STANDARDIZED EXPANDED NUTRITION SURVEY (SENS)

Final Report

Gorom Refugee Camp

South Sudan

Surveys conducted: 25-29 September 2017

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ACRONYMS AND ABBREVIATIONS

ACROSS	Association of Christian Resource Organization Serving South Sudan
ANC	Ante Natal Care
AWD	Acute Watery Diarrhoea
BSFP	Blanket Supplementary Feeding Programme
CDR	Crude Death Rate
CI	Confidence Interval
CMAM	Community Management of Acute Malnutrition
CSB++	Corn-Soya Blend Plus Plus
ENA	Emergency Nutrition Assessment
EPI	Expanded Programme on Immunization
Epi Info	Name of CDC software for epidemiological investigations
GAM	Global Acute Malnutrition
GFR	General Food Ration
GFD	General Food Distribution
HAZ	Height-for-Age z-score
Hb	Haemoglobin
HH	Household
HIS	Health Information System
IYCF	Infant and Young Child Feeding
KCAL	Kilocalorie
MAM	Moderate Acute Malnutrition
MOH	Ministry of Health
MUAC	Middle Upper Arm circumference
NCHS	National Centre for Health Statistics
OTP	Out-patient Therapeutic Programme
ProGres	UNHCR registration database for refugees
SAM	Severe Acute Malnutrition
SC	Stabilization Centre
SD	Standard Deviation
SENS	Standardised Expanded Nutrition Survey
SFP	Supplementary Feeding Programme
SMART	Standardized Monitoring & Assessment of Relief & Transitions
TSFP	Targeted Supplementary Feeding Program
TFP	Therapeutic Feeding Programme
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation, and Hygiene Promotion
WAZ	Weight-for-Age z-score
WFH	Weight-for-height
WHZ	Weight-for-Height z-score
WFP	World Food Programme
WHO	World Health Organization

ACKNOWLEDGMENTS

EXECUTIVE SUMMARY

UNHCR and ACROSS carried out the nutrition survey in Gorom camp between 25 to 29 September 2017. Under the various forms of malnutrition, the survey results showed a prevalence of Global Acute Malnutrition (GAM) of 5.0%. Although this reduced compared to 6.6% in 2016, the nutrition situation in the Gorom camp remains poor according to WHO classification. The prevalence of global stunting among children 6-59 months was 17.6% which is within the acceptable WHO range of <20%.Total anaemia prevalence among children 6 to 59 months and among women of reproductive aged between 15-49 years (non-pregnant) was of high public health significance as it was above 40%.

Secondly under infant and young child feeding practices, the proportion of children aged 0-23 months that had timely initiation of breast milk within the first hour of delivery was 85.8%.The rate of exclusive breast feeding for the first six months of life was 62.5%. The proportion of children aged 6 to 8 months that were introduced to solid and semi-solid foods on time was 28.6%. 4.2% of the surveyed children aged 0-23 months were bottle fed and the same proportion also received infant formula.

Majority of the refugees (84.2%) in Gorom refugee camp reported to have used negative coping strategies within the last month pre the survey to fill the food assistance gap.

Maintenance of a comprehensive nutrition program, strengthening of preventative activities including the provision of adequate household food intake, appropriate caring practices with support and promotion of optimal IYCF practices, health and sanitation at household level are recommended to facilitate further reduction of the malnutrition level. This is to be accomplished through adequate food assistance, promotion and protection of infant and young child feeding practices, improved health services, adequate water and sanitation and the expansion of livelihood activities in addition to the treatment of malnourished persons.

The overall aim of the survey was to assess the nutrition situation among refugee population and to monitor the current programme interventions.

The survey was based on the UNHCR Standardized Expanded Nutrition Survey (SENS) guidelines for refugee populations (version 2, 2013). Following four modules of SENS were used (1. anthropometric and health, 2. Anaemia, 3. IYCF, and 4. Food Security). This was the first time to carry out modules 2, 3 and 4 thus these will serve as the camp's baseline. Modules 5. Water Sanitation and Hygiene and 6. Mosquito net coverage were not carried out as access limitations required for module prioritization. The camp has a WASH monitoring system in place and no blanket mosquito net distribution had been carried out within the year.

UNHCR population figures from ProGres were used to determine the total population and that of children 6-59 months for survey planning purposes. At the end of August 2017 the Gorom refugee population was 1954 individuals. 338 (17.2%) of these were children under five years

An exhaustive survey was conducted as the total population size of Gorom camp was below 2,500 people rendering sampling unnecessary. All children aged 6-59 months in the camp were surveyed.

A total of six survey teams composed of four members each (one team leader, one haemoglobin measurer, one anthropometric measurer/translator and one anthropometric/haemoglobin measurement assistant were included in each survey. A standardized training lasting five days, which included a standardization test was provided. Data collection lasted five days. The survey

teams were supported by a team of 2 supervisors and 1 coordinator who roved between the teams duration the data collection.

Mobile phone questionnaires using Open Data Kit (ODK) android software was used for data collection for all the modules. Data validation was carried out on a daily basis by the survey coordinator, which allowed for daily feedback to the survey teams. Data analysis is currently on-going using ENA for SMART July 9, 2015 version for anthropometric indices and Epi info version 7 for all the other data.

The summary results are as below

Table 1: Summary of results

	Gorom (Exhaustive)	Classification of public health significance / target (where applicable)
Children (6-59 months)		
No. of children surveyed	242	
Acute Malnutrition (N=240)		
Global Acute Malnutrition (GAM) (n=12)	5.0%	Critical if ≥ 15%
Moderate Acute Malnutrition (MAM) (n=10)	4.2%	
Severe Acute Malnutrition (SAM) (n=2)	0.8%	
Oedema (n=0)	0%	
Stunting (N=239)		
Total Stunting (n=42)	17.6%	Critical if ≥ 40%
Severe Stunting (n=12)	5.0%	
Mid Upper Arm Circumference (MUAC) (N=242)		
Prevalence of MUAC <125mm or oedema (n=3)	1.2%	
Prevalence of MUAC < 125 mm and >= 115 mm, no oedema (n=2)	0.8%	
Prevalence of MUAC < 115mm and/or oedema (n=1)	0.4%	
Anaemia (6-59 months) (N=241)		
Total Anaemia (Hb <11 g/dl) (n=171)	71.0%	High if ≥ 40%
Mild (Hb 10-10.9) (n=83)	34.4%	
Moderate (Hb 7-9.9) (n=82)	34.0%	
Severe (Hb<7.0)(n=6)	2.5%	
Anaemia (6-23 months) (N=87)		
Total Anaemia (Hb <11 g/dl) (n=68)	78.1%	
Mild (Hb 10-10.9) (n=32)	36.8%	
Moderate (Hb 7-9.9) (n=35)	40.2%	
Severe (Hb<7.0) (n=1)	1.1%	
Programme coverage (6-59 months)		
Therapeutic Feeding Program (TFP) (based on all admission criteria WHZ, oedema and MUAC) (N=3)	33.3%	Target of ≥ 90%
Targeted Supplementary Feeding Program(TSFP) (based on all admission criteria WHZ and MUAC) (N=10)	20%	Target of ≥ 90%
Currently receiving CSB++ (6-23 months) (N=87)	10.3%	
Measles vaccination with card (9-59 months) (N=119)	79.3%	

	Gorom (Exhaustive)	Classification of public health significance / target (where applicable)
Measles vaccination with card or recall (9-59 months) (N=147)	98.0%	Target of ≥ 95%
Vitamin A supplementation coverage with card, within past 6 months (6-59 months) (N=67)	27.7%	
Vitamin A supplementation coverage with card or recall, within past 6 months (6-59 months) (N=242)	90.5%	Target of ≥ 90%
Morbidity		
Diarrhoea in past 2 weeks (N=242)	12.8%	
Infant and young child feeding		
Timely initiation of breastfeeding (N=113)	85.8%	
Exclusive breastfeeding under 6 months(N=32)	62.5%	
Continued breastfeeding at 1 year(N=16)	93.8%	
Continued breastfeeding at 2 years(N=120)	60.0%	
Introduction of solid, semi-solid or soft foods(N=14)	28.6%	
Consumption of iron-rich or iron-fortified foods(N=87)	39.1%	
Bottle feeding(N=119)	4.2%	
Women 15-49 years (N=145)	**% (95% CI)**	
Anaemia (non-pregnant)		
Total Anaemia (Hb <12.0 g/dl) (n=96)	66.2 (57.9– 73.8)	High if ≥ 40%
Mild (Hb 11.0-11.9) (n=45)	31.0 (23.6 – 39.2)	
Moderate (Hb 8.0-10.9) (n=51)	35.2 (27.4 –43.5)	
Severe (Hb<8.0) (n=0)	0	
Programme enrolment pregnant women		
Pregnant women currently enrolled in the ANC	79.2 (57.9-92.9)	
Pregnant women currently receiving Iron-folic acid pills	79.2 (57.9-92.9)	
Food security (N=133)	**% (95% CI)**	
Proportion of HH with a ration card (n=131)	98.5 (94.7 –99.8)	
Average House Hold Diversity Score(HDDS)	4.4	
Proportion of households consuming either a plant or animal source of vitamin A	82.7 (75.2-88.7)	
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	10.5 (5.9-17.0)	
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items with or without interest	41.4 (32.9-50.2	

	Gorom (Exhaustive)	Classification of public health significance / target (where applicable)
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	15.8 (10.1-23.1)	
Requested increased remittances or gifts as compared to normal	10.5 (5.9-17.0)	
Reduced the quantity and/or frequency of meals and snacks	67.7 (59.0-75.5)	
Begged	15.0 (9.4-22.3)	
Engaged in potentially risky or harmful activities	26.3 (19.1-34.7)	
Households reporting using none of the listed coping strategies (n=21)	15.8 (10.0-23.1)	

* The total is over 100% as households used several negative coping strategies.

Interpretation of results:

- The overall nutrition situation is classified as poor as the GAM prevalence is 5%[1]. It is, however, below the critical WHO emergency threshold of 15%. The GAM prevalence remained the same in 2017 compared to that in 2016. In 2016 the GAM prevalence was 6.6% among children 6-59 months. The reduction from 6.6% to 5.0% in 2017 was not statistically significant (p>0.05) indicating that the acute malnutrition situation is on a downward trend but remained the same. This was also the case for the prevalence of SAM. The increase from 0.4% in 2016 to 0.8% in 2017 was not statistically significant.

- The 17.6% prevalence of global stunting is acceptable according to WHO standard[2] but should be interpreted with caution due to the age estimation limitation. 33% of the children 6-59 months had no reliable age documentation. Stunting prevalence remained the same in 2017 compared to that in 2016 as the reduction was not statistically significant (p>0.05). In 2016 stunting among children 6-59 months was 22.5%.

- The TFP coverage using MUAC met the recommended standard of >90%; however, it was below the standard using the WHZ scores criteria. The coverage for TSFP was below standard using both the MUAC and WHZ scores criterion. This indicates the need to strengthen case finding at the community level by including an innovative way of identifying cases that are acutely malnourished based on WHZ scores.

- The coverage of measles vaccination and vitamin A supplementation met the target coverage of ≥95% and ≥90% respectively indicating effective routine and campaign strategies. This improved compared to 2016 when the coverage was below the target

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[1] WHO 2000 categorization

Prevalence %	Critical	Serious	Poor	Acceptable
Low weight-for-height	≥15	10-14	5-9	<5

[2] WHO categorization

Prevalence %	**Critical**	**Serious**	**Poor**	**Acceptable**
Low height-for-age	≥40	30-39	20-29	<20

- 12.8% of children 6-59 months were reported to have had diarrhea in the last two weeks prior to the survey indicating a morbidity caseload requiring continued health services provision

- Total anaemia prevalence in children 6 to 59 months was 71.0% with 2.5% being severe anaemia). The prevalence among women aged 15-49 years (non-pregnant) was 66.2%. The prevalence of anaemia among both catagories is critical as it is above the 40% level of public health significance (WHO classification)[3]

- The rate of exclusive breastfeeding of 62.5%, introduction of solid, semi-solid or soft foods 28.6%, and consumption of iron-rich or iron-fortified foods 39.1% is sub optimal indicating the need to strengthen the IYCF program to improve the infant and young child feeding practices.

- Under food security: 98.5% of the HHs had a ration card; the household diet diversity score was 4.4 out of 12 food groups; most of the households reported using one or more of the negative coping strategies (borrowed cash or food 41.4%, sold assets 15.8%, reduced quantity or frequency of meals 67%, begged 15%, and engaged in potential risky or harmful activities 26.3%. Only a small proportion of the refugees in Gorom (15.8%) reported not using any of the negative coping strategies to fill the food assistance gap (a 71% of the recommended general food ration is provided per person per month). This group is likely to be benefiting from the complementary livelihood interventions in place. This however needs to be scaled up to increase the proportion to cover majority of the population.

Recommendations

Nutrition related

Continue the implementation of the comprehensive CMAM program providing both therapeutic and supplementary feeding programs to facilitate the rehabilitation of identified acute malnourished persons including children, pregnant and lactating women, people living with HIV/AIDS (PLWHA), TB patients on treatment, and others with chronic illnesses. (UNHCR, UNICEF, WFP and ACROSS).

Ensure all children identified with a MUAC less than 125mm get enrolled into the management of acute malnutrition programs. This to be carried out through community outreach at household level and referral to the health/nutrition facility (ACROSS)

Conduct the two step MUAC and WHZ scores (for children with MUAC at risk) screening monthly at the BSFP site for children aged 6-23 months and at the health facility triage area for all presenting children 24-59 months at Gorom refugee camp to ensure both high MUAC and WHZ score coverage. In addition to this the result from this to complement the quarterly mass MUAC screening to facilitate the nutrition situation evolution monitoring (ACROSS)

Ensure monthly blanket supplementary feeding programme for children 6-23months, pregnant and lactating women using a fortified blended food or lipid based supplement to prevent malnutrition and to cover the nutrient gap these vulnerable groups have in light of a predominant grain based general food diet. Prepositioning to ensure at least two months stocks

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[3] WHO categorization

Prevalence %	High	Medium	Low
Anaemia	≥40	20-39	5-19

at the facility to avoid stock outs (UNHCR, WFP and ACROSS)

Continue strengthening the capacity of the nutrition facility in terms of staff training to facilitate quality provision of both curative and preventative components of nutrition and food security promotion (UNHCR, WFP, UNICEF and ACROSS)

Expand and strengthen preventative nutrition components including the awareness creation, promotion, protection of Infant and Young Child Feeding (IYCF) and community outreach education aspects to stop malnutrition from occurring in the first place. (UNHCR, UNICEF and ACROSS)

Roll out the anaemia reduction strategy in Gorom camp to reduce the very high anaemia levels. This to include systematic screening and referral of all persons with anaemia signs and symptoms (palmar pallor) at the community level. Health centres to provide appropriate treatment and follow up for anaemia detected cases (UNHCR, WFP, UNICEF and ACROSS

Ensure regular monitoring and supervision, quarterly joint monitoring and yearly program performance evaluations to assess performance progress and formulate recommendations for any identified gaps. (UNHCR, WFP, UNICEF and ACROSS).

Undertake a follow up annual joint nutrition survey to analyse trends and facilitate program impact evaluation in the last quarter of 2018. (UNHCR, ACROSS, WFP and UNICEF).

Food security related
General food ration providing the minimum dietary requirements (2100kcal/person/day) is critical to ensure basic nutrition provision. In 2017 a 67% General Food Distribution (GFD) ration of the recommended calories was provided in Gorom refugee camp which is insufficient in a population that predominantly relies on the general food ration. Majority of the households in Gorom (84.2%) practiced negative coping strategies to fill the food assistance gap. Various ways of closing the food security gaps to be sort including the expanding the coverage of sustainable food security and livelihood solutions to complement the general food distribution (UNHCR, WFP and ACROSS).

Health related
Maintain the provision of comprehensive primary health programme for refugee and host populations in Gorom. (UNHCR and ACROSS)

Adequate clean water provision, sanitation and hygiene promotion to be strengthened and maintained in 2018 to reduce the diarrhoea caseload. (UNHCR and ACROSS)

INTRODUCTION

This report presents the results of nutrition survey conducted in Gorom camp from 25 to 29 September 2017.
This report is divided into the following sections:

- *Background*: This section sets out background information related to the health, nutrition and food security situation for Gorom camp;
- *Methodology;*
- *Results:* presents the findings;
- *Discussion; and*
- *Recommendations.*

BACKGROUND

Gorom Refugee camp is located 24 km from Juba city. It has an estimated refugee population of 1954[4] who are mainly of   Ethiopian nationality. The Anyuak refugees from Ethiopia have been in Gorom settlement since 2011.

A number of humanitarian organisations work in Gorom refugee camp to ensure delivery of essential services and supplies to the refugees. Key partners in terms of the provision of the health, nutrition and food security services include UNHCR, WFP, UNICEF and ACROSS. UNHCR is mainly involved in providing funding for implementation of various services, coordinating, technical support, monitoring and evaluation of the services offered to the refugees through the partners. WFP's main role is to ensure that the refugee's food security is adequately addressed through the provision of the general food ration (GFR) once per month. UNICEF in collaboration with UNHCR provides support to the nutrition programme. ACROSS implements the health, nutrition and food security programme.

Health data from Gorom Camp traditionally reported low malnutrition levels. In 2016 however the MUAC screening data at the health facilities indicated a rising MUAC malnourished cases in the second half of the year. This prompted the need for further investigation. Results from a rapid nutrition survey was carried out at the end of the year showed the prevalence of global acute malnutrition (GAM) prevalence rate of 6.6%. This indicates a poor nutrition situation based on the WHO classification (acute malnutrition between 5-9% is considered poor).

Recommendations from the survey highlighted the need to set up a comprehensive nutrition program to prevent malnutrition and rehabilitate all identified malnourished cases. A follow up survey was also noted as necessary to evaluate the impact of initiated and on-going interventions to ensure provision of optimal health and nutritional care for the refugee population.

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[4] UNHCR ProGres August 2017 population

Food Security

Refugees in the Gorom camp are mainly dependent on the WFP provided (GFR) and have limited access to additional sources of food/income. The 33% reduced General Food Distribution (GFD) provided to all registered refugees remained the same from January to September 2017. It consisted of 333g sorghum, 33g of yellow split peas, 20ml of vegetable oil and 3.3g salt. This cumulates to approximately 389 grams/person/day providing 1418 kilocalories/person/day. This provided 67% of the recommended food ration of 2100 kcal/person/day). The effects of the reduced ration was highlighted as one of the key shock the refugees face. This was corroborated by the low proportion with an acceptable food consumption score in the second half of 2016 (29%)[5] and the high anaemia and stunting levels in the camp. The latter could be due to the inaduacy of the ration both in term of the quantity and quality.

From the NutVal analysis, the reduced ration has an inadequate micronutrient profile. The ration does not provide a fortified flour option like CSB+. It provided only 50% of the daily iron requirements. Sorghum, which contributed the bulk of the iron (non-heme iron form) in the food is high in phytates, anti-nutrients that inhibit iron absorption in the body. Vitamin C, a nutrient that plays a key role in the facilitating iron absorption was also barely available from the GFD ration. The ration provided only 1% of vitamin C. In addition, vitamin C is very easily destroyed when cooking at high temperatures. Other key micro nutrients including Vitamin A, folate and Vitamin B12 were also insufficient as the ration provided 33%, 43% and 0% of these respectively. Ways to fill the nutrient gap should thus be explored to avert the consequences.

See breakdown below showing the monthly ration provision

Table 2 General food ration provision by month – Gorom refugee camp, Central Equatoria, 2017

Ration provided in g/p/d	Standard	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Average
Cereal	500g	333	333	333	333	333	333	333	333	333	333
Pulses	50g	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3	33.3
Vegetable oil	30g	20	20	20	20	20	20	20	20	20	20
Salt	5g	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
CSB+	50g	0		0	0	0	0	0	0	0	0
Kcal	2100	1418	1418	1418	1418	1418	1418	1418	1418	1418	1418
	% of standard met	67	67	67	67	67	67	67	67	67	67

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[5]WFP Post food distribution outcome monitoring report 2016

Health situation

Gorom refugee camp has one Primary Health Care Centre.

The overall crude mortality rate for Gorom camp from the UNHCR health information system (January to September 2017) was 0.07/10000/day while under-five mortality rate was 0.2/10000/day which was below the emergency threshold of <0.75 and <2 respectively. This indicates a stable population.

The main causes of illness in 2017 were malaria, respiratory tract infections, skin and eye disease, intestinal worms and diarrhea.

Figure 1: Under-five proportional morbidity from January-September 2017; Gorom, Central Equatoria camps (UNHCR HIS)
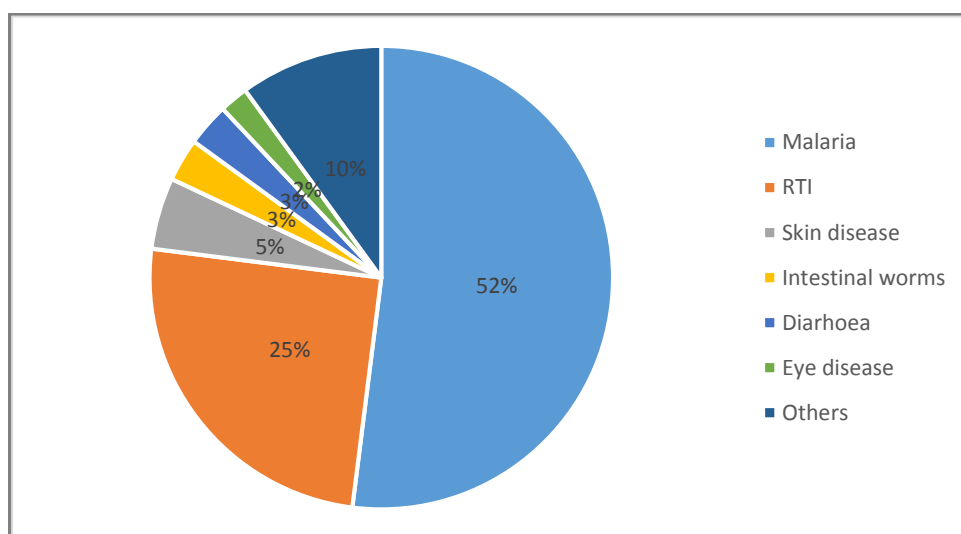
Nutrition Situation

Nutrition services and activities in the camp at the time of the survey included:

- Targeted Supplementary Feeding Programmes (TSFP) for moderately acute malnourished 6-59 months using PlumpySup or CSB++
- Outpatient and inpatient therapeutic feeding programmes for severely acute malnourished children.
- Blanket Supplementary Feeding Program (BSFP) using CSB++
- Infant and young child feeding support and promotion programme.
- MUAC screening of children 6-59 months at the triage area of the PHCC.
- Community Outreach MUAC screening.

From January to September 2017 there were 53 children 6-59 admissions of which 11 were admitted to the Outpatient Therapeutic Program (OTP) and 42 in the Targeted Supplementary Feeding Program (SFP). At the end of September 2017 there were 11 children 6-59 months enrolled in both the OTP and SFP program. There was an additional 35 children acute malnourished children from the host community. The number of admissions in 2017 reduced compared to 2016 by 46%. This could be due to improvement in the nutrition services (TSFP program started using proper supplementary feeding food products and BSFP roll out) and the reduced GFD pipeline break.

Figure 2: Admissions to the selective feeding program (OTP & TSFP) January- September 2017 (Health Information System)

	J	F	M	A	M	J	J	A	S
■ OTP new admissions	1	4	2	1	0	1	2	0	0
■ TSFP new admissions	7	7	5	5	0	5	8	5	0
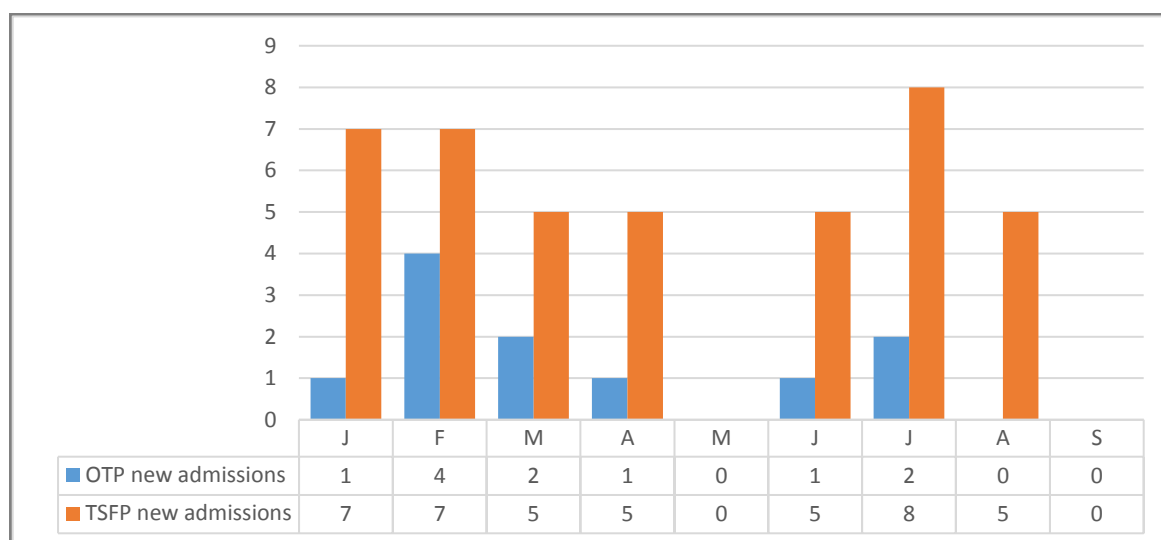
SURVEY OBJECTIVES

The survey objectives were as follows:

Specific primary objectives:

a. To determine the prevalence of acute malnutrition among children aged 6-59 months;

b. To determine the prevalence of stunting among children aged 6-59 months;

c. To determine the coverage of measles vaccination among children aged 9-59 months;

d. To determine the coverage of vitamin A supplementation in the last six months among children aged 6-59 months;

e. To determine the two-week period prevalence of diarrhoea among children aged 6-59 months;

f. To measure the prevalence of anaemia among children aged 6-59 months *and* among women of reproductive aged between 15-49 years (non-pregnant);

g. To investigate IYCF practices among children aged 0-23 months;

h. To determine the coverage of ration cards and the duration the GFD ration lasts for recipient households;

i. To determine the extent to which negative coping strategies are used by households;

j. To assess household dietary diversity; and

k. To establish recommendations on actions to be taken to address the situation

Secondary objectives:

a. To determine the coverage of targeted supplementary and therapeutic feeding programmes for children aged 6-59 months; and

b. To determine enrolment into Antenatal Care (ANC) and coverage of iron-folic acid supplementation in pregnant women.

METHODOLOGY

Survey population

The refugee population in Gorom at the end of August was 1954 individuals. 338 (17.2%) of these were children under five years.[6]

Sampling procedure: house hold questionnaire administration

An exhaustive survey was conducted as the total refugee population size of Gorom camp was below 2,500 people rendering sampling unnecessary. All children 6-59 months in the camp were surveyed. All the households were included for the anthropometry, anaemia and IYCF modules. For the women questionnaire and the food security module half of the households were sampled.

See **table 3** below with the details.

	HH based on the 2016 nutrition survey average hh size
Household target for Anthropometry and Health module (ENA for SMART)	390 (All)
Household targeted for children Anaemia module (UNHCR SENS guidelines)	390 (All)
Households target for IYCF module (UNHCR SENS Guidelines)	390 (All)
Household target for women Anaemia module (UNHCR SENS guidelines)	195
Household target for Food Security module (UNHCR SENS Guidelines)	195

The surveys were undertaken by six teams composed of four members each (one team leader, one haemoglobin measurer, one anthropometric measurer/translator and one anthropometric/haemoglobin measurement assistant). Each team was allocated the villages to survey. Village locations and boundaries was discussed during the training to ensure all teams knew where to go.

If an individual or an entire household was absent the teams were instructed to return to the household or revisit the absent individual up to two times on the same survey day. If they were unsuccessful after this, the individual or the household was recorded as absent and they were not replaced with another individual.

If the individual or an entire household refused to participate then it was considered a refusal and the individual or the household were not replaced with another.

If a selected child was living with a disability or a physical deformity preventing certain anthropometric measurements the child was still included in the assessment of the other indicators

If it was determined that a selected household did not have any eligible children, the other relevant questionnaires were administered to the household (anaemia measurement for women and food security)

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[6] UNHCR ProGres August 2017

Questionnaires

The paper version of the questionnaires is attached under **Appendix 3**

The questionnaires were prepared in English language and administered in the local language with the help of the enumerators that spoke the local language (Anyuak). The questionnaires were pre-tested before the survey.

Four module questionnaires from SENS were designed to provide information on the relevant indicators of the different target groups as indicated in the survey objectives. The four module questionnaire covered the following areas and the following measurements:

Children 6-59 months- This included questions and measurements of children aged 6-59 months. Information was collected on anthropometric status, oedema, and enrolment in selective feeding programmes, immunisation (measles), vitamin A supplementation and morbidity from diarrhea in past two weeks before the survey and haemoglobin status.

Infant 0-23 months- This included questions on infant and young chlild feeding for children aged 0- 23 months.

Women 15-49 years- This included questions and measurements of women aged 15 – 49 years. Information was collected on women's pregnancy status, coverage of iron-folic acid pills and ANC attendance for pregnant women, and haemoglobin status for non-pregnant women.

Food Security- This included questions on access and use of the GFD ration, negative coping mechanisms used by household members and household dietary diversity.

Measurement methods
Household-level indicators
Food security: The questionnaire used was from UNHCR's Standardized Expanded Nutrition Survey (SENS) Guidelines for Refugee Populations Version 2 (2013).

Individual-level indicators
Sex of children: gender was recorded as male or female.

Birth date or age in months for children 0-59 months: the exact date of birth (day, month, and year) was recorded from either an EPI card, child health card or birth notification if available. If no reliable proof of age was available, age was estimated in months using a local event calendar and recorded in months on the questionnaire/Phone. If the child's age could not be determined by using a local events calendar or by probing, the child's length/height was used for inclusion; the child had to measure between 65 cm and 110 cm.

Age of women 15-49 years: Reported age was recorded in years.

Weight of children 6-59 months: measurements were taken to the closest 100 grams using an electronic scale (SECA scale). All children were weighed without clothes. The double-weighing technique was used to weigh young children unable to stand on their own or unable to understand instructions not to move while on the scale.

Height/Length of children 6-59 months: children's height or length was taken to the closest millimetre using a wooden height board (Shorr Productions). Height was used to decide on

whether a child should be measured lying down (length) or standing up (height). Children less than 87cm were measured lying down, while those greater than or equal to 87cm were measured standing up.

Oedema in children 6-59 months: bilateral oedema was assessed by applying gentle thumb pressure on to the tops of both feet of the child for a period of three seconds and thereafter observing for the presence or absence of an indent.

MUAC of children 6-59 months: MUAC was measured at the mid-point of the left upper arm between the elbow and the shoulder and taken to the closest millimetre using a standard tape. MUAC was recorded in millimetres.

Child enrolment in selective feeding programme for children 6-59 months: selective feeding programme coverage was assessed for the outpatient therapeutic programme and for the supplementary feeding programme. This was verified by card or by showing images of the products given at the different programs

Measles vaccination in children 6-59 months: measles vaccination was assessed by checking for the measles vaccine on the EPI card if available or by asking the caregiver to recall if no EPI card was available. For ease of data collection, results were recorded on all children but were only analysed for children aged 9-59 months

Vitamin A supplementation in last 6 months in children 6-59 months: whether the child received a vitamin A capsule over the past six months was recorded from the EPI card or health card if available or by asking the caregiver to recall if no card is available. A vitamin A capsule image was shown to the caregiver when asked to recall.

Haemoglobin concentration in children 6-59 months and women 15-49 years: Hb concentration was taken from a capillary blood sample from the fingertip and recorded to the closest gram per decilitre by using the portable HemoCue Hb 301 Analyser (HemoCue, Sweden). If severe anaemia was detected, the child or the woman was referred for treatment immediately.

Diarrhoea in last 2 weeks in children 6-59 months: an episode of diarrhea is defined as three loose stools or more in 24 hours. Caregivers were asked if their child had suffered episodes of diarrhea in the past two weeks prior to the survey.

Health seeking behavior: for children that were ill, whether the caregiver took the child to the health centre for treatment.

ANC enrolment and iron and folic acid pills coverage: if the surveyed woman was pregnant, it was assessed whether she was enrolled in the ANC programme and was receiving iron-folic acid pills. An iron-folic acid pill image was shown to the pregnant woman when asked to recall.

Infant and young child feeding practices in children 0-23 months: infant and young child feeding practices was assessed based on UNHCR Standardized Expanded Nutrition Survey (SENS) Guidelines for Refugee Populations version 2 (2013).

Referrals: Children aged 6-59 months were referred to health centre/post for treatment when MUAC was < 12.5 cm, WHZ <-2 or oedema was present.

Case definitions and calculations

Malnutrition in children 6-59 months: Acute malnutrition was defined using weight-for-height

index values or the presence of oedema and classified as show in the table below. Main results are reported after analysis using the WHO 2006 Growth Standards.

Table 4: Definitions of acute malnutrition using weight-for-height and/or oedema in children 6–59 months

Categories of acute malnutrition	Z-scores (WHO Growth Standards 2006)	Bilateral oedema
Global acute malnutrition	< -2 z-scores	Yes/No
Moderate acute malnutrition	< -2 z-scores and ≥ -3 z-scores	No
Severe acute malnutrition	> -3 z-scores	Yes
	< -3 z-scores	Yes/No

Stunting, also known as chronic malnutrition was defined using height-for-age index values and was classified as severe or moderate based on the cut-offs shown below. Main results are reported according to the WHO Growth Standards 2006.

Table 5: Definitions of stunting using height-for-age in children 6–59 months

Categories of stunting	Z-scores (WHO Growth Standards 2006)
Stunting	<-2 z-scores
Moderate stunting	<-2 z-score and >=-3 z-score
Severe stunting	<-3 z-scores

Underweight was defined using the weight-for-age index values and was classified as severe or moderate based on the following cut-offs. Main results are reported according to the WHO Growth Standards 2006.

Table 6: Definitions of underweight using weight-for-age in children 6–59 months

Categories of underweight	Z-scores (WHO Growth Standards 2006)
Underweight	<-2 z-scores
Moderate underweight	<-2 z-scores and >=-3 z-scores
Severe underweight	<-3 z-scores

Mid Upper Arm Circumference (MUAC) values were used to define malnutrition according to the following cut-offs in children 6-59 months:

Table 7: MUAC malnutrition cut-offs in children 6-59 months

Categories of MUAC values
<125 mm
≥ 115 mm and <125 mm
< 115 mm

Child enrolment in selective feeding programme for children 6-59 months: Feeding programme coverage is estimated during the nutrition survey using the direct method as follows (reference: Emergency Nutrition Assessment: Guidelines for field workers. (Save the Children 2004):

Coverage of SFP programme (%) =
$$100 \times$$
No. of surveyed children with MAM according to SFP criteria who reported being registered in SFP
No. of surveyed children with MAM *according to SFP admission criteria*

Coverage of TFP programme (%) =
$$100 \times$$
No. of surveyed children with SAM according to TFP criteria who reported being registered in TFP
No. of surveyed children with SAM *according to TFP admission criteria*

Infant and young child feeding practices in children 0-23 months: Infant and young child feeding practices were assessed based on the UNHCR SENS IYCF module (Version 2 (2013) that is based on WHO recommendations (WHO, 2007 as follows):

Timely initiation of breastfeeding in children aged 0-23 months:
Proportion of children 0-23 months who were put to the breast within one hour of birth
Children 0-23 months who were put to the breast within one hour of birth
Children 0-23 months of age

Exclusive breastfeeding under 6 months:
Proportion of infants 0–5 months of age who are fed exclusively with breast milk: (including expressed breast milk or from a wet nurse, ORS, drops or syrups (vitamins, breastfeeding minerals, medicines)
Infants 0–5 months of age who received only breast milk during the previous day
Infants 0–5 months of age

Continued breastfeeding at 1 year:
Proportion of children 12–15 months of age who are fed breast milk
Children 12–15 months of age who received breast milk during the previous day
Children 12–15 months of age

Introduction of solid, semi-solid or soft foods:
Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods
Infants 6–8 months of age who received solid, semi-solid or soft foods during the previous day
Infants 6–8 months of age

Children ever breastfed:
Proportion of children born in the last 24 months who were ever breastfed
Children born in the last 24 months who were ever breastfed
Children born in the last 24 months

Continued breastfeeding at 2 years:
Proportion of children 20–23 months of age who are fed breast milk
Children 20–23 months of age who received breast milk during the previous day
Children 20–23 months of age

Consumption of iron rich or iron fortified foods in children aged 6-23 months
Proportion of children 6–23 months of age who receive an iron-rich or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

Children 6–23 months of age who received an iron-rich food or a food that was specially designed for infants and young children and was fortified with iron, or a food that was <u>fortified in the home with a product that included iron during the previous day</u>
Children 6–23 months of age

Bottle feeding:
Proportion of children 0-23 months of age who are fed with a bottle
<u>Children 0–23 months of age who were fed with a bottle during the previous day</u>
Children 0–23 months of age

Anaemia in children 6-59 months and women of reproductive age: Anaemia is classified according to the following cut-offs in children 6-59 months and non-pregnant women of reproductive age. Anaemia cut-offs for pregnant women should be adjusted depending on the stage of pregnancy (gestational age). Pregnant women are not included in routine UNHCR nutrition surveys for the assessment of anaemia due sample size issues (usually a small number of pregnant women is found) as well as the difficulties in assessing gestational age in pregnant women.

Table 8: Definition of anaemia (WHO 2000)

Age/Sex groups	Categories of Anaemia (Hb g/dL)			
	Total	Mild	Moderate	Severe
Children 6 - 59 months	<11.0	10.9 - 10.0	9.9 - 7.0	< 7.0
Non-pregnant adult females 15-49 years	<12.0	11.9 - 11.0	10.9 - 8.0	< 8.0

Classification of public health problems and targets

Anthropometric data: UNHCR's target for the prevalence of global acute malnutrition (GAM) for children 6-59 months of age by camp, country and region is < 10% and the target for the prevalence of severe acute malnutrition (SAM) is <2%. The table below shows the classification of public health significance of the anthropometric results for children under-5 years of age according to WHO:

Table 9: Classification of public health significance for children under 5 years of age [7]

Prevalence %	Critical	Serious	Poor	Acceptable
Low weight-for-height	≥15	10-14	5-9	<5
Low height-for-age	≥40	30-39	20-29	<20
Low weight-for-age	≥30	20-29	10-19	<10

Selective feeding programmes:
UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 includes the following indicators. The table below shows the targeted performance indicators for malnutrition treatment programmes according to UNHCR Strategic Plan for Nutrition and Food Security 2008-2012 (same as Sphere Standards).

Table 10: Performance indicators for selective feeding programmes (UNHCR Strategic Plan for Nutrition and Food Security 2008-2012)*

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[7] WHO (1995) Physical Status: The Use and Interpretation of Anthropometry and WHO (2000) The Management of Nutrition in Major Emergencies

	Recovery	Case fatality	Defaulter rate	Coverage		
				Rural areas	Urban areas	Camps
SFP	>75%	<3%	<15%	>50%	>70%	>90%
TFP	>75%	<10%	<15%	>50%	>70%	>90%

* Also meet SPHERE standards for performance

Measles vaccination coverage: UNHCR recommends target coverage of $\geq$95% (same as Sphere Standards).

Vitamin A supplementation coverage: UNHCR Strategic Plan for Nutrition and Food Security (2008-2012) states that the target for vitamin A supplementation coverage for children aged 6-59 months by camp, country and region should be >90%.

Anaemia data: UNHCR Global Strategy for Public Health(2017-2018) states that the targets for the prevalence of anaemia in children 6-59 months of age and in women 15-49 years of age should be <20%. The severity of the public health situation should be classified according to WHO criteria as shown in the table below.

Table 11: Classification of public health significance (WHO 2000)

Prevalence %	High	Medium	Low
Anaemia	$\geq$40	20-39	5-19

Training, coordination and supervision

The surveys were coordinated by Terry Theuri (UNHCR Nutrition and Food security officer) in collaboration with the ACROSS health and nutrition team including Dr Emmanuel Soma, Diana Wesley Anyango and Tommy Otto.

The surveys were undertaken by six teams composed of four members each (one team leader, one haemoglobin measurer, one anthropometric measurer/translator and one anthropometric/haemoglobin measurement assistant). The team leaders/enumerators were qualified staff, while the anthropometric measurers were home health promoters.
The teams were supervised on a daily basis.

A five day training was carried out from 18-22 September 2017. The training focused on: the purpose and objectives of the survey, roles and responsibilities of each team member, familiarization with the questionnaires by reviewing the purpose of each question; interviewing skills and recording of data; interpretation of calendar of events and age determination; how to take anthropometric measurements, common errors and data recording. A practical session on anthropometric measurements was also carried out for practice as well as a standardisation test.
Post the training the data collection tools were then reviewed based on the feedback from the team.

Data collection, entry and analysis

Data collection lasted for 5 days from 25-29 September 2017. Each survey team explained the purpose of the survey and issues of confidentiality and obtained verbal consent before proceeding with the survey in the selected households. The informed consent form is shown in **Appendix 3**.

The UNHCR Nutrition and Food Security Officer- survey coordinator and Associate Health Information Systems Officer supported the data collection supervision during the first two days of data collection. Post this the ACROSS health team leader continued the support the data until the end of data collection. Data was collected using the ODK for Android platform using six Samsung phones. An addition 6 HTC One phones were also provided as back up. Each team thus had two phones.

At the end of each day's data collection, the survey coordinator checked each and every questionnaire for completeness and then finalised the questionnaires on the phones. Once the questionnaires were finalised, they were sent to the server for synchronisation and exporting. After exporting the data, the anthropometric data plausibility check was conducted to identify areas and teams that need more supervision or to be strengthened. Practical feedback to ensure accuracy and thoroughness in gaps identified was provided each morning. The final SMART plausibility report with a summary of the key quality criteria is shown in **Appendix 2**.

The ODK exports data in csv format, for cleaning and analysis the data was saved in Microsoft Excel 2007 format. The nutritional indices were cleaned using flexible cleaning criteria from the observed mean (also known as SMART flags in the ENA for SMART software), rather than the reference mean (also known as WHO flags in the ENA for SMART software). This flexible cleaning approach is recommended in the UNHCR SENS Guidelines (Version 2, 2013) in accordance with SMART recommendations. For the weight-for-height index, a cleaning window of +/- 3 SD value contained in the SMART for ENA software was used.

Anthropometry indices were analysed using the ENA for SMART July 9, 2015 version. Epi Info version 7 was used to analyse all the other data.

RESULTS FROM GOROM

CHILDREN 6-59 MONTHS INDICATORS, GOROM CAMP, CENTRAL EQUITORIA (SEPTEMBER 2017)

Table 12 shows actual number of children captured during the survey versus the UNHCR ProGres population target

Table 12: Actual number of children captured during the survey in Gorom versus the UNHCR ProGres population target, (September 2017)

Target group	Target population	Subjects measured/interviewed during the survey	% of the target
Children 6-59 months	304	242	80%

By the end of SENS in Gorom camp 80% of the targeted children was covered (as recommended by SENS at least 80% of the targeted children to be covered). Some families don't possibly live in the camp or had travelled to other locations during the SENS period.

Anthropometric results (based on WHO Growth Standards 2006)

The coverage of age documentation was 67% (children having an exact birth date). As 33% of the children did not have an exact birthday stunting and the underweight data should be interpreted with caution.

Table 13: Distribution of age and sex of sample-Gorom camp, Central Equatoria (September 2017)

	Boys		Girls		Total		Ratio
AGE (mo)	no.	%	no.	%	no.	%	Boy: girl
6-17	23	44.2	29	55.8	52	21.5	0.8
18-29	29	42.6	39	57.4	68	28.1	0.7
30-41	24	45.3	29	54.7	53	21.9	0.8
42-53	27	56.3	21	43.8	48	19.8	1.3
54-59	12	57.1	9	42.9	21	8.7	1.3
Total	115	47.5	127	52.5	242	100.0	0.9

The overall sex ratio was 0.9 (sex ratio should be between 0.8-1.2) confirming that both sexes were equally distributed.

Table 14: Prevalence of acute malnutrition based on weight-for-height z-scores (and/or oedema) and by sex- Gorom camp, Central Equatoria (September 2017)

	All n = 240	Boys n = 114	Girls n = 126
Prevalence of global malnutrition (<-2 z-score and/or oedema)	(12) 5.0 % C.I.)	(5) 4.4 % C.I.)	(7) 5.6 % C.I.)
Prevalence of moderate malnutrition (<-2 z-score and >=-3 z-score, no oedema)	(10) 4.2 % C.I.)	(5) 4.4 % C.I.)	(5) 4.0 % C.I.)
Prevalence of severe malnutrition (<-3 z-score and/or oedema)	(2) 0.8 % C.I.)	(0) 0.0 % C.I.)	(2) 1.6 % C.I.)

The prevalence of oedema is 0.0%. Data excludes SMART flags

There was no difference between boys and girls in the prevalence of acute malnutrition (p>0.05)

Table 15: Prevalence of acute malnutrition by age, based on weight-for-height z-scores and/or oedema- Gorom camp, Central Equatoria (September 2017)

Age (mo)	Total no.	Severe wasting (<-3 z-score)		Moderate wasting (>= -3 and <-2 z-score)		Normal (> = -2 z score)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	52	0	0.0	2	3.8	50	96.2	0	0.0
18-29	67	0	0.0	2	3.0	65	97.0	0	0.0
30-41	53	0	0.0	3	5.7	50	94.3	0	0.0
42-53	47	2	4.3	0	0.0	45	95.7	0	0.0
54-59	21	0	0.0	3	14.3	18	85.7	0	0.0
Total	240	2	0.8	10	4.2	228	95.0	0	0.0

Figure 3: Trend in the prevalence of wasting by age in children 6-59 months- Gorom camp, Central Equatoria (September 2017)
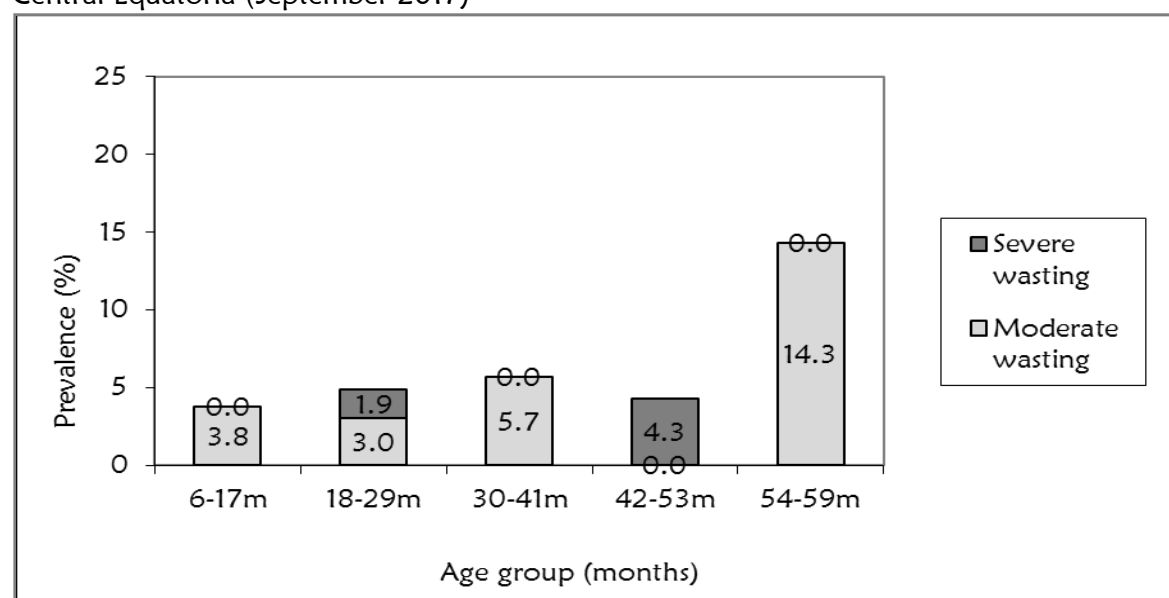
Children in the older age group 54-59 months tend to be most affected by wasting in Gorom.

Table 16: Distribution of severe acute malnutrition and oedema based on weight-for-height z-scores- Gorom camp, Central Equatoria (September 2017)

	<-3 z-score*	>=-3 z-score
Oedema present	Marasmic kwashiorkor No. 0 (0.0 %)	Kwashiorkor No. 0 (0.0 %)
Oedema absent	Marasmic No. 3 (1.2%)	Not severely malnourished No. 238 (99.6 %)

*Includes Flags

The figure shows that the weight-for-height z-score distribution is shifted to the left, illustrating a poorer status than the international WHO Standard population of children aged 6-59 months.

Figure 4: Distribution of weight-for-height z-scores (based on WHO Growth Standards; the reference population is shown in green) of survey population compared to reference population-Gorom camp, Central Equatoria (September 2017)
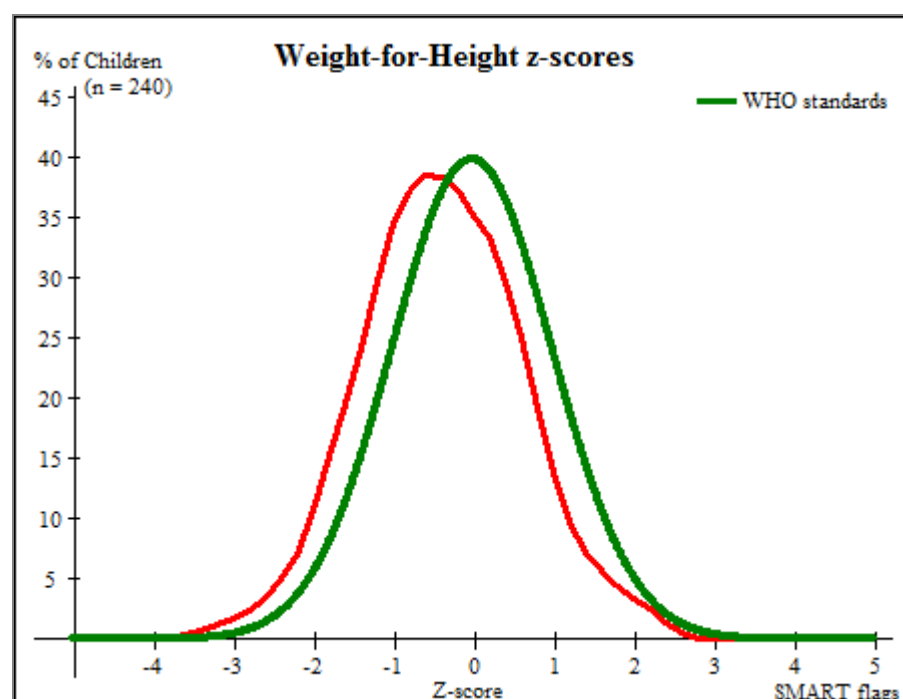
Table 17: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex -Gorom camp, Central Equatoria (September 2017)

	All n = 242	Boys n = 115	Girls n = 127
Prevalence of MUAC (< 125 mm and/or oedema)	(3) 1.2 %	(3) 2.6 %	(0) 0.0 %
Prevalence of MUAC (< 125 mm and >= 115 mm, no oedema)	(2) 0.8 %	(2) 1.7 %	(0) 0.0 %
Prevalence of MUAC (< 115 mm and/or oedema)	(1) 0.4 %	(1) 0.9 %	(0) 0.0 %

There was significance difference in acute malnutrition based on MUAC between boys and girls.

Table 18: Prevalence of acute malnutrition by age, based on MUAC cut off's and/or oedema

Age (mo)	Total no.	MUAC (< 115 mm)		MUAC (>= 115 mm and < 125 mm)		MUAC (> = 125 mm)		Oedema	
		No.	%	No.	%	No.	%	No.	%
6-17	52	1	1.9	2	3.8	49	94.2	0	0.0
18-29	68	0	0.0	0	0.0	68	100.0	0	0.0
30-41	53	0	0.0	0	0.0	53	100.0	0	0.0
42-53	48	0	0.0	0	0.0	48	100.0	0	0.0
54-59	21	0	0.0	0	0.0	21	100.0	0	0.0
Total	242	1	0.4	2	0.8	239	98.8	0	0.0

Table 19: Prevalence of underweight based on weight-for-age z-scores by sex- Gorom camp, Central Equatoria (September 2017)

	All n = 241	Boys n = 114	Girls n = 127
Prevalence of underweight (<-2 z-score)	(31) 12.9 %	(16) 14.0 %	(15) 11.8 %
Prevalence of moderate underweight (<-2 z-score and >=-3 z-score)	(27) 11.2 %	(13) 11.4 %	(14) 11.0 %
Prevalence of severe underweight (<-3 z-score)	(4) 1.7 %	(3) 2.6 %	(1) 0.8 %

Underweight prevalence was the same for the boys compared to the girls as the difference is not statistically significant (p>0.05)

Table 20: Prevalence of stunting based on height-for-age z-scores and by sex- Gorom camp, Central Equatoria (September 2017)

	All n = 239	Boys n = 113	Girls n = 126
Prevalence of stunting (<-2 z-score)	(42) 17.6 %	(27) 23.9 %	(15) 11.9 %
Prevalence of moderate stunting (<-2 z-score and >=-3 z-score)	(30) 12.6 %	(21) 18.6 %	(9) 7.1 %
Prevalence of severe stunting (<-3 z-score)	(12) 5.0 %	(6) 5.3 %	(6) 4.8 %

The stunting prevalence was significantly higher among the boys compared to girls (p>0.05)

Table 21: Prevalence of stunting by age based on height-for-age z-scores- Gorom camp, Central Equatoria (September 2017)

Age (mo)	Total no.	Severe stunting (<-3 z-score) No.	%	Moderate stunting (>= -3 and <-2 z-score) No.	%	Normal (> = -2 z score) No.	%
6-17	52	1	1.9	7	13.5	44	84.6
18-29	67	4	6.0	6	9.0	57	85.1
30-41	53	4	7.5	7	13.2	42	79.2
42-53	46	2	4.3	9	19.6	35	76.1
54-59	21	1	4.8	1	4.8	19	90.5
Total	239	12	5.0	30	12.6	197	82.4

Children in the age groups 30-41 and 42-53 months tend to be the most affected by stunting as compared to the other age groups.

Figure 5: Trends in the prevalence of stunting by age in children 6-59 months- Gorom camp, Central Equatoria (September 2017)
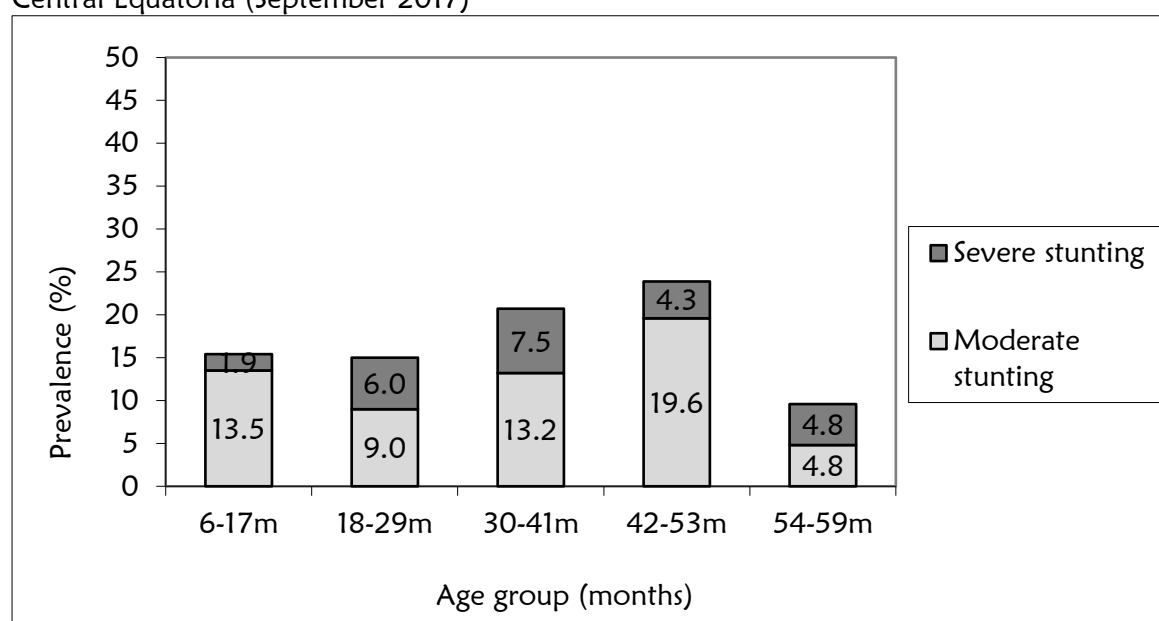
Figure 6: Distribution of height-for-age z-scores (based on who growth standards; the reference population is shown in green and the surveyed population is shown in red) of survey population compared to reference population
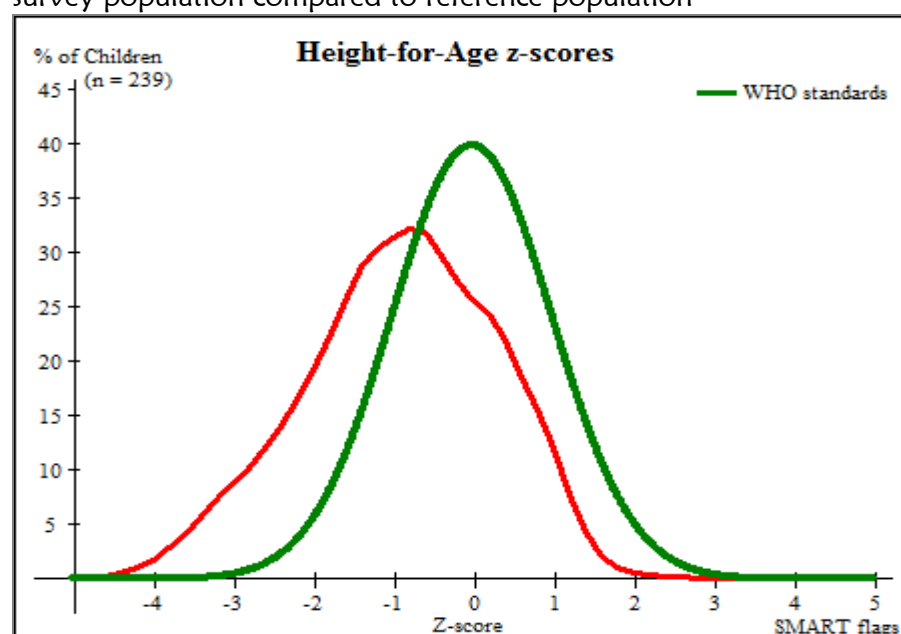
Table 22: Mean z-scores and excluded subjects - Gorom camp, Central Equatoria (September 2017)

Indicator	n	Mean z-scores ± SD	z-scores not available*	z-scores out of range
Weight-for-Height	240	-0.39±0.98	1	1
Weight-for-Age	241	-0.80±1.00	0	1
Height-for-Age	239	-0.92±1.17	1	2

Feeding programme coverage

The TFP coverage using MUAC met the recommended standard of >90% however it was below the standard using the combined WHZ scores and MUAC criteria. The coverage for TSFP was below standard using both the MUAC and combined criterion.

Selective feeding programme

Table 23: Nutrition treatment programme coverage based on all admission criteria (weight-for-height, MUAC, oedema) – Gorom camp, Central Equatoria (September 2017)

	Number/total	%
Proportion of children aged 6-59 months with severe acute malnutrition currently enrolled in therapeutic feeding programme*	1/3	33.3%
Proportion of children aged 6-59 months with moderate acute malnutrition currently enrolled in supplementary feeding programme*	2/10	20.0%

*WHZ flags excluded from analysis

Table 24: Nutrition treatment programme coverage based on MUAC and oedema only- Gorom camp, Central Equatoria (September 2017)

	Number/total	% (95% CI)
Proportion of children aged 6-59 months with severe acute malnutrition currently enrolled in therapeutic feeding programme	1/1	100%
Proportion of children aged 6-59 months with moderate acute malnutrition currently enrolled in supplementary feeding programme	1/2	50%

Vaccination and supplementation programmes

Measles vaccination coverage

Table 25: Measles vaccination coverage for children aged 9-59 months (n= 150) - Gorom camp, Central Equatoria (September 2017)

	Measles (with card) n=119	Measles (with card or confirmation from mother) n=147
YES	79.3 %	98 %

The measles vaccination coverage met the recommended standard target of ≥ 95%. This improved compared to 2016 when the card or recall coverage was 82.5% (p<0.05).

Vitamin A supplementation coverage

Table 26: Vitamin A supplementation for children aged 6-59 months within past 6 months (n=242) - Gorom camp, Central Equatoria (September 2017)

	Vitamin A capsule (with card) n=67	Vitamin A capsule (with card <u>or</u> confirmation from mother) n=219
YES	27.7 %	90.5 %

The vitamin A coverage met the recommended standard target of ≥ 90%. This improved compared to 2016 when the card or recall coverage was 56.1% (p<0.05).

Diarrhoea

12.8% of the children 6-59 months reported to have had diarrhea two weeks prior to the survey.

Table 27 : Period prevalence of Diarrhoea

	Number/total	%
Children that had diarrhea in the last two weeks (6-59 months)	31/242	12.8%

Anaemia Results Children 6 – 59 months

The total anaemia prevalence among children 6 to 59 months is 71% indicating a problem of high public health significance. Children 6-23 tend to be more affected.

Table 28: Prevalence of Total Anaemia, Anaemia Categories, and Mean Haemoglobin Concentration in Children 6-59 Months of Age and By Age Group

	6-59 months n = 241	6-23 months n=87	24-59 months n=154
Total Anaemia (Hb<11.0 g/dL)	(171) 71.0%	(68) 78.1%	(103) 66.9%
Mild Anaemia (Hb 10.0-10.9 g/dL)	(83) 34.4%	(32) 36.8%	(51) 33.1%
Moderate Anaemia (7.0-9.9 g/dL)	(82) 34.0%	(35) 40.2%	(47) 30.5%
Severe Anaemia (<7.0 g/dL)	(6) 2.5%	(1) 1.1%	(5) 3.2%
Mean Hb, g/dL (95% CI) [range]	10.2 g/dL	10.3 g/dL	11.2 g/dL

Table 29: Prevalence of Moderate and Severe Anaemia in Children 6-59 Months of Age and By Age Group

	6-59 months n = 241	6-23 months n=87	24-59 months n=154
Moderate and Severe Anaemia (Hb<10.0 g/dL)	(88) 36.5 %	(36) 41.3%	(52) 33.7 %

IYCF: Children 0-23 months

Table 30: Prevalence of Infant and Young Child Feeding Practices Indicators

Indicator	Age range	Number/ total	Prevalence (%)
Timely initiation of breastfeeding	0-23 months	97/113	85.8
Exclusive breastfeeding under 6 months	0-5 months	20/32	62.5
Continued breastfeeding at 1 year	12-15 months	15/16	93.8
Continued breastfeeding at 2 years	20-23 months	12/20	60.0
Introduction of solid, semi-solid or soft foods	6-8 months	4/14	28.6
Consumption of iron-rich or iron-fortified foods	6-23 months	34/87	39.1
Bottle feeding	0-23 months	5/119	4.2

Prevalence of intake

Infant formula

Table 31: Infant Formula Intake in Children Aged 0-23 Months

	Number/total	% (95% CI)
Proportion of children aged 0-23 months who receive infant formula (fortified or non-fortified)	5/119	4.2

Fortified blended foods

Table 32: CSB++ Intake in Children Aged 6-23 Months

	Number/total	% (95% CI)
Proportion of children aged 6-23 months who receive CSB++	9/87	10.3

There was a blanket supplementary feeding CSB++ shortage in Gorom in September 2017

WOMEN 15-49 YEAR INDICATORS

Anaemia Women 15-49 years

Table 33: Women Physiological Status and Age

Physiological status	Number/total	% of sample
Non-pregnant	146	85.9
Pregnant	24	14.1
Mean age (range)	27.3(15-48)	

Table 34: Prevalence of Anaemia and Haemoglobin Concentration in Non-Pregnant Women of Reproductive Age (15-49 Years)

Anaemia - Women of reproductive age 15-49 years (non-pregnant)	All n = 145
Total Anaemia (<12.0 g/dL)	(96) 66.2% (57.9– 73.8 95% CI)
Mild Anaemia (11.0-11.9 g/dL)	(45) 31.0% (23.6 – 39.2 95% CI)
Moderate Anaemia (8.0-10.9 g/dL)	(51) 35.2% (27.4 – 43.5 95% CI)
Severe Anaemia (<8.0 g/dL)	(0) 0.0
Mean Hb, g/dL (SD) [range]	11.4 g/dL 1.3 [8.0-14.1]

Table 35: ANC Enrolment and Iron-Folic Acid Pills Coverage among Pregnant Women (15-49 Years)

	Number /total	% (95% CI)
Currently enrolled in ANC programme	19/24	79.2 (57.9-92.9)
Currently receiving iron-folic acid pills	19/24	79.2 (57.9-92.9)

FOOD SECURITY INDICATORS

Access to food assistance

Table 36: Ration card coverage

	Number/total	% (95% CI)
Proportion of households with a ration card	131/133	98.5

Only a small percentage did not have a ration card (1.5%). This was because they were not given one at registration. It is likely they were not in the camp during the recent verification exercise.

Negative household coping strategies
The refugees in Gorom refugee camps receive a reduced food ration at a 70% scale.

Table 37: Coping strategies used by the surveyed population over the past month

	Number/total	% (95% CI)
Proportion of households reporting using the following coping strategies over the past month*:		
Borrowed cash, food or other items with or without interest	55/133	41.4 (32.9-50.2
Sold any assets that would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)	21/133	15.8 (10.1-23.1)
Requested increased remittances or gifts as compared to normal	14/133	10.5 (5.9-17.0)
Reduced the quantity and/or frequency of meals and snacks	90/133	67.7 (59.0-75.5)
Begged	20/133	15.0 (9.4-22.3)
Engaged in potentially risky or harmful activities	35/133	26.3(19.1-34.7)
Proportion of households reporting using none of the coping strategies over the past month	21/133	15.8 (10.0-23.1

* The total was over 100% as households used several negative coping strategies.

Only 15.8% of households were not under significant stress to meet their needs as indicated by the proportion of household using none of the negative coping strategies over the past month prior to the survey.

Household dietary diversity

The last general food distribution ended 7 days prior to the start of the survey data collection. The survey was carried out during the beginning of the harvest season. This is thus the likely best scenario.

Table 38: AVERAGE HDDS*

	Mean (Standard deviation or 95% CI)
Average HDDS	4.4 (1.6)

Figure 7: Proportion of households consuming different food groups within last 24 hours
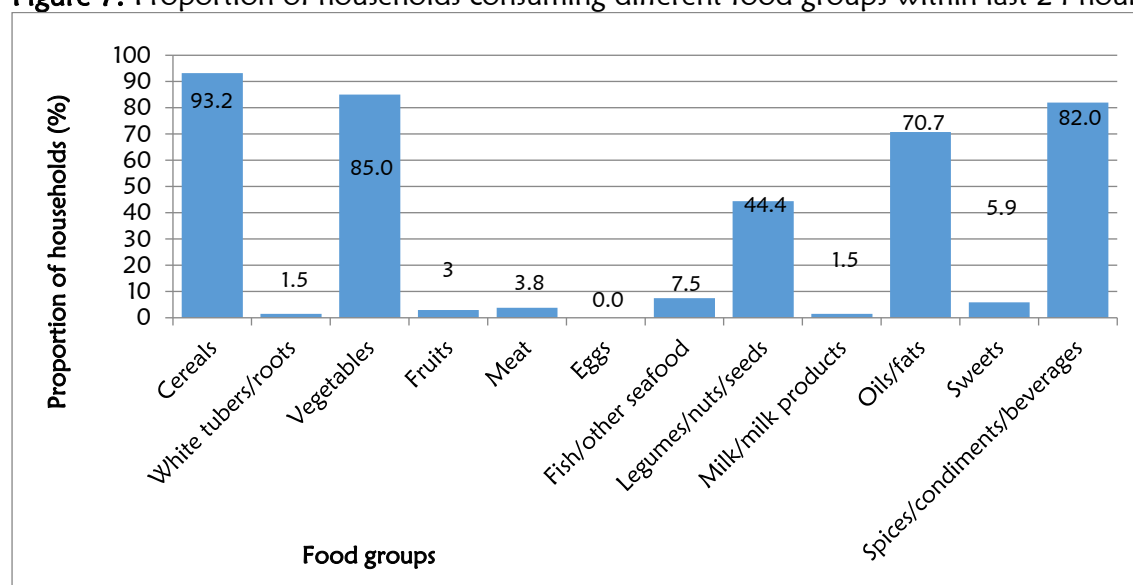
Table 39: Consumption of micronutrient rich foods by households

	Number/total	% (95% CI)
Proportion of households *not consuming any* vegetables, fruits, meat, eggs, fish/seafood, and milk/milk products	17/133	12.8 (7.6-19.7)
Proportion of households consuming either a plant or animal source of vitamin A	110/133	82.7 (75.2-88.7)
Proportion of households consuming organ meat/flesh meat, or fish/seafood (food sources of haem iron)	14/133	10.5 (5.9-17.0)

The low proportions of households consuming food groups containing iron above is indicative of an inadequate diet that is likely to be contributing to the micronutrient deficiencies

LIMITATIONS

- The total number of children found during the survey was lower than the expected number from the UNHCR ProGres database. This could have been due to some families being away and others no longer living in the camp.

- The age documentation coverage was 67%. Although an event calendar was used by the surveyors to ascertain age, stunting results need to be interpreted with caution because z-scores for height-for-age require accurate ages to within two weeks[8]

DISCUSSION

Nutritional status of young children and mortality

The prevalence of global acute malnutrition (GAM) in Gorom camp (5%) is poor based on the WHO classification (acute malnutrition between 5-9% is considered poor). The prevalence of severe acute malnutrition (SAM) was 0.8%. The prevalence of SAM is within the UNHCR acceptable level of <2%. The GAM and SAM prevalence in 2017 remained the same as that in 2016 [GAM (6.6%) and SAM (0.4%)]. This is because the reduction was not significant (p>0.05). The reduction is however an indicator of likely positive gains if the current interventions are maintained and strengthened. A comprehensive community management of malnutrition program was set up in 2017. This ensured availability of the right therapeutic foods for the management of acute malnutrition. In addition to this blanket supplementary feeding was initiated from February 2017 for children 6-23 months and pregnant and lactating women. In August and September 2017 CSB++ was not available due to a supply provision break in the refugee camp. Prepositioning of supplies in the camp to be explored in 2018.

Stunting refers to a deficit in height relative to age due to a long-term process of linear growth retardation. 'Stunting is a well-established risk marker of poor child development. Stunting before the age of 2 years predicts poorer cognitive and educational outcomes in later childhood and adolescence. Factors that contribute to stunted growth and development include poor maternal health and nutrition, inadequate infant and young child feeding practices, and infection.'[9] The prevalence of global stunting among children 6-59 months was 17.6% which is within the acceptable WHO range of <20%. Of note though is that only 67% of the population had age documentation thus stunting results need to be interpreted with caution. The stunting prevalence remained the same in 2017 compared to 2016 as the reduction was not statistically significant (p>0.05). Action across multiple areas continues to be necessary to maintain the stunting levels below 20%. This to include promotion of infant and young child feeding practices, ensuring adequate water and sanitation, infection control and maternal health and nutrition support.[10]

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[8] (CDC/WFP: A manual: Measuring and Interpreting Mortality and Malnutrition, 2005).

[9] WHA Global Nutrition Targets 2025: Stunting policy brief

[10] Allen LH. Nutritional influences on linear growth: a general review, Eur J Clin Nutr 1994; 48:S75-S89.

Morbidity

The interactions of nutrition and infection are cyclic with each exacerbating the other. 12.8 % of children 6-59 months were reported to have had diarrhea in the last two weeks prior to the survey indicating a morbidity burden needing attention. Interventions to prevent diarrhoea, including safe drinking-water, use of improved sanitation and hand washing with soap need to be strengthened and maintained. To reduce the morbidity caseload there is also need to maintain the current health service provision. Top morbidities (malaria, respiratory tract infections, skin and eye disease and intestinal worms) should also be given special attention.

Programme coverage children 6 – 59 months

Selective feeding programme

The TSFP and TFP coverage results based on all admission criteria was found to be low at 20% and 33.3% respectively. The TSFP and TFP coverage result based MUAC only criteria was 50% and 100% respectively. The latter was within the acceptable standard of >90%. The latter indicates effective screening at the community level where MUAC is used. Of concern is the children that meet the WHZ score admission criteria but are not captured by the MUAC screening. Analysis of MUAC versus WHZ z-scores verified the above argument. 10 of the 12 cases that met the WHZ score criteria were not captured by MUAC and one out of the three cases that had a MUAC <12.5cm did not meet the <-2 WHZ score criteria. In this light, a mixed criteria for admission using MUAC or WHZ scores to capture the children missed by either MUAC or the WHZ scores admission criteria to be continued. In addition to this a two stage screening to be carried out during the monthly BSFP visits for children 6-23 months and for all children 24-59 visiting the health centre. All children found to be at risk (125 -135mm) for the 6-23months and (125-165mm) for the 24-59 months to go through a second stage weight for height z-score measurement. Any child found to meet the admission criteria using the WHZ scores to be enrolled into the appropriate program.

Measles vaccination and vitamin A supplementation
The coverage for measles vaccination and vitamin A supplementation in the last 6 months met the target of ≥95% and ≥90% for measles vaccination and vitamin A supplementation respectively indicating effective routine and campaign strategies. This should be maintained. This improved significantly compared to the coverage in 2016. The coverage of the use of EPI cards also improved in regard to measles vaccination. This should be replicated for Vitamin A.

Anaemia in Young Children and Women
The survey results showed that total anaemia prevalence among children 6 to 59 months was 71%. This is very high as it is above 40%.[11] The anaemia problem was more severe among children 6 to 23 months than in older children. Although anaemia prevalence was high, approximately 48% of the children were mildly anaemic. The prevalence of moderate and severe anaemia among children 6 to 59 was 36.5%. If only moderate and severe anaemia is considered, the anaemia prevalence is of medium public health concern which is classified as of medium public health significance.

Total anaemia prevalence among non-pregnant women 15-49 years is 66.2 % (57.9–73.8 95% CI). According to the WHO classification the women anaemia prevalence is of high public health significance.

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[11] WHO classification of public health significance

The anaemia prevalence can be attributed to a number of factors that characterise the camp population. Chief among the contributors to the high anaemia prevalence is the diet which is poor in micronutrients. The GFD basket provides 53% of the daily iron requirements. Sorghum, which contributes the bulk of this iron provision is high in phytates, anti-nutrients that inhibit iron absorption in the body. In addition to this the GFD only provides 2% of the recommended daily intake of vitamin C, a nutrient that plays a pivotal role in iron absorption. The HDDS indicated that only 10.5% of the households consumed food sources rich in iron. Only 39.1% of children 6-23 months consumed iron rich foods. The refugee diet lacks animal protein a good source of bioavailable iron. Malaria and intestinal worms' infection are among the top five morbidities among the refugee population that could also be contributing to the high anaemia prevalence. Malaria and intestinal worm treatment and prevention should be continued. A strategy to address anaemia and other micronutrient deficiencies in the south Sudan refugee camps was drawn in the second half of 2017. The full implementation of this is essential in Gorom. This to be carried out in 2018.

IYCF Indicators

Infant and young child feeding practices directly affect the nutritional status of children under two years of age and, ultimately, impact child survival. Protecting, and improving on, infant and young child feeding practices in children aged 0-23 months of age is therefore critical to improved nutrition, health and development of children[12].

From the survey results the proportion of children 0-23 months that had timely initiation of breast milk within the first hour of delivery was 85.8%. Early initiation (within one hour of birth) of exclusive breastfeeding significantly reduces the risk of neonatal mortality. Infants for whom initiation of breastfeeding is delayed to more than 24 hours after birth are 2.4 times more likely to die during their first month of life. Efforts to ensure all delivered children receive timely initiation of breast milk should thus be continued. The relatively good proportion attained in Gorom refugee camp so far can be attributed to the integration of nutrition and reproductive health, where IYCF messaging is part of the ANC visits' package and part of the maternity's promoted practices.

The rate of exclusive breast feeding for the first six months of life was 62.5%. The risk of neonatal death is increased approximately fourfold if milk-based fluids or solids are provided to breastfed neonates. Breastmilk alone (exclusive) satisfies the nutritional and fluid requirements of an infant for the first complete six months of life in all settings and climates.[13] Continued breastfeeding at 1 year was 93.2% and up to two years was 60%. The proportion of children being exclusively breastfed and continue to breastfeed to be improved by ensuring IYCF programming is strengthened through the use of community support groups and integrating IYCF in the various health and nutrition contact points.

The proportion of children 6 to 8 months that were introduced to solid and semi-solid foods on time was 28.6%. After six months, adequate and appropriate infant complementary foods become necessary to complement breastmilk in order to meet the energy and other nutrient requirements of the infant (timely complementary feeding).There is need to ensure IYCF messaging addresses this important component of complementary feeding as this has a direct bearing on stunting outcomes of the children.

4.2% of the surveyed childred aged 0-23 months were bottle fed. The same proportion also received infant formula. Infant formula is a nonhuman milk product formulated from animal

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[12] WHO, Indicators for Assessing Infant and Young Child Feeding Practices, WHO 2010

[13] UNHCR SENS guidelines for refugee populations, Version 2 (2013)

milk or vegetable protein (soy) and adapted to the physiological characteristics of infants. The risks of infection or malnutrition from using breastmilk substitutes are likely to be greater than the risk of HIV transmission through breastfeeding. In addition to this bottle feeding is associated with increased diarrhoeal disease dure to the contamination likelihood of the bottle and nipple. It is therefore necessary to support all women to achieve early initiation and exclusive breastfeeding for the first six completed months and the continuation of breastfeeding into the second year of life to provide the best chance of survival for infants and young children[14]

Some of the IYCF results should be interpreted with caution as the sample is small to draw meaningful conclusions. These findings however, give an idea of the status of infant and young feeding practices among the surveyed population.

Food security indicators

Food insecurity is one of the causes of undernutrition as it directly affects the nutritional status of an individual. It is a direct cause of malnutrition in terms of dietary intake and an underlying cause in terms of access to and utilisation of food. Improving overall food security is therefore critical to improved nutrition, health and long-term development of children and other household members. Majority of the refugees in Gorom refugee camp have access to food assistance as indicated by the coverage of ration cards (98.5%). The general food ration is however provided at a 67% ration scale which provides 1418kcal/p/d. To fill the gap in food assistance most on the refugees reported to use negative coping strategies (84.2%). Only 15.8% reported to have used none of the survey listed coping strategies indicating the proportion likely to have benefited from livelihood programs' support.

Recommendations and Priorities

Nutrition related
Continue the implementation of the comprehensive CMAM program providing both therapeutic and supplementary feeding programs to facilitate the rehabilitation of identified acute malnourished persons including children, pregnant and lactating women, people living with HIV/AIDS (PLWHA), TB patients on treatment, and others with chronic illnesses. (UNHCR, UNICEF, WFP and ACROSS).

Ensure all children identified with a MUAC less than 125mm get enrolled into the management of acute malnutrition programs. This to be carried out through community outreach at household level and referral to the health/nutrition facility (ACROSS)

Conduct the two step MUAC and WHZ scores (for children with MUAC at risk) screening monthly at the BSFP site for children aged 6-23 months and at the health facility triage area for all presenting children 24-59 months at Gorom refugee camp to ensure both high MUAC and WHZ score coverage. In addition to this the result from this to complement the quarterly mass MUAC screening to facilitate the nutrition situation evolution monitoring (ACROSS)

Ensure monthly blanket supplementary feeding programme for children 6-23months, pregnant and lactating women using a fortified blended food or lipid based supplement to prevent malnutrition and to cover the nutrient gap these vulnerable groups have in light of a predominant grain based general food diet. Prepositioning to ensure at least two months stocks

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[14] Operation Guidance on IFE, section 5.2.8, v2.1, Feb 2007

at the facility to avoid stock outs (UNHCR, WFP and ACROSS)

Continue strengthening the capacity of the nutrition facility in terms of staff training to facilitate quality provision of both curative and preventative components of nutrition and food security promotion (UNHCR, WFP, UNICEF and ACROSS)

Expand and strengthen preventative nutrition components including the awareness creation, promotion, protection of Infant and Young Child Feeding (IYCF) and community outreach education aspects to stop malnutrition from occurring in the first place. (UNHCR, UNICEF and ACROSS)

Roll out the anaemia reduction strategy in Gorom camp to reduce the very high anaemia levels. This to include systematic screening and referral of all persons with anaemia signs and symptoms (palmar pallor) at the community level. Health centers to provide appropriate treatment and follow up for anaemia detected cases (UNHCR, WFP, UNICEF and ACROSS

Ensure regular monitoring, quarterly joint monitoring and yearly program performance evaluations to assess performance progress and formulate recommendations for any identified gaps. (UNHCR, WFP, UNICEF and ACROSS).

Undertake a follow up annual joint nutrition survey to analyze trends and facilitate program impact evaluation in the last quarter of 2018. (UNHCR, ACROSS, WFP and UNICEF).

Food security related
General food ration providing the minimum dietary requirements (2100kcal/person/day) is critical to ensure basic nutrition provision. In 2017 a 67% General Food Distribution (GFD) ration of the recommended calories was provided in Gorom refugee camp which is insufficient in a population that predominantly relies on the general food ration. Majority of the households in Gorom (84.2%) practiced negative coping strategies to fill the food assistance gap. Various ways of closing the food security gaps to be sort including the expanding the coverage of sustainable food security and livelihood solutions to complement the general food distribution (UNHCR, WFP and ACROSS).

Health related
Maintain the provision of comprehensive primary health programme for refugee and host populations in Gorom. (UNHCR and ACROSS)

Adequate clean water provision, sanitation and hygiene promotion to be strengthened and maintained in 2018 to reduce the diarrhoea caseload. (UNHCR and ACROSS)

APPENDICES

Appendix 1: Names of contributors

	Name	Role	Organisation
1	Odalla Chani	Enumerator	ACROSS
2	Abang Agada Akway	Enumerator	ACROSS
3	Ganya Morris Edward	Enumerator	ACROSS
4	Taban Morris	Enumerator	ACROSS
5	Ojullu Ochan	Enumerator	ACROSS
6	Anthony Ngor	Enumerator	ACROSS
7	Dor Comboni	Enumerator	ACROSS
8	Lero Ocholla Omot	Enumerator	ACROSS
9	Chiel Oman Tiro	Enumerator	ACROSS
10	Thwol Nyuwo	Enumerator	ACROSS
11	Ojullu Okwier Gwoy	Enumerator	ACROSS
12	Stella Juan	Enumerator	ACROSS
13	Eva Marecllo Pitia	Enumerator	Juba
14	Flivia Mindraa	Enumerator	Juba
15	Oyet Francis Lawrence	Enumerator	Juba
16	Layet Grace	Enumerator	Juba
17	Rokak Justine Mogga	Enumerator	Juba
18	Lona Mandera Peter	Enumerator	Juba
19	Lingdit Mou Nguoth	Team leader	Juba
20	Luate Samuel Taban	Team leader	Juba
21	Agele Confusas	Team leader	ACROSS
22	Akomi Vic Innocent	Team leader	ACROSS
24	Lui Alex Mule Samuel	Team leader	ACROSS
25	Michael Olweny	Team leader	ACROSS
26	Tommy Otto	Supervisor	ACROSS
27	Diana Chicago Wesley	Supervisor	ACROSS
28	Terry Theuri	Coordinator	UNHCR
29	Sebit Mustafa	Supervisor	UNHCR
30	Melody Muchimwe	Trainer	WFP
31	Ismail Kassim	Trainer	UNICEF

Data analysis and report compilation
Terry Theuri (Nutrition Officer, UNHCR Juba, South Sudan)

Report review
Gebrewold Petros Yohannes (Senior Public Health Officer, UNHCR Juba, South Sudan), Naser Mohmand (Senior Regional Nutrition and Food security officer, Regional Service Centre, Nairobi)

Funding
UNHCR and ACROSS supported the survey. UNICEF and WFP fund the nutrition and food security program

Appendix 2: Summary of overall quality of anthropometric data (weight-for-height data)

Gorom

Overall data quality

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Criteria                 Flags* Unit Excel. Good    Accept Problematic Score

Flagged data             Incl   %    0-2.5 >2.5-5.0 >5.0-7.5  >7.5
(% of out of range subjects)           0      5       10       20        0 (0.4 %)

Overall Sex ratio        Incl   p    >0.1 >0.05   >0.001   <=0.001
(Significant chi square)             0      2       4         10        0 (p=0.440)

Age ratio (6-29 vs 30-59) Incl   p    >0.1 >0.05   >0.001   <=0.001
(Significant chi square)             0      2       4         10        0 (p=0.256)

Dig pref score - weight Incl   #    0-7   8-12    13-20   > 20
                                     0      2       4         10        0 (7)

Dig pref score - height Incl   #    0-7   8-12    13-20   > 20
                                     0      2       4         10        2 (8)

Dig pref score - MUAC    Incl   #    0-7   8-12    13-20   > 20
                                     0      2       4         10        2 (8)

Standard Dev WHZ         Excl   SD   <1.1 <1.15   <1.20   >=1.20
.                                   And   and     and      or
.                        Excl   SD   >0.9 >0.85   >0.80   <=0.80
                                     0      5       10       20        0 (0.98)

Skewness WHZ             Excl   #    <±0.2 <±0.4  <±0.6   >=±0.6
                                     0      1       3         5        0 (0.03)

Kurtosis WHZ             Excl   #    <±0.2 <±0.4  <±0.6   >=±0.6
                                     0      1       3         5        0 (0.03)

Poisson dist WHZ-2       Excl   p    >0.05 >0.01  >0.001  <=0.001
                                     0      1       3         5        0 (p=)

OVERALL SCORE WHZ =                  0-9 10-14   15-24    >25        4 %
```

The overall score of this survey is 4 %, this is excellent

Standardised Nutrition Survey Questionnaire- Gorom Camp

Greeting and reading of rights

This statement is to be read to the head of the household or if they are absent another adult member of the household before the interview. Define a household as a group of people who live together and routinely eat out of the same pot. Define head of the household as a member of the family who manages the family resources and is the final decision maker in the house

Hello, my name is _____ and I work with *[ACCROSS]*. We would like to invite your household to participate in a survey that is looking at the nutrition and health status of people living in this camp.

- UNHCR/ACCROSS is supporting this nutrition survey.

- Taking part in this survey is totally your choice. You can decide to not participate, or if you do participate you can stop taking part in this survey at any time for any reason. If you stop being in this survey, it will not have any negative effects on how you or your household is treated or what aid you receive.

- If you agree to participate, I will ask you some questions about your family and I will also measure the MUAC, weight and height of all the children in the household who are older than 6 months and younger than 5 years

- Before we start to ask you any questions or take any measurements, we will ask you to state your consent on this form. Be assured that any information that you will provide will be kept strictly confidential.

- You can ask me any questions that you have about this survey before you decide to participate or not.

- If you do not understand the information or if your questions were not answered to your satisfaction, do not declare your consent on this form.

Thank you.

Questionnaire for Children 6-59 months (every HH)

THIS QUESTIONNAIRE IS TO BE ADMINISTERED TO ALL CARETAKERS OF A CHILD THAT LIVES WITH THEM AND IS BETWEEN 6-59 MONTHS OF AGE

Date (dd/mm/yyyy)					Team Number				Village			Block		
|__|__|/|__|__|/|__|__||__|__|					|__|			|__|__|			|__|__|		
CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9***	CH10***	CH11	CH12	CH13	CH14	CH15
ID	HH	Consent given 1=yes 2=no 3=absent	Sex (m/f)	Birthdate* dd/mm/yyyy	Age** cwiri (months) Dwodi	Weight (kg) ±100g	Height (cm) ±0.1cm	Oedema (y/n)	MUAC (mm)	If MUAC <12.5cm is Child enrolled 1=SFP 2=TFP 3=None	Measles Nyilaal ocwobo ajwa kijaath 1=yes card 2=yes recall 3=no or don't know	Vit. A in past 6 months Nyilaal amadho Vit A koot (show capsule) 1=yes card 2=yes recall 3=no or don't know	Diarrhoea in past 2 weeks# Nyilaal omak leth ec ki koot juu ariew? 1=yes 2=no 8=DK	HB (g/dl)
01				/ /										
02				/ /										
03				/ /										
04														
05														
06														
07														
08														

*Record from EPI/health card/age documentation if available. Leave blank if no valid age documentation. **Estimate using event calendar and recall if age documentation not available. #Diarrhoea: 3 or more loose stools within 24hrs

Questionnaire for <u>WOMEN 15-49 YEARS</u> (every other HH)
This questionnaire is to be administered to all women aged between 15 and 49 years IN THE SELECTED HH

Date (dd/mm/yyyy)				Camp	Team Number	Village Number		Block Number
|__|__|/|__|__|/|__|__||__|__|					|__|__|	|__|__|		|__|__|

W1	W2	W3	W4	W5	W6	W7	W8*	W9
Woman ID	HH	Consent given 1=yes 2=no 3=absent	Age (years) cwiri	Are you pregnant? *Ngeeti inamaai* 1=yes 2=no (GO TO WM 8) 8=DK (GO WM 8)	Are you currently enrolled in the ANC? *Ino cobo ki mar jo jey?* 1=yes 2=no (If no, STOP)	Are you currently receiving iron-folate tablets? (*SHOW PILL*) *Ino moo kiin?* 1=yes (STOP NOW) 2= no (STOP NOW) 8=DK (STOP NOW) *Bung gin ngääc*	Hb (g/dL) (Only for non-pregnant women) *Kipper maan moa nak ngeet ge ba in maal keerge*	Woman referred for anaemia *Mn mo kwa kipper tar kääc* 1=yes 2=no
1								
2								
3								
4								
5								
6								
7								
8								
9								

*W8: Refer to the clinic for anaemia if HB is <8.0 g/dl

IYCF Questionnaire (1 questionnaire per child 0 -23 months)

	Date (dd/mm/yyyy)	Team Number	Village Number	Block Number	HH Number
	|__|__|/|__|__|/2017	|__|__|	|__|__|	|__|__|	|__|__|

No	QUESTION	ANSWER CODES	
SECTION IF1			
IF1	Sex	Male …………………………… 1 Female……………………….. 2	|___|
IF2	Birthdate RECORD FROM AGE DOCUMENTATION. LEAVE BLANK IF NO VALID AGE DOCUMENTATION Nyilaal olwaaro go kayi wane	Day/Month/Year……………………… |__|__| /|__|__| / |__|__||__|__|	
IF3	Child's age in months	IF AGE DOCUMENTATION NOT AVAILABLE, ESTIMATE USING EVENT CALENDAR. IF AGE DOCUMENTATION AVAILABLE, RECORD THE AGE IN MONTHS FROM THE DATE OF BIRTH	|__|__|
IF4	Has [NAME] ever been breastfed? (Nyilaal obeedö ni dhooth)	Yes *(Kare)*………………………… 1 No *(pakare)*…………………………2 DK …………………………………8 *(Bung gin ngääc)*	|___| IF ANSWER IS 2 or 8 GO TO IF7
IF5	How long after birth did you first put [NAME] to the breast? *(Akany mo nyiedi ni dhwotho nyilaal ki koor/waar?)*	Less than one hour ………………1 *(odoo piny ki caa aciel)* Between 1 and 23 hours ………..2 *(akiic caa aciel keel 23)* More than 24 hours ……………..3 *(Opodho ki baat caae mo 24)* DK(Bunggin ngääc…………………………8	|___|

IF6	Was [NAME] breastfed yesterday during the day or at night? (*Nyilaal odhooth ya waare ki wang vang/waar?*)	Yes (kare)……………………………1 No (pakare)…………………………2 DK ……………………………………8 Bung gin ngääc	|__|
SECTION IF2			
IF7	Now I would like to ask you about liquids that [NAME] may have had yesterday during the day and at night. I am interested in whether your child had the item even if it was combined with other foods. (*Enno amanya go ni peenga kiper jammi moa kwil man nak nyilaal*) Yesterday, during the day or at night, did [NAME] receive any of the following? (*Ya wääri ki di cäng wala wär nyilaal o gitö ki re moi?*)		

ASK ABOUT EVERY LIQUID. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE.	1=Yes (Piiny kare) 2=No (Pakare) 3=DK (Bung gin ngääc)		
7A Plain water:	7A………………….1	2	8
7B. Infant formula: for example Nan 1, nan 2, s26. (*Ya waare ki waar wala dicang nyilaal amadho ki :(Caak mo cuk?*)	7B………………….1	2	8
7C. Milk such as tinned, powdered, or fresh animal milk: for example (Niddo). (*Ya waare ki waar wala dicang nyilaal amadho ki: (Coak wala caak jur moa näk mo läny*)	7C………………….1	2	8
7D. Juice or juice drinks e.g mango, apple juice bought in shops. (*Ya waare ki waar wala dicang nyilaal amadho ki: (Pii nyijäth mwØa ngweeth teeng manga, apple ki mØØk*)	7D………………..1	2	8
7E. Clear broth (*Ya waare ki waar wala dicang nyilaal amadho ki: (Abätha*)	7E…………………..1	2	8
7F. Sour milk or yogurt for example: (*Ya waare ki waar wala dicang nyilaal amadho ki: (Caak mwØa wac*)	7F…………………..1	2	8

	7G. Thin porridge for example: (*Ya waare ki waar wala dicang nyilaal amadho ki:* (*Pimor, Ajakalei*)	7G......................1	2 8
	7H. Tea or coffee with milk (*Ya waare ki waar wala dicang nyilaal amadho ki: (cääye wala caak, Buna wala caak*)	7H......................1	2 8
	7I. Any other water-based: for example sodas, other sweet drinks, herbal infusion, gripe water, clear tea with no milk, black coffee, ritual (*Ya waare ki waar wala dicang nyilaal amadho ki: (soda, Kerekede, caay/buna mo caak ree?*)	7I......................1	2 8
IF8	Yesterday, during the day or at night, did [NAME] eat solid or semi-solid (soft, mushy) food? *(Yaa waare ki wäar, dicang nyilaal acamo ki cam mo joom-mo guuro?)*	Yes (kare)...........1 No (pakare) ....2 DK (Bung gin ngääc) 8	|___|

SECTION IF3			
IF9	Did [NAME] drink anything from a bottle with a nipple yesterday during the day or at night? *(Nyilaal amadho kigiir piny yi willi mo dhee da thootho ya waare ka dicang ki waar?)*	Yes (kare).........1 No (pakare).......2 DK (Bung gin ngääc).............8	|___|

SECTION IF4			
IF10	Is child aged 6-23 months? REFER TO QF2 *Nyilaal cwiiye ena ri dwadw abiciel keel piera ariew kadak?*	Yes (kare)..........1 No (pakare).......2	|___| IF ANSWER IS 2 STOP NOW

			Yes	No	DK
IF11	Now I would like to ask you about some particular foods [NAME] may eat. I am interested in whether your child had the item even if it was combined with other foods. Yesterday, during the day or at night, did [NAME] consume any of the following? *(Enno amanya go ni peenya kipper cam mano cam nyilaali. Yiea omino wal nyilaal mari ogitokeeldee naa ojaabo ki cammi mook)* ASK ABOUT EVERY ITEM. IF ITEM WAS GIVEN, CIRCLE '1'. IF ITEM WAS NOT GIVEN, CIRCLE '2'. IF CAREGIVER DOESN'T KNOW, CIRCLE '8'. EVERY LINE MUST HAVE A CODE. DK				

		Yes	No	DK
IF11	11A. Flesh foods for example: beef, goat, lamb, mutton, pork, rabbit, chicken, duck, liver, kidney, heart. (*Nyilaal acamo ya waare ki ringo teengi: (Riingo, Reo, Caap riing teeng, rieng dhieng, ring diel, ring roomo, ring other, ring apwoo ring, gwieno, badho cwiny, rogi ki winyo?*	11A..................1	2	8
	11C. FBF++: for example CSB++ (*Ya waare nyilaal acamo ki mo mana ngeeth ka dicang/waar?*)	11C..................1	2	8
	11D. RUTF : for example Plumpy'Nut® (SHOW SACHET) (*Ya waare ki dicang waar nyilaal acamo ka apulli wala athiloomi?*)	11D..................1	2	8
	11E. RUSF: for example Plumpy'Sup® (SHOW SACHET) (*Ya waare ki dicang, waar nyillal acamo ka apuuli wala athiloomi?*)	11E..................1	2	8
	11G. Infant formula: for example NAN 1, nan 2, s26). (*Ya waare ki waar, dicang nyilaal amadho ki caak teeng Nan 1, Nan 2?*	11G…….............1	2	8
	11H. List any *iron fortified* solid, semi-solid or soft foods designed specifically for infants and young children available in the local setting that are different than distributed commodities (*Ya waare ki waar dicang nyilaal acamo ki cam mo jappo ka teeng: piimo mo jaabo ka athiloomi)*	11H..................1	2	8

Food Security questionnaire (1 questionnaire per every other household)

Date (dd/mm/yyyy)	Camp	Team Number
|__|__|/|__|__|/2017		|__|__|

Village Number	Block Number	Household
|__|__|	|__|__|	|__|__|__|

No	QUESTION	ANSWER CODES	
SECTION 1			
1.	Does your household have a ration card? *(Paari da kaat mar cam?)*	Yes ....1 No 2	|__| IF ANSWER IS 1 GO TO Q3
2.	Why do you not have a ration? *(Aper ngø ni bunge cam jiri?)*	Not given one at registration, even if eligible ....1 Lost card .... 2 Traded/Sold card .... 3 New arrival who is eligible but not yet registered .... 4 Not eligible (not in targeting criteria) .... 5 Other 6	|__|
3.	Does your household receive full or reduced food ration?	Full (10kg Sorghum)..............................1 Reduced............................... 2 Other................................. 3	
4.	How many days did the food from the general food aid ration from the cycle of [August] month last? *(A ninë Adïi ni thum cammi mari mar dwaa abara wala dwaana poodho?)*	Number of Days _____ _____ **IF ANSWER IS > or =30 days GO TO Q5**	|__|__|
5.	In the last month, have you or anyone in your household borrowed cash, food or other items with or without interest? *(Dwaay mana podho da dhaanhomo kado ki girpinymo. Dadhaanhø mo mäyö gïr pirpinymo, kwon paari yi dwaaymana poodho kimet ec mari wala ki teek, dwogi no meeto, dwogi ni kare?)*	Yes *(Piiny kare)*.......................1 No *(pakare)*.........................2 DK ....8 *(Bung gin ngääc)*	|__|
6.	In the last month, have you or anyone in your household sold any assets that you would not have normally sold (furniture, seed stocks, tools, other NFI, livestock etc.)? *(Idwaay mana poodho iini, dhaanho mo ena paari ogadho ki jammi mwoa nak kiri gadho, teeng koodhi, koomi, lay kimook?*	Yes *(kare)*...............................1 No *(pakare)*...........................2 DK ....8 *(Bung gin ngääc)*	|__|
7.	In the last month, have you or anyone in your household been requested increased remittances or gifts as compared to normal? *(Yi dwaay mana podhoo, iini dhaanhomo ena dogo mo peoki kony, muuy mo cire di meedo ki go?)*	Yes *(kare)*...............................1 No *(pakare)*...........................2 DK ....8 *(Bung gin ngääc)*	|__|
8.	In the last month, have you or anyone in	Yes (*kare*)...........................1	

	your household reduced the quantity and/or frequency of meals and snacks? *(Yi dwaay mana podhoo da dhaanho wala ino kan wak rikwaan cam mono cami?)*	No (pakare)………………….....2 DK .……………………………………8 (Bung gin ngääc)	|__|
9.	In the last month, have you or anyone in your household begged? *(Indwaay mana pÖÖdhÖ. Da dhaanhÖ mopeo kipper kony?)*	Yes (kare)…………………………1 No (pakare)………………….....2 DK .……………………………………8 (Bung gin ngääc)	|__|
10.	In the last month, have you or anyone in your household engaged in: killing of wild animals, cutting of big trees and selling, stealing, cross boarder smuggling, charcoal burning or any other risky or harmful activities *(Idwääy mana pÖdhÖ iïni nago ki laac paap, iina ngudoki jeni moadongo, ogathige, iina kwatto, nyibobel, keew angoli kijoo m raac, tiie moriyyo?)*	Yes (kare)…………………………1 No (pakare)………………….....2 DK .……………………………………8 (Bung gin ngääc)	|__|
SECTION 2			
11.	Now I would like to ask you about the types of foods that you or anyone else in your household ate yesterday during the day and at night. *(Enno amanya go ni peenya ki with caami, mocami/ Mocam dhaanho moena paari ya waare ka dicany / waar?)* I am interested in whether you or anyone else in your household had the item even if it was combined with other foods. I am interested in knowing about meals, beverages and snacks eaten or drank inside or outside the home. *(Yiea omiino wala ini, dhaanho mo ena paari jire da jami, keel dee naa ojaabo ki caami mook amanya go nee ngaa teengig gion math, caami, soda yi paari, wok?)*	READ THE LIST OF FOODS AND DO NOT PROBE. RECORD *(1)* IN THE BOX IF ANYONE IN THE HOUSEHOLD ATE THE FOOD IN QUESTION, OR *(0)* IN THE BOX IF NO ONE IN THE HOUSEHOLD ATE THE FOOD.	
	1. Cereals: e.g. Sorghum, maize, wheat, rice *Ya waare ki waar, dicang nyillaal acamo ki kwon teeni :(cindi, ruuc, abay, beel?)*	1….…………………………………….|__|	
	2. White roots and tubers: e.g. White potatoes, white yam, white cassava, white sweet potato or other foods made from roots *(lweet jenni mwØa tar teeng, bäälë mwØa mar, Ajwaale mwØa tar, opeelemwØa tar ki mØØk?)*	2….…………………………………….|__|	
	3A. Vitamin A rich vegetables and tubers: e.g. pumpkin, orange sweet potato, tomato + other locally available vitamin A rich vegetables *Nyilaal ocamo ki with a marmoi teeng: (okono, Ajuala mana ngweeth, tim tim?)*	3A….……………………………….....|__|	
	3B. Dark green leafy vegetables: Any dark green leafy vegetables, including wild forms + locally available vitamin A rich leaves such as	3B….…………………………………….|__|	

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cassava leaves, pumpkin leaves, bean leaves kale, spinach *Nyilaal omwo ki caami ya waare/dicangi wala ocamo ki caami moi teeng :* (Bøøng Babura, Bøøng Okonno, Boo, Nyiwacwie kudra?)

3C. Other vegetables: Any other vegetables (e.g. cabbage, green pepper, onion, eggplant) + *other locally available vegetables Nyilaal ocamo ka amar moi ya waare/dicangi teeng:* (Amar mook teeng, Adimit mana mar, bacal, ocook?)

3C...|___|

4A. Vitamin A rich fruits: Any mango (ripe, fresh and dried), ripe papaya, and 100% fruit juice made from these + *other locally available vitamin A rich fruits. Nyilaal ocamo ki nyi jenni mo cipi ki Vitamin A decani /ya waare teeng (olilu, manga, papaya?)*

4A...|___|

4B...|___|

4B. Other fruits: Any other fruits such as banana, lemon, avocado including wild fruits and 100% fruit juice made from these. Nyilaal omadho ki pi nyi jeni teeng: *(bala, leemun, abökadö?)*

5A. Organ meat: Nyilaal mari ya waare/dicangi ocamo ki :*(Riing cwïny, Rogi, Wenyo obaw?)*

5A...|___|

5B. Flesh meats: Nyilaal ya waare /dicangi acamo ki: *(Riingo?)*

5B...|___|

6. Eggs: Nyilaal ya waare /dicangi acamo ki *(Tong gwieni, tong badho, tong akuuru?)*

6...|___|

7. Fish and seafood: Ya waare/dicangi nyilaal acamo ki : *(Rëö, caap yi naam)*

7...|___|

8. Legumes, nuts and seeds e.g beans, yellow split peas, groundnuts and sim Nyilaal acamo y aware / dicangi ki lweet jenni, nyijeni teeng:*(Apuli, koodhi, nyimi, ngoori?)*

8...|___|

9. Milk and milk products: Any milk, infant formula, cheese, yogurt or other milk products
Ya waare / di cangi nyilaal mari amatho ki :(caak, dile, chackmowaç)

9...|___|

11. Oils and fats : *(mäu, maar dhieng, bwob)*

10...|___|

12. Sweets: sugar, honey, sweetened soda or sweetened juice drinks, sugary foods such as chocolates, candies, cookies, sweet biscuits and cakes Ya waare/ dicangi nyilaal mari amdho acamo ki jami moa gweeth:*(sukar, soda, Achir, , cake, maar kïc, alaawa, backuuth mana ngweeth)*

11...|___|

|	
Spices, condiments, beverages: (Any spices (black pepper, salt), condiments (soy sauce, hot sauce), coffee, tea, alcoholic beverages. Ya waare nyilaal acamo amadho ki jammi teeng: *(Ademiti, ocoojur, acäwö, chay, araki, kwong)*	12…………………………………..|___|

Appendix 4: Event calendar for Gorom refigee camp, September 2017

Events Calendar

Seasons	Religious Holiday	Other Events	Months / Years	Age (M)	Height Range
Harvest of groundnuts & Beans		Ethiopian new year (Sept)	September 2017	0	
			August 2017	1	
Crop Weeding continues			July 2017	2	
Weeding of crops		World refugee day (20 June)	June 2017	3	
			May 2017	4	
Planting season			April 2017	5	
Land preparation			March 2017	6	65-70 cm
			February 2017	7	
Renovation/Building of houses		CPA & New year celebrations	January 2017	8	
	Christmas (25 Dec)	Gambella genocide rememberance	December 2016	9	71-76 cm
Post harvest			November 2016	10	
Harvest of Sorghum			October 2016	11	
Harvest of groundnuts & beans		Ethiopian new year (Sept)	September 2016	12	
			August 2016	13	
Crop Weeding continues			July 2016	14	
Weeding of crops		World refugee day (20 June)	June 2016	15	
			May 2016	16	77-80 cm
Planting season			April 2016	17	
Land preparation			March 2016	18	
			February 2016	19	
Renovation/Building of houses		CPA & New year celebrations	January 2016	20	
	Christmas (25 Dec)	Gambella genocide rememberance	December 2015	21	81-86 cm
Post harvest			November 2015	22	
Harvest of Sorghum			October 2015	23	
Harvest of groundnuts & beans		Ethiopian new year (Sept)	September 2015	24	
			August 2015	25	
Crop Weeding continues			July 2015	26	
Weeding of crops		World refugee day (20 June)	June 2015	27	
			May 2015	28	
Planting season			April 2015	29	
Land preparation			March 2015	30	87-90 cm
			February 2015	31	
Renovation/Building of houses		CPA & New year celebrations	January 2015	32	
	Christmas (25 Dec)	Gambella genocide rememberance	December 2014	33	
Post harvest			November 2014	34	
Harvest of Sorghum			October 2014	35	
Harvest of groundnuts & beans		Ethiopian new year (Sept)	September 2014	36	
			August 2014	37	
Crop Weeding continues			July 2014	38	
Weeding of crops		World refugee day (20 June)	June 2014	39	
			May 2014	40	91-99 cm
Planting season			April 2014	41	
Land preparation			March 2014	42	
			February 2014	43	
Renovation/Building of houses		CPA & New year celebrations	January 2014	44	
	Christmas (25 Dec)	Gambella genocide rememberance	December 2013	45	
Post harvest			November 2013	46	
Harvest of Sorghum			October 2013	47	
Harvest of groundnuts & beans		Ethiopian new year (Sept)	September 2013	48	
			August 2013	49	
Crop Weeding continues			July 2013	50	100-110 cm
Weeding of crops		World refugee day (20 June)	June 2013	51	
			May 2013	52	
Planting season			April 2013	53	
Land preparation			March 2013	54	
			February 2013	55	
Renovation/Building of houses		CPA & New year celebrations	January 2013	56	
	Christmas (25 Dec)	Gambella genocide rememberance	December 2012	57	
Post harvest			November 2012	58	
Harvest of Sorghum			October 2012	59	
Harvest of groundnuts & beans		Ethiopian new year (Sept)	September 2012	60	

Appendix 5 – Map of Gorom refugee camp

SOUTH SUDAN: Central Equatoria-Gorom Refugee Settlement I 05/05/2016
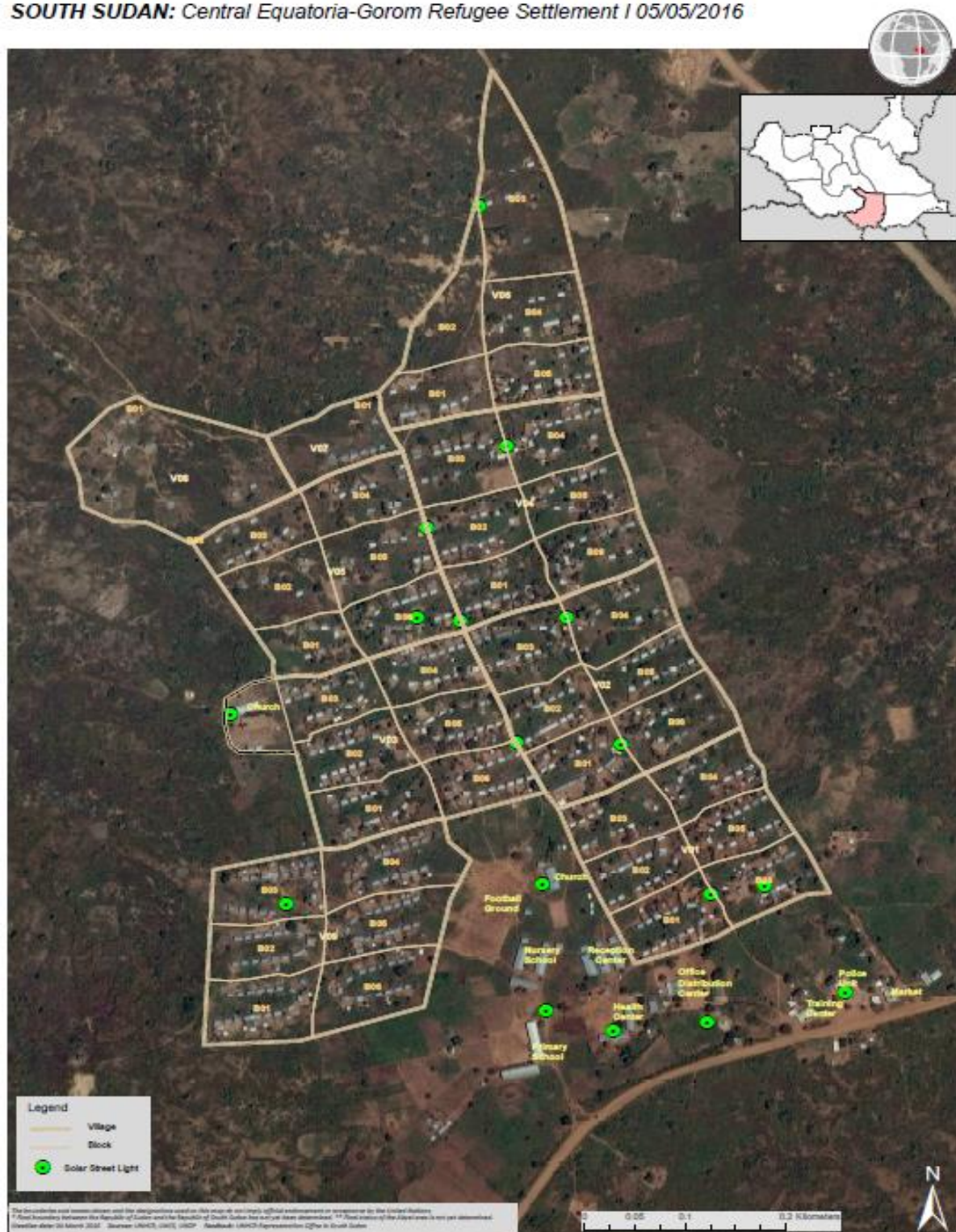
Appendix 6 -Gorom refugee location in south Sudan
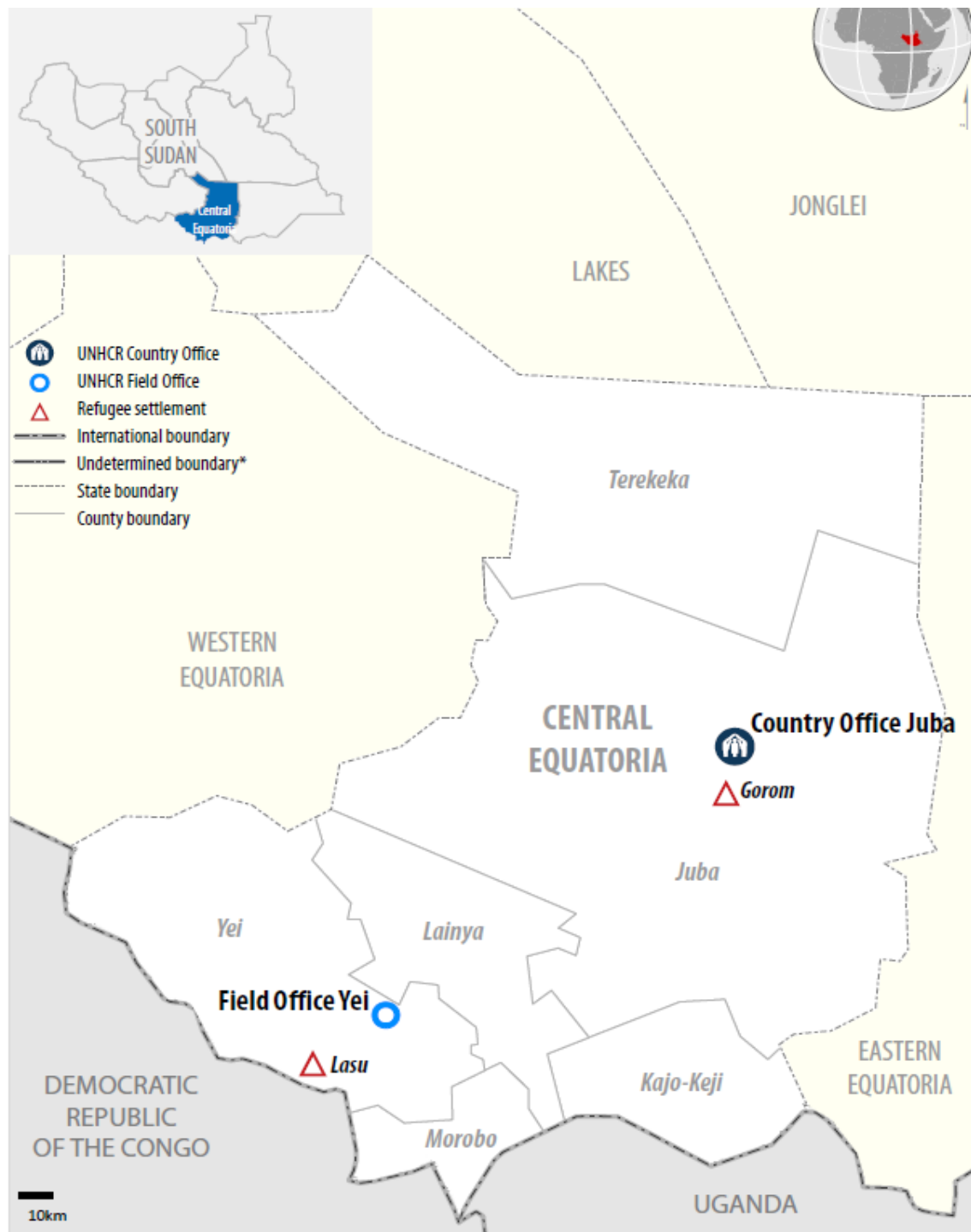
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.
* Final boundary between the Republic of Sudan and the Republic of South Sudan has not yet been determined. Sources: UNCS, UNHCR, UNDP