



INTEGRATED NUTRITION SURVEILLANCE SYSTEM IN KARAMOJA REGION

Final report number 004, December 2010

Summary of key findings

- There were no significant changes in GAM and SAM in all districts and Karamoja region (p value > 0.15) for December 2009 and December 2010 results. The overall GAM and SAM in Karamoja stands at 9.4% (8.2%-10.8%) and 1.2% (0.8%-1.9%) respectively.
- No significant changes in GAM and SAM in agricultural, agro pastoral and pastoral livelihood zones (p value > 0.15) for December 2009 and December 2010 results.
- Moroto district had underweight prevalence above the 30% critical threshold.
- In December 2010, the both prevalence of underweight in agro pastoral and pastoral livelihood zones was considered as serious (between 20% and 29.9%).
- Buying was the main source of food in the month of December 2010 in Moroto, Kotido, Nakapiripirit, and Amudat with exception of Kaabong and Abim who reportedly depended mainly on cultivation.
- Majority of the households were in the borderline food security status (30%-50%) while households in the acceptable category declined.
- Bush remained the main means of human waste disposal in Kaabong, Kotido, Moroto, Nakapiripirit and Amudat districts (54% to 97%).

1. Introduction

Karamoja region, located in North Eastern Uganda, covers a total land area of over 27,900 square kilometers with a population of about 1,000,000¹. The region's administrative units and inhabitants are: Nakapiripirit (133,100), Moroto and Napak (265,800), Kotido (188,100), Kaabong (308,000), Abim (54,900), and Amudat (93,600). The region is mostly a semi-arid plain, largely savannah, covered with seasonal grasses, thorny plants, and shrubs. The three livelihood zones (agricultural, agro pastoral and pastoral) were recently split into the following seven zones.²

South Kitgum Pader Simsim, groundnut, sorghum, cattle zone; North East sorghum, Simsim, maize, livestock zone; Karamoja livestock, sorghum, bulrush, millet zone; North Eastern Karamoja Pastoral zone; Central and South Karamoja Pastoral zone; Eastern lowland, maize, beans, rice zone; and Urban (**Annex 1**).

Despite the anticipated improved availability and access to food due to the improved rains that were indicative of the above normal rainfall³, crop production was affected by disease (honey dew and smut on sorghum and bulrush millet) and by water logging in some areas⁴. Late planted and imported seeds suffered more from disease than early planted and local varieties. Crop production was better in the north, west and south of the region, and worse in the centre and the east (Kotido, Moroto and Napak districts). Given the generally lower incomes in the agro pastoral compared to other livelihood zones, a total of 121,454 very poor agro pastoralists are expected to face deficits of between 1 and 3 months between now and July 2011. The largest deficits are expected in Kotido, Napak and Moroto districts.

The fourth round of integrated nutrition surveillance was conducted for a period of two weeks (29th November to 10th December 2010) in 6 districts based on the following objectives and methodology.

¹ Uganda Bureau of Statistics, Population estimates for 2009

² FEWS Net, June 2010, <http://www.IRINnews.org>

³ FEWS Net, June 2010, <http://www.IRINnews.org>

⁴ FAO Uganda, Karamoja Seasonal Assessment, November 2010

2. Objectives

- ✓ To monitor the nutritional status of children aged between 6 and 59 months.
- ✓ To determine and monitor Health, Food Security and Water, Sanitation and Hygiene (WASH) factors linked to malnutrition.
- ✓ To build the capacity of district nutritionists/focal persons and health workers on running of the surveillance system.
- ✓ To coordinate with DHT and DDMC in order to link the nutrition surveillance system to other early warning systems and build the capacity of districts in preventing and responding to emergencies.

3. Methodology

A three stage cluster sampling method was used to select clusters and households.

In stage one, 25 clusters of 12 households (sample of 300) were randomly selected in each of the 6 districts. The 25 clusters were distributed in each livelihood zone (agricultural, agro pastoral and pastoral) according to population size. This provided an opportunity of data analysis by both districts and livelihood zones. The population in the same livelihood zone is homogeneous and the result is more representative of the actual situation.

In the second stage, accessible population of the villages was entered in EpiInfo/ENA software and clusters assigned randomly.

In the third stage, using the simple ballot system, selected village or manyatta was segmented into units with 12 households (an estimate of one child per household was considered in Karamoja) based on locally accepted boundaries. Data was collected in a randomly selected zone. All children 6 - 59 months in the household were assessed and nutrition security questionnaire administered to all households.

Field work in 6 districts was conducted between November 29th and December 10th 2010. Five teams comprising of 4 health workers in each team collected data in each district for a period of 5 days. The district nutritionists/focal persons participated in data entry, analysis and reporting for a period of 4 days, from December 15th to 18th 2010). Action Against Hunger (ACF) nutrition surveillance staff provided technical support to district nutritionists/focal persons.

The fourth round of nutrition surveillance achieved the data quality checks outlined in the Uganda Nutrition Survey Methodology. The district nutrition focal persons will present the results in January 2011 during the Nutrition Technical Working Group in Kotido district for discussion and validation.

4. Anthropometry results

The Global Acute Malnutrition (GAM) and Severe Acute Malnutrition (SAM) results in Table 1 below were calculated using EpiInfo/ENA software and SMART flags were excluded.

Flag type	Nakapiripirit	Moroto/Napak	Kotido	Kaabong	Abim	Amudat	All districts
WHZ SMART flags excluded (N)	294	310	317	291	297	293	1802
WFA SMART flags excluded(N)	296	309	316	289	299	293	1802

The results are presented in the table below:

Table 1: Nutrition and health status results

INDEX	INDICATOR	Nakapiripirit	Moroto	Kotido	Kaabong	Abim	Amudat	All districts
WHO (2006)	Global Acute Malnutrition W/H < -2 z and/or oedema	11.2% (7.8% - 15.8%)	16.1% (11.6% - 21.9%)	6.6% (4.2% - 10.3%)	7.2% (4.8%-10.7%)	7.1% (4.1%-11.9%)	8.2% (5.6-11.9%)	9.4% (8.2%-10.8%)
	Moderate Acute Malnutrition W/H <-2 z & ≥-3 z no oedema	10.9% (7.5% - 15.5%)	13.5% (9.4% - 19.1%)	5.4% (3.3% - 8.7%)	6.2% (4.2%-9.0%)	6.4% (3.7%-10.8%)	6.8% (4.5%-10.3%)	8.2% (7.1%- 9.5%)
	Severe Acute Malnutrition W/H < -3 z and/or oedema	0.3% (0.0% - 2.6%)	2.6% (1.1% - 6.1%)	1.3% (0.5% - 3.3%)	1.0% (0.2%-4.7%)	0.7% (0.2%-2.8%)	1.4% (0.5-3.5%)	1.2% (0.8%- 1.9%)
	Underweight W/A < -2 z	16.2% (10.9% - 23.5%)	39.5% (33.4% - 45.9%)	26.3% (20.8% - 32.6%)	12.5% (8.0%-18.8%)	5.0% (2.7%-9.2%)	5.8% (2.9%-11.2%)	17.7% (15.5%-20.2%)
NCHS (1977)	Global Acute Malnutrition W/H < -2 z and/or oedema	11.4% (6.9%-18.3%)	14.7% (10.8% - 19.8%)	7.5% (4.8% - 11.7%)	8.2% (5.6%-11.9%)	7.7% (3.9%-14.6%)	10.5% (7.0%-15.5%)	10.0% (8.6%-11.7%)
	Severe Acute Malnutrition W/H < -3 z and/or oedema	1.3% (0.5%- 3.5%)	1.3% (0.4% - 4.2%)	0.9% (0.3% - 2.9%)	0.3% (0.0%-2.7%)	0.7% (0.1%-5.0%)	0.3% (0.0%-2.6%)	0.8% (0.5%- 1.4%)
	Global Acute Malnutrition W/H < 80% and/or oedema	5.4% (2.9%-9.6%)	8.0% (5.3%-12.0%)	2.8% (1.5%-5.4%)	3.4% (1.9%-6.2%)	3.3% (1.8%-6.1%)	4.7% (2.6-8.6%)	3.1% (2.5% - 3.9%)
	Severe Acute Malnutrition W/H < 70% and/or oedema	1.0% (0.3%-3.1%)	0.3% (0.0%-2.5%)	0.3% (0.0% - 2.4%)	0.0% (0.0%-0.0%)	0.0% (0.0%-0.0%)	0.0% (0.0%-0.0%)	0.2% (0.1% - 0.5%)
MUAC (Height >65 cm)	Global Acute Malnutrition (<125 mm)	12.4% (7.4%-20.1%)	18.6% (13.6%-24.9%)	12.3% (7.6%-19.2%)	7.1% (4.2%-11.9%)	6.0% (3.0%-11.6%)	7.5% (4.9%-11.2%)	10.7% (8.9%-12.8%)
	Severe Acute Malnutrition (<115 mm)	2.3% (1.0%-5.7%)	5.1% (2.8%- 9.1%)	2.8% (1.4%-5.7%)	2.0% (0.9%-4.4%)	1.0% (0.3%-3.1%)	1.0% (0.3%-3.1%)	2.4% (1.8%- 3.2%)
SAM / MAM cases referred		4 / 0	15/ 11	8/ 3	2 / 11	2 / 7	3 / 10	34/42
Child morbidity in previous 2 weeks		50.3%	76.6%	85.2%	79.3%	74.2%	51.5%	69.5%

The results in brackets are expressed with 95% confidence.

The results of the previous Nutrition surveillance rounds are represented in Figure 1 and 2 below, and annex 2:

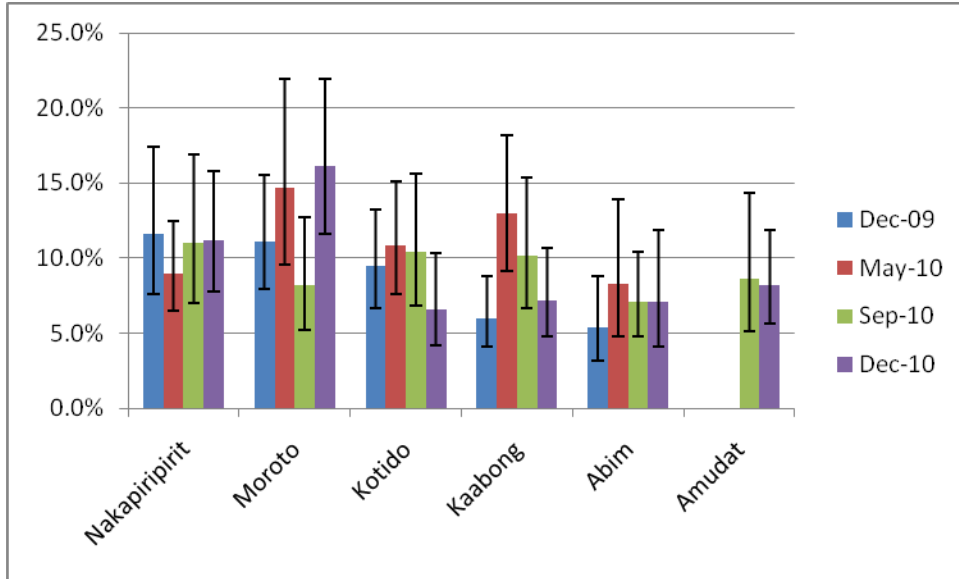


Figure 1: Trends of GAM in districts of Karamoja region collected through Nutrition Surveillance

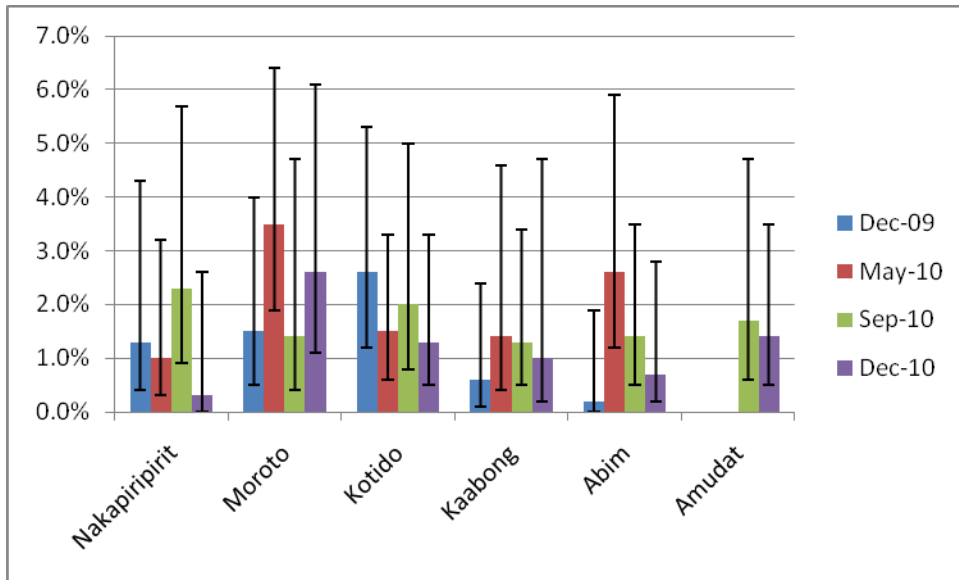


Figure 2: Trends of SAM in districts of Karamoja region collected through Nutrition Surveillance

The statistical comparison of data collected at the same time (December 2009 and December 2010) shows that:

- ⇒ No significant changes in GAM in all districts and Karamoja region (p value > 0.15).
- ⇒ No significant changes in SAM in Moroto, Kotido, Kaabong and Karamoja region.

4.2. Analysis of Acute Malnutrition with EpiInfo/ENA by livelihood zones

The anthropometry data collected from livelihood zones is not sampled strictly on probability proportional to population size and hence the data is weighted and analyzed using complex sample frequency statistic in EpiInfo 3.5. The results are illustrated in Table 2, Figure 3 and 4.

Table 2: Nutritional status by livelihood zone (WHO standards)

Livelihood zone	Indicator	Dec 2009	May 2010	September 2010	December 2010
Agricultural (Dec 2009, N=709) (May 2010, N=565) (Sep 2010, N=616) (Dec 2010, N=618)	Global Acute Malnutrition W/H < -2 z and/or edema	10.3% (6.9%-13.7%)	12.9% (7.9%-17.8%)	10.9% (6.7%-15.2%)	9.7% (6.9%-12.5%)
	Severe Acute Malnutrition W/H < -3 z and/or edema	1.5% (0.0%-3.1%)	2.3% (0.9%-3.7%)	2.1% (0.7%-3.5%)	0.9% (0.0%-1.9%)
Agro-pastoral (Dec 2009, N=416) (May 2010, N=375) (Sep 2010, N=457) (Dec 2010, N=489)	Global Acute Malnutrition W/H < -2 z and/or edema	8.8% (5.4%-12.1%)	8.9% (5.5%-12.3%)	6.6% (4.0%-9.2%)	9.7% (6.5%-12.9%)
	Severe Acute Malnutrition W/H < -3 z and/or edema	1.4% (0.1%-2.7%)	1.4% (0.1%-2.7%)	0.6% (0.0%-1.5%)	1.3% (0.3%-2.3%)
Pastoral (Dec 2009, N=650) (May 2010, N=593) (Sep 2010, N=705) (Dec 2010, N=695)	Global Acute Malnutrition W/H < -2 z and/or edema	9.4% (7.0%-11.8%)	12.8% (9.6%-16.0%)	10.5% (7.8%-13.2%)	9.9% (7.2%-12.6%)
	Severe Acute Malnutrition W/H < -3 z and/or edema	2.1% (0.8%-3.5%)	1.6% (0.5%-2.7%)	1.9% (0.7%-3.2%)	1.8% (0.4%-3.3%)

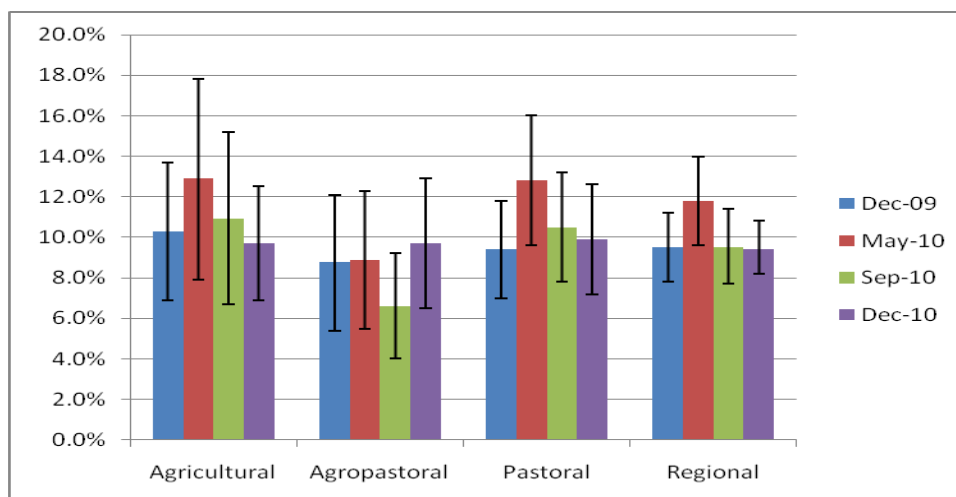


Figure 3: Global Acute Malnutrition by livelihood zone (WHO standards)

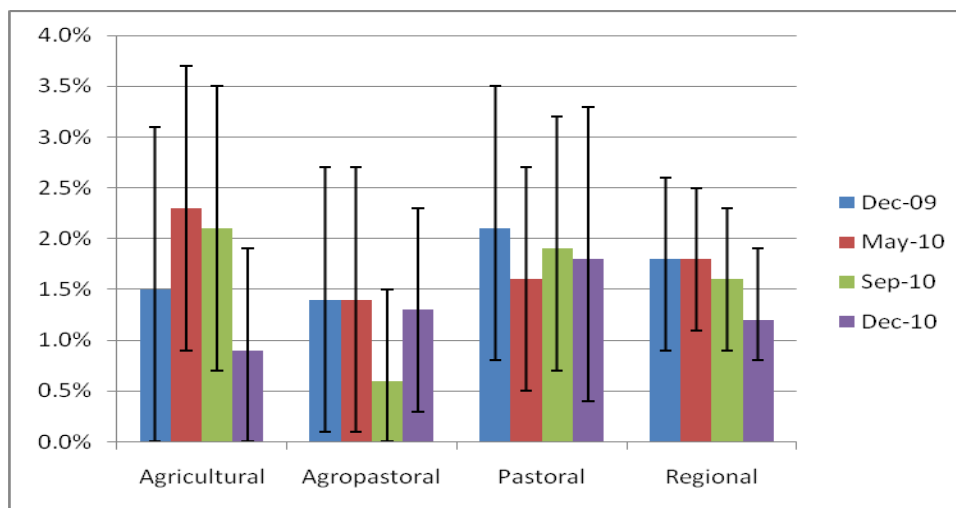


Figure 4: Severe Acute Malnutrition by livelihood zone (WHO standards)

The statistical comparison of data collected at the same time (December 2009 and December 2010) shows that:

- ⇒ No significant changes in GAM and SAM in agricultural, agro pastoral and pastoral livelihood zones (p value > 0.15).

4.3. Analysis of Acute Malnutrition with CDC calculator by district

Small sample survey results have low precision while the 95% confidence interval is considered too tight in a surveillance system. In order to fine-tune the analysis, the CDC calculator was used for the calculation of the prevalence with ≥ 85% probability.

The GAM and SAM results in table 3 underneath are both below the emergency threshold of 15% and 4% respectively.

Table 3: GAM and SAM results expressed with ≥ 85% probability to exceed threshold

District	Global Acute Malnutrition W/H < -2 z and/or oedema			Severe Acute Malnutrition W/H < -3 z and/or oedema		
	Dec 2009	Sep 2010	Dec 2010	Dec 2009	Sep 2010	Dec 2010
Nakapiripirit	9.3%	8.7%	9.3%	0.6%	1.3%	<0.1%
Moroto	9.3%	6.5%	13.6%	0.8%	0.6%	1.5%
Kotido	7.9%	8.3%	5.2%	1.7%	1.1%	0.7%
Kaabong	4.9%	8.2%	5.8%	0.2%	0.7%	0.3%
Abim	4.1%	5.6%	5.3%	<0.1%	0.8%	0.2%
Amudat		6.5%	6.7%		0.9%	0.8%

	Good nutritional situation
	To be followed up
	At risk of nutrition crisis
	Nutrition Crisis

- ⇒ Moroto district recorded an increase in threshold values in GAM from 9.3% to 13.6% and SAM from 0.8% to 1.5%. The district had recorded a decline in prevalence rates between May and September 2010.
- ⇒ Amudat district was incorporated into the surveillance system in September 2009 and hence no comparison to December 2009 results.

4.4 Analysis of Acute Malnutrition with CDC calculator by livelihood zone

Table 4: GAM and SAM results expressed with ≥ 85% probability to exceed threshold by livelihood zone.

Livelihood zone	Global Acute Malnutrition W/H < -2 z and/or oedema			Severe Acute Malnutrition W/H < -3 z and/or oedema		
	Dec 2009	Sep 2009	Dec 2010	Dec 2009	Sep 2009	Dec 2010
Agricultural	8.6%	5.3%	8.3%	0.8%	1.1%	0.8%
Agropastoral	7.2%	8.8%	8.1%	0.8%	0.3%	0.8%
Pastoral	8.2%	9.0%	8.5%	1.5%	1.2%	1.1%

	Good nutritional situation
	To be followed up
	At risk of nutrition crisis
	Nutrition Crisis

Using CDC probability calculator at $\geq 85\%$ precision, there was no change in malnutrition prevalence in agricultural, agropastoral and pastoral zones during the two periods of December 2009 and December 2010. The GAM and SAM in all zones are less than 10% and about 1% respectively. However, a rise of 1% in GAM can be noted in the agropastoral zone.

4.5 Analysis of underweight by district

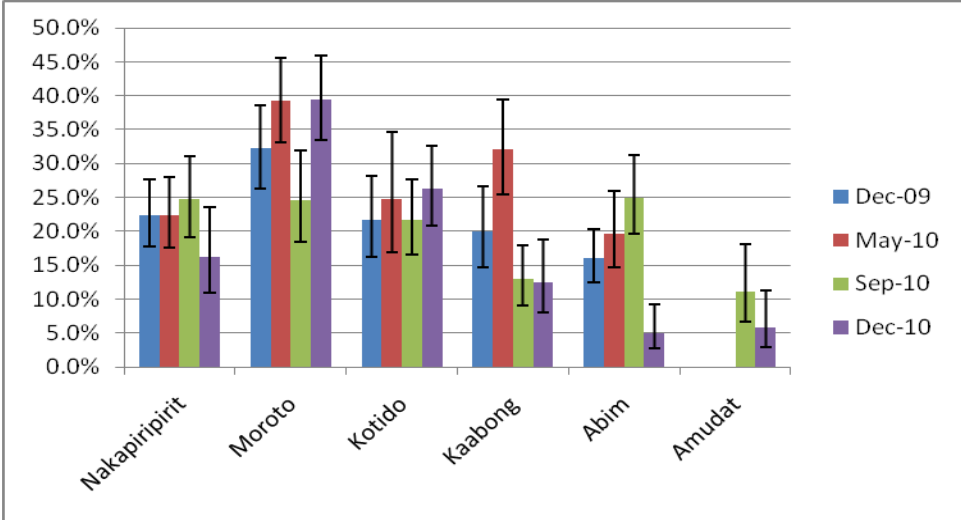


Figure 5: Trends of underweight (WHO standards)

- The statistical comparison of data collected at the same time (December 2009 and December 2010) reveals that:
- ⇒ No significant changes of underweight in Nakapiripirit, Moroto, Kotido and Kaabong districts.
 - ⇒ Significant change in underweight in Abim district (p value < 0.15). The prevalence declined from 16.0% (12.4%-20.4%) in December 2009 to 5.0% (2.7%-9.2%).
 - ⇒ Moroto district has underweight prevalence above the 30% critical threshold.

4.6 Analysis of underweight by livelihood zone

Underweight results by livelihood zone were included for the first time in the round of September. This is the second time the results are share as indicated in the table 4 below:

Table 5: Underweight results by livelihood zone

Livelihood zone	Indicator	September 2010	December 2010
Agricultural September N= 616 December N=620	Total underweight W/A< -2 z	21.8% (17.1%-26.6%)	13.9% (8.8%-18.9%)
	Severe underweight W/A< -3 z	5.9% (3.7%-8.0%)	2.9% (0.8%-5.1%)
Agro-pastoral September N= 457 December N=484	Total underweight W/A< -2 z	16.2% (12.8%-19.5%)	20.0% (15.8%-24.1%)
	Severe underweight W/A< -3 z	2.7% (1.4%-3.9%)	4.3% (2.0%-6.5%)
Pastoral September N=705 December N=694	Total underweight W/A< -2 z	19.9% (15.9%-24.0%)	23.3% (19.4%-27.2%)
	Severe underweight W/A< -3 z	6.6% (3.8%-9.4%)	5.7% (3.9%-7.6%)

In December 2010, the prevalence in agropastoral and pastoral were both serious (20%-29.9%). The agricultural zone recorded medium underweight. Analysis with CDC calculators will be done in the subsequent rounds (same timing).

5. Health Indicators

Health indicators are summarized in figure 6:

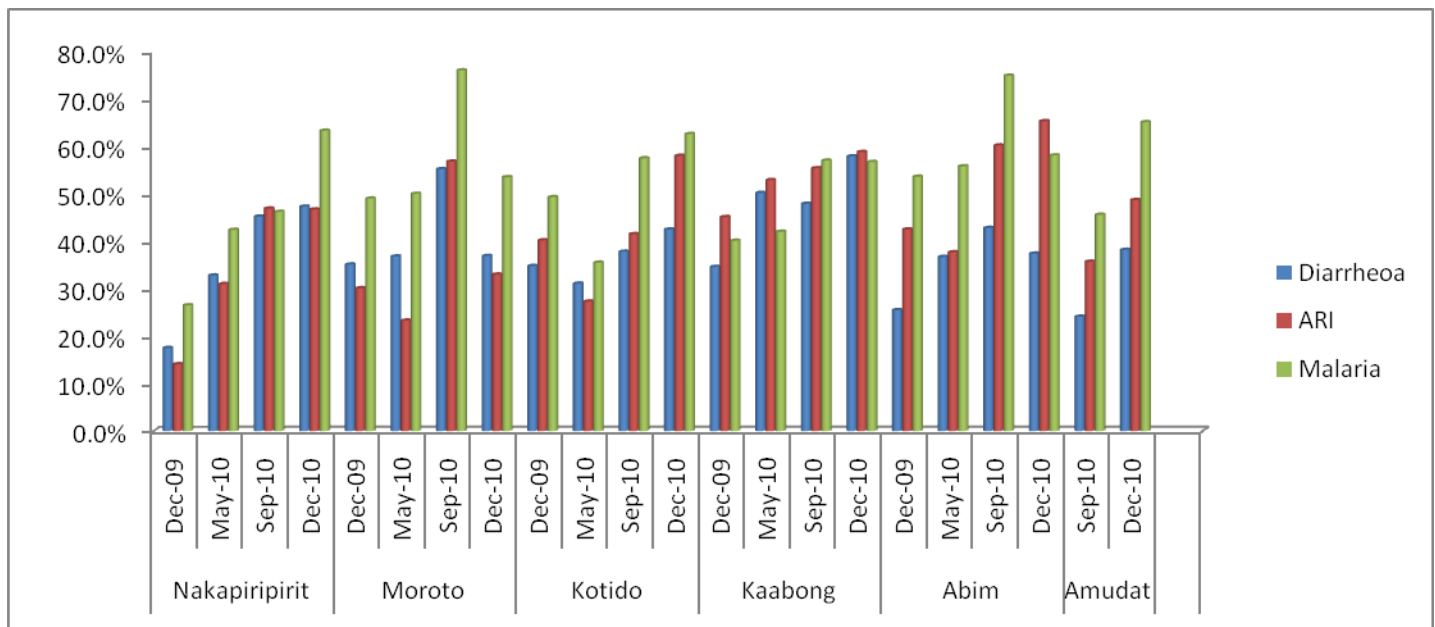


Figure 6: Childhood illnesses, 2 weeks retrospective assessment

Morbidity cases peak between September and December. In the reporting period, malaria cases increased in Nakapiripirit, Kotido and Amudat (having the highest prevalence of 65.1%) and declined in Moroto and Abim. The Health Management Information System (HMIS) report for Amudat district indicated an increase in malaria and ARI as compared to December 2009. Malaria is still a leading cause of Morbidity that may be attributed to low use of preventive insecticide treated nets and limited access to sufficient treatment⁵.

Diarrhea cases decreased in Moroto and Abim but increased in Kotido, Kaabong and Amudat in December 2010 compared to September 2010. Kaabong district reported the highest prevalence of diarrhea. Generally diarrhoea cases rose in December 2010 compared to December 2009. Diarrhoea prevalence across the region is attributed to poor sanitation which is reflected by the low pit latrine coverage and poor hand washing practices with soap at critical junctures.

Acute respiratory infections (ARI) increased in Kotido, Abim and Amudat (i.e. from 41.5% to 58.0%, 60.2% to 65.3% and 35.7% to 48.7% respectively). Moroto recorded decrease (from 56.8% to 33.0%) and Nakapiripirit and Kaabong showed no change in December 2010 compared to September 2010 findings. A range of 13% to 33% increase in ARI cases was indicative in December 2010 compared to December 2009 findings in Kotido, Kaabong, Abim and Kaabong.

Insecticide treated Net (ITN) possession increased across the region with exception of Moroto district (declined from 80.7% in December 2009 to 64.3% in May 2010, 55.7% in September 2010 and 46.0% in December 2010). The increase in ITN possession in all districts with exception of Moroto is attributed to ITN distribution in September 2010 by Ministry of Health supported by Global Fund. There was no difference in possession of mosquito nets among the three livelihood zones.

⁵ FAO 2010 -Uganda Nutrition Profile - Nutrition and Consumer Protection Division .

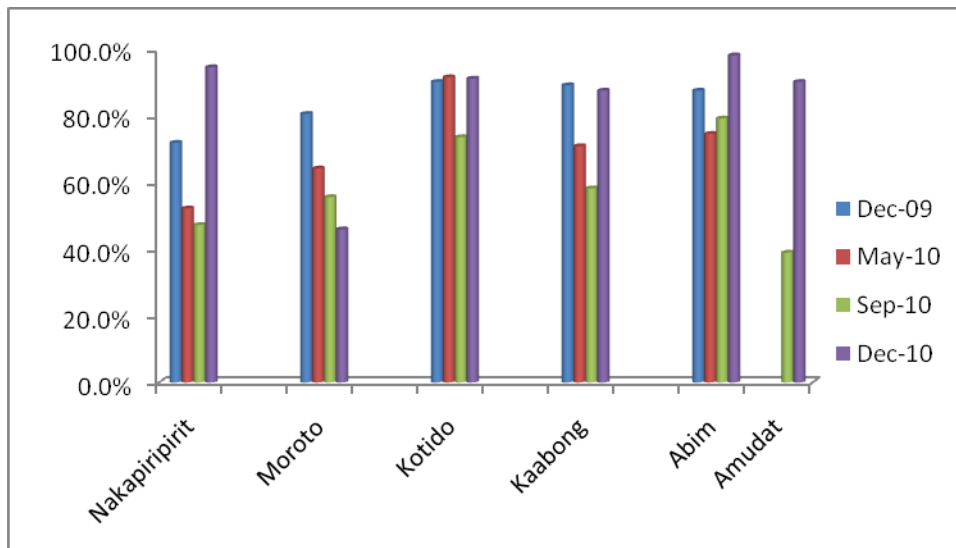


Figure 7: ITN possession

Usage of ITN among children below five years is illustrated in Figure 8 below.

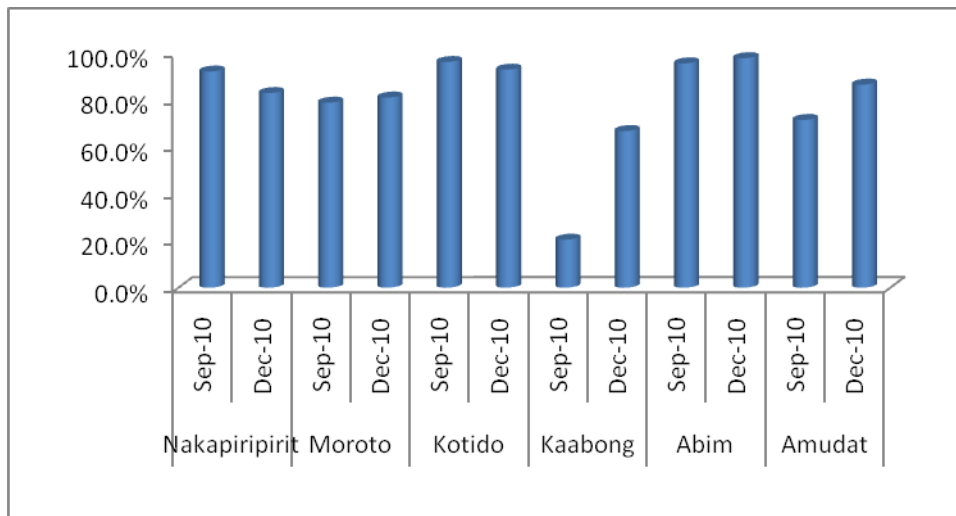


Figure 8: Usage of ITN by children below five years

The percent of children below 5 years who slept under the ITN was above 70% in all districts except in Kaabong district.

6. Food Security and Livelihood Indicators

Main food sources

Buying was the main source of food in the month of December 2010 in Moroto, Kotido, Nakapiripirit, and Amudat with exception of Kaabong and Abim who reportedly depended mainly on cultivation (Figure 9). In Moroto district dependence on cultivation reduced between September and December due to poor harvest. Dependence on buying was attributed to improvement in market conditions especially reduction in cereal prices due to generally good harvest in surrounding regions⁶.

Households in pastoral and agropastoral areas depended mostly on buying food. In the agricultural zone, cultivation was the main source of food.

⁶ FEWS Net, November 2010, <http://www.IRINnews.org>

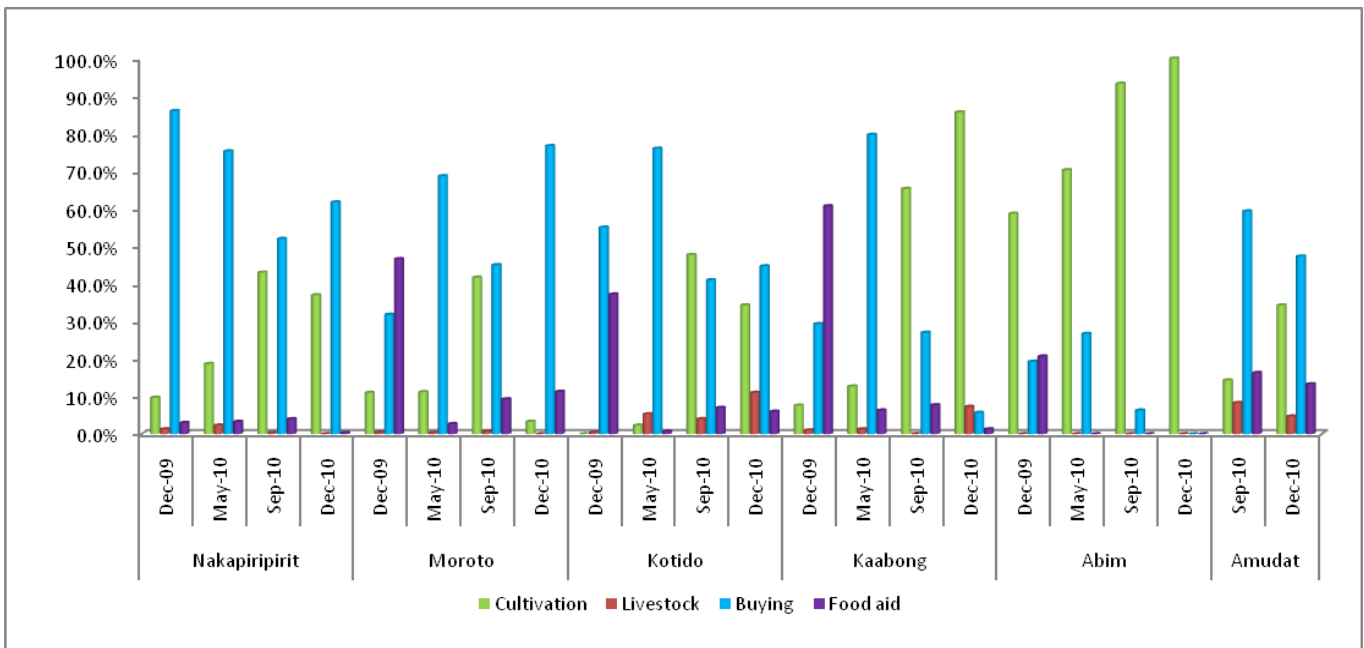


Figure 9: Food sources

Household Dietary Diversity Score (HDDS)

A 24 hour food recall period was used to assess foods consumed by household members within the household. Mean HDDS was 4.3 across the districts and 4.9 across the livelihood zones. Mean HDDS was the same in December 2009 and December 2010. Most households consumed cereals, vegetables, pulses, oils and spices.

Food Consumption Score (FCS)

The Food Consumption Scores categorized into poor, borderline and acceptable are illustrated in Figure 10. Majority of the households were in the borderline category (30%-50%) while households in the acceptable category declined. Less than 20% of the households fell in the poor category. Moroto district recorded 50% decline in households within the acceptable category between September and December 2010. Only 2.7% of the assessed households in Abim district fell under poor food security status.

All livelihood zones recorded 8%-10% decline of households with acceptable food security status, borderline increased by 6%-8%. Pastoral livelihood zone had 19.7% households with poor security status while agro pastoral had the highest (44.6%) of households with acceptable food security status in December 2010 which was similar to September 2010.

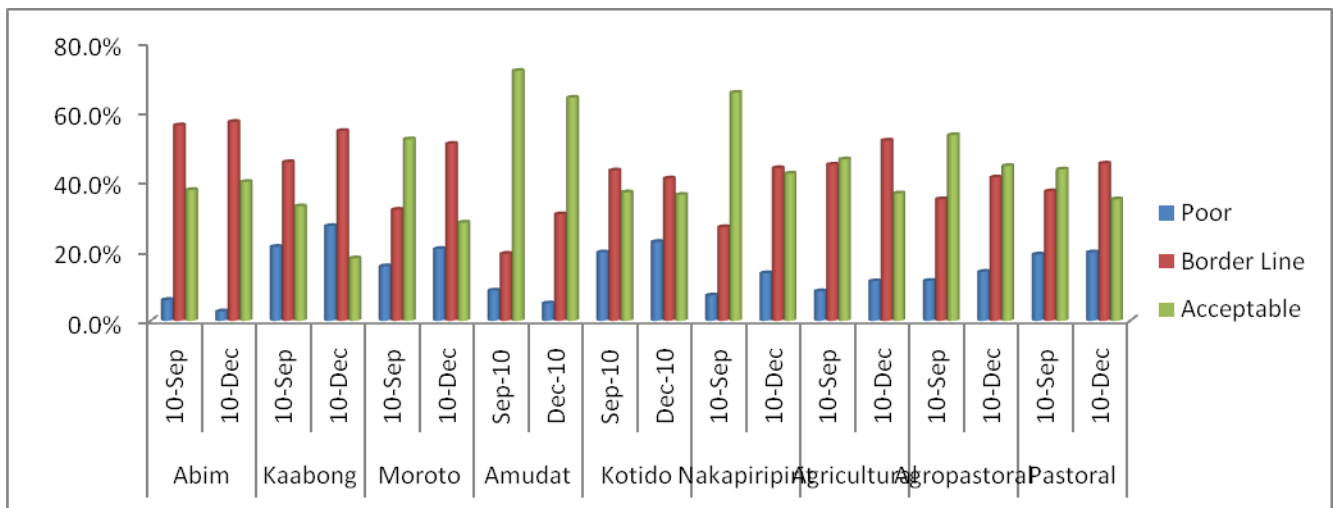


Figure 10: Food consumption score (FCS)

Districts like Moroto, Kotido and Kaabong with more pastoral areas had the highest percent of households with poor food security status in December 2010.

Consumption of food groups with high nutritional value that is important in children’s growth and development is illustrated in Figure 11.

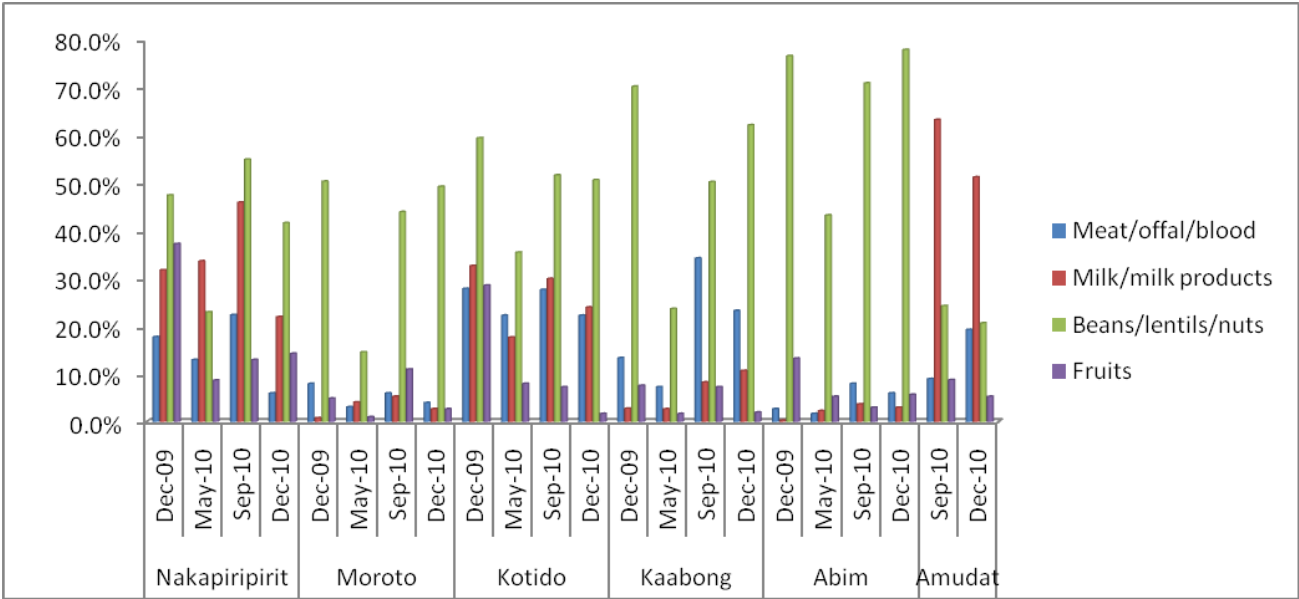


Figure 11: Consumption of food groups for growth and development

The consumption of proteins (beans, meat/offal/blood, and milk/milk products) in December 2009 and December 2010 remained the same. Consumption of fruits remained low and even reduced between December 2009 and December 2010.

Frequency of meals

Assessment of frequency of meals was based on children 6-23 months in the last 24 hours preceding the interview (Figure 12). In Abim, one meal decreased from 31.7% to 0.6% because of the successful crop production in the north, west and south of the region⁷ that resulted in increased consumption of three meals from 24.5% to 53.3%. Kaabong district reported a decline in feeding children on two meals (from 73.2% to 59.7%) and an increase in three meals from 23.5% to 43.9%. In Amudat, consumption of two and four meals increased from 6.9% to 13.7% and 28.3% to 39.3% respectively. However, three meals reduced from 64.1% to 47.0% in Amudat. Most households (52% -69%) in Kotido, Moroto and Nakapiripirit fed children on 2 meals per day.

Feeding of children on three meals across the livelihood zones ranged from 31.4% to 38.8%. The number of children fed on 2-3 meals was similar in the three livelihood zones. The agropastoral zone had the highest percent of children (14%) fed on 4 meals.

⁷ FAO Uganda, Karamoja Seasonal Assessment, November 2010

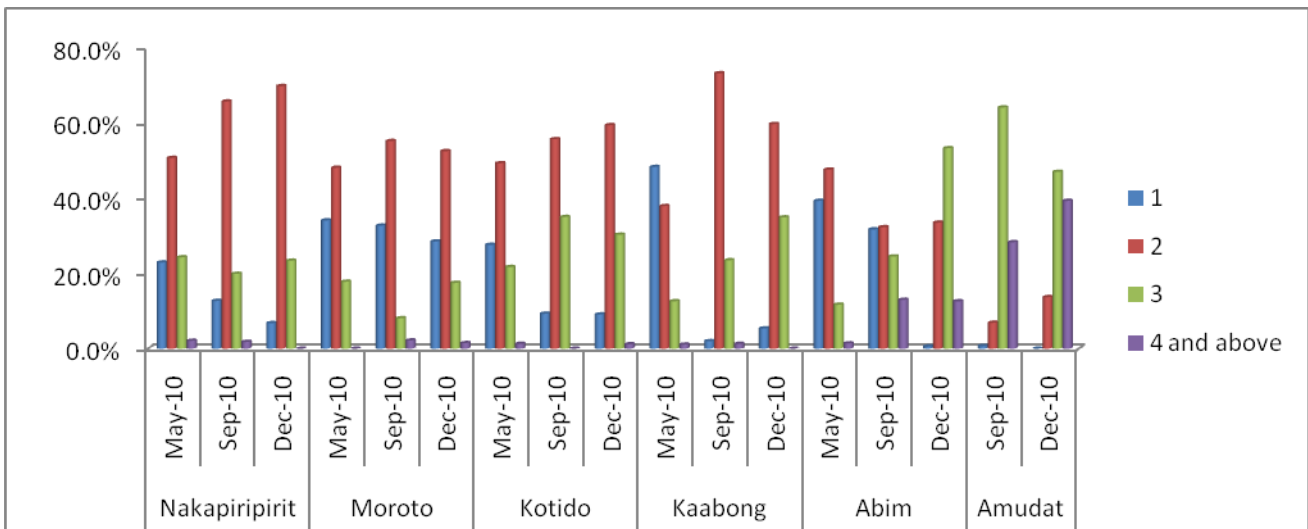


Figure 12: Frequency of meals

7. Water Sanitation and Hygiene (WASH) Indicators

The main source of drinking water across the region was borehole and ranges from 70% to 99%. There was a marginal increase in borehole coverage between September 2010 and December 2010 with Amudat district registering an increase from 49.3% to 70%. The utilization of water from unsafe sources like pans /swamps and unprotected wells/springs was reported in Nakapiripirit (8.3%), Kaabong (6.0%) and Amudat 5.7%.

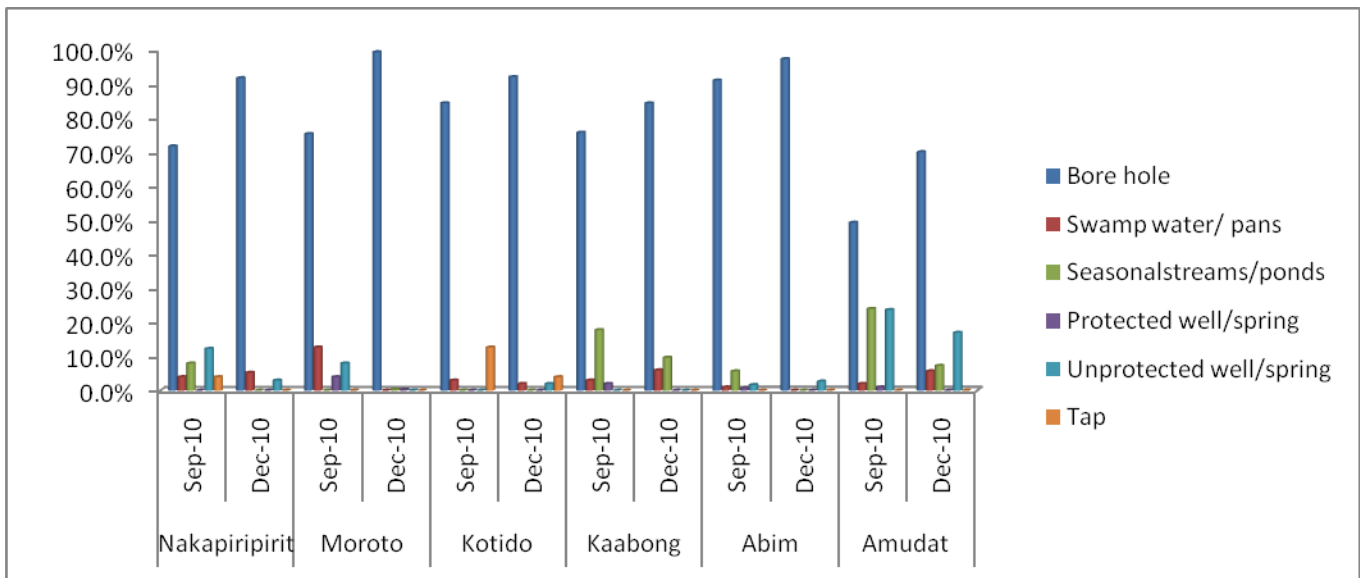


Figure 13: Drinking water sources

Bush remained the main means of human waste disposal in Kaabong, Kotido, Moroto, Nakapiripirit and Amudat (54% to 97%) with exception of Abim District that registered the lowest bush utilization (33.3%). Abim had the highest private pit latrine coverage (43%) with marginal increase reported in Nakapiripirit (2.7% to 18.7%) compared to December 2009 (Figure 14).

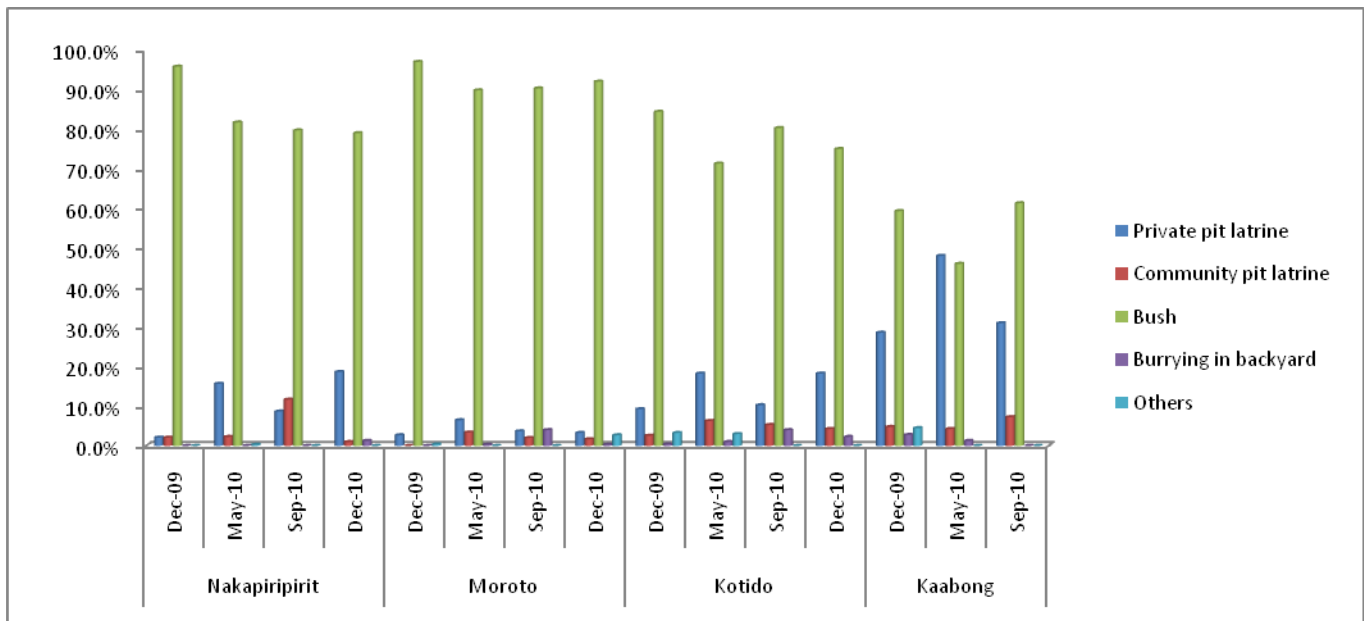


Figure 14: Human waste disposal

Most households across the region wash their hands without soap (56% to 95%). However, some households practiced Hand washing with soap after defecation (2.7% to 24.3%), cleaning child's bottoms (1.0% to 9.3%), before food preparation (1% to 22%), before eating (2% to 15%) and before feeding the children (0% to 7.7%). Nakapiripirit recorded the highest percentage of soap usage (57.0%) while Amudat reported the lowest soap utilization (9.7%). The outbreak of cholera in the region could be linked to low private pit latrine coverage and poor hand washing practices with soap. A strange disease that is yet to be diagnosed was reported in Abim and surrounding districts in Acholi region.

The key factors linked to malnutrition in each district are summarized below.

Nakapiripirit: increase in the net ownership from 47.3% in September to 94.7% in December, and increase in private pit latrine ownership (4.2% in September to 18.7% in December). Households with acceptable food security status decreased from 65.7% to 42.4%.

Moroto: Decline in households with acceptable food security status from 52.3% to 28.3%, dependence on buying contrary to cultivation in September 2010, low HDDS (3) that indicates low economic access to food. Low private pit latrine coverage (less than 10%). Supplementary Feeding Program by Andre Food Consult had temporally stopped admission of moderate cases between October and December 2010. Therapeutic feeding program reports by ACF indicated unsatisfactory performance indicators in cure and defaulter rates: September 2010 (cure rate of 57.8% and defaulter rate of 36.3%), October 2010 (cure rate of 44.1% and defaulter rate of 46.1% and November (cure rate of 65.2% defaulter rate of 25%).

Kotido: Less than 20% of the households wash hands with soap at critical junctures such as before eating, after soiling hands and before feeding young children. Private pit latrine usage falls below 20% and most households use the bush. Households with poor food consumption were 22.7% in December 2010. On a positive note, number of children fed on 1 meal declined while those fed on 2 meals per day increased. Households using borehole water was above 80%.

Kaabong: Cultivation as a food source rose from 7.6% in December 2009 to 85.7% in December 2010, increase in consumption of two meals by children 6-23 months, increase in ITN ownership and percentage of under five children using ITN. Households with an acceptable food security status decreased while those in borderline increased from 45.7% to 54.7% compared to September 2010.

Abim: Increase in consumption of three meals by children 6-23 months (i.e. increased from 24.5% in September 2010 to 53.3% in December 2010) due to the ongoing harvests. Increase in ITN ownership and subsequent reduction in malaria cases. However, diarrhea cases increased from 25.5% in December 2009 to 37.4% in December 2010.

Amudat: Decline in consumption of three meals from 64.15 to 47.0% among children 6-23 months. Insecticide Treated Net ownership increased greatly from 39.0% in September 2010 to 90.3% in December 2010. Increase in malaria cases.

8. Conclusion

There were no significant changes in GAM and SAM in all districts and Karamoja region (p value > 0.15) in December 2009 and December 2010. This was also the same case with livelihood zones. Analysis of GAM and SAM results expressed with $\geq 85\%$ probability to exceed threshold was largely the same. However, Moroto district recorded an increase in threshold values in GAM from 9.3% to 13.6% and SAM from 0.8% to 1.5%. The district had recorded a decline in prevalence rates between May and September 2010.

Malnutrition rates pick between May and September. The overall GAM and SAM in Karamoja was 9.4% (8.2%-10.8%) and 1.2% (0.8%-1.9%) respectively. Factors linked to malnutrition in the region include child morbidity (malaria, diarrhoea and ARI), food insecurity, low private latrine use, inadequate hand washing with soap at critical junctures and high defaulter rates in feeding centers. The results will be shared with Nutrition Technical Working Group and District Health Teams to advocate for interventions.

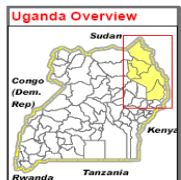
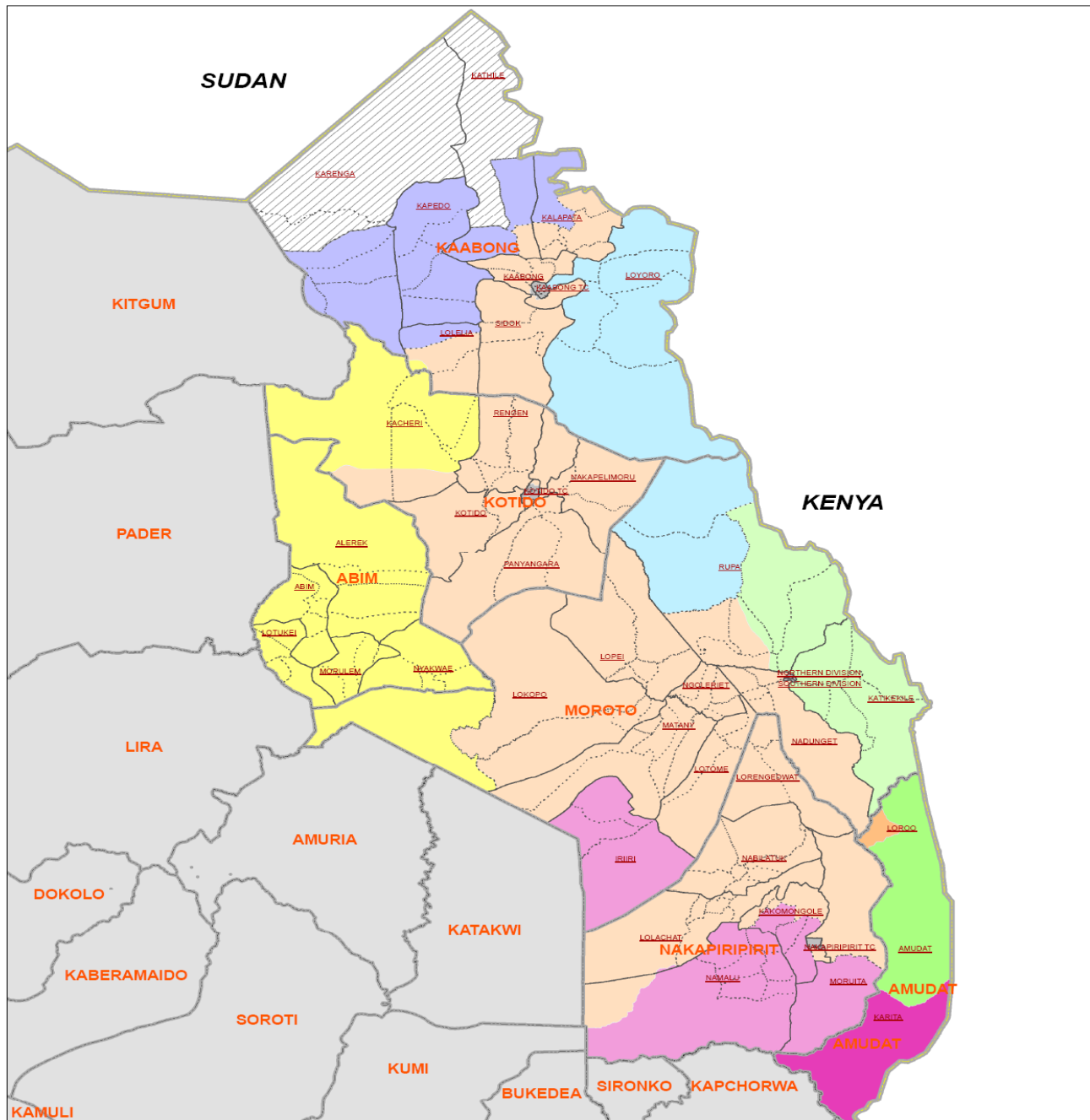
The next round of nutrition surveillance will be conducted in May 2011.

9. Recommendations

- > Strengthen active case finding, referral and follow up of malnourished children with involvement of VHTs at village for effective case management.
- > Strengthen health and nutrition education by focusing on proper ITN usage, frequency of child feeding, ways of complementing child meals to achieve a balanced diet, pit latrine construction and usage, and hand washing practices at critical junctures with soap.
- > Support the immediate food needs of about 20% of households with poor food security status and build the productive capacity of 30%-50% of the households on the borderline.

Annex : Karamoja sub region livelihood zones by sub county

KARAMOJA SUB-REGION: Livelihood Zones (June 2010)



Legend	
	Central and Southern Karamoja Pastoral Zone
	Eastern Lowland Maize Beans Rice Zone
	Karamoja Livestock Sorghum Buirush Millet Zone
	NE Karamoja Pastoral Zone
	NE Sorghum Simsim Maize Livestock
	South Kitgum Pader Simsim Groundnuts Sorghum Cattle Zone
	URBAN
	National Boundary
	District Boundary
	Sub-County Boundary
	Parish Boundary

Data Sources:
 Admin Boundaries/Centers - UBOS 2006
 Thematic - FEWSNET, FAO/District Local Government, DAO, May 2010

This map is a work in progress. Please contact the IMU/Ocha as soon as possible with any corrections.

Draft

Map Disclaimer:
 The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

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