medium	61.9%	41.0%	37.1%
High (≥6)	14.7%	21.3%	23.9%
HDDS mean	4.2	3.9	4.2

2.3.5 Child meal

The number of meals⁸ eaten in the last 24 hours preceding the interview was assessed among 6 to 59 month children, and results showed that across the region children mainly consumed two meals per day, with exception of Abim and Amudat where 52.7% and 45.6% of 6 to 59 month children consumed three meals per day. Kotido and Moroto/Napak showed serious levels of children on consuming only one meal per day at 28.9% and 24.7%, respectively (**Table 19**).

Table 19: Meal frequ	Jency among 6 t	to 59 month (children (24	hours recall)	oer District
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Child meal	Abim	Amudat	Kaabong	Kotido	Moroto/Napak	Nakapiripirit
0			0.2%	0.2%	0.7%	0.4%
1	3.5%	4.8%	8.8%	28.9%	24.7%	12.3%
2	34.4%	29.0%	50.8%	52.1%	59.9%	39.2%
3	52.7%	45.6%	31.3%	17.8%	2.4%	31.5%
4 and above	2.9%	10.0%	2.1%	0.8%	0.4%	0.2%

Across the livelihood zones, children from agro-pastoral and pastoral communities mainly consumed two meals per day. Agricultural communities provided a higher frequency of meals to children as per **Table 20**.

⁸ A **meal** is an instance of eating, specifically one that takes place at a specific time and includes specifically prepared food (determined by home, culture, time or place), e.g., breakfast/lunch/supper. A meal is a mixture of foods, e.g., carbohydrates, proteins, fats and micronutrients. A snack is one or two food groups, e.g., fruit, boiled egg, milk etc.







Table 20: Meal Frequency among 6 to 59month old children (24 hours recall) per Livelihood Zone

Child meal	Agricultural	Agro-pastoral	Pastoral
0		0.7%	0.1%
1	7.1%	16.5%	17.7%
2	39.5%	50.6%	43.2%
3	42.4%	17.8%	29.4%
4 and above	1.8%	3.2%	3.3%

2.3.6 Household consumed foods according to HDDS

Cereal Consumption remained high in the region (94.2%) in September 2011; Amudat (99.1%), Kotido (97.7%), Abim (98.8%), (Moroto/Napak 89.4%), Kaabong (99.2%) and Nakapiripirit (89.4%). Consumption of high protein value foods still remain relatively low in the region, with the main source of protein being pulses (35.1%), then milk (25.8%) and meat (13.1%). There has been a general decline in consumption of meat and meat products between September 2010 and September 2011 across all the districts with exception of Amudat district whose consumption of meat and meat products increased between September 2010 and September 2010 and September 2011 from 9.3% to 24.2% respectively. Milk consumption decreased across the region after September 2010 (26.1%) to approximately 18%, but has returned to these levels.





2.3.7 IDDS and Food group consumption by 6-59 months children

Karamoja children aged between 6 and 23 months in Karamoja had an average individual dietary diversity score in the medium range with less than five different foods in the past 24 hours. Moroto was identified with having the lowest IDDS score average and the highest percentage of children receiving less than 3 foods in the past 24 hours. Amudat was identified with the greatest variety of foods being fed to children within this age group. **Table 21** shows the IDDS scores for each of the districts in September 2011.





Table 22: IDDS for children age 6-23 months per district i	in Karamoja, September 2011
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IDDS	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit	Karamoja
Low (≤ 3)	6.8%	11.2%	28.4%	43.9%	49.5%	33.2%	29.6%
Medium	57.2%	16.6%	29.8%	35.8%	45.8%	42.8%%	38.0%
High (≥6)	36.0%	72.2%	41.8%	20.3%	4.4%	24.0%	32.4%
HDDS Mean	5.1	6.4	5.3	4.8	3.6	4.2	4.9

Children 6-23 months were mainly feed on foods from cereal origin; with 90.2% of children consuming grain products in the past 24 hours.

Milk and milk products was consumed by 26.9% of children between 6 and 23 months

The consumption of starchy foods was generally low throughout Karamoja, with only 11.7% of children consuming products in the past 24 hours.

When combining Vitamin A rich foods (green leafy vegetables, fruits and yellow/red vegetables), 78.0% children of children 6-23 months consumed these foods in the past 24 hours, 47.2 % of children consumed oil, in the form of processed oil, butter or fat. Alternatively organ meat and meats were consumed by only 5.7% and 13.3% respectively.

Similar eating patterns were observed for children from 24-59 months and this was also reflected in the Household Dietary Diversity.

The graph (**Figure 14**) below gives a visual representation of the foods consumed throughout Karamoja in September 2011.



Figure 15: Foods consumed by children 6-59 Months in the previous 24 hours

2.3.8 Exclusive breast feeding

Exclusive breastfeeding in the region was at 61% just one percent higher than the national 60% (UDHS 2006), Kotido had the highest percentage 89.3%, followed by Kaabong (67.8%), Moroto/Napak (66.1%), Abim (60.4%), and Nakapiripirit (50.0%) while Amudat with the highest consumption of milk had its exclusive breastfeeding practices at only 32.6%.



Table 23: Exclusive Breast Feeding per District in Karamoja

Exclusive breast feeding	Abim	Amudat	Kaabong	Kotido	Moroto	Nakapiripirit
No	39.50%	67.40%	32.20%	10.70%	66.10%	50.00%
Yes	60.50%	32.60%	67.80%	89.30%	33.90%	50.00%

2.3.9 Coping mechanism

People in Karamoja adopted various coping mechanisms.

Reducing the number of meals that were consumed was highest at 36.2%, relying on less preferred foods (22.0%), while those who did not adopt any coping mechanism was at (15.4%) in the region. The percentage of households who did not cope was highest in Kaabong at 36.4% while all households in Moroto and Kotido had a copping mechanism in the 7 day recall period. **(Figure 16)**

Reducing the number of meals was the main coping mechanism across the livelihoods; Agricultural (38.4%), Agro Pastoral (35.5%), and Pastoral (34.9%), those who relied on less preferred foods was highest in Pastoral zone (28.9%). Agricultural zone had the highest percentage of food secure households (20.2%) while the percentage of food secure households in Agro pastoral and pastoral were at 14.3% and 14.2% respectively.



Figure 17: Coping Mechanisms employed by Households per District in Karamoja

2.4 Water, Sanitation and Hygiene (WASH) Indicators

2.4.1 Primary water sources

The common water sources used in Karamoja region include; borehole, seasonal streams/ponds, swampy water and taps. Boreholes remain the main sources of water for the house hold ranging from 69.4% in Kaabong to 93.5% Nakapiripirit. The findings revealed that unsafe water source utilization was highest in Kaabong with a proportion of 30.4%, 26.7% in Amudat, 5.8% in Nakapiripirit, 4.4% in Kotido, Moroto/Napak was 1.1% and Abim was least with 0.6%.

Compared with September 2010, May and September 2011, all the district indicated general increase of borehole water source utilization except Moroto which is fluctuated between 75% and 99%. Kotido has



stabilized at around 86.0% usage. In the same period, unsafe water utilization was high in Kaabong followed by Amudat. Across the entire region, there was a decrease in the number of households using unsafe water sources compared to May 2011 except in Kaabong (26.3% to 30.4%) and Moroto (0.3% to 8.9%), **Figure 18** further illustrates the trend.



Figure 19: Main Water Source per District in Karamoja

2.4.2 Water treatment

Most of the households across the region, do not use any water treatment methods (91.9%), some of water treatment like boiling, solar and use of disinfectants were registered across the region. Kaabong registered the highest use of boiling (12.9%), while Moroto registered the lowest at 0.2%. Use of disinfectants was noted in all districts except Kotido and Moroto, with the highest use in Kaabong (7.5%) and lowest in Amudat 0.2% as illustrated in the **Figure 20**.







2.4.3 Time to water source

Physical distance (or duration walking) to a water source is one of the determinant factors to water access and can be linked to child care behaviors. Household respondents' were asked the time they take to walk from their home to main water point. The result revealed that good proportion of households 83.3% in Nakapiripirit took less than 15 minutes to the water source and least recorded in Kaabong with 19.6%. Majority of the households in the region take between 15 and 60 minutes to reach the water source as illustrated in the **Figure 22**.





2.4.4 Hand Washing Practice

Out of the household interviewed 73.4% across the entire region use water only to wash their hands, the highest use however was recorded in Amudat (91.0%) and lowest in Kaabong at 46.3%, use of water only was followed by hand washing with soap at 19.9%, Ash and other means at 5.6% and 1.28% respectively. Nakapiripirit registered the highest usage of soap at 28.8% while Amudat recorded the lowest at 7.7%. Other things used for hand washing included sand, residue and leaves.

Of the households that used soap, majority washed their hands before food preparation 14.4% with Moroto recording the highest usage of 42.7% and Abim recording the lowest of 2.3%, Hand washing before food preparation was followed by hand washing before defecation at 17.8%, the most affected critical point was washing hands after cleaning baby bottoms which was done by 9.0% of the respondents. **Figure 24** illustrates hand washing at critical junctures for a period of time.







2.4.5 Human waste disposal

Most of the households continue to use the bush as their means of human waste disposal across the districts. The districts most affected with an average of over 50% were Amudat (89.6%), Moroto/Napak (85.5%), Nakapiripirit (62.6%) and Kotido (50.4%). The findings revealed that Amudat district had the highest proportion of house hold using the bush (89.6%) while least was Kaabong district with 41.2%. Abim remains the leading district with private pit latrines 50.2%, however despite the high use of bush in the region; there was an overall decrease of its use and an increase in use of both private and community pit latrines as illustrated by **Figure 26**.



Figure 27: Human waste Disposal per district in Karamoja, September 2011



3 Conclusions





3.1 Nutrition and Health

Global Acute Malnutrition (GAM) rate in Karamoja Region is similar to that of the same period last year; **9.3%** (7.9-10.9 Cl 95%) in September 2010 and **9.1%** (7.9-10.4 95% Cl) in September 2011 and showed a decrease from **12.8%** (11.0 -14.9 Cl 95%) recorded in May 2011.

Nakapiripirit and Moroto continue to have GAM rates above 10%. Priority should be given to these districts to strengthen active case finding and ensure these districts benefit from targeted nutrition programs that aim to address the situation through Therapeutic and supplementary feeding programmes⁹. While other districts have decreased their GAM, they remain heavily reliant on the production of sustainable farming and so continue to be highly vulnerable at times throughout the year and to seasonal shocks, such as extended periods of dry and drought.

Current population figures estimate the total population of Karamoja being 1,152,464; bringing the under five children population to be 230,493 (20% of the total population). In considering the number of children suffering from acute malnutrition based on the last three rounds of surveillance data, it could be expected that the number of children under 5 years with moderate and severe malnutrition ranges between 20,975 and 29,503 with between 4,379 and 6,453 severely malnourished.

The Uganda Nutrition Action Plan aims for a target of 32% of children under 5 years to suffer from chronic malnutrition by 2016. Moroto/Napak, Kotido and Nakapiripirit continue to exceed national levels of 38%, indicating that there needs to be a concerted focus on childhood nutrition in these areas, Chronic malnutrition caused by long term poor dietary intake continues to be a major concern in Karamoja with three districts, Kotido, Moroto/Napak and Nakapiripirit having critical levels. Almost half the children in Moroto/Napak suffer from chronic malnutrition, making these children more vulnerable to acute malnutrition.

Similarly with underweight children, by 2016 Uganda aims for a target of 10% of children under 5 to be underweight. Underweight being a combination of acute and chronic malnutrition also remains serious throughout the region, especially in Moroto/Napak, where 1 in 3 children is underweight for their age,

The health of children and their exposure to acute illness continues to be of major concern considering the high numbers of children reporting illness. The rate of illness for Karamoja was 73.8%, ranging from 63.5 % in Nakapiripirit to 88.8% in Moroto/Napak.

3.2 Food Security

The current survey period coincided with the cultivation and harvest period in Karamoja. Cultivation was highest main food source in the region with 56.5% of household identifying this as their main food source. This is in direct contrast to 32.0% of cultivation in May 2011. At the same time, the purchasing of food was inversely proportional to the increase in cultivation going from 61% in May 2011 to 31.8% in September 2011. While this year's decreases in the need to purchase foods between May and September, similar results were seen in 2010 between the same rounds.

Food aid unexpectedly contributed low (4.3%) in the whole region of Karamoja, hunting/gathering was at (4.2%).

The region depends mainly on cash for work (37.3%) and selling charcoal/firewood (23.5%) as the main current income sources followed by sell of crops and brew (11.5%).

Slightly more than half of the households included in the survey recorded an acceptable FCS. Kotido and Moroto/Napak continues to have the majority of households with borderline or poor FCS, 69.2% and 88.5% respectively.

⁹ MSF Nutrition Guidelines 1986





Agricultural livelihood zones had the highest percentages of households with acceptable FCS, while agropastoralist had the least.

While there can be some comparisons made between the FCS and the rates of malnutrition, these links are tenuous and vary between districts. Kotido reported one of the lowest rates of acute malnutrition, but had the second poorest results in household food consumption.

Cereal Consumption remained high in the region (95.6%) in September 2011. Consumption of high nutritional value foods still remain low in the region; meat (13.1%), eggs (1.4%) at the regional level. At the district milk consumption ranged from by 84.0% of households in Amudat, and 1.3% of households in Moroto.

The consumption of important macro and micro-nutrients for growth and immunity (Vitamin A, Iron, Fatty Acids) among children was low, with cereals again being consumed the most. Protein for growth was usually accessed through pulses, rather than meat products. Dark green leafy green vegetables were the main source of iron for children. The under-development of children's guts and compromised health status may prohibit the optimal absorption of these nutrients.

All members of Karamojong families generally eat from the same pot. This is reflected in the similar number of meals eaten by adults and children and a reflection in the dietary diversity of the household and children. This is particularly important with the main coping mechanism for food shortages is the reduction of meals per day.

3.3 Water, Sanitation and Hygiene (WASH)

The main source of drinking water was a borehole in all districts ranging from 69.4% in Kaabong to 99.0% in Abim. The findings revealed that unsafe water source utilization was high in Kaabong with a proportion of 30.4%, 26.7% in Amudat, 5.8% in Nakapiripirit, 4.4% in Kotido, Moroto/Napak was 1.1% and Abim was least with 0.6%. Most (91.9%) of the households across the region do not use any water treatment methods. While there is a presumption that water taken from boreholes is potable, water storage mechanisms at the household may be a source of contamination of water as most of many of the containers used for water storage have dual/many uses within the house.

Physical distance (or duration walking) to a water source is one of the determining factors of water access. Household respondents were asked how long it takes them to walk from their home to main water point. Across Karamoja only 37.9% of households reported they take 15 minutes or less to the main water point (about 500 m, the SPHERE standard for distance), whereas about 52.2% take between 15 minutes to an hour and 9.9% take more than an hour.

Unsanitary human waste disposal increases the risk of cross infection and disease. Majority of households reported to use the bush with an average of over 50% were Amudat (89.6%), Moroto/Napak (85.5%), Nakapiripirit (62.6%) and Kotido (50.4%) as the main mean of human waste disposal except in Abim where 50.2% used a private pit latrine.

Hand washing practices with soap at critical junctures are generally low across the region. This also may contribute to the high rates of diarrheal disease in Karamoja.

4 District key findings

- Abim: GAM levels decreased from 8.3% in May 2011 to 6.9% in September 2011 while SAM reduced from 2.6% in May 2011 to 1.9% in September 2011. Households with an acceptable FCS increased has gradually increased from 37.7% in September 2010 to 75.7% in September 2011. Children that were fed three meals per day increased to 56.3% in September 2011 compared to 29.2% and 24.5% in May 2011 and September 2010 respectively
- **Kaabong**: A decline in GAM from 10.2% in September 2010 to 8.6% in September 2011 .There was an increase in households at borderline from 32.0% in May 2011 to 56.7% compared to September 2011 while a decline in households with acceptable food status from 65.7% to 36.6% was noted with a significant increase in under five who slept under ITN from 20.5% in May 2011 to 90.5% in September 2011.







- Nakapiripirit: GAM levels have reduced from 20.4% in May 2011 to 11.0% in September 2011. SAM rates decreased from 5.6% in May 2011 to 1.8% in September 2011. Children fed on three meals per day have increased from 11.5% in May 2011 to 37.7% in September 2011. Households with acceptable food status increased from 45.3% to 52.4% Dependence on buying reduced significantly from 82.3% in May 2011 to 38.2% in September 2011 as households depended mostly on cultivation (53.2%). Private pit latrine usage has been constantly increasing in Nakapiripirit from 8.7% in September 2010, 21.0% in May 2011 to 32.2% in September 2011.
- Kotido: The GAM levels decreased from 13.3% in May 2011 to 6.7% September 2011. Cultivation as main source of food had increased from 2.7% in May 2011 to 57.9% in September 2011 while buying significantly reduced to 34.9% in September 2011 from 75.3% in May 2011, Ownership of private pit latrine had increased from 10.3% in September 2010 to 37.9% September 2011
- Amudat: GAM decreased from 11.9% in May 2011 to 9.2% in September 2011 while SAM increased from 1.0% in May 2011 to 2.0% in September 2011. Households with acceptable FCS increased from 72.0% in September 2010 to 86.9% in September 2011. ITN ownership increased significantly from 39.0% in September 2010 to 71.0% in September 2011.
- **Moroto:** Decrease in private pit latrine usage from 5.1% in may 2011 to 3.4% August 2011 while majority of the children had poor individual dietary diversity score of 48.0%, medium 46.8% and high 5.2%. Cultivation as main food source increased from 14.6% in May 2011 to 47.7% August 2011 while buying decreased from 65.8% to 31.0% respectively.

5 Recommendations

- 1. There is a need to repackage key messages for the communities on how to use, retreat Insecticide Treated Nets. While ownership has increased, there is a general lack of understanding on the correct use of ITNS throughout Karamoja.
- 2. The appropriate disposal of human waste needs to be incorporated into health messages at the health centre and community level. Incorrect disposal of human waste in and around living areas in communities will see a continuation of sickness among children. This practice has the potential to be a vector for both disease outbreaks and the prolongation of outbreaks
- 3. Messages surrounding the importance of Infant and Young Child Feeding need to be introduced at the community level with increased knowledge for health care providers to be able to disseminate to mothers and village healthy teams.
- 4. The importance of household and children's diets need to be strengthened to ensure that children receive both macro and micro nutrients important for growth.
- 5. Strengthen active case finding in the community so as to identify the cases of malnutrition early and prevent severe malnutrition by enrolling children in supplementary feeding programs.
- 6. The reinforcement of appropriate breast feeding practices should be included into health messages to ensure exclusive breast feeding for the first six months and continued breast feeding for up to the first 2 years of age. In many cases this relates to birth spacing of children, therefore family planning education needs to be implemented into many communities in Karamoja.
- 7. Hygiene messages surrounding hand washing needs to be continued to increase the numbers of people practicing good hygiene to prevent illness and cross infection.
- 8. Programs targeting women and children for mosquito net distribution need to be implemented to ensure a high coverage. Included into this needs to be appropriate training on the correct use of ITNs at the household level. This will go some way to reduce the current burden of disease among children.
- 9. Education on the correct storage and treatment of water should be implemented at the household level in order to reduce high levels of water borne disease as well as a reduction in the breeding of mosquitoes.