FINAL REPORT FOR SMART SURVEY, MAYENDIT COUNTY, UNITY STATE, SOUTH SUDAN

FEBRUARY 2017

Acknowledgment

I would like to appreciate individuals and institutions who contributed towards successful completion of the anthropometry and mortality SMART survey conducted in Mayendit County, Unity State, South Sudan.

Special appreciation goes to:

- UNIDO for their facilitation and relentless support, throughout the survey period. Special thanks goes to James Keah (Executive Director), Joy Nzaywa (Nutrition Manager), Kennedy Wanyonyi (Finance Manager), James Buom (CHC- Mayendit), Mabany, Natemo, Kulang & William (Nutrition Officers) and the entire UNIDO staff both at Juba and Mayendit.
- Nutrition Information Working Group (NIWG) - South Sudan for their technical input and support.
- Mayendit County administration for their support during the survey. Special appreciation to the County Health Department- Mayendit County.
- Various implementing partners in Mayendit County i.e. Samaritan's Purse, Medair, WFP, VSF for the valuable input and discussions.
- Survey enumerators, for their tireless effort and commitment, caregivers and the general Mayendit community for their cooperation and participation.

Thank you all.

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Abbreviations

BSFP…….. Blanket Supplementary Feeding Programme
CI……..……. Confidence Interval
CMR……..…..….. Crude Mortality Rate
ENA…….....….... Emergency Nutrition Assessment
EPI……...….... Expanded Programme on Immunization
FGD……....Focus Group Discussion
FSL……. Food Security and Livelihoods
GAM……...…….... Global Acute Malnutrition
GFD……...….General Food Distribution
GOSS……. Government of South Sudan
HAZ…….…….. Height for Age Z score
IDP……...…….. Internally Displaced People
IMCI……..……. Integrated Management of Childhood Illnesses
IG……In Government
IO……...…….In Opposition
KAP……..Knowledge Attitude and Practices
KII…….…...……Key Informant Interview
LAZ……....Length for Age Z score
MAM…….……... Moderate Acute Malnutrition
MSF……...Medicines San Frontiers
MUAC…….. Mid Upper Arm Circumference
NIWG……Nutrition Information Working Group
OFDA…….. Office of US Foreign Disaster Assistance
OTP…….. Outpatient Therapeutic Programme
PHCC/U……...…….Primary Health Care Center/ Unit
PLW……. Pregnant and Lactating women
PPS…….Probability Proportion to Size
SAM…….…..... Severe Acute Malnutrition
SD……. Standard Deviation
SFP……Supplementary Feeding Programme
SMART…….…….Standardized Monitoring & Assessment in Relief and Transition
SP……...Samaritan's Purse
SPLA……. Sudanese People Liberation Army
SPLM……. Sudanese People Liberation Movement
SSRA/C……..... South Sudan Rehabilitation Agency/ Commission
U5MR……..…..… Under 5 Mortality Rate
UNICEF……..... United Nations Children Fund
UNIDO……..Universal Interventions and Development Organization
VSF…….Vétérinaires Sans Frontières
WFP……World Food Programme
WASH…….Water Sanitation and Hygiene
WAZ……..Weight for Age Z score
WHO…… World Health Organization
WHZ……...…. Weight for Height Z score
WLZ…….……..Weight for Length Z score

EXECUTIVE SUMMARY

Introduction

Mayendit County is one of the nine counties of Unity State; it borders Leer to the east, Koch to the North, Tonj East. With the current expansion of the State its fall under Southern Liech States with State quarter in Leer and Tonj North to the west, Ayod to the North East across the Nile and Panyijar counties to the South East. Mayendit County has 13 Payams. The county is naturally separated between the North and the less populated South by large swamps.

UNIDO and Samaritan Purse International Relief are implementing various interventions in the County namely food security, water, sanitation and hygiene (WASH) nutrition and health. Medair and MSF are providing emergency medical services.

To get a better understanding and assess the severity of the nutrition and mortality situation in Mayendit County, UNIDO conducted a Nutrition and Mortality SMART survey from the 25th January and 2nd February 2017.

Objectives

The overall survey objective was to determine the nutrition status among children aged 6-59mnths and to estimate crude and under-five retrospective mortality rates in Mayendit County. This also included collecting morbidity data (2-week recall), immunization and supplementation coverage, and a qualitative component on Food Security and Livelihoods (FSL).

Methodology

The survey was a cross sectional study with two-stage cluster sampling using SMART methodology. Anthropometric data, two-week retrospective morbidity, Measles and vitamin A coverage and retrospective mortality data was collected. The sampling frame was drawn from the population of all 13 payams. The first stage involved random selection of 38 clusters based on probability to proportional to size using the ENA for SMART software Nov, 2013 version (9th July 2015 update).

Results

Findings of the nutrition survey indicate an emergency nutrition situation among the surveyed population as per WHO standards. The prevalence of Global Acute Malnutrition (GAM) in Mayendit County based on weight for height z scores /and or oedema was 27.4 % (21.3 – 34.5 95% C.I.) and the prevalence of Severe Acute Malnutrition (SAM) was 5.0 % (3.1 - 7.9 95% C.I.) . The poor nutrition situation is attributed majorly to recent insecurity and fighting since June 2016, as evidenced by the high crude mortality rates (CMR) results (4.08 [3.12 – 5.33, 95% CI]) which has resulted into poor food security. High incidence of disease among children aged 6-59 months was observed and a Cholera outbreak since November 2016 was reported.

The results for Anthropometry, Mortality, Immunization and Morbidity indicators are summarized in Table 1 below.

Table 1: Summary of key findings, Mayendit County, Unity State, South Sudan, Feb. 2017.

Children 6-59 months Anthropometric results(WHO 2006 Standards)		
INDEX	**INDICATOR**	**FEB 2017**
WHZ- scores	Prevalence of global malnutrition (<-2 z-score and/or oedema**)**	(143) **27.4 %** (21.3 – 34.5 95% C.I.)
	Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(117) **22.4 %** (17.3 – 28.5 95% C.I.)
	Prevalence of severe malnutrition (<-3 z-score and/ or no oedema)	(26) **5.0 %** (3.1 - 7.9 95% C.I.)
HAZ- scores	Prevalence of stunting (<-2 z-score)	(167) **32.9 %** (28.8 – 37.3 95% C.I.)
	Prevalence of Moderate stunting (<- z-scores and >=-3 z-score)	(126) **24.9 %** (21.2 – 28.9 95% C.I.)
	Prevalence of Severe stunting (<-3 z-score)	(41) **8.1 %** (5.5 – 11.8 95% C.I.)
WAZ- scores	Prevalence of underweight (<-2 z-score)	(191) **36.2 %** (29.7 – 43.3 95% C.I.)
	Prevalence of Moderate underweight (<- z-scores and >=-3 z-score)	(152) **28.8 %** (24.0 – 34.2 95% C.I.)
	Prevalence of severe underweight (<-3 z-score)	(39) **7.4 %** (5.0 - 10.9 95% C.I.)
MUAC	Prevalence of global malnutrition (< 125 mm and/or oedema)	(135) **26.3 %** (19.6 - 34.2 95% C.I.)
	Prevalence of global malnutrition (< 125 mm and >=115mm and/or oedema)	(101) **19.1 %** (14.2 – 25.2 95% C.I.)
	Prevalence of global malnutrition (< 125 mm and/or oedema)	(38) **7.2 %** (5.0 – 10.3 95% C.I.)

Mortality results	
CMR(deaths/10,000/day)	**4.08 [**3.12 – 5.33, 95% CI] **DEFF 1.97**
U5MR(deaths in children <5/10,000/day	**0.78** [0.29 - 2.10, 95% CI] **DEFF 1.00**

Measles immunization & Vitamin A supplementation		
Measles coverage ≥ 9 months	Overall Immunization Coverage Verified by card Verified by mothers recall	**19.7%** **24.5%** **75.5%**
Vitamin A coverage (6-59) last 6 m	Overall Vitamin A coverage	**15.0%**
Deworming (12-59) last 6 months	Overall deworming coverage	**16.0%**

Morbidity for the last 2 weeks		
Child Illness in the last 2 weeks	Yes	**44.3%**
Proportion of children by type of sickness	Fever Cough Diarrhea Skin Infection Eye infections	**14.6%** **22.8%** **43.1%** **9.7%** **9.7%**

Health seeking behavior		
Treatment sought	Sought treatment WHERE? • PHCU/ PHCC • Mobile Outreach	81.6% Sought treatment WHERE? • 44.1% • 33.3%

Conclusion and recommendations

The findings of the assessment depicts an emergency nutrition situation, above the WHO emergency threshold in Mayendit County. The results indicate that children aged 6-59 months are affected by malnutrition as evidenced by the global acute malnutrition prevalence of 27.4 % (21.3 – 34.5 95% C.I.) which is classified as above emergency nutrition situation as per WHO standards. The prevalence of underweight 36.2 % (29.7 – 43.3 95% C.I.) is also classified as serious. In addition, the crude mortality rates are classified as an emergency (out of control threshold) at 4.08 (3.12 – 5.33 95% C.I). The poor nutrition situation in Mayendit County could be explained by an interplay of recent insecurity, high prevalence of disease and food insecurity. The high prevalence of malnutrition highlights an emergency situation in the County mainly caused by the recent insecurity caused by fighting between IO and IG in the North, which caused major displacement of populations and a disruption of livelihoods and food crops. In addition, the morbidity of the children aged 6-59 months was high with 44.3% of the children being sick within the last 2 weeks and mainly suffering from the main childhood illnesses known to aggravate the nutrition situation of children. The recent reported outbreak of Cholera in the County has also aggravated the health situation. Food insecurity was also highlighted by the majority of the households hence contributing to inadequate food consumption for the children aged 6-59 months. This was also explained by the current coping mechanisms adopted by the households which included eating wild fruits and reduction of meals. This was primarily caused by the insecurity situation in the county since June 2016 which caused destruction of livelihoods, food crops and displacement of populations. This was also excercebated by the flooding that occurred in the county that also destroyed the food crops that had been planted. In addition, the delayed food drops by WFP since September in the South and October in the North due to insecurity also contributed to the poor food situation.

Therefore, urgent nutrition, health and food security interventions are required in the County, with a special focus to Mayendit North which was worst hit by the insecurity and the majority of the IDPs hosted in Mayendit South. Continued and scaled up response for nutrition interventions and provision of nutrition supplies is urgently required. To address the current Cholera outbreak, continued emergency health interventions are required. Non-food items are also required for these households e.g. shelter, seeds, farm & fishing equipment.

Lastly and most importantly, all the emergency interventions to alleviate the current crisis calls for political goodwill to ensure security and stability in the region. In addition, more peace and conflict-resolution initiatives are required to ensure peace and stability in Mayendit County.

INTRODUCTION

Unity State is the second largest state in the Upper Nile region bordering Southern Kordofan in the north; it also borders Warrap, Lakes, Jonglei, and Upper Nile States. Unity State has an area of 38,837 square kilometres (14,995 sq mi) and is composed of nine counties, which are divided into Southern area and Northern area[1], namely Mayom, Rubkona, Panrieng, Leer, Guit, Koch, Abiemnom, Mayendit and Payinjiar. Socio-economically the people of Unity State depend on agricultural production, cattle keeping, fishing, hunting and also local trading among themselves.

Renewed fighting in southern and central Unity, which already faced extremely high levels of food insecurity and malnutrition, has forced thousands of people into swamps, raising concerns about growing hunger. As of April 2016, 4.3 million people were estimated to be in Crisis (IPC Phase 3), Emergency (IPC Phase 4) and Catastrophe (IPC Phase 5) and require urgent humanitarian assistance. This is a significant increase compared to the first quarter of 2016 (2.8 million people) and the same period last year (3.8 million). In May - July 2016, the number of severely food insecure people is expected to increase further from 4.3 million to 4.8 million in line with seasonal vulnerabilities and the economic crisis whereas of April 2016, the highest proportions of populations in Crisis, Emergency and Catastrophe were recorded in Northern and Western Bahr el Ghazal (50%) and Unity (65%) States which is expected to go up by 10% in the projection period (May-July 2016) in both areas. The Greater Upper Nile remains structurally fragile and vulnerable as a result of the protracted conflict.

In October, 2016 Thaker payam authority changed hands from IO to IG and Southern Mayendit started receiving IDPs from Northern Mayendit and Leer (Riari, Adok, Thonyor, Rubchai). Between November and December, 2016 there have been sporadic on-and-off fire exchange and invasion of Dablual by IG. This has affected humanitarian context and operations in Northern Mayendit – as such, affecting community livelihoods especially Health and Nutritional status. There have been human deaths; loss of livestock and the general environment have not been friendly for crop and vegetable cultivation. Crops and vegetables cultivated during the long rain season between July and September could not be well attended to due to conflicts and flooding. The floods mostly affected Mirnyal, Dablual and Malkuer Payams.

The last SMART survey for Mayendit County (June 2016) findings for the nutrition survey indicated an emergency nutrition situation among the surveyed population as per WHO standards. The prevalence of Global Acute Malnutrition (GAM) based on weight for height z scores /and or oedema was 22.8% (19.3 – 26.7 95% CI) and the prevalence of severe malnutrition was 5.2% (3.5 – 7.5 95% CI). In addition in January 2017, the WFP Rapid Response Mission with IPC team and SP conducted a Mass MUAC Screening on 4,250 U5 (2,108 Southern Mayendit and 2,142 Northern Mayendit) and 3,424 PLWs (1,667 in Southern Mayendit and 1,757 in Northern Mayendit) and the results indicated proxy GAM rate of 23.2%, (SAM of 3.6%, MAM of 19.6 %).

[1] http://www.ssddrc.org/states

Among ongoing interventions in the county are:

- Universal Intervention for Humanitarian Organization (UNIDO) implements various programmes including health and nutrition, WASH, child protection and education in Mayendit North and in the South.
- Samaritan Purse implements nutrition, WASH and food security and livelihoods interventions in Southern Mayendit.

Objectives

The overall goal of the proposed SMART nutrition survey was to assess the nutritional status of children 6-59 months of age. This involved providing anthropometric data along with mortality rates of the survey population using the SMART methodology. Food, security and livelihoods (FSL) information was collected using qualitative methods.

Specific Objectives

- To estimate the prevalence of acute malnutrition of children aged 6-59 months in Mayendit County.
- To estimate the retrospective Crude and under five Mortality rates.
- Determine the occurrence of morbidity in children aged 6-59 months.
- To describe the current household food security and livelihoods situation (qualitative).
- To recommend appropriate interventions based on survey findings.

METHODOLOGY

a) Geographic Target area and Population Group:

The SMART nutrition survey was carried out in Mayendit County, Unity State, South Sudan. The study population was children from the age of 6 to 59 months.

b) Survey period

The survey was conducted from the 25th January to 2nd February 2017. Enumerators training was 4 days which involved a standardization test and piloting.

c) Survey design

The SMART survey adopted a cross-sectional household survey design. A two stage cluster sampling was be employed to select the households participating in the surveys. Cluster sampling using the probability proportional to population size (PPS) method, was used to select clusters by the ENA software. All villages were be included in the initial sample selection with each village considered a cluster.

d) Sample size

A sample size of 38 clusters by 12 households (456 households) was chosen for the SMART methodology and was expected to be enough to ensure representativeness with acceptable precision. The following parameters were used.

Table 2: Sample size calculation

Data entered in ENA	Anthro. Survey	Mortality Survey
Estimate prevalence	22.8[2]	1.08[3]
Desired precision	4.5[4]	0.45
Design effect	1.5[5]	1.34[6]
Recall period		90[7]
Average household size	8.2[8]	8.2
% of U5s	20.1[9]	
% of non-respondents	10	10
Sample size Children	545	
Sample size HHs	408	450

e) Cluster selection

Two-stage cluster sampling was used. In the first stage, clusters were randomly selected based on Probability Proportional to Size (PPS) using the ENA for SMART software (July

[2] This is adopted from June, 2016 SP SMART Survey in Mayendit County.
[3] This is adopted from June, 2016 SP SMART Survey in Mayendit County.
[4] Recommendation from Global SMART Guidelines
[5] This is recommended to capture the heterogeneity between the 2 regions i.e. Mayendit North and South.
[6] This is adopted from June, 2016 SP SMART Survey in Mayendit County.
[7] Recall Period, is recommended to be 90 days but would be clarified at field level.
[8] This is adopted from June, 2016 SP SMART Survey in Mayendit County.
[9]. This is adopted from June, 2016 SP SMART Survey in Mayendit County.

2015 update). Village level population figures were updated with the support of the SSRA focal persons, the chiefs of the payams who enabled accurate population estimates in consideration of population migration in and out.

f) Selection of households.

Simple random sampling was used to select the households which involved listing all the households in the selected cluster, assigning each household a number which was written down on a piece of paper. Each piece of paper was then folded and the enumerators, with the participation of the village leaders/elders/chiefs randomly sampled the 12 households.

g) Survey management and organization

The survey was conducted from the 25th January to 2nd February 2017 (including enumerators training and data collection of both the SMART data on nutrition, mortality & morbidity and qualitative data on food security and livelihoods. The survey had 6 teams each comprising of one team leader and two Survey Assistants. The teams were actively supervised by the consultant and UNIDO Nutrition staff who were on the field with them. The recruitment of Survey team was done based on their prior experience in a similar survey and educational background.

h) Data collection and field work

Anthropometric survey

Structured questionnaires were used to collect anthropometric and morbidity data from all children within the eligible age range (6-59 months) using anthropometric questionnaire. The collected data was:

- **Age:** The age of the children was determined using a local calendar of events (no birth records available). The calendar of local events was jointly developed with the survey assistants and county leaders. A separate calendar of events was adapted for the northern and southern parts of the county to consider memorable events in each area.
- **Sex:** Male or female
- **Weight:** Children's weights were taken without clothes using SECA digital scales (100 g precision).
- **Height/length:** Children were measured using wooden UNICEF measuring boards (precision of 0.1 cm). Children less than 87 cm were measured lying down, while those greater than or equal to 87 cm were measured standing up.
- **Mid-upper arm circumference:** MUAC measurements were taken at the mid-point of the left upper arm using child tapes (precision of 0.1 cm).
- **Bilateral pitting Oedema:** Assessed by the application of normal thumb pressure on both feet for three seconds. Occurrence of pitting oedema on both feet upon release of the fingers indicated nutritional oedema classified as severely malnourished.
- **Referral:** All severely malnourished children found were referred using referral forms to UNIDO while all moderately malnourished children were referred to Samaritan's Purse.

Child Morbidity:
Two-weeks retrospective morbidity data was collected from mothers/caregivers of all children included in the anthropometric measurement. The mother/caregiver was asked whether or not the child had diarrhoea, cough, fever, skin infection and eye infection in the two weeks preceding the survey.

Mortality.
Retrospective mortality data was collected in all the visited households, including those with no children aged 6-59 months. A recall period of 91 days was used.

i) Data quality
The recruitment of highly qualified survey team, training to survey assistants with emphasis on age estimation using calendar of local events, standardization test, piloting, close supervision of the teams by the Consultant and the UNIDO staff, daily meetings during data collection to address challenges, data entry completed on a daily basis, and daily plausibility checks ensured the quality of the data collected in the field.

j) Data management and Analysis
ENA for SMART software 2011 version (July 9th, 2015 update) was used to enter and analyze anthropometric and mortality data. Morbidity data was analyzed using Excel.

k) Survey Limitations
- Access challenges due to poor road network and the swampy nature of the area at this period of the year (many flooded areas).
- Long travel hours as teams had to walk long distances in flooded areas (4-5 hours, one way) to access villages.

RESULTS

Demographic characteristics

A total of 453 households were visited for mortality survey which represented all the households visited during the survey. Total population sample was 2399.5 as summarized in the table below.

Table 3: Survey demographics results

Parameters	Results
Total number of households	452
Total population sampled	2399.5
Males	1351
Females	1582.5
Sex Ratio	0.85
Birth rate	0.86
In-migration rate (Joined)	10.68
Out-migration (Left)	22.33
Average household size	6.5
Total population of under 5	335
% of under-five population	19.2

Anthropometric results (based on WHO standards 2006):

From the results, a total of 539 (274 boys, 265 girls) aged 6-59 months were assessed for their nutritional status through anthropometric measurements from 452 households out of the 456 households planned registering a non-response rate of 1%. The data analysis for WHZ was done with 522 children (266 boys, 256 girls) based on the SMART exclusion criteria as recommended by the NIWG. The overall data quality was scored as excellent (score of 8%, see annex 3 plausibility check on anthropometric results), and the standard deviation (SD) for WHZ was 1.30. The age ratio of 6-29 months versus 30-59 months which was at 0.340.

Definitions of acute malnutrition (global acute malnutrition is defined as <-2 z scores weight-for-height and/or oedema, severe acute malnutrition is defined as <-3z scores weight-for-height and/or oedema) Exclusion of z-scores from Observed mean SMART flags: WHZ -3 to 3; HAZ -3 to 3; WAZ -3 to 3

The design effect for WHZ <-2 was 2.78 which indicated pockets of malnutrition especially for the clusters in the North that had been affected by recent crisis and clusters in the South that hosted the internally displaces persons (IDP). This was also evidenced by the index of dispersion statistics (poisson's distribution) whose p value = 0.000 highlighting significant pockets of malnutrition. The clusters that were worst affected were in the North i.e. Mirnyal payam (Keek_Cluster 24), Thaker payam (Nyinwaar_Cluster_22), Tharjiathbor Payam (Chuojhiok_Cluster_18) and the South i.e. Madol 2 payam (Ken_Cluster_33).

The contextual information for these clusters is summarized in the table below:

Table 4: Clusters with high malnutrition & mortality cases

Region	Payam	Village	Cluster	Contextual Information
North	Mirnyal	Keek	**24**	The village is located on the road from Leer to Dablual and is the first town from Leer. The village was intensely affected by the fighting where the IG tried to take control of Dablual Payam that is in IO. Many casualties were reported during the crisis and livelihoods destroyed, crops burnt and assets looted. Main coping strategies include consumption of wild fruits.
	Thaker	Nyinwaar	**22**	The village was worst hit during the last fighting where IG succeeded in taking control of Thaker payam which was previously IO. Many casualties reported. Livelihoods were destroyed, assets looted and crops destroyed by floods.
	Tharjiathbor	Chuojhiok	**18**	The village was also worst hit during the last fighting where IG succeeded in taking control of Tharjiathbor payam which was previously IO. Many casualties reported. Livelihoods were destroyed, assets looted and crops destroyed by floods.
South	Madol 2	Ken	**33**	The village is situated at the town center in Mayendit HQ and hosts the majority of the IDPs displaced from the North, Koch and Panyinjiar. The living conditions was bad as the people are living in tattered tents, sheets and open huts. Their livelihoods are disrupted and rely on handouts from local community.

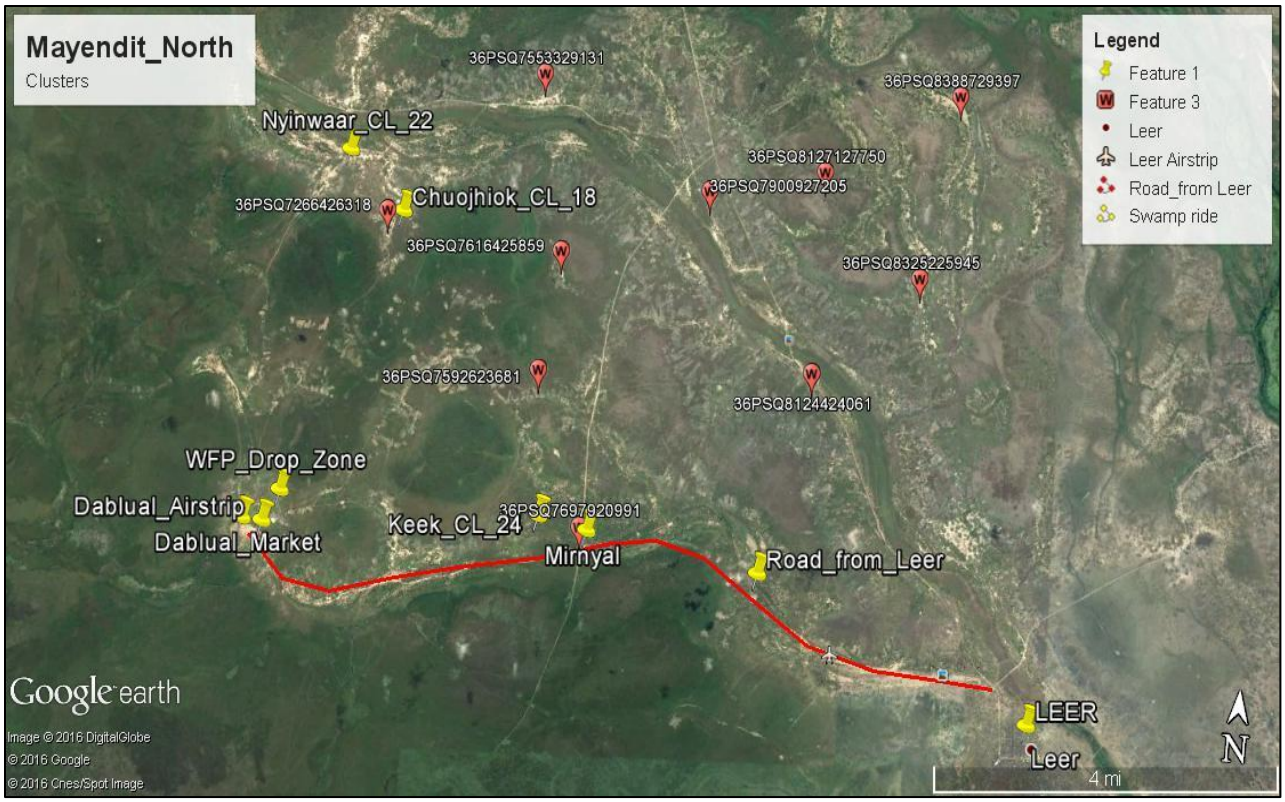


Figure 1: Map for clusters with high malnutrition & mortality cases

The map above highlights some of these clusters that reported high cases of both malnourished children and high mortality cases. The above 4 clusters hence were worst affected and explains the pockets of malnutrition and the high design effect of the malnutrition cases reported especially by teams 4, 5 & 6 as the survey commenced in the North and finalized in the South. In addition, Cluster **27** (Tharwang) in Tutnyang Payam, there were fewer children as most of the caregivers had moved to the South with their children due to the insecurity, leaving the men behind. Teams 3 & 4 worked an extra day.

a) Distribution by sex and age

The ages of the children were determined by recall using the calendar of local events developed by the survey teams during the training. From the results, among the surveyed children, boys and girls were equally represented (boys/girls ratio was p=0.761). The age ratio of 6-29 months to 30-59 months was 0.92, meaning there was normal distribution (the value is expected to be around 0.85). This is as shown in the table below

Table 5: Distribution of age and sex of sample

	Boys		**Girls**		**Total**		**Ratio**
AGE (mo)	**no.**	**%**	**no.**	**%**	**no.**	**%**	**Boy:girl**
6-17	65	51.2	62	48.8	127	24.0	1.0
18-29	60	47.2	67	52.8	127	24.0	0.9
30-41	82	51.9	76	48.1	158	29.9	1.1
42-53	42	48.3	45	51.7	87	16.4	0.9
54-59	19	63.3	11	36.7	30	5.7	1.7
Total	268	50.7	261	49.3	529	100.0	1.0

b) Wasting

Estimation of prevalence of malnutrition was done based on WHO 2006 standards.
The prevalence of GAM was 27.4 % (21.3 – 34.5 95% C.I.) and the prevalence of SAM was 5.0 % (3.1 - 7.9 95% C.I.). In addition, the prevalence of oedema was 0.4 %. The nutrition situation is critical (above the emergency/critical level of 15% according to the WHO classification), as shown below.

Table 6: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex

	All n = 522	**Boys** n = 266	**Girls** n = 256
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(143) 27.4 % (21.3 - 34.5 95% C.I.)	(84) 31.6 % (24.8 - 39.3 95% C.I.)	(59) 23.0 % (15.8 - 32.3 95% C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(117) 22.4 % (17.3 - 28.5 95% C.I.)	(71) 26.7 % (21.0 - 33.2 95% C.I.)	(46) 18.0 % (11.8 - 26.4 95% C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(26) 5.0 % (3.1 - 7.9 95% C.I.)	(13) 4.9 % (2.7 - 8.6 95% C.I.)	(13) 5.1 % (2.9 - 8.7 95% C.I.)

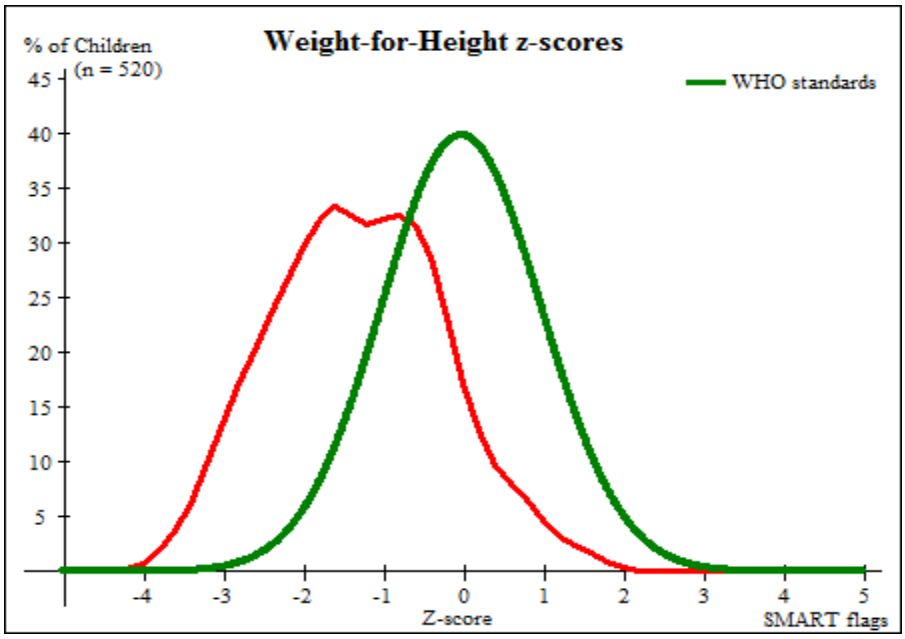


Figure 2: Gaussian Curve for Malnutrition by WHZ

Figure 2 above depicts the WFH z-score distribution curve of the survey sample relative to the WHO- Gaussian curve. The findings indicate a shift to the left of the sample curve which indicates poor nutrition status of the sampled population in comparison to the reference population. The standard deviation SD for WHZ was 1.07, (which lies within the acceptable range 0.8 – 1.2), indicating representativeness in the sample selection. However, the index of dispersion statistic (poisons distribution) p value was high (0.000) which was indicative of pockets of malnutrition in different payams as explained above.

Table 7: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema

		Severe wasting (<-3 z-score)		Moderate wasting (>= -3 & <-2 z-score)		Normal (> = -2 z score)		Oedema	
Age	**Total**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	125	7	5.6	37	29.6	80	64.0	1	0.8
18-29	124	6	4.8	24	19.4	94	75.8	0	0.0
30-41	158	9	5.7	30	19.0	118	74.7	1	0.6
42-53	85	2	2.4	17	20.0	66	77.6	0	0.0
54-59	30	0	0.0	9	30.0	21	70.0	0	0.0
Total	522	24	4.6	117	22.4	379	72.6	2	0.4

As depicted by the table above, when the prevalence of wasting is disaggregated by age, the 6-17 months age group is more affected by wasting as compared to the other age-groups. For all the 6-59m children affected by moderate wasting, 30.0% are aged between 54 -59 months while 29.6% are aged 6-17 months.

The prevalence of GAM based on MUAC was 26.3 % (19.6 - 34.2 95% C.I.) and SAM based on MUAC was 7.2 % (5.0 – 10.3 95% C.I.)

c) Underweight

The prevalence of underweight was 36.2 % (29.7 – 43.3 95% C.I.) while for severe underweight was 7.4% (5.0 – 10.9 95% C.I). As was the case of acute malnutrition between boys and girls, there was no significant difference in the level of underweight between the boys and girls as they were both equally vulnerable to be affected by malnutrition. This is as shown by the table below:

Table 8: Prevalence of underweight based on weight-for-age z-scores by sex

	All n = 527	**Boys** n = 268	**Girls** n = 259
Prevalence of underweight (<-2 z-score)	(191) 36.2 % (29.7 - 43.3 95% C.I.)	(107) 39.9 % (33.0 - 47.3 95% C.I.)	(84) 32.4 % (24.4 - 41.6 95% C.I.)
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(152) 28.8 % (24.0 - 34.2 95% C.I.)	(85) 31.7 % (26.3 - 37.7 95% C.I.)	(67) 25.9 % (20.4 - 32.2 95% C.I.)
Prevalence of severe underweight (<-3 z-score)	(39) 7.4 % (5.0 - 10.9 95% C.I.)	(22) 8.2 % (5.3 - 12.5 95% C.I.)	(17) 6.6 % (3.3 - 12.5 95% C.I.)

When the data is disaggregated into the different age-groups more children aged 18-29m are more affected by being underweight as compared to the other age groups. This is true for both severe and moderate underweight where out of all the children affected by severe underweight and moderate underweight, 10.2% and 38.6% respectively are aged between 18-29 months. This is as shown in the table below.

Table 9: Prevalence of underweight based on weight-for-age z-scores by sex

		Severe underweight (<-3 z-score)		**Moderate underweight (>= -3 & <-2 z-score)**		**Normal (> = -2 z score)**		**Oedema**	
Age	**Total**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
6-17	126	4	3.2	30	23.8	92	73.0	1	0.8
18-29	127	13	10.2	49	38.6	65	51.2	0	0.0
30-41	157	17	10.8	44	28.0	96	61.1	1	0.6
42-53	87	5	5.7	18	20.7	64	73.6	0	0.0
54-59	30	0	0.0	11	36.7	19	63.3	0	0.0
Total	527	39	7.4	152	28.8	336	63.8	2	0.4

d) Stunting

Stunting is an indicator of chronic (long-term) malnutrition which is mainly due to long term food deprivation, micronutrient deficiencies, recurrent illnesses and other factors which interrupt normal growth. Findings indicated an overall global chronic malnutrition prevalence of 32.9 % (28.8 – 37.3 95% C.I.) and severe chronic malnutrition prevalence of 8.1 % (5.5 – 11.8 95% C.I.). Stunting was slightly higher among boys 27.7 % (21.7 – 34.7 95% C.I.) than girls 21.9 % (17.2- 27.5 95% C.I.). However, there was no significant difference in the level of stunting between the boys and girls indicating that boys and girls are at equal risk of being stunted .This is as shown in the table below:

Table 10: Prevalence of stunting based on height-for-age z-scores and by sex

	All n = 507	**Boys** n = 256	**Girls** n = 251
Prevalence of stunting (<-2 z-score)	(167) 32.9 % (28.8 - 37.3 95% C.I.)	(97) 37.9 % (30.8 - 45.5 95% C.I.)	(70) 27.9 % (22.8 - 33.7 95% C.I.)
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(126) 24.9 % (21.2 - 28.9 95% C.I.)	(71) 27.7 % (21.7 - 34.7 95% C.I.)	(55) 21.9 % (17.2 - 27.5 95% C.I.)
Prevalence of severe stunting (<-3 z-score)	(41) 8.1 % (5.5 - 11.8 95% C.I.)	(26) 10.2 % (6.5 - 15.5 95% C.I.)	(15) 6.0 % (3.4 - 10.2 95% C.I.)

CMAM Programme Coverage

The CMAM approach involves Community mobilization to ensure participatory ownership in timely detection of acute malnutrition in the community; support in the outpatient care of non-complicated cases and provision of ready-to-use therapeutic foods. If properly combined with a facility-based approach for those malnourished children with medical complications and implemented on a large scale, community-based management of severe acute malnutrition could prevent the deaths of several children. In essence, the coverage of the programme in s specific region is therefore crucial in addressing malnutrition. For the survey, the coverage was determined from those children assessed and classified as malnourished (both SAM and MAM) but were not enrolled in the nutrition programmes implemented i.e. OTP or SFP. The results showed a coverage of 11.3% which highlighted a poor nutrition programme coverage with North Mayendit being worse.

Mortality

The retrospective mortality rate was calculated based on data collected on the 91 day recall. Out of 456 households planned to be sampled for mortality data, data was collected in 452 households which represented a non-response of 1%. There were 2933.5 individuals recorded as present during the recall period, 565.5 of whom were children under 5 (20.1%). The Crude Mortality Rate (CMR) was 4.08 deaths per 10,000 per day [3.12 – 5.33, 95% C.I.] while the Under 5 Mortality Rate (U5MR) was 0.78 deaths per 10,000 per day [0.29 – 2.10 95% C.I.], as summarized in table 11 below. The CMR mortality rates were way above the emergency level as per the WHO thresholds. Among all deaths recorded, 79 occurred in persons aged 18 – 49 years, 13 in 50-64 years age group, 6 in 12-17, 5 in the 65-120 years age group, 4 in under-fives and 2 in 5-11 years age group. This is as summarized in the table below:

Table 11: Mortality results

Parameters	**Results (CI 95%)**
CMR(deaths/10,000/day)	**4.08 [**3.12 – 5.33, 95% CI] **DEFF 1.97**
U5MR(deaths in children <5/10,000/day	**0.78** [0.29 - 2.10, 95% CI] **DEFF 1.00**
Number of current HH residents	2933.5
Number of current HH residents <5years old	338
Number of deaths during recall period	109
Percentage of children <5 years	20.1
Recall period (days)	91
Average Household size	6.5
% Non-response Households	1%

Of the deaths recorded during the recall period 72.5% were caused by injury/traumatic, 5.5% were caused by illness and 21.1% unknown. 51.4**%** of the deaths reported to have occurred in the current place and 27.5% during migration and 21.1% in place of last residence. Further analysis is done of the population demographics to explain the crude mortality rates. On disaggregation of the data by gender, the results show that the males were worst affected with mortality cases as compared with the females with CMR of **7.08** (5.25-9.48) and **1.53** (0.93 - 2.50) respectively. On further disaggregation of the data by age groups, the results show that the persons aged 65-120, 50-54 and 18-49 years were most affected by mortality i.e. (11.69), (9.10) and (6.73) respectively.
This is as depicted by the following population demographic pyramid.

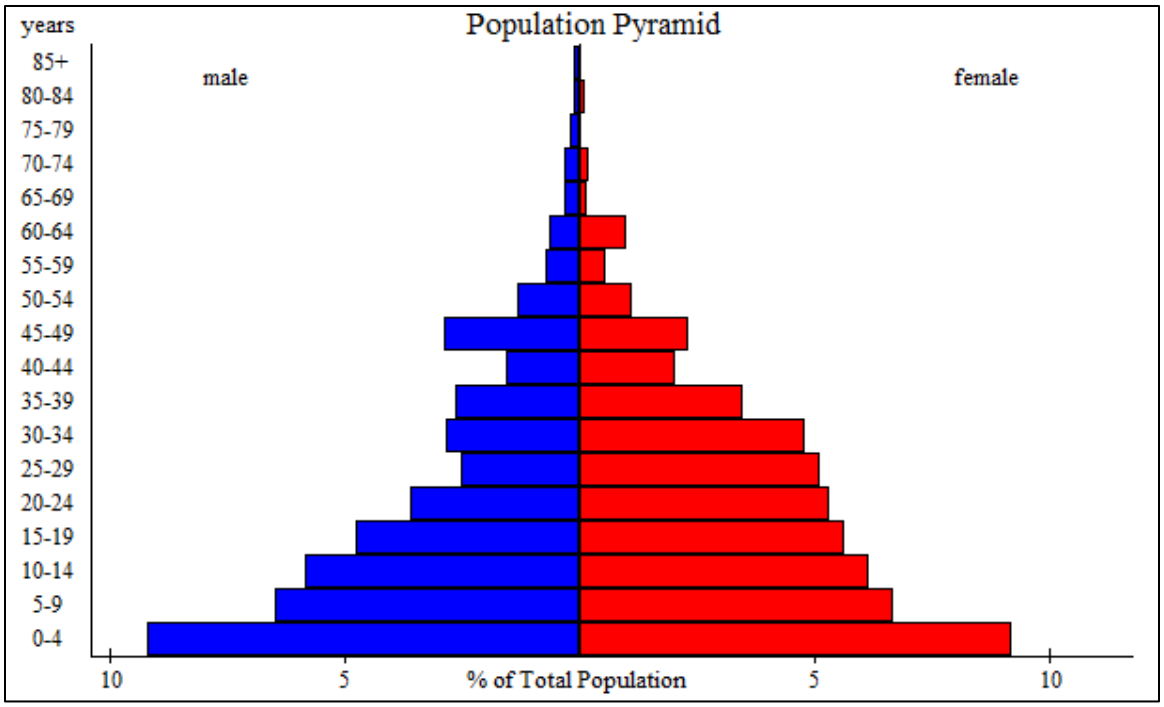


Figure 3: Demography & Mortality pyramid

Child Morbidity and Health Seeking Behaviour

Retrospective morbidity data was collected among children 6-59 months (two-week recall) to assess the occurrence of main diseases. Results showed that 44.3% (n=239) of children were reportedly sick in the two weeks prior to the survey (Table 2). Among children reported sick, 43.1 % (n=115) had diarrhea, 22.8% (n=61) had cough, 14.6 % (n=39) had fever, 9.7% (n=26) of skin infection and 9.7% (n=26) of eye infection. In addition, there has been an outbreak of Cholera since November 2016.

Health seeking behaviour was assessed by asking the respondents what they did the last time the child was sick. Quality of health care services and duration taken before a sick child receives medical attention contributes to the severity of illness. Survey findings indicate a good health seeking behaviours by the caregivers with 81.6% of the caregivers seeking assistance. Of those who sought assistance, most (44.1%) sought assistance from health facilities (PHCU/PHCC) while 33.3% from the mobile outreach.

Immunization and Supplementation

In terms of immunization and supplementation, the survey findings indicate that only 15% (n=81) of children 6-59months had received vitamin A supplementation within the last 6 months prior to the survey. The proportion of children 9-59 months vaccinated against measles was 19.7% (n= 98) of children in the surveyed population where the ones verified by card was 24.5% while according to the mothers recall, 75.5 %. Additionally, from the survey results, only 16.0% (n= 76) of the children aged above 1 year were found to have been dewormed in the last 6 months.

Table 12: Prevalence of reported illness in children in the two weeks

	n	N	Proportion
Morbidity	**239**	**539**	**44.3%**
Fever	39	239	14.6%
Cough	61		22.8%
Diarrhea	115		43.1%
Skin Infection	26		9.7%
Eye Infection	26		9.7%
Sought treatment	197	239	81.6%
Vitamin A supplementation (last 6 months)	81	539	15%
Measles immunization (9-59m)	98	497	19.7%
Deworming (12-59m)	76	476	16.0%

Food Security and Livelihoods (Qualitative).

The Sphere definition of food security considers a population to be food secure when all people, at all times, have physical and economic access to sufficient, safe and nutritious food for a healthy and active life. Within this definition, the two elements of food security are:

- Availability (the quality and quantity of the food supply); and
- Access (entitlement to food through purchases, exchange and claims).

Food insecurity, is at the heart of food crises and food-related emergencies. It is an underlying cause of malnutrition and mortality, and a significant factor in longer term livelihood security. Food insecurity may cause irreparable damage to livelihoods, thereby reducing self-sufficiency. It is therefore part of the process leading to malnutrition, morbidity and mortality. In addition, the state of being food insecure directly contributes to destitution and damaged livelihoods in the long term. In other words, if there is acute food insecurity, there is a nutritional risk.

The food security information was collected through key informant interviews (KII) and focus group discussions (FGDs). A total of 6 FGDs and 11 KIIs (community, CHD, UNIDO, SP, VSF, WFP). A total of 11 respondents participated in the KIIs while 72 respondents were from the FGDs conducted in the various payams in Mayendit County.

The qualitative data was first transcribed and then analyzed using the emerging themes. From the results for food security and livelihoods:

a) Theme 1: Food Security and Livelihoods

- Majority of the respondents (84%) reported that they do not currently have seed for planting this season. This was mainly due to their food crops being destroyed by floods during the last season.
- A majority of the respondents (>90%) reported reliance on the food ratios provided while some reported that fishing and selling of fish and firewood. There had not been any food rations since September for the North and October 2016 in the South of Mayendit County.
- Conflict, fighting and insecurity, especially in the North caused loss of livelihoods as houses and food crops were burnt and looted leading to displacements of population since June 2016. Majority of the payams in the North were worst affected.
- There has been an outbreak of cattle disease since September 2016 which has caused death of many cattle which majority relied mainly for milk consumption and sale.

b) Theme 2: Food prices

- Most of the respondents (72%) reported increased food prices as compared with June last year and the markets provided lesser variety of food products. The majority reported that the main cause was the insecurity and bad economy (inflation). This however varied during food drops/ rations where the food prices went down.

c) Theme 3: Coping strategies and Vulnerability

- A majority (>80%) of the respondents reported that when food insecure they reduced the number of meals per day and consumed water lily and wild fruits. A few reported going for fishing and eating water lilies as their main coping strategy mechanism.

DISCUSSION & CONCLUSION

The results indicate that children aged 6-59 months are also affected by malnutrition as evidenced by the global acute malnutrition prevalence of 27.4 % (21.3 – 34.5 95% C.I.) which is classified as above emergency nutrition situation as per WHO standards. The prevalence of underweight 36.2 % (29.7 – 43.3 95% C.I.) is also classified as serious. In addition, the crude mortality rates are classified as an emergency (out of control threshold) at 4.08 (3.12 – 5.33 95% C.I). This is as shown in the tables below.

Table 13: Interpretation of malnutrition results (WHO Classification)

Index	Wasting <- 2 SD %	Underweight <- 2 SD %	Stunting <- 2 SD %
Low	<5%	<10%	< 20%
Medium/ Poor	5- 9%	10- 19%	20- 29%
High/ Serious	10-14%	20-29% **28.7 % (24.1 – 33.3 95% C.I.)**	30- 39% **33.3 % (29.2 – 37.6 95% C.I.)**
Emergency/ Critical	≥ 15% **27.4 % (21.3- 34.5 95% C.I.)**	≥ 30%	≥ 40%

Table 14: Mortality Benchmarks for Defining Crisis Situations (CDR)

Method	Assumed baseline	Emergency thresholds
Standard Thresholds	**0.5/ 10,000 /day**	**≥ 1 per 10,000** per day or
Standard Thresholds (With Levels of Severity)	**0.5/10,000 / day**	**> 1/10,000 / day**: 'very serious' **> 2 /10,000 /day**: 'out of control' **(4.08)** **> 5 /10,000 /day**: 'major catastrophe'
Context Specific Thresholds	Sub-Saharan Africa: 0.41/10,000 /day Middle East/ N. Africa: 0.16 /10,000 /day	Sub-Saharan Africa: 0.8 / 10,000 / day M. East & N. Africa: 0.3/ 10,000/ day

The poor nutrition situation in Mayendit County could be explained by an interplay of recent insecurity, high prevalence of disease and food insecurity. The high prevalence of malnutrition highlights an emergency situation in the County mainly caused by the recent insecurity caused by fighting between IO and IG in the North, which caused major displacement of populations and a disruption of livelihoods and food crops. As evidenced by the survey results where pockets of malnutrition and mortality cases were reported in the clusters in the North and for the IDP clusters in the South. In effect, the insecurity caused a disruption of the CMAM program and primary health care services as evidenced by the poor program coverage (11.3%). This was also excercebated by lack of nutrition supplies, especially in the North due to the massive looting of the nutrition supplies during the crisis. This calls for urgent supply of nutrition supplements in the County, especially in the North where the supplies were looted during the fighting. Scale up of the current nutrition

interventions i.e. OTP and TSFP and increase its coverage by having multiple distribution points in Mayendit County (especially the payams that are far). CMAM programmes should be strengthened through active case-findings and follow-ups while continuous screening of children under-five and the pregnant and lactating women is required using the MUAC. To address the current nutrition emergency, adoption of Blanket Supplementary Feeding programme (BSFP) intervention to target the vulnerable populations e.g. under-fives, pregnant and lactating women (PL&W) can be considered.

In addition, from the survey results, the morbidity of the children aged 6-59 months was high with 44.3% of the children being sick within the last 2 weeks and mainly suffering from the main childhood illnesses known to aggravate the nutrition situation of children aged under 5 years i.e. diarrhea (43.1%), cough (22.8%) and fever (14.6%), etc. In addition, the recent outbreak of Cholera in the County has also aggravated the health situation. The insecurity, especially in Mayendit North has also disrupted health services in the area. This calls for concerted efforts of the partners on the ground implementing health services to address the health concerns highlighted by the survey. In addition, Medair and MSF should continue with the emergency health services currently being provided in the county as UNIDO increases its efforts to scale up primary health care services and on integrated management of childhood illnesses (IMCI). In addition, there is need to integrate with WASH interventions in order to address the high prevalence of diarrhea reported and the cholera outbreak.

From the qualitative results, food insecurity was highlighted by a majority of the households hence contributing to inadequate food consumption for the children aged 6-59 months. This was also highlighted by the current coping mechanisms adopted by the households which included eating wild fruits and reduction of meals. This was primarily caused by the insecurity situation in the county since June 2016 which caused destruction of livelihoods, food crops and displacement of populations. This was also excercebated by the flooding that occurred in the county that also destroyed the food crops that had been planted. In addition, the delayed food drops by WFP since September in the South and October in the North due to insecurity also contributed to the poor food situation. The results triangulate with the recent FEWNET report (Dec. 2016) which highlighted that in Unity, where over 50 percent of the population is already internally displaced, the conflict caused new displacements in Mayendit, Rubkona, and Leer in December. Key informants reported that food insecurity was particularly severe among IDPs, the majority of whom are displaced to nearby swamps and lack access to food aid or basic health services. The report also highlighted that most households were surviving on wild foods and fish.

In addition, from the survey qualitative results, the respondents that most of the households had begun to adopt different coping mechanisms to mitigate the increasing household food insecurity. This included the majority (>80%) of the respondents reporting that when food insecure they consumed wild fruits and water lilly. Secondly, the survey results also showed increased food prices and decreased variety from the local markets as compared to the same May 2016. This has impacted the purchasing power of the household which on turn affects household access of the food. Thirdly, there has been a recent outbreak of cattle disease that has caused the death of many cattle in the County. According to Vétérinaires Sans Frontières (VSF) key informant interview, approximately over 800 heads of cattle have died since the outbreak started in November 2016. This has had a major negative impact to the local

population that relies on the cattle for livelihood and provision of milk that the children consume for food.

From this situation, urgent food security interventions are required in the County and scale up the coverage of the food security and livelihoods (FSL) programmes, especially to the North which was worst hit during the crisis. Provision of non-food items (NFIs) e.g. shelter, seeds, farm & fishing equipment etc. is also required to try and re-establish the livelihoods of the IDPs and populations who were worst affected by the crisis. Lastly, a revision of the half rations currently being provided in the County to full rations can be considered to alleviate the current food insecurity which is above emergency, especially during this period of relative calm. The most vulnerable households i.e. targeting the PLWs, households with U5 children, Orphans and vulnerable children (OVC), women-headed households etc. can be targeted for the full rations. Lastly, urgent treatment of the cattle due to the disease outbreak that has caused death of many cattle is required and the current veterinary health activities to be expanded to the North.

In conclusion, all the emergency interventions to alleviate the current crisis calls for political goodwill to ensure security and stability in the region. In addition, more peace and conflict-resolution initiatives are required to ensure peace and stability in the County.

RECOMMENDATIONS

Theme	Recommendations	By Who
Nutrition Situation	• Urgent supply of nutrition supplements in the County, especially in the North where the supplies were looted during the fighting. • Scale up of the current nutrition interventions i.e. OTP and TSFP and increase its coverage by having multiple distribution points in Mayendit County (especially the payams that are far). CMAM programmes should be strengthened through active case-findings and follow-ups. Continuous screening of children under-five and the pregnant and lactating women is required using the MUAC. • Adoption of Blanket Supplementary Feeding programme (BSFP) to target the vulnerable populations of under-fives and the pregnant and lactating women (PLW).	UNIDO & Implementing Partners
Health status	• Urgent continued response to the current Cholera outbreak. • Increased focus on the integrated management of child illnesses (IMCI) at the primary health care centers/ units. • Urgent supply of life-saving health interventions e.g. immunizations and cold chain management.	
Food Security & Livelihoods	• Consider providing full rations for the most vulnerable households i.e. targeting the PLWs, households with U5 children, Orphans and vulnerable children (OVC), women-headed households etc. • Urgent provision of non-food items (NFIs) and shelter to the displaced populations due to the conflict. • Strengthen the livelihoods of the communities by provision of seeds for planting and proper farm equipment during this season. Education on better farming practices may also be considered. • Urgent treatment of the cattle due to the disease outbreak that has caused death of many cattle. • Consider integrated food assistance programmes, e.g. food for work, in order to reduce over-reliance of the population on food assistance.	WFP & Implementing partners
Security & Flooding	• Intensify peace and conflict resolution initiatives in the county and Government to provide goodwill and security. • Construction of dykes via community participatory projects e.g. cash-for-work.	Government & Implementing partners

ANNEXES

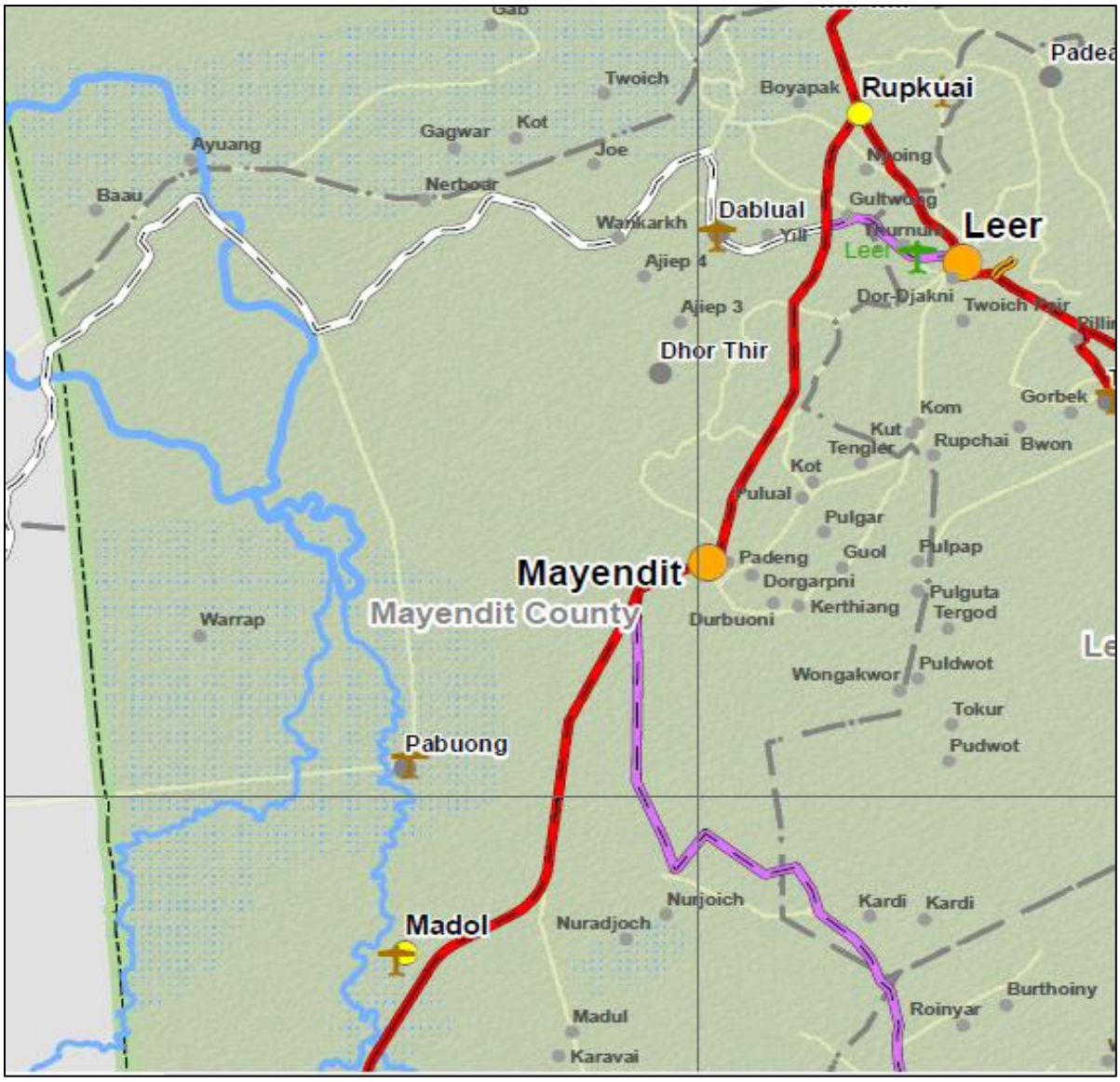
Annex 1: Plausibility Results

Criteria	Value	Comment
Missing/Flagged data	1.3%	Excellent
Overall Sex ratio	p=0.793	Excellent
Overall Age distribution	p=0.470	Excellent
Dig preference score - weight	0	Excellent
Dig preference score - height	2	Good
Dig preference score - MUAC	0	Excellent
Standard Dev WHZ	1.06	Excellent
Skewness WHZ	0.14	Excellent
Kurtosis WHZ	-0.37	Good
Poisson dist WHZ-2	p=0.001	Acceptable
Overall	**8%**	**Excellent**

Annex 2: Selected clusters

Region	Payam	Boma	Geographical unit	Population size	Cluster
NORTH	Dablual	Kak	Pulbar	704	1
		Nhiarnhiar	Buor	984	2
			Kat	870	3
		Dhorthiagni	Kuiew	800	4
	Leah	Buot Bom	Buoth	1404	5
			Paguol	403	6
		Pak	Ngoal	405	7
		Pagor	Mangoy	461	8
	Jaguar	Luony	Rotluony	138	9
		Rupdiem	Wiechliel	258	10
	Rubkuay	Rupnor	Thokwath riak	300	11
		Dhoarnyiet	Dhiach	654	12
		Buol	Buoyepak	468	13
	Tharjiathbor	Malbeek	Laikach	233	14
		Lian	Pathiat	262	15
		Thor	Thor Tap	191	16
		Kuok	Kuorway	1440	17
			Chuohjiok	**870**	**18**
			Pantotyiey	1800	19
			Dhoar Ganlokluoch	1110	20
	Thaker	Maper	Maperchuol	196	21
		Gabriak	**Nyinwaar**	**510**	**22**
	Mirnyal	Rieri	Rieri	922	23
		Dholeah	**Keek**	**246**	**24**
	Tutnyang	Dhoaryiel	Dhoartiel	1108	25
		Luom	Bar gok	650	26
		Dhoarjak	Thar Wang	446	27
			Pat dhuonya	459	28
SOUTH	Bhor	Pulwal	Guomguol	200	29
		Bangzol	Dhorbuoni	592	30
		Thorkuok	Kuangyang	650	31
	Madol 1	Kuorway	Tharkek	200	32
	Madol 2	Gak	**Ken**	**400**	**33**
		Buluoch	Maleakni	310	34
	Malkuer	Chorthual	Papline	500	35
		Dhorthier	Yat	580	36
	Pabuong	Bathjos	Kuerhok/ Jikuat	600	37
		Dhorthier	Manyal	310	38
R.C			Chidar	1200	RC
			TokGok	672	RC
			Lathtang	520	RC
			Wangkewe	300	RC

Annex 3: Map of Mayendit County



Annex 4: Food Security and Livelihoods Guide

FGD/ KII GUIDE

Food Availability

- What are the main food crops on the ground this season?
- What condition do you expect the next harvest to be (good, poor)? Explain and give reasons why. For example,
  (Poor because of pest infestation, lack of rain, late rain, not sufficient seeds planted, etc.). OR Good because the rains were good this season, fertiliser was used, no pests experienced....etc.)
- How much does it cost to buy 1kg of the staple from the market? How does this compare to the same month last year (more, less, how much more?)

Food Access

- Explain the main income sources/livelihoods of this community this season.
- How many of you have more than one income source (e.g., work in the fields during harvest time, have daily labour work in the town in other seasons, other HH member contributes earnings too).
- Tell me about stored food in your home: what staple do you store, how long does it last?
- What do you do when you finish the stored food?
- How many of you keep livestock? What do you keep? How do you use these animals (sell the milk, breed and sell after xx months, fatten and sell after x months).

Vulnerability and Coping Mechanisms during Food Insecurity

- Have you faced food insecurity in the last 3 months?
- What months are you most likely to face food insecurity in this area?
- What do you do when you don't have enough food for three meals a day (base this on experience if possible using the most recent examples).
- In your opinion, which households face food shortage in this community?
- WHY?

Additional Questions

- **[Partners]** Are you currently implementing any FSL programs?
- What are the main challenges with regard to food security in the area?
- In your opinion, what is the current food security situation of the local population?
- In your opinion, what do you recommend to be done in order to improve the food security situation in Mayendit South?

Annex 5: Mortality Questionnaire

DEMOGRAPHY & MORTALITY QUESTIONNAIRE

DATE OF INTERVIEW: [D][D]/[M][M]/ [Y][Y]

COUNTY:	**PAYAM:**	**NAME OF INTERVIEWER:**
BOMA:	**VILLAGE:**	
CLUSTER NO. [ ][ ]	**TEAM NO. [ ][ ]**	**HOUSEHOLD[10] NO. [ ][ ]**

01	02	03	04	05	06	07	08	09	10
No.	Name	Sex (M/F)	Age (years)	Joined on or after: _____ (Start date of the recall period - ex. Jan. 1, 1900) **WRITE 'Y' for YES. Leave BLANK if NO.**	Left on or after:	Born on or after:	Died on or after:	Cause of death 1= illness 2=injury 66=unknown	Location of death 1=current location 2=during migration 3=in place of last residence 4=other
a) List all the people that slept in this household last night.									
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
b) List all the people that slept in this household on the **first night of the recall period (FILL IN DATE/EVENT)** but did **NOT sleep** in the **household last night**.									
1					Y				
2					Y				
3					Y				
4					Y				
5					Y				
6					Y				
7					Y				
c) List all the people that slept in this household on the **first night of the recall period but have since died**									
1							Y		
2							Y		
3							Y		
4							Y		
5							Y		

Was anyone in the household pregnant at the start of the recall period? No [ ] Yes [ ] If yes, how many? _____

[10] HH definition: Group of people living under same roof & sharing food from the same pot for a period of at least 6 months. In home with multiple wives, those living and eating in different houses are considered as separate HHs. Wives living in different houses and eating from same pot are considered as one HH.

Annex 6: Anthropometry questionnaire

ANTHROPOMETRIC & HEALTH QUESTIONNAIRE

(To be conducted in EVERY HH with children 6-59 months - from the random starting point onwards)

Date (D/M/Y): ……/……/…….. Cluster No: …… Team No: ……. State: …….. County: ……..…….. Payam: …… Boma: …….. Village:……....

1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	1.10	1.11	1.12	1.13	1.14	1.15
Child no.	HH ref. no.*	Sex --------- **m** = male **f** = female	Age in months (use local calendar of events)	Weight in Kg (ex 12.4)	Height in cm (ex 78.1)	Oedema ---------- **n** = No **y** = Yes	MUAC in cm (ex 11.3)	If malnourished, is the child enrolled in nutrition program 0= No 1= Yes, OTP 2= Yes, SFP 99= n/a	Vit. A in last 6 mths ---------- **0** = No **1** = Yes	Deworming in last 6 months ……. **0 =** No **1 =** Yes	Measles Vaccine ---------- **0** = No **1** = Yes with EPI card **2** = Yes recall **88** = Child <9m	Illness in past 2 weeks? ---------- **0** = No **1** = Yes If no, END SURVEY.	Type of Illness ---------- **1** = Fever* **2** = Cough** **3** = Diarrhoea *** **4** = Skin Infections **5** = Eye infections **66** = Other (specify)	Treatment sought: **0** = None sought **1** = Hospital **2** = PHCC/PHCU **3** = Mobile /outreach clinic **4** = Village health care worker **5** = Private physician **6** = Relative/ friend **7** = Shop **8** = Traditional practitioner **9** = Pharmacy **66** = Other (specify)
1.														
2.														
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														
11.														
12.														