REACH Informing more effective humanitarian action

1. Executive Summary

Country of intervention	South Sudan					
Type of Emergency	X	Natural disaster	X	Conflict	□	Other *(specify)*
Type of Crisis	X	Sudden onset	□	Slow onset	X	Protracted
Mandating Body/ Agency	*[UK Foreign, Commonwealth and Development Office (FCDO), Bureau for Humanitarian Assistance (BHA) United States Agency for International Development (USAID)]*					
IMPACT Project Code	*32ELF 40U*					
Overall Research Timeframe *(from research design to final outputs / M&E)*	13/10/2021 to 20/12/2021					

Research Timeframe *Add planned deadlines (for first cycle if more than 1)*	1. Pilot/ training: 22/10/2021	6. Preliminary presentation: 7/12/2021
	2. Start collect data: 27/10/2021	7. Outputs sent for validation: 10/12/2021
	3. Data collected: 04/11/2021	8. Outputs published: 14/12/2021
	4. Data analysed: 25/11/2021	9. Final presentation: 17/12/2021
	5. Data sent for validation: 29/11/2021	

Number of assessments	X	Single assessment (one cycle)
	□	Multi assessment (more than one cycle) *[Describe here the frequency of the cycle]*

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**
	X	Donor plan/strategy	31/12/2021
	X	Inter-cluster plan/strategy	17 /12/ 2021
	X	Cluster plan/strategy	17 /12/ 2021
	X	NGO platform plan/strategy	17 /12/ 2021
	□	Other (Specify):	_ _/_ _/_ _ _ _

Audience Type & Dissemination *Specify **who** will the assessment inform and **how** you will disseminate to inform the audience*	**Audience type**	**Dissemination**
	X Strategic	**X** General Product Mailing (e.g. mail to NGO consortium; HCT participants; Donors)
	□ Programmatic	
	X Operational	X Cluster Mailing (Education, Shelter and WASH) and presentation of findings at next cluster meeting
	□ [Other, Specify]	

			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	*To assess the nutrition situation and retrospective mortality rates amongst the population in Panyikang County.*
Specific Objective(s)	1) *The purpose is to estimate the prevalence of Acute Malnutrition among children aged 6 – 59 months in Panyikang County.* 2) *It is also to know the retrospective Crude Mortality Rate and Under 5 Mortality rate (U5MR).* 3) *It is to estimate the coverage of various immunizations in Panyikang County for instance Vitamin A supplementation for children aged 6 – 59 months, deworming for children 12 – 59 months and measles vaccination coverage among children 9-59 months.* 4) *To assess childhood morbidity and health seeking behaviors among children aged 6-59 months in Panyikang County* 5) *To assess the Water, Sanitation and Hygiene (WASH) needs in Panyikang County (i.e. Main water source, distance/time to water source, water treatment status, access to latrine)* 6) *To assess food security and livelihoods situation in Panyikang County [Food Consumption Scores (FCS), Household Hunger Scale (HHS), main livelihoods, and Livelihood Coping Strategies (LCS)]* 7) *To formulate practical interventions and recommendations for both emergency and long term programmes of World Vision International (WVI) in Panyikang County* 8) *To assess the geographical distribution of acute malnutrition in the county.*
Research Questions	*RQ1:* **What is the nutritional status of children 6-59 months and pregnant and lactating women in Panyikang County?** a) *What is the current prevalence of acute malnutrition by Weight for Height (WHZ) for children 6-59 months in Panyikang County?* b) *What is the current prevalence of acute malnutrition by MUAC for children 6-59 months in Panyikang County?* c) What is the current prevalence of Oedema for children 6-59 months in Panyikang? d) What is the current prevalence of acute malnutrition by MUAC for the PLW in Panyikang County? *RQ2:* **What is the severity and causes of mortality experienced in Panyikang County?** A. *What is the retrospective Crude Mortality Rate (CMR) of the county population over the last 90* days in Panyikang County?* B. *What is the retrospective Under 5 Mortality Rate (U5MR) of the county population over the last 90* days in Panyikang County?*

RQ3: **Whaat is the severity of Vulnerability/health experieance in Panyikang County?**

    A. *What are the most common morbidities faced by children over the last two weeks prior to the survey in Panyikang County?*

    B. *What is the prevalence of childhood morbidity over the last two weeks prior to the survey in Panyikang County?*

    C. *What is the coverage of Vitamin A supplementation for children 6-59 months old over the last 6 months prior to the survey in Panyikang County?*

    D. *What is the coverage of measles vaccination for children 9-59 months old over the last 6 months prior to the survey in Panyikang County?*

    What is the coverage of deworming tablets in children 12-59 months over the last 6 months prior to the survey in Panyikang County?

RQ4: **What is the severity of WASH needs in Panyikang County?**

    A. *What are the main source of drinking water for the household in Panyikang County?*

    B. *What types of latrines do households have access to in Panyikang County, if any?*

    C. *Do households have access to soap in Panyikang County?*

RQ5: **What are the severity and the cause of Food insecurity and access to Livelihoods in Panyikang County?**

    A. *What is the mean household food consumption score (FCS) in Panyikang County, and proportion of households falling in poor, borderline and acceptable categories?*

    B. *What are the most common livelihoods coping strategies observed in Panyikang County?*

    C. *What is the mean Household Hunger Scale score (HHS) in Panyikang County?*

Geographic Coverage	*Panyikang County*						
Secondary data sources	*IPC Acute Food Insecurity and Acute Malnutrition Analysis* *Conflict Senstivity and Resource Facility (CSRF) Panyikang County profile*						

Population(s) *Select all that apply*	□	IDPs in camp		X	IDPs in informal sites		
	X	IDPs in host communities		□	IDPs [Other, Specify]		
	□	Refugees in camp		□	Refugees in informal sites		
	□	Refugees in host communities		□	Refugees [Other, Specify]		
	X	Host communities		□	[Other, Specify]		

Stratification *Select type(s) and enter number of strata*	□	Geographical #:_ _ _ Population size per strata is known? □ Yes □ No	□	Group #: _ _ _ Population size per strata is known? □ Yes □ No	□	[Other Specify] #: _ _ Population size per strata is known? □ Yes □ No

Data collection tool(s)	X	Structured (Quantitative)	□	Semi-structured (Qualitative)
	Sampling method		**Data collection method**	
Structured data collection tool # 1	□ Purposive □ Probability / Simple random		□ Key informant interview (Target #):_ _ _ _ _	

Select sampling and data collection method and specify target # interviews	□ Probability / Stratified simple random X Probability / Cluster sampling □ Probability / Stratified cluster sampling □ [Other, Specify]	□ Group discussion (Target #):_ _ _ _ _ X Household interview (Target #):_ _ 480_ _ _ □ Individual interview (Target #):_ _ _ _ _ □ Direct observations (Target #):_ _ _ _ _ □ [Other, Specify] (Target #):_ _ _ _ _			
Target level of precision if probability sampling	95% level of confidence		5+/- % margin of error		
Data management platform(s)	X	IMPACT	□	UNHCR	
	□	[Other, Specify]			
Expected ouput type(s)	□	Situation overview #: _ _	x	Report #: 1	□ Profile #: _ _
	x	Presentation (Preliminary findings) #: 1	x	Presentation (Final) #: 1	□ Factsheet #: _ _
	□	Interactive dashboard #:_	□ Webmap #: _ _		□ Map #: _ _
	□	[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: *FCDO, BHA*				
	Coordination Framework: *NIWG*				
	Partners: *World Vision International*				

2. Rationale

2.1 Background

South Sudan is the world's youngest country, gaining independence from Sudan in 2011. The country has faced internal conflict in 2013-2016, which has affected the entire community of South Sudan, causing widespread internal and cross border displacements. As a result of various shocks, there has been a disruption of livelihoods and chronically high levels of acute food insecurity and malnutrition in different parts of the country.[1]Likewise, localized conflict continues to disrupt livelihoods, trade, and humanitarian access. The loss of livelihood assets due to conflict and floods has reduced household's food and income sources and eroded coping capacity nationally. Furthermore, poor macroeconomic conditions have constrained household's market access. Subnational conflict has had an impact on livelihoods, particularly most recently in in Upper Nile State, northern Jonglei, and parts of Western Equatoria State. South Sudan continues to experience one of the worst food insecurity emergencies globally due to flooding and internal conflict.[2]

According to the most recent Integrated Phase Classification (**IPC**)[3] which was conducted on 26th/October to 16th/November 2021, a total of 45 counties were classified in an Emergency phase (IPC Phase 4), 27 were classified in Crisis phase (IPC Phase 3) and 6 were classified in Stressed phase (IPC Phase 2). Base on the IPC for Acute Malnutrition (IPC AMN) scale, 53 counties were under IPC AMN Phase 3 (Serious) and higher. Out of the 53 counties, 29 counties were in IPC AMN Phase

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[1] http://www.ipcinfo.org/ipcinfo-website/alerts-archive/issue-31/en/
[2]https://fews.net/sites/default/files/documents/reports/Livelihoods%20Zone%20Map%20and%20Descriptions%20for%20South%20Sudan.pdf
[3] https://www.ipcinfo.org/

4 (critical).[4] The most severely affected states seemed to be Greater Upper Nile where 80% of the counties were in IPC AMN Phase 4 (Critical) and in Upper Nile State, 31% were in IPC AMN Phase 4 (Critical).These findings show that the nutrition situation in 2020 has worsened compared to 2019, and further research is needed to assess the nutrition situation and retrospective mortality rates amongst the population in Panyikang County, Upper Nile State[5].

2.2 Intended Impact

In South Sudan, Standardized Monitoring and Assessment of Relief and Transitions (SMART) Survey are conducted, The SMART Methodology is an improved survey method that balances simplicity for rapid assessment of acute emergencies and technical soundness. These surveys are conducted to provide the holistic Nutrition information to the programing Organization which are implementing the Nutrition and health activities in a County. This information is validated always by the Nutrition Information Working group (NIWG) and published online for further use.

In Panyikang county, there has been no SMART survey conducted by any organization, however, only FSNMS was conducted by lead organizations like WFP, UNICEF and FAO with Support from other Government institutions and NGO's. Based on this deterioration of food security in South Sudan, the SMART survey was conducted to assess the Nutrition situation in Panyikang County, this is a recurrent information gap for the Integrated Phase Classification for Acute Malnutrition (IPC AMN) and Nutrition implementing partners, as there has never been a SMART survey implemented in Panyikang County. In order to fill this information gap on the current Nutrition situation in the County, World Vision International (WVI) and REACH Initiative planned to implement a SMART survey, collecting anthropometric and mortality data, as well as key multi-sectoral indicators Food Security and Livelihood (FSL), Water Sanitation and Hygiene (WASH) and Health) to better understand key drivers of acute malnutrition in the Panyikang County. The outcomes of this SMART Survey are presented to key coordination bodies such as the Needs Analysis Working Group (NAWG), the Inter Cluster Coordination Group (ICCG), and the Integrated Food Security Phase Classification (IPC) initiative for contextualization and to support humanitarian decision-making and prioritization.

3   Methodology

Methodology overview

3.1 Geographical scope of Panyikang.

   Panyikang County is located in Upper Nile State, and bordering Sudan to the north, Pariang County to the west, Fangak and Canal/Pigi Counties to the south, and Malakal and Baliet Counties to the East (see Map 1). Further, Panyikang is comprised of 6 payams including Tonga, Panyikang, Dahthem, Pakang, Panyiduay, and Nakdiar. It is located in the Northern Sorghum and Livestock Livelihood Zone[6], residents of this county traditionally rely on crop production and livestock, as well as fishing and casual labour migration to nearby markets. Since the start of conflict much of the population of Panyikang has moved back and forth across and between Panyikang and camps in Malakal or Sudan. During the conflict as much as half the population at one point was estimated to have left[7]. Panyikang County likely continues to face elevated levels of food insecurity and malnutrition, having been classified as 'Emergency' Phase 4 in the IPC Acute Food Insecurity workshop in October 2020, and being further expected to face 'Crisis' Phase 3 through both projection periods up through July 2021.

3.2 Methodology Overview.

This survey will apply a two-stage cluster sampling using the SMART methodology with the clusters being selected using the probability proportional to population size (PPS). Stage one sampling will involve the sampling of the clusters to be

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[4] South Sudan: IPC Results October 2020 - July 2021 | IPC Global Platform (ipcinfo.org)

[5] South_Sudan_TWG_Key_Messages_Oct_2020-July_2021.pdf (ipcinfo.org)

[6] https://www.csrf-southsudan.org/county_profile/panyikang/

[7]https://fews.net/sites/default/files/documents/reports/Livelihoods%20Zone%20Map%20and%20Descriptions%20for%20South%20Sudan.pdf

included in the survey while the second stage sampling will involve the selection of the households from the sampled clusters.

3.3 Population of interest

The target population for this survey will be the children aged 6 – 59 months for the anthropometric and child health seeking behaviours components, and the general population for the mortality, Food Security and Livelihood (FSL) and WASH components.

The definition of the population of interest will be based on following definitions:

Household:
A household consists of one or several persons who live in the same dwelling and share meals. Polygamous families will be defined based on the same, if each wife has her own pot, also if living in the same compound, this will be treated as different households.

Internal Displace persons (IDPs):
An internally displaced person (IDP) is someone who is forced to leave their home but who remains within their country's borders.

Host Community:
A host community refers to a group of people who share a common identity, such as geographical location, class, and ethnic background.

3.4 Secondary data review (outline key bibliography/sources you will use and for what).

Sample size calculation for the survey will be based on the expected prevalence of Global Acute Malnutrition (GAM) and Mortality Rate in the survey areas. The parameters used have been extracted from the previous survey reports conducted in January 2019. Anthropometric and Mortality Sample sizes have been calculated using ENA software (January 11th, 2020) following SMART methodology.

- **Integrated Phase Classification (IPC)**

   In the previous IPC conducted, Panyikang was classified in Emergency (IPC Phase 4)[8] acute food Insecurity. In Panyikang County, food insecurity was driven by reduced incomes, high food prices, lack of markets and low livestock holdings that affected access to milk and flooding has been the highest impact for these activities to carryout in the county.

- **County profile**

   Base on the CSRF report, the County is categorized as part of Norther Sorghum and cattle livelihood Zone. More on this can be found in the link below: Panyikang - csrf-southsudan.org

3.5 Primary Data Collection

3.5.1 Sampling Procedure: Selection of Clusters

A two-stage cluster sampling design will be used to sample the survey clusters and households. In the first stage, clusters[9] will be assigned using probability proportional to size (PPS). The sampling frame for the 1st stage sampling will be the list of villages with the population estimates in each of the survey area. The list of villages will then be entered into Emergency Nutrition Assessment (ENA) for SMART software (version Jan 2020) and clusters assigned using probability proportional to size (PPS) as per calculation.

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[8] South_Sudan_TWG_Key_Messages_Oct_2020-July_2021.pdf (ipcinfo.org)
[9] Cluster is a group of people positioned or staying together in one geographical Location.

Table 1: Sample Size (Anthropometric)

Parameter	Panyikang County	Justification
Estimated Prevalence (%)	15	Default - here has been no previous SMART survey for this county
Desired Precision	4	This is per the country guidance on precision in SSD for SMART Surveys
Design Effect	1.5	This is the default design effect for SMART surveys- there has been no previous data
Children to be Included	**500[10]**	
Average Household Size	7.3 people per house hold	This is based on the Food Security and Nutrition Monitoring System (FSNMS) round 26, where the average house hold was 7.3 people per household
% children Under-Five	20.7%	This is based on FSNMS round 26 where 20.7% of children was estimated as being under 5 years old.
% Non-Respondents	5%	Default - as there has been no previous data
Households to be Included	**387**	

3.5.2 Mortality Sample Size

Table 2: Sample Size (Mortality)

Parameter		Justification
Estimated death rate per 10,000/day	1	There has been no previous data – and therefore mortality rate is considered 1.
Desired Precision	0.45	By Estimating the CDR of 1, using the precision of 0.45 to be sure when we are below CDR 1.
Design Effect	1.5	This a default value because there was no SMART Survey conducted.
Recall Period	93	The recall event is from the 9 July which was independence day (well-known milestone indicating 3 months).
Population to be Included	**3331**	
Average Household Size	7.3	This is based on FSNMS round 26[11]
% Non-Respondents[12]	5	This is chosen as there has been no Previous Data
Households to be Included	**480**	

The maximum sample size is estimated based on the mortality sample size calculation and this will be considered the final sample size, with _480_ households. Given the above, the number of clusters per survey area the number of household and clusters included in the assessment is presented in the table below:

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[10] This sample size is taken from the 3 components of sample size calculation, these are the estimate prevalence of Acute Malnutrition, the desired precision and design effect that allow ENA for SMART software to calculate the sample size in terms of number of children. When you take those sample size calculation of the parameters and you insert into ENA for SMART Software, this will generate that total Number of children to be included during the survey.

[11] FSNMS_Round26_August_2021_23.08.2021.docx

[12] This is the number of people who might refused to be interview during the survey.

Table 3: Number of households and Clusters included in the survey.

Panyikang	Target
Total number of HH based on sample size calculation	480
Total number of HH to be assessed per day per team	13
Clusters Needed	36.9
Rounded up	**37**

3.5.3 Sampling Procedure: Selection of Households and Children

Definition of household for the survey: A household will be defined as a group of people living together, cook and eat from the same cooking pot. Polygamous families will be defined based on the same, if each wife has her own pot, even if living in the same compound, this will be treated as different households. On arrival in the selected clusters, the team leader will meet with the village elders. The team will introduce themselves, explaining the survey objectives as well as expectations from the elder.

3.5.4 Household selection techniques: The standard definition of a HH will be shared to aide in developing the HH listing within the cluster. One of two methods will be used for household listing; (1) a verbal listing from one or more community leaders, and if not possible then (2) a manual house to house listing. Thirteen households will then be randomly selected from the complete list of HHs using the random number generator in Smart phones. These are the HHs that will be visited by the survey team. The village guide and community leaders will support the teams in updating the list of households. We used the ENA softwire to do the sampling that is why we reached to that level of 480 households and 37 clusters, this is also explained in the Number of Households a Team can interview in a Day, this information can be viewed in table number 3.

For clusters with more than 150 HHs, segmentation will be used to select one portion of the cluster that will represent the cluster. Selection of segments will be done using either PPS or simple random sampling dependent on the population sizes of the specific segments.[13] In the selected segment the process of HH selection will follow the same process done in each cluster for selection of the 13 HH.

In selected households, all eligible children (aged 6-59 months) will be measured and the household questionnaire applied. Empty households and households with absent children will be re-visited and information of the outcome recorded on the cluster control form. This form will also be used to record information on empty and non-responding households. ODK used during the data collection.[14]

3.6 Data Processing & Analysis

The anthropometric and mortality data will be analysed using Emergency Nutrition Assessment (ENA) for SMART (Jan 2020 version). The other additional data (immunization, maternal nutrition, morbidity etc.) will be analysed using R. Various statistics will be used to summarize the data including percentages, means, and median among others by using IMPACT minimum standards checklist for data cleaning is followed[15]. The analysed data will be presented in both tabular and graphical presentations and the findings will be reported by locations or clusters. The preliminary datasets will be available within 7 days after the last day of data collection, and the preliminary report within 14 days. The preliminary report will get feedback from WVI and REACH, before submission to the Nutrition Information Working Group (NIWG) for validation.

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[13] As per the SMART Guidelines, if the Segments will have almost equal population sizes, then, SRS will be used; but if the population sizes will be different, then PPS method will be use

[14] https://www.impact-repository.org/wp-content/uploads/2020/05/IMPACT_COVID-Data-Collection-SOPs_FINAL_TO-SHARE.pdf

[15] https://www.impact-repository.org/wp-content/uploads/2020/10/IMPACT_Guidance_Qualitative-Data-Analysis-Checklist_October2020_FINAL.pdf

4   Key ethical considerations and related risks

The proposed research design meets / does not meet the following criteria:

The proposed research design…	*Yes/ No*	*Details if no (including mitigation)*
… Has been coordinated with relevant stakeholders to **avoid unnecessary duplication** of data collection efforts?	Yes	
… **Respects respondents, their rights and dignity** (*specifically by: seeking informed consent, designing length of survey/ discussion while being considerate of participants' time, ensuring accurate reporting of information provided*)?	Yes	
… Does not **expose data collectors to any risks as a direct result** of participation in data collection?	Yes	
… Does not **expose respondents / their communities to any risks as a direct result** of participation in data collection?	Yes	
… Does not involve **collecting information on specific topics which may be stressful and/ or re-traumatising** for research participants (both respondents and data collectors)?	Yes	
… Does not involve **data collection with minors** i.e. anyone less than 18 years old?	No	No minors are interviewed, however, children in each household are measured by the data collection team.
… Does not involve **data collection with other vulnerable groups** e.g. persons with disabilities, victims/ survivors of protection incidents, etc.?	Yes	
… Follows IMPACT SOPs for management of **personally identifiable information**?	Yes	

5 Roles and responsibilities

Table 3: Description of roles and responsibilities

Task Description	*Responsible*	*Accountable*	*Consulted*	*Informed*
Research design	Roving field coordinator; *Research Manager*	*Research Manager*	*Impact HQ Research Design and Data Unit (RDDU)),GIS Officer and Senior assessment officer*	*Country Coordinator*
Supervising data collection	Roving field coordinator, Global Nutrition and Health Assessment Specialist, County health Department Nutrition field officer	Rearch Manager, Global Nutrition and Health Assessment Specialist, Senior assessment officer	Relief and Rehablitation Commission, County Health Department.	Country coordinator, Research manager
Data processing (checking, cleaning)	Roving field cordinator, Global Nutrition and Health Assessment Specialist, GIS Officer	Global Nutrition and health assessment specialist	Global Nutrition and health assessment specialist, Senior assessment officer, Research manager, Senior GIS manager (HQ)	IMPACT Research Design and Data Unit (HQ)
Data analysis	Roving Field Coordinator, Global Nutrition and Health assessment Specialist, GIS Officer, Senior Assessment Officer, Research Manager	Global Nutrition and Health assessment Specialist	IMPACT Research Design and Data Unit (HQ) ,Senior GIS Manager (HQ), IMPACT Research Design and Data Unit (HQ)	Country coordinator
Output production	, Roving Field Coordinator Senior Assessment Officer, Research Manager	Rearch Manager	Global Nutrition and Health Assessment Specialist IMPACT	Country coordinator IMPACT Reporting Unit (HQ)

			Reporting Unit (HQ)	
Dissemination	Roving Field Coordiantor ; Senior Assement Officer Research Manager	Research manarger	Country Coordinator	Local Partners, NIWG
Monitoring & Evaluation	Roving Field Coordiantor, Global Nutrition and Health Assessment Specialist	Research Manager	IMPACT HQ Research Deparment and Local Partners	Country Coordinator
Lessons learned	*Global Nutrition and Health assessment Specialist, Senior assessment Officer, Research Manager.*	*Country Coordinator*	*IMPACT HQ Research Department and Local Partners, NIWG*	*Donors*

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.

6   Data Analysis Plan

SMART HOUSEHOLD SURVEY TOOL

Demography	NA	A.1.1	HH Survey	Enumerator ID	Please specify enumerator ID	Enter	Community
	NA	A.1.2	HH Survey	State Name	Please select the admin1 (state) area	Select	Community
	NA	A.1.3	HH Survey	County Name	Please select the admin2 (county) area	Select	Community
	NA	A.1.4	HH Survey	Payam Area	Please select the admin3 (payam) area	Select	Community
	NA	A.1.5	HH Survey	Payam Name	What is the other payam name?	Select	Community
	NA	A.1.6	HH Survey	Site	Please select the site	Select	Community
	NA	A.1.7	HH Survey	Other Site	What is other site name?	Text	Community
	NA	A.1.8	HH Survey	Cluster Number	What is the cluster number?	Integer	Community
	NA	A.1.9	HH Survey	Household Number	What is the household number?	Integer	Community
Metadata	NA	B.1.2	HH survey	Age in Years	What is the age of the respondent (years)?	integer	individual
	NA	B.1.3	HH survey	Sex of the head of household	What is the sex of the head of household?	1= Male 2= Female	Individual
	NA	B.1.4	HH survey	Age of head of HH	What is the age of the head of household?	integer	Individual
RQ1: ***What is the nutritional status of children 6-59 months and pregnant and lactating women in***	What is the current prevalence of acute malnutrition by Weight for Height (WHZ) for children 6-	1.1	HH survey	Date of birth	What is the date of birth of [child name]? (ask for birth record)	Date	Individual child (0-59 months)
		1.2	HH survey	Age in months	How old is [child name] in months? (use local events calendar)	Integer	Individual child (0-59 months)
		1.3	HH survey	Sex of child	What is the sex of [child name]	1 = Male 2= Female	Individual child (0-59 months)

Panyikang County?	59 months in Panyikang County?	**1.4**	HH survey	Weight (kg)	What is the weight of [child name]?	Integer	Individual child (6-59 months)
		1.5	HH survey	Height (cm)	What is the height of [child name]?	Integer	Individual child (6-59 months)
	What is the current prevalence of acute malnutrition by MUAC for children 6-59 months in Panyikang County?	**1.6**	HH survey	MUAC (mm)	What is the MUAC of [child name]?	Decimal	Individual child (6-59 months)
		9.6	Household survey	Malnourished child enrolled in program	Is this child enrolled in a nutrition program?	1. Yes 2. No 3. Don't know No response	Individual
	What is the current prevalence of Oedema for children 6-59 months in Panyikang?	**1.7**	HH survey	Oedema	Does [child name] have oedema?	1 = Yes 0 = No 98 = DK 99 = NR	Individual child (6-59 months)
	What is the current prevalence of acute malnutrition by MUAC for the PLW in Panyikang County?	**9.7**	Household survey	#Pregnant women	How many pregnant women are in the household?	Integer	Household
		9.8	Household survey	#Breastfeeding women	How many breastfeeding women are in the household?	Integer	Household
		9.9	Household survey	# Pregnant and breastfeeding women present	How many of these pregnant and/or (?) breastfeeding women are present?	Integer	Household
		9.10	Household survey	Pregnant or breastfeeding status	What is the status of this woman?	1. Pregnant 2. Breastfeeding 3. Pregnant and breastfeeding 4. Not pregnant or	Individual

					breastfeeding	
		9.11	Household survey	Mid-upper arm circumference (MUAC) in mm	What is the MUAC for this woman?	Integer	Individual
RQ2: ***What is the severity and causes of mortality experienced in Panyikang County?***	*What is the retrospective Crude Mortality Rate (CMR) of the county population over the last 90* days in Panyikang County?*	**2.1A**	HH survey	Name household member	What is the HH members' name?	Text	Individual
		2.2A	HH survey	Sex household member	What is the sex of [name]?	1 = Male 2= Female	Individual
		2.3A	HH survey	Age (years)	What is the age in years of [name]?	Integer	Individual
		2.4A	HH survey	Joined HH during recall period	Has [name] joined the household since [recall event]?	1 = Yes 0 = No 98 = DK 99 = NR	Individual
		2.5A	HH survey	Left household during recall period	Has [name] left the household since [recall event]?	1 = Yes 0 = No 98 = DK 99 = NR	Individual
		2.6A	HH survey	Born during recall period	Has [name] born in the household since [recall event]?	1 = Yes 0 = No 98 = DK 99 = NR	Individual
		2.7A	HH survey	Died during recall period	Has [name] died the household since [recall event]?	1 = Yes 0 = No 98 = DK 99 = NR	Individual
		2.8A	HH survey	Cause of death	What was the cause of death?	1 = Illness 2 = Injury/Trauma 97 = Other 98 = DK 99 = NR	Individual
		2.9A	HH survey	Location of death	Where did the person die?	1 = Current location 2 = During migration 3 = Place of last residence 97 = Other 98 = DK 99 = NR	Individual

	What is the retrospective Under 5 Mortality Rate (U5MR) of the county population over the last 90* days in Panyikang County?	2.1B	Household survey	Sex and Age Demographics of the Household	What is the number of people in your household aged 0-5 years?	Integer	Household
		2.2B	Household survey	Sex and Age Demographics of the Household	What is the number of males in your household older than 5 years?	Integer	Household
		2.3B	Household survey	Sex and Age Demographics of the Household	What is the number of girls in your household aged 0-5 years?	Integer	Household
		2.4B	Household survey	Sex and Age Demographics of the Household	What is the number of girls in your household older than 5 years?	Integer	Household
		2.5B	Household survey	Births in recall period	Have you had any births in your household since (RECALL EVENT)?	Integer	Household
		2.6B	Household survey	Deaths in recall period	Have you had any deaths in your household since (RECALL EVENT)?	Integer	Household
		2.7B	Household survey	Cause of death	What was the cause of death?	1.Illness 2.Trauma/Injury 3.Violence/conflict 4.Other	Individual
		2.8B	Household survey	Date of death known	Do you know the date the person died?	1. Yes No	
		2.9B	Household survey	Date of death	What was the date of death?	Enter Date	Individual
		2.10B	Household survey	Place of death	Where did the person die?	1.Current location 2.During migration 3.In place of last residence 4.Other	Individual
RQ3: *What is the severity of Vulnerability/health*		3.1A	HH survey	Illness in past 2 weeks	Has [child name] had any illness in the last 2 weeks?	0=No 1=Diarrhea 2=Fever 3=Cough	Individual (0-59 months)

experieance in Panyikang County?	What are the most common morbidities faced by children over the last two weeks prior to the survey in Panyikang County? What is the prevalence of childhood morbidity over the last two weeks prior to the survey in Panyikang County?				(fast/difficult breathing) 98 = DK 99 = NR	
		3.2A	HH Survey	Child illness	If, yes, what sickness did children have?	1.Malaria 2.Acute watery diarrhoea 3.Cholera 4.Skin infection 5.Eye infection 6.Flu 7.Fever 8.Typhoid 9.Stomach pain 10.Skin disease 11.None 12.I don't know or don't want to answer 13.Other (specify)	
		3.3A	HH survey	Treatment sought for illness in past 2 weeks	What treatment was sought for [child name]?	0 = None 1 = Hospital 2 = PHCC/U 3 = Mobile outreach clinic 4 = Community based distributor (CBD) 5 = Pharmacy / store 6 =Private clinc 97 = Other 98 = DK 99 = NR	Individual (0-59 months)
	What is the coverage of Vitamin A supplementation for children 6-59 months old over the last 6 months prior to the survey in Panyikang County?	3.1B	HH survey	Vitamin A supplementation in last 6 months (6-59 months)	Has [Child name] received a capsule of vitamin A during the last 6 months?	1 = Yes 0 = No 98 = DK 99 = NR	Individual (6-59 months)

	What is the coverage of measles vaccination for children 9-59 months old over the last 6 months prior to the survey in Panyikang County?	3.1C	HH survey	Measles vaccination (9-59 months)	Was [child name] vaccinated against measles?	1=Yes (seen vaccination book) 2=Yes, according to the memory of the mother and verbal narrative 3=No	Individual (9-59 months)
		3.2C	HH survey	Measles vaccination (9-59 months)	Do you have [child Name] measles vaccination card?	Observe	Individual (9-59 months)
	What is the coverage of deworming tablets in children 12-59 months over the last 6 months prior to the survey in Panyikang County?	3.1D	HH survey	Deworming treatment (12-59 months)	Has [child name] received any de-worming treatment during the last 6 months?	1 = Yes 0 = No 98 = DK 99 = NR	Individual (12-59 months)
RQ4: *What are the severity of Water, Sanitation and Hygiene* (*WASH) needs in Panyikang County?*	What are the main source of drinking water for the household in Panyikang County?	4.1A	HH survey	Main drinking water source	What is your household's main source of drinking water?	1= Borehole 2= Tap stand 3= River/stream 4= Unprotected well 5= Swamp 6= Puddle/stagnant water 7= Hand dug well 97 = Other 98= I don't know 99= I don't want to answer	Household
		4.2A	HH survey	Household collects water < 30min	How long does it take for you to collect water (walking from your household to your main water drinking collection point, waiting there, filling the	1 = Water available inside the compound 2 = Under 30 minutes 3 = 30 minutes to less than 1 hour	Household

					4 = 1 hour to less than half a day 5 = Half a day 6 = More than half a day 97 = Other 98= I don't know 99= I don't want to answer	
		4.3A	HH Survey	Household Water Treatment	What do the household do to treat the water you drink, if anything?	1= No treatment 2= Filter with cloth 3= Boil water 4= Chlorine tablet/ Aqua tab 5= Pure tablets 6= Sharp (alum) 7= Other 8= Don't know or no response	Household
	What types of latrines do households have access to in Panyikang County, if any?	4.1B	HH survey	Household latrine access	Is there a family, shared or communal latrine in your settlement?	0 = No 1= Family latrine 2= Communal/ institutional latrine (in marketplace, school, etc.) 3= Shared latrine (between neighbouring HHs) 97 = Other 98= DK 99= NR	Household
	Do households have access to soap in Panyikang County?	4.1C	HH survey	Soap in the household	Do you have soap in the home (ask to see soap, to see if it appears in a minute)?	0= No 1= Yes (and appears) 2= Yes (but does not appear for 1 minute) 98= DK 99= NR	Household
RQ5: *What are the severity and the cause of Food*		5.1A	HH survey	Food Consumption Score	How many days over the last 7 days, did members of your household eat the following	Integer (0 to 7) For each food group	Household

insecurity and access to Livelihoods in Panyikang County?	What is the main household food consumption score (FCS) in Panyikang County, and proportion of households falling in poor, borderline and acceptable categories?				food items, prepared and/or consumed at home? - Cereals, grains, roots and tubers, including wild roots: - Legumes / nuts: - Milk and other dairy products: - Meat, fish and eggs: - Vegetables and Leaves, including all wild vegetables and leaves: - Fruits including wild fruits: - Oil / fat / butter: - Sugar, or sweet: - Condiments / Spices:		
		5.2A	HH Survey	What is the household's main source of income?	0 = No income 1 = Agriculture and sale of crops 2 = Livestock and sale of livestock or livestock products and poultry 3 = Sale of alcoholic beverages 4 = Casual labor 5 = Skilled labor 6 = Trader / shop owner 7 = Salaried work (public/private) 8 = Sale of natural resources (firewood, charcoal, grass, etc.) 9 = Borrowing 10 = Fishing or sale of fish	Household

					11 = Kinship support from family/friends (remittances) 12 = Begging 13 = Food assistance/sale of food assistance 14 = Gathering of wild foods and hunting 97 = Other 98 = DK 99 = NR		
		5.1B	HH survey	Most important source of income/livelihoods	Of these activities, which was the MOST important for your household?	0 = No income 1 = Agriculture and sale of crops 2 = Livestock and sale of livestock or livestock products and poultry 3 = Sale of alcoholic beverages 4 = Casual labor 5 = Skilled labor 6 = Trader / shop owner 7 = Salaried work (public/private) 8 = Sale of natural resources (firewood, charcoal, grass, etc.) 9 = Borrowing 10 = Fishing or sale of fish 11 = Kinship support from family/friends (remittances) 12 = Begging 13 = Food assistance/sale of food assistance	Household

	What are the most common livelihoods coping strategies observed in Panyikang County?				14 = Gathering of wild foods and hunting 97 = Other 98 = DK 99 = NR	
		5.2B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		5.3B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		5.4B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		5.5B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		5.6B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household

		5.7B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		5.8B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		5.9B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		5.10 B	HH survey	Most important source of income/livelihoods	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?	1 = Yes 0 = No 98 = DK 99 = NR	Household
		5.11 B	HH survey	Most important source of income/livelihoods	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	1 = Yes 0 = No 98 = DK 99 = NR	Household

					money to buy food?	
		5.12 B	HH survey	Livelihood coping strategies	During the past 30 days, did you or anyone in your household do any of the following due to a lack of food or money to buy food? (answer for each below) (0) None (1) Sell household assets or goods (2) Send any household members to eat elsewhere (3) Sell more animals than usual (4) Consume seed stocks intended for planting, including any seeds from a distribution (5) Borrow money and/or purchase food on credit (6) Sell productive assets or means of transport (panga, hoe, tools, bicycle, etc.) (7) Reduce essential non-food expenses, such as health or education (8) Engage in risky or illegal activities like theft, prostitution, raiding (9) Sell the last female animal (10) Entire household migrates	1 = Yes 2 = No, because I didn't have a shortage of food 3 = No, because I've already exhausted that strategy 4 = No, it is not applicable to me	Household
		5.1C	HH survey	Household Hunger Scale	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

		5.2C	HH survey	Household Hunger Scale	If yes 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
	What is the mean Household Hunger Scale score (HHS) in Panyikang County?	5.3C	HH survey	Household Hunger Scale	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
		5.4C	HH survey	Household Hunger Scale	If yes, 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
		5.5C	HH survey	Household Hunger Scale	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
		5.6C	HH survey	Household Hunger Scale	If yes, 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

*Additional acceptable matching characteristics between deaths will be identified at the field level.

7. Data Management Plan

Data Management Plan available upon request.

8. Monitoring and 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 organisations 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 Team		**X** Yes
		# of page clicks on x product from country newsletter, sending, bit.ly	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) # References in single agency documents	Country team	Reference log	HNO 2022 South Sudan HRP 2022 Cluster strategies UN Agencies, INGOs and NNGOs strategic planning document
Humanitarian stakeholders are using IMPACT products	Humanitarian actors use IMPACT evidence/products as a basis for decision making, aid planning and	Perceived relevance of IMPACT country-programs	Country team	Usage Feedback *and* Usage Survey template	

	delivery Number of humanitarian documents (HNO, HRP, cluster/agency strategic plans, etc.) directly informed by IMPACT products	Perceived usefulness and influence of IMPACT outputs			Survey Monkey to be conducted following dissemination with cluster coordinators, key UN Agencies and INGOs, Humanitarian coordination bodies.
		Recommendations to strengthen IMPACT programs			
		Perceived capacity of IMPACT staff			
		Perceived quality of outputs/programs			
		Recommendations to strengthen IMPACT programs			
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

ANNEX A

Number of Clusters

To determine the number of clusters required, the number of households that a team can comfortably survey in a day was estimated using the parameters found in the Table 3 below:

Table 3: Number of Households a Team can Sample in a Day

Activity	Estimated Time
Departure from Office	**7am**
a. Daily morning Briefings	*15minutes*
b. Travel to clusters	*60minutes*
c. Introduction and HH list development	*30minutes*
d. Lunch break	*30minutes*
e. Total Time from one HH to another	*5minutes*
f. Travel back to base	*60minutes*
Total time for HH listing, travelling and breaks (a + b + c + d + f)	195minutes
Arrival back to Base	*5pm*
Total Available time in a day	10hrs(600 minutes)
Available time for work	600 minutes-195minutes=405minutes(7hr)
Time taken to complete one questionnaire	*25 minutes*
Total time per household + e	*25 minutes+5 minutes=30minutes*

Note: The above are only estimates based on past experience, but will be updated after the pilot survey has been conducted and thus, slight changes may be expected.

Given the above, the number of households that a team can comfortably visit in a day is calculated as follows:

405 (min) / 30 (min) = 13.5 **HH/per day ~ 13HH**

ANNEX B: NUTRITION TERMINOLOGY AND ABBREVIATIONS

BSFP   Blanket Supplementary Feeding Program

GAM   Global Acute Malnutrition

MAM   Moderate Acute Malnutrition

MUAC   Mid-Upper Arm Circumference

OTP   Outpatient Therapeutic Program (for acute malnutrition)

SAM   Severe Acute Malnutrition

SC   Stabilization Center (inpatient treatment for acute malnutrition)

TSFP   Targeted supplementary feeding program

OEDEMA   Bilateral pitting oedema, or swelling of both feet, otherwise identified as a sign of oedema caused by malnutrition