Research Methodology Note

Food Security and Livelihoods and Nutrition Rapid Assessment, Terekeka, Central Equatoria

Research Cycle ID: SSD1901a

South Sudan

September 2019

REACH Informing more effective humanitarian action

1. Executive Summary

Country of intervention	*South Sudan*					
Type of Emergency	X	Natural disaster	X	Conflict		
Type of Crisis	□	Sudden onset	□	Slow onset	X	Protracted
Mandating Body/ Agency	*Needs Analysis Working Group (NAWG)* *Inter-Cluster Working Group (ICWG)* *Food Security and Livelihoods (FSL) Cluster* *Nutrition Cluster*					
Project Code	32iAIE					
Research Timeframe *Add planned deadlines (for first cycle if more than 1)*	1. Start collecting data: 11/09/2019		5. Preliminary presentation: 02/10/2019			
	2. Data collected: 21/09/2019		6. Outputs sent for validation: 10/10/2019			
	3. Data analysed: 27/09/2019		7. Outputs published: 24/10/2019			
	4. Data sent for validation: 10/10/2019		8. Final presentation: 24/10/2019			
Humanitarian milestones *Specify **what** will the assessment inform and **when** e.g. The shelter cluster will use this data to draft its Revised Flash Appeal;*	**Milestone**		**Deadline**			
	□	Donor plan/strategy	_ _/_ _/_ _ _ _			
	X	Inter-cluster plan/strategy	11/10/2019			
	□	Cluster plan/strategy	_ _/_ _/_ _ _ _			
	X	NGO platform plan/strategy Needs Analysis Working Group (NAWG), Integrated Needs Tracker (INT)	11/10/2019			
	□	Other (Specify):	_ _/_ _/_ _ _ _			
Audience Type & Dissemination *Specify **who** will the assessment inform and **how** you will disseminate to inform the audience*	**Audience type**		**Dissemination**			
	□ Strategic X Programmatic X Operational □ [Other, Specify]		□ General Product Mailing (e.g. mail to NGO consortium; HCT participants; Donors) X Cluster Mailing (Education, FSL Shelter and WASH) and presentation of findings at next cluster meeting X Presentation of findings (e.g. at HCT meeting; Cluster meeting) X Website Dissemination (Relief Web & REACH Resource Centre) □ [Other, Specify]			

Detailed dissemination plan required	□	Yes	X	No
General Objective	This research aims to assess the food security and livelihoods (FSL) and nutrition situation in Tali and Tindilo Payams, Terekeka County, Central Equatoria. This assessment is being carried out in response to increasing concerns about FSL and nutrition in these areas of Terekeka, at the request of the Needs Analysis Working Group (NAWG) and Inter-Cluster Working Group (ICWG), on behalf of the FSL Cluster and the Nutrition Cluster. Research will assess how key shocks such as conflict and environmental changes impact upon FSL and nutrition in Tali and Tindilo Payams, and will increase the humanitarian community's ability to identify populations at risk of worsening food security outcomes in the area, so as to inform the ongoing humanitarian response.			
Specific Objective(s)	1. To determine a proxy rate of Global Acute Malnutrition (GAM) through measuring the mid upper arm circumference (MUAC) of children 6 to 59 months 2. To cross-reference existing Area of Knowledge (AOK) and focus group discussion (FGD) data with findings on the levels of food security and nutrition in Tali and Tindilo.[1] 3. To better understand the impact various shocks (conflict, climatic, economic, policy, etc.) have on household (HH) vulnerability and resilience, food security and nutrition in Tali and Tindilo. 4. To understand how the combination of typology, timing and intensity, as well as anticipation, of shocks affect HH decision making, such as displacement patterns and coping strategy trade-offs. 5. To provide verification data to the NAWG, as part of the Integrated Needs Tracker (INT),[2] to drive humanitarian decision making in Tali and Tindilo.			
Research Questions	**RQ1: What is the nutritional status of children 6-59 months in Tali and Tindilo payams?** **RQ2: What are the current FSL conditions and needs in Tali and Tindilo payams?** 2.1 What is the current availability and access to adequate food? 2.2 What is the current availability and access to livelihood activities? 2.3 How have access to food and livelihoods changed over the last 12 months? 2.4 What food and livelihood coping strategies are being used? 2.5 What is the average Household Hunger Score (HHS)?[3] 2.6 What is the average Food Consumption Score (FCS)?[4]			

[1] To provide an overview of the situation in hard-to-reach areas South Sudan, REACH uses primary data from key informants who have recently arrived from, recently visited, or receive regular information from a settlement or "Area of Knowledge" (AoK). The ToR is available here. See REACH Situation Overview, CES and EES, April-June 2019, and REACH Situation Overview, Greater Equatoria, September-December 2018 for further information on needs in Terekeka.

[2] The Integrated Needs Tracker (INT) is a comprehensive needs tracking system that monitors and highlights humanitarian needs over time and on a monthly basis to inform timely and effective delivery of humanitarian response in South Sudan The INT uses secondary data, including the Shocks Monitoring Index (SMI) to monitor the risk of increasing needs concerning five conceptual indicators at the county level; food security and livelihoods (FSL), WASH, Health, Nutrition, and Mortality. As a result, the INT feeds into South Sudan Needs Analysis Working Group (NAWG) and is designed to monitor the risk of a NAWG trigger being present.

[3] Household hunger scale (HHS) measures the perceived hunger by asking the frequency a household has experienced three common experiences associated with hunger in the past 30 days. HHS is often used as a proxy for quantity of food consumed.

[4] Food consumption score (FCS) is an indicator of the general quantity and quality of foods being consumed in a household, based on how many days any household members have consumed 9 distinct food groups within a 7-day recall period. Households are categorized into categories of severity based on their responses. FCS is often used as a proxy for quality of food consumed.

<table>
<tr><td></td><td colspan="6">RQ3: What are the specific shocks that have affected households, and how are households mitigating these shocks?
3.1 What are the specific shocks that have affected households in Tali and Tindilo over the last 12 months?
3.2 How have shocks impacted upon household hunger?
3.3 How do HHs in Tali and Tindilo perceive the severity and magnitude of current shocks compared to previous shocks that led to times of ‘extreme hunger’?
3.4 Does the timing of specific shocks affect the severity of shocks? If so, which shocks are HHs in Tali and Tindilo most vulnerable to at a given period and why?
3.5 How do HHs in Tali and Tindilo mitigate the effects of shocks and how is the decision change based on the type of shock?

RQ4: What are the movement intentions of the population?
4.1 What are the movement intentions for host community and IDPs currently in Tali and Tindilo Payams?
4.2 What were the push factors for recent displacements, and what would be push factors for future movements?
4.3 What displacement routes were taken community members who have previously left Tali and Tindilo?</td></tr>
<tr><td>Assessment Location</td><td colspan="6">The assessment will take place in Tali and Tindilo Payams, Terekeka County, Central Equatoria State, South Sudan.</td></tr>
<tr><td>Secondary data sources</td><td colspan="6">OCHA, Humanitarian Bulletin South Sudan, Issue 6, 20 April 2017
FAO, The Livelihood Assessment Tool-kit, Revised Edition. First Published Jan 2009.
South Sudan IPC: Acute Food Insecurity and Acute Malnutrition Situation Projection (all outputs from 2016 to 2019).
Food Security and Nutrition Monitoring System - Round 23 Data Collection
REACH South Sudan Situation Overview Central Equatoria State, (all outputs from 2016 to 2019)
REACH South Sudan Food Security Sectoral Factsheet (all outputs from 2016 to 2019)
Crop and livestock monitoring information system (CLIMIS)
Climate Hazards Group Infrared Precipitation with Station data (CHIRPS) remote sensing SMART data
FAO/WFP Crop and Food Security Assessment Mission (CFSAM) annual
Normalized Difference Vegetation Index (NDVI)</td></tr>
<tr><td rowspan="5">Population(s)
Select all that apply</td><td>□</td><td>IDPs in camp</td><td>X</td><td>IDPs in informal sites</td></tr>
<tr><td>X</td><td>IDPs in host communities</td><td>□</td><td>IDPs [Other, Specify]</td></tr>
<tr><td>□</td><td>Refugees in camp</td><td>□</td><td>Refugees in informal sites</td></tr>
<tr><td>□</td><td>Refugees in host communities</td><td>□</td><td>Refugees [Other, Specify]</td></tr>
<tr><td>X</td><td>Host communities</td><td>X</td><td>Returnees (former host communities)</td></tr>
<tr><td>Stratification
Select type(s) and enter number of strata</td><td>X</td><td>Geographical #:_ _ _
Population size per strata is known? □ Yes X No</td><td>□</td><td>Group #: _ _ _
Population size per strata is known?
□ Yes X No</td><td>□</td><td>[Other Specify] #: _ _
Population size per strata is known?
□ Yes □ No</td></tr>
<tr><td>Data collection tool(s)</td><td>X</td><td>Structured (Quantitative)</td><td>X</td><td>Semi-structured (Qualitative)</td></tr>
<tr><td></td><td colspan="2">Sampling method</td><td colspan="3">Data collection method</td></tr>
<tr><td>Structured data collection tool # 1 Household Survey</td><td colspan="2">□ Purposive
□ Probability / Simple random</td><td colspan="3">□ Key informant interview (Target #):_ _ _ _ _
□ Group discussion (Target #):_ _ _ _ _</td></tr>
</table>

Select sampling and data collection method and specify target # interviews	□ Probability / Stratified simple random X Probability / Cluster sampling □ Probability / Stratified cluster sampling □ [Other, Specify]	X Household interview (Target #):108 per county □ Individual interview (Target #):_ _ _ _ _ □ Direct observations (Target #):_ _ _ _ _ □ [Other, Specify] (Target #):_ _ _ _ _
Structured data collection tool # 2 MUAC Screening *Select sampling and data collection method and specify target # interviews*	□ Purposive □ Probability / Simple random □ Probability / Stratified simple random □ Probability / Cluster sampling □ Probability / Stratified cluster sampling X Random for site/Exhaustive	□ Key informant interview (Target #):_ _ _ _ _ □ Group discussion (Target #):_ _ _ _ _ □ Household interview (Target #): □ Individual interview (Target #):_ _ _ _ _ □ Direct observations (Target #):_ _ _ _ _ X [Individual, Measurement] (Target #): minimum 600 children per payam* *Minimum evidence criteria for MUAC screenings to be included for IPC Acute Malnutrition, require at least 3 purposively or randomly selected sites, with a minimum of 200 children measured per site.
Semi-structured data collection tool (s) # 1 FSL focused FGD *Select sampling and data collection method and specify target # interviews*	X Purposive □ Snowballing □ [Other, Specify]	□ Key informant interview (Target #):_ _ _ _ _ □ Individual interview (Target #):_ _ _ _ _ X Focus group discussion (Target #):09 _ _ _ □ [Other, Specify] (Target #):_ _ _ _ _
Target level of precision if probability sampling	90% level of confidence	10+/- % margin of error

Data management platform(s)	X	IMPACT	□	UNHCR		
	□	[Other, Specify]				
Expected ouput type(s)	□	Situation overview #: _ _	X	Report #: 1	□	Profile #: _ _
	□	Presentation (Preliminary findings) #: _ _	X	Presentation (Final) #: 1	□	Factsheet #: _ _
	□	Interactive dashboard #:_	□	Webmap #: _ _	X	Map #: 1
	□	[Other, Specify] #: _ _				
Access	X	Public (available on REACH resource center and other humanitarian platforms)				
	□	Restricted (bilateral dissemination only upon agreed dissemination list, no publication on REACH or other platforms)				
Visibility *Specify which* ***logos*** *should be on outputs*	*REACH*					
	Donor: *DFID*					
	Coordination Framework: *NAWG*					
	Partners: *World Food Programme (WFP)*					

2. Rationale

Background

The dynamic and multi-faceted nature of the South Sudanese displacement crisis has created significant challenges for humanitarian information management. As a result of the continued insecurity and overall unpredictability of a sudden onset shock, such as mass displacement due to intercommunal violence (ICV), it is becoming increasingly important to quickly identify and fill information gaps relating to potential areas of severe humanitarian distress in a systematic and timely manner to promote more effective humanitarian response and planning for immediate life-saving activities.

In September 2018, the Integrated Phase Classification (IPC) Technical Working Group (TWG) identified seven counties with populations in a humanitarian catastrophe. These seven counties had large-scale shocks which had resulted in acute food insecurity, such as ongoing access constraints, conflict or prolonged dry spells. **To be able to predict acute food insecurity better, REACH decided to continue in-depth research across the three greater regions of South Sudan to identify how shocks cumulated and affected food security in localised areas.** In the original study REACH identified that these shocks interacted in non-predictable ways, over time, to produce acute food insecurity and therefore a community-based self-reporting system would be the most effective mechanism to track and monitor the impact of these shocks. From the findings of this research, REACH added seven shock questions (see figure 2), and follow up questions to self-report the impact on access to food of these shocks, in its AoK monthly remote monitoring methodology. The shocks report highlighted seven distinct thematic groups of shocks (armed conflict, displacement, climatic shocks, markets, disease, aid cessation and changing policies) that had resulted in historical experiences of "famine". Since February 2019, REACH has collected data on shocks and the self-reported impact of these shocks for 65 counties (out of 86), 5,122 settlements and 7,966 key informants.

Recent data from Tali and Tindilo indicates that populations are likely undergoing extreme shocks; in response this INT verification assessment has been planned, under the INT research cycle, to better understand the FSL situation in the areas.

Context & Rationale

Terekeka is a county in Central Equatoria, bordered by Lafon in the east, Awerial to the North, Juba in the South, and Mundri and Mvolo to the West. The biggest town is Terekeka, located on the western bank of the Nile River, which lies approximately 53 miles north of Juba. Terekeka has been affected by conflicts related to cattle raiding, competition over grazing land and water sources, and cycles of revenge attacks. Despite numerous dialogue and peace conferences, cattle camp leaders have largely been unable to manage and control disputes. There is, however, little active national-level conflict outside of cattle raiding, and the area has seen relative peace in relation to the wider conflict in recent times.

Terekeka through the early years of the South Sudan crisis was typically one of the more food secure areas of the country. From 2015 onwards, it began to deteriorate and was classified as Phase 3 in the IPC update. The Food Security and Nutrition Monitoring System (FSNMS) did not access Tali and Tindilo in 2018, but had 3 clusters there in the June-July 2019 round, in which no extreme outcomes were observed. However, at the end of June 2019, there was a displacement of people from Tali and Tindilo Payams into Dor Payam, Awerial County, Lakes State, with FGD participants in Dor reporting they were seeking WFP assistance distributed in Mingkaman due to severe FSL depletion and poor nutrition.[5] This is similar to reports from September 2018, when households were reportedly displaced from Tali towards Awerial in search of food distributions after poor rains reduced the harvest yields.[6] The fact that this displacement occurred

[5] REACH Situation Overview, CES and EES, April-June 2019
[6] REACH Situation Overview, Greater Equatoria, September-December 2018

earlier in 2019 suggests even lower green crop yields, and less ability to rely on traditional coping mechanisms such as livestock sales.

The FAO/WFP Crop and Food Security Assessment Mission (CFSAM) annual reports note up to 3 dry spells in the last 5 years, with a sizeable drop in total area planted for cereals, an increase in the annual proportional deficit in cereals, and little change in the proportion of HHs estimated to be farming cereals. FGD participants displaced to Awerial this year reported that multiple poor cultivation seasons caused by low rainfall had forced them to sell cattle in previous years, depletion of which meant they had no access to this coping mechanism this year.[7] Not only did this negatively impact food security, but limited access to cattle in Terekeka also reportedly prompted a rise in opportunistic cattle raiding, and associated protection concerns, with an increase in the proportion of assessed settlements reporting most people did not feel safe from 13% in March to 31% in June, according to REACH AoK data.[8]

Use of alternative coping mechanisms remained high in Terekeka in June according to REACH AoK data, including reducing food consumption (97% of assessed settlements), consuming wild foods (94%), and limiting the size of meals (88%). Whilst wild foods typically form a supplementary part of diets in Terekeka between April and July,[9] patterns of wild food consumption in June according to AoK data are indicative of severe food insecurity; of the assessed settlements reporting consuming wild food, 76% of assessed settlements reported doing so for half or more than half of all meals, and 69% of assessed settlements reported that this was making people sick. FGD participants reported that there were fewer wild foods available this year due to increased demand, meaning people had to resort to less favourable foods.

Since displacement was first reported, numbers in Dor have grown from under 2000 to approximately 5,000-6,000 in the most recent (September) estimate from UNMISS. In addition, on the 20th of August, chiefs and RRC supervisors in Tali and Tindilo reported that a number of people had died, whilst the threat of hunger had prompted a high rate in cattle theft. **Overall, this context suggests there is an urgent need for an assessment of Tali and Tindilo, to understand the drivers of this displacement and guide humanitarian intervention in the area.**

3. Methodology

3.1. Methodology overview

A mixed methods approach will be employed to assess the FSL and nutrition needs of the population, consisting of an exhaustive MUAC screening, quantitative household survey, and qualitative FGDs. The overall methodology follows several steps:

Step 1: Sampling and Selection of Assessment Sites
- Prepare sampling frame based on local information (size, accessibility, population presence, urban/rural divide)
- 2-stage cluster sampling to select sites based on probability proportional to size (PPS)

Step 2: Primary Data Collection
- MUAC screening
- Household survey
- FGDs

Step 3: Data Cleaning and Analysis
Step 4: Reporting and Dissemination

MUAC screening: An exhaustive MUAC screening for all children 6-59 months and PLWs will be conducted in order to ascertain a "proxy GAM rate". For MUAC screening, settlements will be divided into urban and rural with settlements included in the sampling frame based on accessibility and population presence. From this stratified sample, 10 sites will be randomly

[7] REACH Situation Overview, CES and EES, April-June 2019
[8] *Ibid*
[9] FEWS NET Livelihoods Zone Map and Descriptions, August 2018

selected, 5 from urban and 5 from rural, with probability proportional to size (PPS) sampling.[10] Stratification will take place because it is important to know how malnutrition rates differ between settlements far from markets and roads, and those in Tali and Tindilo Centres. The samples for MUAC and the household survey will be **drawn separately**, to allow for stratification of the MUAC sample. Households within the selected sites will then be sampled exhaustively.

Quantitative household survey: nine sites will be randomly selected within the target payams with probability proportional to size (PPS) sampling, with settlements included in the sampling frame based on accessibility and population presence, to provide representative data for Tali and Tindilo Payams with a 95% confidence level +/-10. Enumerators will conduct an approximately 20 minute survey with the head of household.[11] The target is 108 households per county, with 9 clusters and 12 HHs per cluster, in line with the SMI ToR, which feeds and guides the INT.[12] For more details on the sampling method see the 'primary data collection' section below.

Focus Group Discussions. One FGD will be conducted in each of the sites selected for household survey, with questions focusing on current FSL and Nutrition needs of the community. FGDs will utilize group discussion and participatory mapping. A minimum of 9 FGDs (5-7 per group) will be held with community members. FGDs will be disaggregated by demographic (IDP, Returnee, Refugee or Host Community) and gender. Data saturation is expected to occur around 12 FGDs due to the relative homogeneity of the population in these payams. Similar key informants will be asked for each FGD, ensuring representation of different demographic groups.

3.2 Population of interest

The population of interest is all residents of Tali and Tindilo payams. These payams have remained largely unassessed by humanitarian actors, due to access and resource constraints, and as a result, only limited information is available on the humanitarian situation. This information gap came to light following the large-scale displacement of people from Tali and Tindilo into Dor, Awerial County, Lakes State, at the end of June 2019, with IDPs in Dor reporting severe food insecurity and poor nutrition outcomes in Tali and Tindilo as the main reason for their displacement. REACH AoK data indicated this displacement had occurred before, and this, combined with secondary data from the FAO/WFP Crop and Food Security Assessment Mission (CFSAM) annual reports suggested there was an urgent need for an assessment of Tali and Tindilo, to understand the drivers of this displacement and guide humanitarian intervention in the area. A representative MUAC assessment as well as an in depth household survey, complimented by focus group discussions, will allow analysis on changes to FSL and nutrition, and support the humanitarian sector in more targeted responses in the region.

3.3 Secondary data review

Secondary data will primarily consist of reports from REACH, WFP, OCHA, CLIMAS and other partners. Secondary data such as the FAO Livelihood Assessment Toolkit as well as the IPC in South Sudan will be consulted for guidance on Food Security and Livelihood indicators and measurement.

Two previous Standardized Monitoring and Assessment of Relief and Transitions (SMART) surveys have been conducted in Tali/Tindilo. These surveys can be used for two main purposes:

1) **To help establish a baseline and contextual understanding for malnutrition in the area. –** As there is a lack of good, historical nutrition data to compare and assess the validity of our findings, past SMART surveys can help triangulate the results from our MUAC screening.
2) **To establish a relationship between Weight-for-Height z score (WHZ) and MUAC measures of acute malnutrition** – These two measures have been observed to provide different estimates of acute malnutrition,

[10] Probability Proportional to Size (PPS) Sampling is where a cluster/data collection site is randomly sampled from a list, where the probability of selection is related to the population size.
[11] Where possible; if not, the survey will be conducted with an adult willing to represent the household (over 18 years).
[12] The Shocks Monitoring Index (SMI) is a sub-component of the INT system/framework. The SMI conducts monitoring of shocks, and outputs from SMI directly feed into the Integrated Needs Tracking System (INT) to provide the "early warning" indicators for counties at risk of worsening outcomes. This then assists the NAWG in predicting or better explaining counties at risk of worsening humanitarian issues. The SMI and INT together form an ecosystem of needs tracking. The SMI ToR is available here.

however the reason for these differences is not well documented and different relationships have been observed in different contexts. WHZ is considered the more valid measure reflective of acute malnutrition in an area. In the South Sudan context, MUAC tends to produce *lower* estimates of acute malnutrition than WHZ, hence for our study with MUAC as the primary measure, we may believe that the true GAM by WHZ is higher than our finding. This will help determine during the analysis whether the proxy GAM by MUAC results is likely under- or over-estimating the true rate of malnutrition as would be shown with GAM by WHZ.

Climate and rainfall data: Internally Displaced Persons (IDPs) in Dor have indicated shocks are predominantly related to climate, low rainfall, and associated low harvest yields. FAO/WFP Crop and Food Security Assessment Mission (CFSAM) annual reports will be used to triangulate findings from the HH survey and FGDs, along with the Normalized Difference Vegetation Index (NDVI) and the crop and livestock monitoring information system (CLIMIS).

The Food Security and Nutrition Monitoring System (FSNMS) Round 23 data collection[13] was done in November and December 2018, and will be used to inform information gaps Tali and Tindilo Payam. Based on this data, the January IPC Workshop classified Tali/Tindilo as Phase 3 for IPC Acute Food Insecurity, indicating a serious food security situation.

3.4 Primary Data Collection

Methodology is described below for each of the different components of the primary data collection:

1) MUAC screening
2) Quantitative household survey
3) FLS/Nutrition Focus Group Discussions

Method 1: MUAC screening

Method – Mid-upper arm circumference (MUAC), presence of oedema and height as proxy for age will be the anthropometric pieces of information captured.

- Mid-upper arm circumference (MUAC) – Standardized MUAC tapes will be used to measure. Cut-offs for severe acute malnutrition is <11.5cm, for moderate acute malnutrition (MAM) >=11.5cm and <12.5cm. Measurement technique for MUAC has been described elsewhere.[14]
- Bilateral pitting oedema – Kwashiorkor is a type of malnutrition typified by the irregular accumulation of fluid in the body. Oedema in general can be caused by several medical reasons, but typically oedema due to acute malnutrition is noted to progress first through swelling BOTH feet and legs.[15] Standard method for assessing bilateral pitting oedema has been described elsewhere.[16]
- Height as proxy for age – In situations where many children need to be screened or age determination is difficult, height can be used as a proxy for the age of a child for analysis purposes.

Enumerators hired locally as casual labour in Tali town will be collecting data for the MUAC assessment, in both Tali and Tindilo. Data collection will take place for 6 days.

Sampling – Settlements will be divided into urban and rural strata, with settlements included in the sampling frame based on accessibility and population presence. The urban/rural divide will be decided at the field level, based on population size, and distance from Tali Centre. Five clusters will then be randomly sampled from each strata using probability proportional to size (PPS) sampling. Within clusters, enumerators will exhaustively assess all households, and all children between 67cm to 110cm will be measured for MUAC and oedema.

[13] Food Security and Nutrition Monitoring System – Round 23. Nov/Dec 2018.
[14] The Harmonized Training Package Version 2. Module 6, Part 2: Technical Notes – Measuring malnutrition, individual assessment
[15] The Harmonized Training Package Version 2. Module 3, Part 2: Technical Notes – Understanding malnutrition
[16] The Harmonized Training Package Version 2. Module 6, Part 2: Technical Notes – Measuring malnutrition, individual assessment

Tools and Quality Control – A quantitative tool will be used using the Open Data Kit (ODK) collect application,[17] and enumerators will be provided with tablets to use for data collection. Questions on the tool will be limited to household size, MUAC measurements for children and women of reproductive age, and movement intentions. Each screener will be provided with a child MUAC tape, an adult MUAC tape and a height stick marked with cut-offs.

Triangulation and briefing of enumerators- Quality of household and child MUAC measurements will be ensured through training, whereby enumerators will be given a one-day training on taking child and adult MUAC measurements, and use of ODK applications. ODK data will be uploaded at the end of each day, and MUAC measurements will be analysed with Emergency Nutrition Assessment (ENA) software[18] by the Nutrition Field Officer to check for digit preference, age and sex ratios, and feedback will be given to teams the following morning. In addition, the Nutrition Field Officer will make efforts to observe screeners work to ensure quality measurements are being taken.

Note- All children found to be severely acutely malnourished will be referred to the nearest Outpatient Therapeutic Feeding Program site (OTP site) for admission and treatment. A referral slip will be provided with the referral information recorded. Referral criteria will be:

- MUAC <11.5 cm
- Presence of bilateral pitting oedema

Method 2: quantitative household survey

Method – enumerators will conduct an approximately 20-minute survey with the head of household. The survey asks detailed questions on food security and livelihoods, which will be used to calculate Food Consumption Score (FCS) and Household Hunger Scale (HHS), as well as understanding different consumption and livelihood coping strategies. The survey also asks some questions on displacement. Enumerators hired locally as casual labour in Tali town will be collecting data for the household assessment, in both Tali and Tindilo. Data collection will take place for 6 days.

Sampling – Clusters will be randomly sampled using PPS sampling. The most up-to-date list of accessible settlements will be attained at the field level. Once clusters are selected, enumerators will conduct simple random sampling to select households for interview. Since the settlements in the designated areas are relatively small, to select the households, enumerators will follow the following methodology:

- Enumerators start in the middle of the settlement.
- Spin a pen to decide the direction for each enumerator
- Enumerators walk in that direction counting the houses until they reach the edge of the settlement
- Enumerators then walk back interviewing every Nth house, where N is the number of houses they counted divided by their quota of interviews.

Tools and Quality Control – A quantitative tool will be used using the ODK collect application, and enumerators will be provided with tablets to use for data collection. The tool will be the Rapid Verification Mission Assessment Tool, pre-approved for SMI, which uses ODK coding. Every enumerator will have this downloaded on a handset so that they can use it offline to manually input household responses into the questionnaire. Should there be a technical error with the data collection equipment, paper forms will be available for enumerators to write out survey responses that will later be inputted into the handset.

Triangulation and briefing of enumerators- enumerators will be will be trained by the Assessment Officer on the tool, and use of ODK applications. ODK data will be uploaded at the end of each day, and the Assessment Officer will monitor the

[17] ODK Collect supports KOBO, and is an application for android phone that supports surveys built using ODK coding.
[18] Emergency Nutrition Assessment software is an analytical program recommended by SMART, with automated functions for sample size calculations, sample selection, quality checks, and standardisation for anthropometry measurements.

data collected, checking for misunderstanding of the form responses, data collection errors and patterns indicating poor understanding of the questions on a daily basis. Feedback will be given to teams the following morning. Data will be triangulated when cleaned against secondary sources, the qualitative data collected through focus group discussions and contextual knowledge provided by partners working in the area.

Method 3: qualitative FGDs

Method – FGDs will also be conducted to provide an in-depth, qualitative assessment. The Assessment Officer will conduct the FGDs using a paper form with key questions and follow-up questions to help guide a discussion with key informants. One FGD will be held per data collection site, or until saturation over each payam is achieved. Topics will cover displacement and movement intentions, and food security and livelihoods. FGD discussions will also be supplemented by key informant interviews and direct observations with key informants at NGOs and the market.

Sampling – Participants for the focus group discussion will be selected using purposive sampling. REACH staff will conduct FGDs with people who fit the population of interest criteria (have lived in the settlement for at least 5 continuous years). The community leader will be asked to assist gathering focus group participants, as part of the wider inter-cluster assessment which will be ongoing.

Tools and Quality Control – a FGD tool will be administered, and the results of the discussion typed up for documentation on a nightly basis. The tool will be the pre-approved SMI verification FGD. A hired translator will conduct the Focus Group Discussion in the local language, translating for the Assessment Officer throughout. Questions or clarifications will be discussed with the translator the following day as needed. The write up will be inserted into a matrix to enable analysis. It is the translator's responsibility to use contextual knowledge to ensure FGD responses are kept within the aim of the research and that respondents are understanding the questionnaire.

Triangulation and briefing of enumerators- the Focus Group Discussions will be led by the Assessment Officer, meaning that no training or briefing of enumerators will be required. The FGD transcript will be triangulated against the quantitative data collected as well as secondary sources.

Team Composition

The data collection team will consist of:

- 6 MUAC screeners
- 6 household enumerators
- 1 Focus Group facilitator / translator
- 1 Nutrition Field Officer (REACH)
- 1 Assessment Officer (REACH)
- 1 Field Officer (WFP)

The Nutrition Field Officer will coordinate the MUAC data collection, whilst the Assessment Officer, WFP Field Officer and translator conduct the focus group discussions and supervise the household survey data collection.

3.5 Data Processing & Analysis

MUAC data

Data Checks and Processing – The following data quality checks will be used for the nutrition data:

1. GPS points will be mapped and visually checked for quality of enumerator work (i.e. many records in one location, overlapping of data collection by multiple teams, etc.)
2. The ODK form will constrain biologically implausible or extreme MUAC measurements (e.g <50mm).
3. Checking standard deviation of MUAC measurements, (ideally less than 15mm).
4. Review of photos of oedema/kwashiorkor cases.

Backup Data Entry – In the event enumerators are not skilled enough for smartphone data collection, paper forms will be provided. Double data entry will then be performed using EpiData v.3.1 to check and limit errors.

Data Analysis – Nutrition data will be summarized and analysed with the Centre for Disease Control (CDC) validated MUAC Screening Report Template, approved by the South Sudan Nutrition Information Working Group (NIWG). This CDC worksheet weights the results based on the proportion of the sample in different age groups (6-29 months vs. 30-59 months). MUAC measurements are more likely to assess younger children as acutely malnourished than older children, which is why this weighting is important if there is an uneven age distribution of the sample.

Quantitative household survey

Data Checks and Processing – The following data quality checks will be used for the household data:

1. GPS points will be mapped and visually checked for quality of enumerator work (i.e. many records in one location, overlapping of data collection by multiple teams, etc.)
2. Data will be entered using ODK collect, and entered by enumerators who will be trained in the use of the application and the survey itself. Constraints and relevants (automatic data cleaning mechanisms in KoBo) will built into the tool to mitigate logical errors whilst data is being collected, however a cleaning sheet using Microsoft Excel will be used to clean data on a daily basis.
3. Following data collection, the excel sheet will be used to look for logical errors and contextual inconsistencies.

Backup Data Entry – In the event enumerators are not skilled enough for smartphone data collection, paper forms will be provided.

Data Analysis – data will be analysed using excel (calculated pivot tables for quantitative analysis). Food security indicators (Food Consumption Score (FCS) and Household Hunger Scale (HHS)) will be analysed using SSPS.

Qualitative FGDs

Data Checks and Processing- data will be checked with the translator following each FGD to ensure translations have adequately capture participant responses. FGD transcripts will be checked for contextual errors.

Data Analysis – FGD notes, and notes from field observations will be typed up, and entered into a matrix for analysis. Results will be analysed thematically, looking for differences reported by site and gender. A saturation grid will be used for organization of ideas as they are identified in the FGDs.

Please see the data analysis plan for details (item numbered 5).

4. Roles and responsibilities

Table 2: Description of roles and responsibilities

Task Description	*Responsible*	*Accountable*	*Consulted*	*Informed*
Research design	*Assessment Officer* *Nutrition Field Officer*	*Assessment Manager*	*GIS Officer Oxfam* *International Focal Point* *IMPACT HQ*	*NAWG*

Supervising data collection	*Assessment Officer* *Nutrition Field Officer*	*Assessment Officer*	*Assessment Manager*	*NAWG*
Data processing (checking, cleaning)	*Assessment Officer* *Nutrition Field Officer*	*Assessment Officer*	*Assessment Manager*	*NAWG*
Data analysis	*Assessment Officer* *Nutrition Field Officer*	*Assessment Officer*	*Assessment Manager* *IMPACT HQ*	*NAWG*
Output production	*Assessment Officer*	*Assessment Officer*	*Assessment Manager* *IMPACT HQ*	*NAWG*
Dissemination	*Communications Manager* *Assessment Officer*	*Communications Manager*	*Assessment Manager*	
Monitoring & Evaluation	*Communications Manager* *Assessment Officer*	*Communications Manager*	*Assessment Manager*	
Lessons learned	*Assessment Officer* *Nutrition Field Officer*	*Assessment Officer*	*Assessment Manager*	

Responsible: *the person(s) who executes the task*

Accountable: *the person who validates the completion of the task and is accountable of the final output or milestone*

Consulted: *the person(s) who must be consulted when the task is implemented*

Informed: *the person(s) who need to be informed when the task is completed*

NB: Only one person can be Accountable; the only scenario when the same person is listed twice for a task is when the same person is both Responsible and Accountable.

Data Analysis Plan

TOOL 1: MUAC SCREENING (STRUCTURED TOOL)

Research questions	IN #	Data collection method	Indicator/Variable	Questionnaire Question	Questionnaire Responses	Data collection level
RQ1: What is the prevalence of Global Acute Malnutrition (GAM) among children 6 to 59 months in Tali and Tindilo payams?		Household survey	Child present	Is the child present?	Yes No Don't know No response	Individual
		Household survey	Sex of child	What is the sex of the child?	Male Female	Individual
		Household survey	Proxy age of child	What is the height of the child?	<67cm >=67 and <87cm >=87 and <110cm >=110cm	Individual
		Household survey	Mid-upper arm circumference (MUAC) in mm	What is the MUAC measurement for this child?	Integer	Individual
		Household survey	% children with nutritional oedema	Does this child have oedema?	Yes No Don't know No response	Individual
		Household survey	Malnourished child enrolled in program	Is this child enrolled in a nutrition program?	Yes No Don't know No response	Individual
		Household survey	# pregnant women	How many pregnant women are in the household?	Integer	Household
		Household survey	# breastfeeding women	How many breastfeeding women are in the household?	Integer	Household
		Household survey	# pregnant and breastfeeding women present	How many of these pregnant and/or (?) breastfeeding women are present?	Integer	Household
		Household survey	Pregnant or breastfeeding status	What is the status of this woman?	Pregnant Breastfeeding Pregnant and breastfeeding	Individual

					Not pregnant or breastfeeding	
		Household survey	Mid-upper arm circumference (MUAC) in mm	What is the MUAC for this woman?	Integer	Individual

TOOL 2: HOUSEHOLD SURVEY (STRUCTURED TOOL)

Research questions	IN #	Data collection method	Indicator/Variable	Questionnaire Question	Questionnaire Responses	Data collection level
Demographics		Household survey	N/A	B01 Who is the head of this household?	Enter text	Individual
		Household survey	N/A	B02 Are you involved in making decisions about food and other resources in this household now?	Yes No Don't know No response	Individual
		Household survey	% of HH by HH profile- age of HoH	B03 How old are you?	Integer	Individual
		Household survey	% of HH by HH profile- age of HoH	B03.1 How old is the household head?	Integer	Individual
		Household survey	% of HH by HH profile- education of HoH	B04.1 What is the highest grade in school completed by the head of this household, if any?	Integer	Individual
		Household survey	% of HH by type of HH profile - number of dependents	B05.a How many BOYS under 5 years old regularly eat from the pot of this household and sleep in this compound most nights of the week?	Integer	Household
		Household survey	% of HH by type of HH profile - number of dependents	B05.b How many GIRLS under 5 years old regularly eat from the pot of this household and sleep in this compound most nights of the week?	Integer	Household
		Household survey	% of HH by type of HH profile - number of dependents	B06.a How many BOYS from 5 to 17 years old regularly eat from the pot of this household and sleep in this compound most nights of the week?	Integer	Household
		Household survey	% of HH by type of HH profile -	B06.b How many GIRLS from 5 to 17 years old regularly eat from the pot of this	Integer	Household

			number of dependents	household and sleep in this compound most nights of the week?		
		Household survey	% of HH by type of HH profile - number of dependents	B07.a How many MEN from 18 to 60 years old regularly eat from the pot of this household and sleep in this compound most nights of the week?	Integer	Household
		Household survey	% of HH by type of HH profile - number of dependents	B07.b How many WOMEN from 18 to 60 years old regularly eat from the pot of this household and sleep in this compound most nights of the week?	Integer	Household
		Household survey	% of HH by type of HH profile - number of dependents	B08.a How many MEN above 60 years old regularly eat from the pot of this household and sleep in this compound most nights of the week?	Integer	Household
		Household survey	% of HH by type of HH profile - number of dependents	B08.b How many WOMEN above 60 years old regularly eat from the pot of this household and sleep in this compound most nights of the week?	Integer	Household
RQ4: What are the movement intentions of the population?		Household survey	% of HH by type of HH profile - HH demographics composition	C01 What is the residence status of the household?	Resident IDP IDP Returnee Refugees Refugee Returnees	Household
		Household survey	% of HH by type of HH profile - State displaced from	C01.1 Which state were you living in most recently before moving here?	Select State	Household
		Household survey	% of HH by type of HH profile - County displaced from	C01.2 Which county in that state were you most recently living in before moving here?	Select County	Household
		Household survey	% of HH by type of HH profile - Pre-2013 State displaced from	C01.3 Which state were you living in during 2013?	Select State	Household
		Household survey	% of HH by type of HH profile - Pre-2013 County displaced from	C01.4 Which county in that state were you living in during 2013?	Select County	Household

		Household survey	% of HH by type of HH profile - Refugee country	C01.5 Which country were you living in as a refugee?	Select country	Household
		Household survey	% of HH by type of HH profile - Displacement time	C01.6 When did you arrive in your current location?	Select month	Household
		Household survey	% of HH by type of HH profile - households migrated	C02 Has your household, or have any members of your household, migrated or moved away in the past 12 months because of reasons not related to insecurity?	Yes, some members of the household Yes, half of the members of the household Yes, more than half of the members of the household Yes, the entire household migrated No, no one from our household migrated	Household
		Household survey	% of HH by type of HH profile - HC HH location of migration	C02.1 Where did household members migrate to?	Town or city inside South Sudan A rural area in South Sudan (outside of a town or city) Neighbouring country (Uganda, Ethiopia, DRC, Kenya, Sudan, CAR) Other country	Household
		Household survey	% of HH by type of HH profile - HC main reason for displacement	C02.2 What was the main reason that people in your household migrated in the last 12 months?	Looking for work/employment Lack of food Join family members/relatives Education Healthcare To conduct trade House/property destroyed Returning after a previous migration Other personal or community reasons Other	Household
RQ2: What are the current FSL conditions and needs in Tali and Tindilo payams?		Household survey	% of HH by main food source	H01. In the last three months, what was your household's most important activity for getting food and income?	Agriculture, including my own production or the sale of cereals, vegetables and other crops Livestock and the sale of livestock or livestock products and poultry Sale of alcoholic beverages/brewing Unskilled casual labour, like for agriculture, basic construction, etc. Skilled labour Trader/shop owner/small trading/sale of crafts, etc. Salaried work (public/private)	Household

					Sale of firewood/poles, charcoal, grass, stones, and other natural resources Borrowing food, cash, or other resources Fishing or sale of fish Support from family, friends, the community, etc. Begging Food assistance/Sale of food assistance Gathering of wild foods Hunting Other, specify	
		Household survey	% of HH destroyed assets	H05. Did your household have any of the following household assets looted or destroyed in the last 12 months?	Bed (wood, metal) Mattress Chairs (plastic, wooden, etc.) Tables (plastic, wooden, etc.) Radio Television/Satellite dish/DVD player Cell/Mobile phone Wheel barrow Mosquito net Motorbike Bicycle Flat Iron for ironing clothes Stove/Kanun (traditional) Solar Panel (any size) Fishing equipment (any part) Seeds for planting Grain grinding tool Agriculture tools (Maloda/spade/axe) Other tools (for building, carpentry, fixing bicycles/motorbikes, etc.) Vehicles None	Household
		Household survey	% of HH by meal consumption	I01.1 How many meals (warm and cooked) did the HH eat yesterday during the day and night? (Must include all HH members)	Did not eat (0 meals) 1 meal 2 meals 3 meals 4 meals 5 meals More than 5 meals I don't want to answer	Household

		Household survey	% of HH by food type consumption	I02. Is your household able to get milk for consumption now?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type consumption	I02.1 What is your source of milk?	Own cows Market purchase Gifts from neighbours	Household
		Household survey	% of HH by food type consumption	I03. Is your household able to get fish for consumption now?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type consumption	I03.1 What is the source of the fish your household is consuming?	Own catch (household is fishing) Purchase from market Gifts from neighbours (shared with us) Other (specify)	Household
		Household survey	% of HH by wild food consumption	I04. Did any member of your household consume wild foods (wild leaves, roots, and fruits) in the previous 7 days?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by wild food consumption	I04.1 In the last 7 days, how many days did any member of your household eat mostly or only wild foods (wild leaves, roots, and fruits)?	Integer	Household
		Household survey	% of HH by wild food consumption	I04.2 Compared to a normal year, what is your consumption pattern of wild foods at this time of the year?	My household is consuming more wild foods than is normal for this time of year My household's wild food consumption is normal My household is consuming less wild foods than is normal for this time of year No wild food is available	Household

		Household survey	% of HH by food type- Food Consumption Score	I04.a In the last 7 days, on how many days did your household eat cereals, grains, roots and tubers, including wild roots?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	I04.c What was the main source of cereals, grains, roots and tubers, including wild roots, eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	I041.a In the last 7 days, on how many days did your household eat cereals and grains?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	I041.b Did your household eat any cereals and grains yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	I041.c What was the main source of the cereals and grains eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	I042.a In the last 7 days, on how many days did your household eat roots and tubers, including wild roots?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	I042.b Did your household eat roots and tubers, including wild roots, yesterday during the day and night?	Yes No Don't know Refuse to answer	Household

		Household survey	% of HH by food type- Food Consumption Score	I042.c What was the main source of the roots and tubers, including wild roots, eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	I05.a In the last 7 days, on how many days did your household eat any beans or nuts?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	I05.b Did your household eat any beans or nuts yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	I05.c What was the main source of the beans or nuts eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	I06.a In the last 7 days, on how many days did your household drink milk or eat other dairy products?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	I06.b Did your household drink milk or eat other dairy products yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	I06.c What was the main source of milk or other dairy products consumed in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Bartering	Household

		Household survey	% of HH by food type- Food Consumption Score	107.a In the last 7 days, on how many days did your household eat meat fish, or eggs?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	107.c What was the main source of meat, fish or eggs eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Hunting Fishing Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	1071.a In the last 7 days, on how many days did your household eat FLESH meat?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	1071.b Did your household eat FLESH meat yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	1071.c What was the main source of FLESH meat consumed in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Hunting Fishing Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	1072.a In the last 7 days, on how many days did your household eat organ meat?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	1072.b Did your household eat Organ meat yesterday during the day and night?	Yes No Don't know Refuse to answer	Household

		Household survey	% of HH by food type- Food Consumption Score	1073.a In the last 7 days, on how many days did your household eat fish/shellfish?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	1073.b Did your household eat fish/ shellfish yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	1073.c What was the main source of fish/ shellfish consumed in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Hunting Fishing Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	1074.a In the last 7 days, on how many days did your household eat eggs?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	1074.b Did your household ate eggs yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	108.a In the last 7 days, on how many days did your household eat vegetables or leaves, including all wild vegetables and leaves?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	108.b Did your household eat vegetables and leaves, including all wild vegetables and leaves, yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	108.c What was the main source of vegetables and leaves, including all wild	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts	Household

				vegetables and leaves, eaten in the household in the last 7 days?	Support from neighbours/relatives Exchange of food for labour Gathering Bartering	
		Household survey	% of HH by food type- Food Consumption Score	1081.a In the last 7 days, on how many days did your household eat orange vegetables (vegetables rich in Vitamin A)?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	1082.a In the last 7 days, on how many days did your household eat green leafy vegetables?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	109.a In the last 7 days, on how many days did your household eat fruit, including all wild fruits?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	109.b Did your household eat any fruit, including wild fruits, yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	109.c What was the main source of fruit, including wild fruits, eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Gathering Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	1091.a In the last 7 days, on how many days did your household eat Orange fruits (Fruits rich in Vitamin A)?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	1010.a In the last 7 days, on how many days did your household eat oil, fat, or butter?	Integer (0 to 7)	Household

		Household survey	% of HH by food type- Food Consumption Score	1010.b Did your household eat oil, fat, or butter yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	1010.c What was the main source of oil, fat, or butter eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Gathering Hunting Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	1011.a In the last 7 days, on how many days did your household eat sugar or sugary foods?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	1011.b Did your household eat sugar or sugary foods yesterday during the day and night?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by food type- Food Consumption Score	1011.c What was the main source of sugar or sugary foods eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbors/relatives Exchange of food for labour Gathering Hunting Fishing Bartering	Household
		Household survey	% of HH by food type- Food Consumption Score	1012.an In the last 7 days, on how many days did your household eat condiments or spices?	Integer (0 to 7)	Household
		Household survey	% of HH by food type- Food Consumption Score	1012.b Did your household eat condiments or spices yesterday during the day and night?	Yes No Don't know Refuse to answer	Household

		Household survey	% of HH by food type- Food Consumption Score	1012.c What was the main source of the condiments or spices eaten in the household in the last 7 days?	Own production Market (Purchase cash or credit) Food assistance Borrowing/debts Support from neighbours/relatives Exchange of food for labour Gathering Hunting Fishing Bartering	Household
		Household survey	% of HH by food quantity- Household Hunger Scale	J01. In the past 4 weeks (30 days), was there ever no food to eat of any kind in your house because of lack of resources to get food?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		Household survey	% of HH by food quantity- Household Hunger Scale	J01.1 How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	Household
		Household survey	% of HH by food quantity- Household Hunger Scale	J02 In the past 4 weeks (30 days), did you or any household member go to sleep at night hungry because there was not enough food?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		Household survey	% of HH by food quantity- Household Hunger Scale	J02.1 How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	Household
		Household survey	% of HH by food quantity- Household Hunger Scale	J03 In the past 4 weeks (30 days), did you or any household member go a whole day and night without eating anything at all because there was not enough food?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		Household survey	% of HH by food quantity- Household Hunger Scale	J03.1 How often did this happen in the past [4 weeks/30 days]?	1 = Rarely (1-2 times) 2 = Sometimes (3-10 times) 3 = Often (more than 10 times)	Household

		Household survey	% of HH by market use	L01 In the last month, did you household purchase food or non-food items from a market?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH by market use	L05 In the last month, how often did your household purchase food items from a market, using cash or credit?	Never Rarely (once, twice a month) Sometimes (3 – 4 times a month) Often (more than once a week / > 4 times a month) Every day or most days of the month	Household
		Household survey	% of HH by market use	L05 In the last month, how often did your household purchase non-food items (NFI) from a market, using cash or credit?	Never Rarely (once, twice a month) Sometimes (3 – 4 times a month) Often (more than once a week / > 4 times a month) Every day or most days of the month	Household
		Household survey	% of HH by market access	L04 In the last month, how long did it usually take members of your household to travel to and return from a market?	Under 30 minutes 30 minutes to less than 1 hour One hour to half a day More than half a day More than one day	Household
		Household survey	% of HH by market use	L09 In which month, does your household get most of the food from the market?	Select month	Household
		Household survey	% of HH with livestock access	P01. Does your household own any livestock or farm animals (even if they are not near your home or compound now)?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH with livestock access	P01.1. Has your household ever owned livestock before?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH with livestock access	P01.2. How did your household lose most of its livestock?	Armed groups Intercommunal raiding Disease outbreak Sale or slaughter Lost in migration Flooding Drought Legal or court-ordered payments and fines Bride wealth payment Supporting other community members or family	Household

					Other (specify)	
		Household survey	% of HH with livestock access	P02.1. How has the number of livestock currently owned by your household changed in the last one year?	Increased Remained the same Decreased	Household
		Household survey	% of HH with livestock decrease	P02.2. What caused the largest proportion of decrease in the number of livestock owned by your household?	Armed groups Intercommunal raiding Disease outbreak Sale or slaughter Lost in migration Flooding Drought Legal or court-ordered payments and fines Bride wealth payment Supporting other community members or family Other (specify)	Household
		Household survey	% of HH livestock use	P03. What have been your household's main uses of livestock in the last 3 months?	Selling for food Selling for non-food purpose Milk /Dairy products Slaughtering for food Dowry Payment of local fines/debt Renting for ploughing Other (specify)	Household
		Household survey	% of HH with livestock challenges	P04. What challenges does your household face with keeping livestock?	No challenges Pest and diseases Lack of grazing pastures Lack of water Lack of veterinary services Insecurity / Conflict Cattle raiding Lack of market for livestock Inability to access communal grazing lands Other (specify)	Household
		Household survey	% of HH with access to land	O01. Does your household have access to land for cultivation?	Yes No Don't know Refuse to answer	Household

		Household survey	% of HH reasons for no access to land	O01.1. What is the main reason for your household not being able to access land for cultivation?	Land for cultivation is too far away It is not safe I do not own or have permission to use land here Other reason (specify)	Household
		Household survey	% of HH planting	O03. Is your household planting this season?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH not planting reason	O03.1. Why is your household not planting this season?	Lack of seeds Lack of tools or other inputs Lack of people for the work/Lack of labour I do not usually cultivate It is not safe Other reason (specify)	Household
		Household survey	% of HH by harvest time	O04. When do you expect to harvest your crops?	Select month	Household
		Household survey	% of HH by harvest quality	O04. How long do you expect your harvest to last?	Integer	Household
RQ3: What are the specific shocks that have affected households, and how are households mitigating these shocks?		Household survey	% of HH experiencing shocks	Did your household experience any difficulties or shocks in the past 6 months?	No shocks affected my household Loss of or reduced employment for any household member Reduced income of any household member Serious illness or accident resulting in injury for any household member Death of a working adult household member Unusually high food prices Unusually high prices of fuel/transport and other non-food prices Drought/irregular rains, prolonged dry spell Unusually high level of crop pests and disease Insecurity/violence/raiding/looting Non-violent theft/criminals Disease outbreak in the community Too much rain, flooding Livestock disease outbreak	Household
		Household survey	% of HH experiencing shocks	Did [First shock] reduce your household's ability to get money or food?	No impact on my household's ability to get money or food Small decrease in my household's ability to get money or food	Household

					Large decrease in my household's ability to get money or food	
		Household survey	% of HH experiencing shocks	I01.1B Did the impact of [first shock] cause hunger in your household?	It did not cause hunger in my household Hunger is small, strategies are available to cope with the reduced access to food Hunger is bad, there are limited ways to cope with the reduced access to food Hunger is the worst it can be	Household
		Household survey	% of HH experiencing shocks	Did your household experience any difficulties or shocks in the past 6 months?	No shocks affected my household Loss of or reduced employment for any household member Reduced income of any household member Serious illness or accident resulting in injury for any household member Death of a working adult household member Unusually high food prices Unusually high prices of fuel/transport and other non-food prices Drought/irregular rains, prolonged dry spell Unusually high level of crop pests and disease Insecurity/violence/raiding/looting Non-violent theft/criminals Disease outbreak in the community Too much rain, flooding Livestock disease outbreak	Household
		Household survey	% of HH experiencing shocks	Did [second shock] reduce your household's ability to get money or food?	No impact on my household's ability to get money or food Small decrease in my household's ability to get money or food Large decrease in my household's ability to get money or food	Household
		Household survey	% of HH experiencing shocks	I01.1B Did the impact of [second shock] cause hunger in your household?	It did not cause hunger in my household Hunger is small, strategies are available to cope with the reduced access to food Hunger is bad, there are limited ways to cope with the reduced access to food Hunger is the worst it can be	Household
		Household survey	% of HH experiencing shocks	Did your household experience any difficulties or shocks in the past 6 months?	No shocks affected my household Loss of or reduced employment for any household member Reduced income of any household member	Household

					Serious illness or accident resulting in injury for any household member Death of a working adult household member Unusually high food prices Unusually high prices of fuel/transport and other non-food prices Drought/irregular rains, prolonged dry spell Unusually high level of crop pests and disease Insecurity/violence/raiding/looting Non-violent theft/criminals Disease outbreak in the community Too much rain, flooding Livestock disease outbreak	
		Household survey	% of HH experiencing shocks	Did [third shock] reduce your household's ability to get money or food?	No impact on my household's ability to get money or food Small decrease in my household's ability to get money or food Large decrease in my household's ability to get money or food	Household
		Household survey	% of HH experiencing shocks	I01.1B Did the impact of [third shock] cause hunger in your household?	It did not cause hunger in my household Hunger is small, strategies are available to cope with the reduced access to food Hunger is bad, there are limited ways to cope with the reduced access to food Hunger is the worst it can be	Household
		Household survey	% of HH practicing livelihood coping strategies	N08. In the last 30 days, did your household send household members to eat with another household because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I have already engaged in this activity in the last 12 months and cannot continue doing it Not applicable – It is not possible for me to do this No, I attempted to do this for the first time and was refused	Household
		Household survey	% of HH practicing livelihood coping strategies	N09. In the last 30 days, did your household sell more animals than usual for this time of year because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I have already sold those assets in the last 12 months and cannot continue doing it Not applicable – It is not possible for me to do this, even if I needed to (household never had animals to sell, household sold or lost all animals more than one year ago)	Household

		Household survey	% of HH practicing livelihood coping strategies	N10. In the last 30 days, did your household borrow money or purchase food on credit because of a lack of food or money to buy food more than usual during this time of year?	Yes No, my household did not experience hunger that would make me do this No, because I already did this in the last 12 months and cannot continue doing it Not applicable – It is not possible for me to do this, even if I needed to (there is nowhere to purchase food on credit or no one is loaning money at this even I wanted to do these things) No, I attempted to do this for the first time and was refused	Household
		Household survey	% of HH practicing livelihood coping strategies	N11. In the last 30 days, did your household gather wild foods more than normal for this time of year because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I have already engaged in this activity in the last 12 months and cannot continue doing it Not applicable – It is not possible for me to do this (it is not the season for these activities, the areas where I would do this are not safe, these activities are regulated by local authorities, these resources are exhausted in my area)	Household
		Household survey	% of HH practicing livelihood coping strategies	N12. In the last 30 days, did your household ask other community members for a support of food because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I have already engaged in this activity in the last 12 months and cannot continue doing it Not applicable – It is not possible for me to do this No, I attempted to do this for the first time and was refused	Household
		Household survey	% of HH practicing livelihood coping strategies	N13. In the last 30 days, did your household send more household members than normal to cattle and/or fishing camps because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I have already done this activity in the last 12 months and cannot continue doing it Not applicable – It is not possible for me to do this (there are no cattle or fishing camps to go to)	Household
		Household survey	% of HH practicing livelihood coping strategies	N14. In the last 30 days, did your household sell or eat seeds intended for planting this season because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I already sold or ate all my seeds in the last 12 months and cannot continue doing it	Household

					Not applicable – It is not possible for me to do this (I did not have any seeds to eat or sell, I did not intend to plant this season, I do not farm, etc)	
		Household survey	% of HH practicing livelihood coping strategies	N15. In the last 30 days, did your household sell or slaughter the last of your cows and goats because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I have already sold this asset in the last 12 months and cannot continue doing it Not applicable – It is not possible for me to do this (I lost all of my animals more than one year ago, I have never owned these animals) No, because I did not want to slaughter or sell any more cows and goats, even if I needed food	Household
		Household survey	% of HH practicing livelihood coping strategies	N16. In the last 30 days, did your household travel to another village to look for/ search for (begging) for food or other resources because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I have already engaged in this activity in the last 12 months and cannot continue doing it Not applicable – It is not possible for me to do this (I am not physically able to travel, there are no other nearby villages, etc)	Household
		Household survey	% of HH practicing livelihood coping strategies	N17. In the last 30 days, did your household use community leaders or a local court to collect debts or bride wealth/dowry, or to gain a support of food or other resources from another community member because of a lack of food or money to buy food?	Yes No, my household did not experience hunger that would make me do this No, because I have already engaged in this activity in the last 12 months and cannot continue doing it No, because there was no court to hear the case (yes) No, as I could not afford the fees for the court (yes) No, because I did not have a claim to bring to the court (no) No, because I did not think the court would rule in my favour (no) No, for another reason	Household
		Household survey	% of HH receiving assistance	R01. Has any of your household members received any [FORM OF ASSISTANCE] in the past 3 months?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH receiving assistance	R01.1 Did the household receive any of the following humanitarian assistance in the last 3 months?	General food for all Food for school children Food for assets Nutrition (e.g. Blanket supplementary feeding, etc.)	Household

					Unconditional cash/ voucher transfer Cash for work/cash for training Agricultural inputs e.g. seeds Agricultural tools Fishing gear, Veterinary School fees /uniforms Health /medicines Shelter material Household utensils Any other	
		Household survey	% of HH receiving assistance	R02. When did you receive food or cash from the most recent distribution?	Within last week 2-3 weeks ago A month ago More than a month ago	Household
		Household survey	% of HH receiving assistance	R04. How many days did the food or the food purchased from the cash assistance last?	Integer	Household
		Household survey	% of HH receiving assistance	R05. Did you share the food or cash assistance with relatives and/or neighbors?	Yes No Don't know Refuse to answer	Household
		Household survey	% of HH receiving assistance	R05.1 How much of the food or cash assistance did you share?	Less than half Half More than half	Household

TOOL 3: QUALITATIVE FSL FGD (SEMI-STRUCTURED TOOL)

Research questions	SUBQ#	Sub-question	Questionnaire QUESTION	Probes	Data collection method
RQ2: What are the current FSL conditions and needs in Tali and Tindilo payams?		Locating question	1. In normal times, what main activities do most households in your area engage in to access and acquire resources that meet their needs?	a) How important is agriculture (crops and livestock) as an activity for most households in this area? In a normal year, what challenges (if any) are faced in undertaking agricultural activities? b) What other sources of livelihoods are usually available in this area?	FGD
		2.2 What is the current availability and access to livelihood activities?	2. What challenges are most households in your area facing in terms of livelihoods this year?		FGD
			3. Are there longstanding problems that affect the households' ability to rely on traditional livelihoods?		FGD
RQ3: What are the specific shocks that have affected households, and how are households mitigating these shocks?		3.1 What are the specific shocks that have affected households in Tali and Tindilo over the last 12 months?	**1.** How has the recent shock affected access to livelihoods (agriculture and livestock rearing, fishing…) for most households in your area?		FGD
			2. How has the recent shock affected agriculture in your area?	a) How is the harvest this year, and how does it compare to the 2018 harvest? b) In comparison to previous years, how many feddans are people planting? (I.e are they planting more or less compared to previous years?)	FGD
			3. How has the recent shock affected livestock rearing in your area?	a) Has access to cattle been affected by shock or other factors this year? b) Has the recent shock affected cattle migration patterns? If so, how? c) Do livestock keepers expect there to be any reduction in access to grazing area during the dry season? If so, where will they go? Will livestock be over crowded?	FGD

Research questions	SUBQ#	Sub-question	Questionnaire QUESTION	Probes	Data collection method
			4. Have any other factors affected access to livelihoods this year? If so, which ones? (probe for pests, conflict, insecurity, other climatic problems, etc.)		FGD
		3.2 How have shocks impacted upon household hunger?	**5.** What is currently the main source of food in Tali/Tindilo? Which other sources of food do most households rely on in this area?	a) Is there sufficient access to food Tali/Tindilo? b) If no, how does access do food compared to the period before the shock? c) If no, which are the reasons for absence/insufficient access to food?	FGD
			6. Has market access been affected by shock in this area? If so, how?	a) Are prices for retail staple foods increasing, decreasing or staying the same? b) How do HHs expect the prices to change in the next few months, and why? c) Do HHs expect that their access to functioning markets will reduced be due to challenges inflicted by shock?	FGD
		3.3 How do HHs in Tali and Tindilo perceive the severity and magnitude of current shocks compared to previous shocks that led to times of 'extreme hunger'	**7.** Do you foresee that HHs will be facing more challenges in their ability to access enough food in the near future due to the shock? If so, how?	a) How long do you expect harvest to last from the current cultivation cycle b) Are HHs planning to engage in smaller agricultural activities such as planting vegetables? c) How do HHs expect that hunger may compare with previous historical episodes of hunger in the area?	FGD

Research questions	SUBQ#	Sub-question	Questionnaire QUESTION	Probes	Data collection method
		3.5 How do HHs in Tali and Tindilo mitigate the effects of shocks and how is the decision change based on the type of shock?	1. What are the usual strategies that most households in your area adopt to cope with a lack of resources to meet your families basic needs?	a) Are households of your area currently able to use these strategies to cope with a lack of resources? b) If not, why are they unable? c) Are there some HHs that are considering migration to Sudan as a coping strategy? If so, which members of the household will be migrating?	FGD
			2. Have the strategies used by most households of your area to cope with a lack of resources changes in the past 30 days?	a) If these strategies have recently changed, what strategies are HHs now using? b) Why have these strategies recently become unavailable?	FGD
			3. Do households in your area rely on family networks, neighbours and friends to share resources and receive support when facing food or resource shortages?	a) Could you please describe how these networks of support work? b) Are these networks of support still functioning? c) If not, why not? d) If not, since when have these support networks ceased to function?	FGD

4. Data Management Plan

Detailed Data Management plan is available on request.

6. Monitoring & Evaluation Plan

IMPACT Objective	External M&E Indicator	Internal M&E Indicator	Focal point	Tool	Will indicator be tracked?
Humanitarian stakeholders are accessing IMPACT products	Number of humanitarian organizations accessing IMPACT services/products Number of individuals accessing IMPACT services/products	# of downloads of x product from Resource Center	Country request to HQ	User_log	X Yes
		# of downloads of x product from Relief Web	Country request to HQ		X Yes
		# of downloads of x product from Country level platforms	Country team		X Yes
		# of page clicks on x product from REACH global newsletter	Country request to HQ		□ Yes
		# of page clicks on x product from country newsletter, sendingBlue, bit.ly	Country team		□ Yes
		# of visits to x webmap/x dashboard	Country request to HQ		□ Yes
IMPACT activities contribute to better program implementation and coordination of the humanitarian response	Number of humanitarian organisations utilizing IMPACT services/products	# references in HPC documents (HNO, SRP, Flash appeals, Cluster/sector strategies)	Country team	Reference_log	*[List here relevant HPC-documents to be monitored: E.g. Iraq HNO 2018, Iraq Flash Appeal Mosul, Shelter Cluster strategy]*
		# references in single agency documents			*[List here relevant agency-documents to be monitored: E.g. UNHCR Country Strategy, UNICEF WASH Response Strategy]*
Humanitarian stakeholders are using IMPACT products	Humanitarian actors use IMPACT evidence/products as a basis for decision making, aid planning and delivery Number of humanitarian documents (HNO, HRP,	Perceived relevance of IMPACT country-programs	Country team	Usage_Feedback *and* Usage_Survey template	*[Outline here the usage survey to be implemented for this research cycle* *E.g. Usage survey to be conducted in November 2017, following the release of x outputs, targeting at least 10 partners* *E.g. Usage survey to be conducted at the end of the research*
		Perceived usefulness and influence of IMPACT outputs			
		Recommendations to strengthen IMPACT programs			
		Perceived capacity of IMPACT staff			
		Perceived quality of outputs/programs			

	cluster/agency strategic plans, etc.) directly informed by IMPACT products	Recommendations to strengthen IMPACT programs			*cycle related to all outputs, targeting at least 20 partners]*
Humanitarian stakeholders are engaged in IMPACT programs throughout the research cycle	Number and/or percentage of humanitarian organizations directly contributing to IMPACT programs *(providing resources, participating to presentations, etc.)*	# of organisations providing resources (i.e.staff, vehicles, meeting space, budget, etc.) for activity implementation	Country team	Engagement_log	X Yes
		# of organisations/clusters inputting in research design and joint analysis			□ Yes
		# of organisations/clusters attending briefings on findings;			X Yes