SOUTH SUDAN

Integrated Public Health Rapid Assessment in Nyal, Panyijiar County, Jonglei State

February 2026

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SUMMARY

Nyal Payam in Panyijiar County experienced a severe and worsening public health crisis driven primarily by prolonged and recurrent flooding, consistent with wider trends observed across Unity and Jonglei States. According to OCHA and UN agencies, recurrent flooding since 2023 destroyed homes, farmland, markets, water points, sanitation facilities, and health infrastructure, repeatedly displacing communities and constraining access to essential services across large parts of Jonglei and Unity States.[1] In Panyijiar County specifically, catastrophic flooding submerged livelihoods, killed livestock, and forced communities onto limited high ground, increasing exposure to communicable disease and further weakening already fragile resilience systems.[2]

These shocks directly undermined public health conditions. Flooding contaminated water sources and destroyed sanitation facilities, contributing to widespread open defecation and elevated risks of diarrhoeal disease, which UNICEF and WHO identified as among the leading causes of morbidity and child mortality in South Sudan.[3] Simultaneously, prolonged livelihood disruption and market isolation exacerbated acute food insecurity, consistent with IPC and FEWS NET analyses identifying flooding and access constraints as key drivers of Emergency (IPC Phase 4) and Catastrophe (IPC Phase 5) outcomes in hotspot counties.[4]

The Integrated Public Health Rapid Assessment (IPHRA) was conducted by REACH in coordination with humanitarian partners under established Health and Nutrition coordination mechanisms in South Sudan. While secondary sources provided regular updates on flooding impacts, food insecurity projections, and disease outbreaks at state and national levels, partners identified a critical information gap on population-level public health outcomes in hard-to-reach areas such as Nyal Payam. Routine surveillance and facility-based reporting systems remained insufficient to assess excess mortality, morbidity patterns, nutrition status, and compounding WASH risks among isolated flood-affected communities.[5]

The IPHRA was conducted between 31 January and 10 February 2026 in Nyal Payam and (surrounding islands Meer, Nyijam, Nyoat, and Jiathual, Panyijiar County, focusing on flood-affected communities, including remote island settlements facing persistent access constraints. Data were collected through household-level quantitative surveys, using standardised public health indicators covering mortality call, reported morbidity, MUAC screening for children under five, food security outcomes, WASH conditions, and access to preventive and curative health services.

Several limitations should be considered. Persistent access constraints limited coverage of the most remote locations, likely resulting in underestimation of severity. Mortality and morbidity data were subject to recall bias, and the reliance on MUAC limited direct comparability with WHZ-based GAM estimates. Ongoing flooding and population movement may have further altered conditions following data collection, meaning findings represented a snapshot of a rapidly evolving emergency context.

Key Messages

- The public health situation in Nyal Payam was of high severity, with elevated mortality exceeding emergency thresholds, likely driven by extreme food insecurity, unsafe water and sanitation conditions, and limited access to curative health care.

[1] South Sudan UNOCHA: South Sudan Humanitarian Update 1-17 April 2026
[2] UNDP: Climate Security Risks Brewing In South Sudan As Floods Escalate In Many Parts of The Country: A Case of Panyijiar
[3] WHO: Public Health Situation Analysis (PHSA)
[4] South Sudan: IPC Acute Food Insecurity and Malnutrition Snapshot | September 2025 - July 2026
[5] WHO: Public Health Situation Analysis (PHSA)

- The Crude Mortality Rate (CMR) was 1.21 per 10,000 people per day (95% CI: 0.694–1.729), exceeding the emergency threshold. Most reported deaths were attributable to preventable, non-traumatic causes, with diarrhoea and dehydration accounting for a substantial proportion of deaths among children under five.
- Households faced extreme acute food insecurity, with a substantial proportion experiencing IPC Phase 4 (Emergency) outcomes and pockets of the population experiencing IPC Phase 5 (Catastrophe) food consumption gaps, following prolonged flooding that destroyed livelihoods, eliminated food production, and severely constrained market and humanitarian access; the majority (89%) of households identified food assistance as their top priority.
- Unsafe water sources, widespread open defecation, and lack of hygiene supplies were prevalent, contributing to a high burden of diarrhoeal disease and elevated child mortality. These risks are amplified during the lean season (April–August), when water quality and access further deteriorate, and households' capacity to maintain basic hygiene practices declines.
- Acute malnutrition among children under five is elevated (GAM 6.7% by MUAC 95% ; CI: 4.3 – 9.4), with proxy evidence (including a high disease burden, recent disease outbreaks, widespread food insecurity, and reported stock-outs of nutrition supplies and limited availability of nutrition services) suggesting that true GAM prevalence measured by WHZ may exceed 10%, indicating a potentially serious nutrition situation as the lean season progresses.
- As the leason progresses (typically spanning April–August), there remains a critical need to scale up emergency food assistance alongside health, nutrition, and sanitation services to prevent further deterioration in public health outcomes. At this stage of the season, sustained and, where possible, expanded interventions are required to mitigate rising risks of acute malnutrition, morbidity, and mortality, particularly among populations in isolated islands that continue to face severe access constraints and limited humanitarian presence.

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List of Acronyms

AFI:	Acute Food Insecurity
AMN:	Acute Malnutrition
CDC	Centers for Disease Control and Prevention
CDR:	Crude Mortality Rate
ENA:	Emergency Nutrition Assessments
FCS:	Food Consumption Score
FGD:	Focus Group Discussion
FSL:	Food Security and Livelihoods
FSNMS:	Food Security and Nutrition Monitoring System
GAM:	Global Acute Malnutrition
HC:	Host community
HH:	Household
HHS:	Household hunger scale
IPC:	Integrated Phase Classification
IPHRA:	Integrated Public Health Rapid Assessment
IYCF:	Infant and Young Child Feeding
JMP:	Joint Monitoring Programme
KI:	Key Informant
LCS:	Livelihood Coping Strategies
MAD:	Minimum Acceptable Diet
MAM:	Moderate Acute Malnutrition
MDD:	Minimum Dietary Diversity
MSF:	Médecins Sans Frontières
MSSMEB:	Multi-sectoral Survival Minimum Expenditure Basket
MUAC:	Mid-Upper Arm Circumference.
PHCC:	Primary Health Care Centre
PLW:	Pregnant and Lactating Women
PPS:	Probability Proportional to Size
RRC:	Relief and Rehabilitation Commission
SAM:	Severe Acute Malnutrition
SSD:	South Sudan
U5MR:	Under Five Mortality Rate
UNICEF:	United Nations International Children's Emergency Fund
Vit A:	Vitamin A
WASH:	Water, Sanitation and Hygiene
WFH:	Weight for Height
WHO:	World Health Organization

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CONTEXT AND RATIONALE

Panyijiar County is in the southern part of Unity State. It borders Mayendit and Leer to the north, Jonglei State across the Nile to the east, and Lakes State to the west and south.[6]

Since mid-2025, heavy rains combined with the overflow of the River Nile have submerged extensive areas of farmland and residential areas. As of November, according to OCHA estimates, over 50,000 individuals have been displaced across the county to dry high ground lands.[7] These displacement patterns reflect rapidly evolving needs and severely overstretched coping capacities. Unlike in 2024, when many families managed to relocate to Lakes State through community-mediated arrangements, current conditions have left few viable relocation options, trapping households in flood-affected areas with limited access to essential services.[8]

The latest IPC analysis (October 2025) indicated poor food security and nutrition outcomes in Panyijiar. For the first projection period (December 2025–March 2026), the county was classified in IPC Phase 3 (Crisis), while acute malnutrition was projected in IPC AMN Phase 4 (Critical) from October 2025 to March 2026.[9] Livelihoods have been critically disrupted, with most households having lost access to farmland and livestock, while functional markets and income-generating activities have been severely impacted. Access to clean water, adequate shelter, and health services has deteriorated significantly, with overcrowding in highland areas contributing to rising public health risks and increasing disease transmission. Preliminary reports indicate suspected cases of acute watery diarrhoea, malaria, and respiratory infections, linked to contaminated floodwaters and poor sanitation.[10] The integrated public health rapid assessment evaluated Nyal population vulnerabilities and potential drivers of humanitarian needs across various public health sectors.

Humanitarian operations have also been heavily constrained. Partners such as the International Medical Corps (IMC) report service delivery disruptions due to submerged facilities, inaccessibility, and movement restrictions. Health facilities in low-lying areas are non-functional, and mobile clinics operate intermittently.[11]

METHODOLOGY

Between 31 January and 10 February 2026, REACH conducted primary data collection using a mixed-methods approach, consisting of 301 household (HH) surveys and 10 Key Informant Interviews (KIIs). The methodology was designed to generate localized, representative findings for the assessed population, while recognizing that the results are not generalizable to the entire population of Panyijiar County.

The assessment focused on households living in Nyal and the surrounding islands (Nyal, Meer, Nyijam, Nyoat, and Jiathual). These locations were treated as a single stratum due to shared characteristics, including chronic flooding that isolates communities for long periods, limited market access, destruction of crops and livelihoods contributing to high food insecurity, poor WASH conditions such as reliance on contaminated water and widespread latrine collapse, and restricted access to health services due to long travel distances, few facilities, and frequent stockouts. Grouping these settlements

[6] CSRF: County Profile
[7] OCHA: South Sudan: Floods Snapshot (As of 13 November 2025)
[8] UNDP: Climate Security Risks Brewing in South Sudan as Floods Escalate in many Parts of the Country: A Case of Panyijiar
[9] South Sudan: Acute Food Insecurity Situation for September - November 2025 and Projections for December 2025 - March 2026 and for April - July 2026
[10] International Medical Corps: Situation update: South Sudan flood emergency. September 9, 2025
[11] ibid

ensured that the sampling strategy adequately reflected the experiences of this highly vulnerable and geographically isolated population.

Sampling Strategy: Survey Design

A two-stage stratified simple random sampling design was used for household-level data collection.

Stage 1: Settlement-Level

The total sample of 301 households was allocated proportionally to the estimated population size of each settlement (Nyal, Meer, Nyijam, Nyoat, and Jiathual). Larger settlements, particularly Nyal, received a proportionally higher number of sampled households, while smaller islands received a minimum number to ensure inclusion.

Stage 2: Household Selection

Within each site, households were selected using simple random sampling. Using the REACH GeoRand tool, the boundary of each site was delineated, and random GPS points were generated within that boundary. The number of random points created was equal to the required number of households divided by three. For example, to survey 300 target households, at least 100 random GPS points were generated across the selected settlements. The survey team then visited each GPS point and interviewed the three closest households, completing the survey tool and recording GPS coordinates for each household.

Sample Size Determination: Mortality Component

To calculate the required sample size for mortality estimation, the following assumptions were applied: a death rate of 1 death per 10,000 people per day, a desired precision of ±0.5 deaths per 10,000 people per day, a 90-day recall period, an average household size of 6, and an expected non-response rate of 5%. Based on these parameters, the survey required 300 households, proportionally distributed across the assessed settlements. Approximately 276 households were surveyed in Nyal, while 24 households were distributed across the smaller islands, with at least 6–7 households surveyed per site.

Mortality Sample Size

Table 1- Sample size calculation of Mortality

Parameter	Nyal, Panyijiar County	Assumption/Justification
Estimated death rate per 10,000/day	1	The 2021 SMART survey by IMC reported a mortality rate of 0.43 (95% CI: 0.22–0.83). With no evidence of a significant increase since then, we conservatively used a rate of 1 for sample size calculations.
Desired Precision	0.5	
Recall Period	90	A standard recall period of 90 days was used to plan this survey. However, for the analysis the actual recall period of 88 day (from Dec 17, 2024, i.e. the appointment of the new commissioner for the county to Mar 14, 2025) was used for analysis.
Population to be Included	**1707**	
Average Household Size	6	FSNMS July 2025 survey finding average household size.
% Non-Respondents	5%	Expected non-response based on experience
Households to be assessed	**300 households**	**Households to be included**

Sample Size Determination: MUAC Sample Size

Nutrition (MUAC) Component:

For the nutrition component, standard IPHRA parameters were used: an estimated GAM (MUAC) prevalence of 10%, a desired precision of ±5%, a proportion of children under five of 20%, an average household size of 6, and a non-response rate of 5%. These parameters initially produced a requirement of 135 households, which was later increased to 202 households based on the IPHRA sample size table. To ensure adequate precision for both mortality and MUAC indicators, the higher sample size of 300 households was adopted.

Table 2- Sample Size calculation of Anthropometry

Parameter	Nyal, Panyijiar County	Assumption/Justification
Estimated Prevalence (%)	10%	
Desired Precision	3.35	
Design effect	1	
Children to be included	**308**	
Average Household Size	6	
% children under 5	20%	
% Non-Respondents	5%	Expected non-response based on experience
Households to be assessed	**300 households**	**Minimum sample size-Households to be surveyed.**

Qualitative Data collection

Qualitative data collection included conducted with community leaders, community members, and implementing partners, as well as 10 key informant interviews (KIIs) conducted with community leaders, implementing partners, and community members. A secondary data review was conducted prior to the assessment to better understand inter-group relations, population movement dynamics, humanitarian presence, and service provision.

Table 3- Breakdown of qualitative data collection

Key Informant Interviews	
Community leaders KIs	3
Community members KIs	5
Implementing partner KIs	2

Assessment objectives

General objective

- To assess the severity of public health outcomes and identify initial public health priorities for humanitarian response to mitigate excess morbidity, malnutrition, and mortality in the seven selected sites of Nyal, Panyijiar County with a recall period of 90 days prior to data collection.

Health and Nutrition

- To estimate the proportion of the population with health care needs in the two weeks prior to data collection (any health care needs, unmet needs, needs by sex/age/symptom)
- To understand the main barriers for the target population in accessing health and nutrition services.
- To assess broad infant and young child breastfeeding and consumption patterns in emergency for children under 2 years of age.
- To identify any challenges for caregivers in infant and young child feeding practices.
- To estimate the proportion of children 6-59 years of age severely or moderately acutely malnourished by MUAC.
- To estimate the coverage of Vitamin A supplementation among children 6-59 months of age
- To estimate the coverage of measles vaccination among children 9-59 months of age
- To estimate the coverage of oral cholera vaccinations among people 5+ years of age
- To estimate the crude mortality rate of the assessed population since [recall date].

Food Security & Livelihoods

- To estimate the proportion of the target population experiencing food consumption gaps, both in terms of quantity and diversity.
- To estimate the proxy coverage of emergency food security interventions in the target population.
- To understand the availability and utilisation of food at the household level.
- To understand the main barriers for the target population in accessing food.
- To estimate the proportion of the population using livelihood-based coping strategies to access food, or other basic needs, and their severity.

Water, Sanitation, and Hygiene

- To estimate the proportion of the population with access to improved sanitation facilities
- To understand the main barriers for the target population in accessing water.
- To assess the functionality of water points used by the target population in the community and at health or nutrition facilities.
- To estimate the proportion of households with access to basic WASH NFIs.

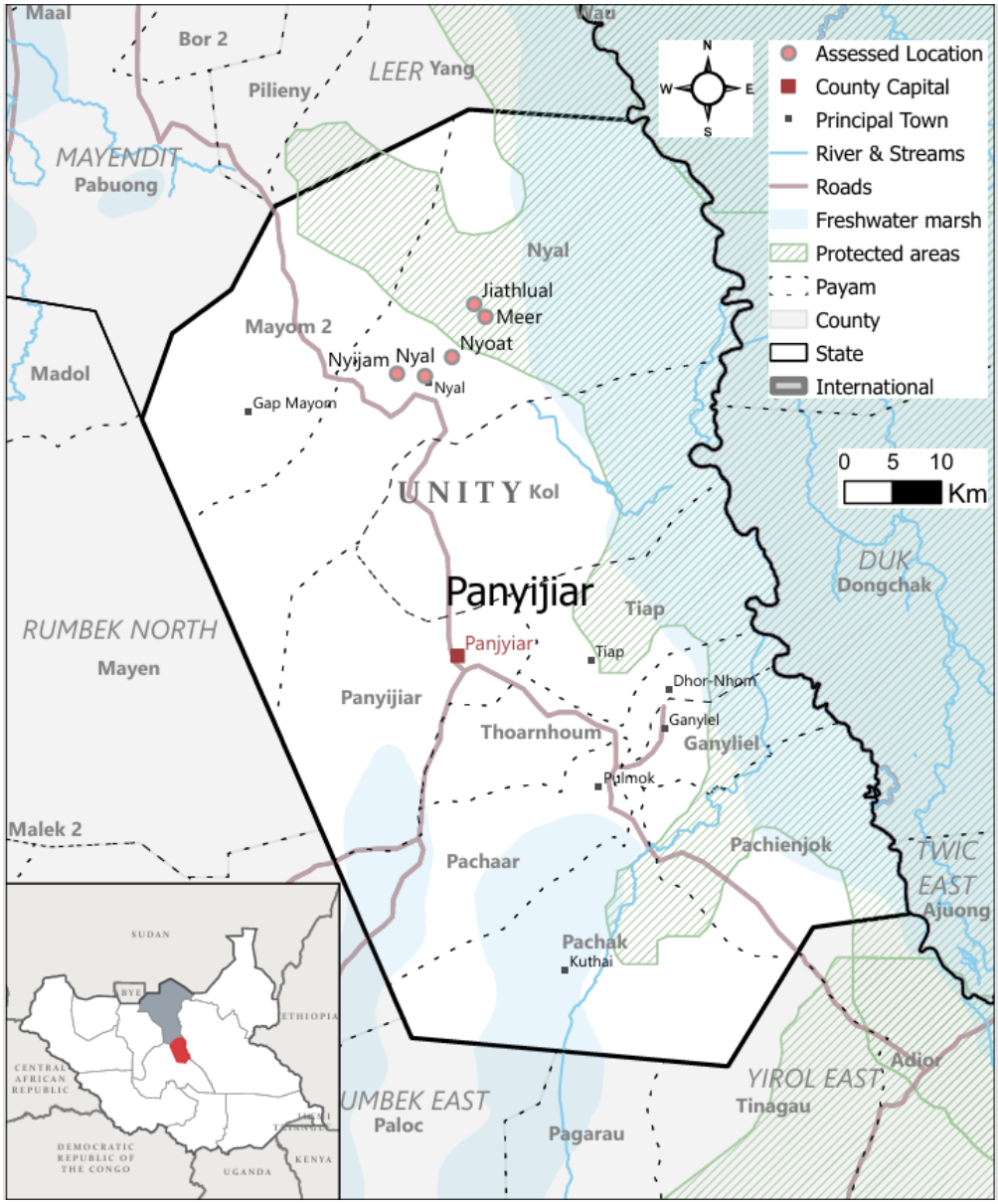
Shelter and NFIs

- To assess the main shelter types being used by the population.
- To assess the prevalence of shelter damage among the population.
- To estimate the proportion of the population with access to critical non-food items (soap, mosquito nets, water treatment tablets, blankets, tarpaulin, cooking supplies, jerry cans, etc.)

Geographical scope

Data collection was conducted across Nyal and the surrounding islands (Nyal, Meer, Nyijam, Nyoat, and Jiathual)

Figure 1- Map of assessed location



FINDINGS

Participant Demographics

The assessment surveyed a total of 301 households, comprising 1905 individuals. The household individual's composition had an uneven gender split, with most female individuals (59% or 1,128 individuals), compared to male individuals (41% or 777 individuals).

Age composition indicates that young children constitute a notable share of the population. Children aged 0–2 years account for 17%, while those aged 3–5 years represent 10%. This suggests a relatively young demographic profile with a significant number of dependents five and under years of age (27%).

Households in the surveyed population are generally large, with an average household size of six (6) members, indicating extended family structures. Regarding marital status of heads of households, the majority are married (88%). A smaller proportion are single (7%), while widowed (4%) and divorced (1%) household heads make up the remaining minority.

Table 4 - Participant Characteristics

Household-level data collection	Population (n)
Gender of household members	
Female	1128 (59%)
Male	777 (41%)
Age groups	
Children aged 0-2 years	329 (17%)
Children aged 3-5 years	196 (10%)
Household size	
Average household size	6
Head of household marital status	
Married	265 (88%)
Single	20 (7%)
Widowed	12 (4%)
Divorced	4 (1%)

Reported priority needs

Both household survey findings and KIIs consistently identify food assistance as the most urgent priority, reflecting widespread hunger and severe livelihood disruption. At the household level, 89% reported food as their priority, while KIs emphasized that many families can no longer meet basic consumption needs, making food insecurity the dominant concern.

Healthcare emerged as a critical second priority, with 35% of households ranking it second and 42% ranking it third. KI insights explain this trend, citing high levels of illness, snakebites, and limited access to medical services in flooded areas.

Shelter and WASH needs were mainly reported as second- and third-tier priorities, with households highlighting damaged homes, lack of shelter materials, contaminated water sources, and insufficient hygiene items. KIs further stressed the importance of dyke construction to protect land and reduce

flooding impacts, an essential structural need not fully captured in household rankings. Finally, livelihood support and mobility constraints, including the need for canoe transport, were highlighted as emerging priorities, particularly for recovery and access to services.

Table 5 - Priority Needs

Household level data collection	Population (n=301)
First priority need	
Food	89% (269)
Drinking water	1% (2)
Shelter materials (tarpaulin or other materials)	1% (2)
Clothing and blankets	1% (2)
WASH NFIs (soap, buckets, etc.)	3% (11)
Shelter repair support	1% (3)
Healthcare	4% (10)
Second priority need	
Shelter materials (tarpaulin or other materials)	20% (61)
Drinking water	9% (27)
Food	6% (19)
WASH NFIs (soap, buckets, etc.)	12% (37)
Shelter repair support	7% (20)
Healthcare	35% (106)
Cooking facilities (cooking gear, etc.)	1% (4)
Clothing and blankets	4% (11)
Livelihood support	4% (11)
Third priority need	
Shelter materials (tarpaulin or other materials)	8% (25)
WASH NFIs (soap, buckets, etc.)	7% (20)
Healthcare	42% (127)
Shelter repair support	13% (40)
Livelihood support	14% (41)
Clothing and blankets	2% (6)
Food	2% (6)
Cooking facilities (cooking gear, etc.)	2% (6)
Drinking water	7% (20)

Food Security and Livelihoods

The food security situation in Nyal Payam of Panyijiar County was assessed as severe, with evidence of large food consumption gaps and a widespread deterioration in household food access, availability and coping capacity. These outcomes represent a marked deterioration compared to conditions projected during the September 2025 IPC analysis period, which anticipated predominantly IPC AFI Phase 3 (Crisis) during the December 2025 to March 2026 with some households in Phase 4 (Emergency).[12]

[12] South Sudan: Acute Food Insecurity Situation for September - November 2025 and Projections for December 2025 - March 2026 and for April - July 2026

The convergence of quantitative indicators and qualitative findings points to a near-total collapse of livelihoods and households' ability to meet minimum food needs, with outcomes largely consistent with IPC AFI Phases 4 (Emergency) and pockets of households reporting gaps indicative of IPC AFI Phase 5.

Food consumption indicators reflect extremely poor dietary outcomes. Findings from the food consumption score (FCS)[13] indicated that 47% of households had poor FCS, characterised by very limited dietary diversity and low meal frequency, while 46% recorded borderline FCS. Only 8% of households reported acceptable food consumption. These results aligned with KIIs findings describing a near absence of reliable food sources, forcing households to rely on irregular and nutritionally inadequate foods.

Hunger indicators further confirm the severity of acute food insecurity. According to the Household Hunger Scale (HHS),[14] 47% of households experienced moderate hunger and 24% experienced severe hunger, marked by frequent food shortages and reduced intake. Notably, 29% of households were classified as experiencing very severe hunger, indicating extreme food deprivation and prolonged consumption gaps. These outcomes are consistent with IPC AFI Phase 5 (Catastrophe) conditions among a substantial proportion of the population.

Table 6 - Results of Food Security and Livelihood Indicators – part 1

Household-level data collection	Population (n=301)
Food Consumption Score (FCS)	
Acceptable	8% (23)
Borderline	46% (138)
Poor	47% (140)
Household Hunger Scale (HHS)	
None/slight	0% (0)
Little	0% (0)
Moderate	47% (140)
Severe	24% (73)
Very Severe	29% (88)
Reduced Coping Strategy Index (RCSI)	
High	48% (125)
Medium	52% (137)
Low	0% (1)
First food source	
Market (purchase cash or credit)	42% (130)
Gathering	24% (73)
Fishing	12% (35)
Borrowing/debts	9% (27)
Support from neighbours/relatives	8% (23)
Humanitarian food assistance	2% (5)
Second food source	
Gathering	32% (96)

[13] The FCS measures dietary diversity and frequency over a 7-day recall period, combining the consumption of different food groups into a single score.
[14] The Household Hunger Scale (HHS) is a household food deprivation developed to allow for cross-cultural comparisons. It classifies households into five categories, None (indicative of IPC AFI Phase 1), Slight (Phase 2), Moderate (Phase 3), Severe (Phase 4) and Very Severe (Phase 5). WFP, VAM Resource Centre.

Fishing	30% (89)
Market (purchase cash or credit)	11% (34)
Support from neighbours/relatives	11% (34)
Borrowing/debts	10% (29)
Battering	2% (5)
Humanitarian food assistance	2%) (5)

During KI interviews, respondents attributed these outcomes to the prolonged and compounding impacts of chronic flooding, which has submerged farmland for six to seven consecutive years. As a result, local food production has effectively collapsed, including the cultivation of sorghum, maize, vegetables, and other staple crops. KIs consistently reported that farmland has disappeared entirely, leaving households without access to traditional food sources. Concurrently, livestock holdings have collapsed, with cattle, goats, and sheep dying from flood-related diseases or being displaced to distant dry areas. Most of the KIs reported that households no longer own animals for milk, meat, or sale, further eroding food availability and income.

With both crop production and livestock lost, households now depend almost entirely on a narrow and fragile set of coping food sources. These include wild foods such as water lilies and keew, harvested from swamps, small-scale fishing where equipment is available, and occasional poultry. However, these sources provide minimal caloric value and are highly unreliable. Wild foods are seasonal and labour-intensive, often requiring two to three days of processing before consumption, while fishing is constrained by the widespread lack of canoes, nets, spears, and other gear, severely limiting daily catch.

Food access was further constrained by severe economic and physical barriers. KIs reported that market food prices have risen beyond households' purchasing power. In Nyal, a 50kg sack of maize flour costs approximately 540,000 SSP (90 USD), while a 3.5kg Malwa sells for 30,000–40,000 SSP (5 USD). With very limited income-generating opportunities available, reliance on markets reflects the collapse of alternative food sources, such as own production and livestock assets, rather than functional market access. As a result, markets are effectively inaccessible to most households even where food is nominally available.

Physical access constraints further compound these challenges. Flooding has destroyed roads and footpaths, isolating some communities on islands. For households without canoes, movement requires wading through chest-deep water, exposing individuals to significant safety risks and further limiting access to markets, fishing areas, and humanitarian assistance points. Women face particularly high risks due to long distances travelled through floodwaters to obtain food and other essential resources. Taken together, the combination of high market dependence, prohibitive prices, minimal incomes, and severe access constraints indicates a structural failure of household food access mechanisms, consistent with Emergency (IPC AFI Phase 4) outcomes.

Humanitarian food assistance, which might otherwise mitigate food consumption gaps, was reported to be irregular and insufficient during the last food distribution in September 2025. Since then, no further food distributions were reported at the time of data collection. Only 35% of households were registered for assistance, and just 7% reported receiving food assistance in the two weeks prior to the assessment. KIs described long gaps between distribution cycles, with communities reporting that the last general food distribution occurred in August 2025. Where assistance does reach households, rations were described as small, typically lasting one to two weeks, and inadequate to meet basic food needs of the households. Concerns regarding beneficiaries targeting and inequitable distribution were also raised, further weakening effective access.

Table 7 - Average number of days households across the population groups employed different coping strategies, in the 7 days prior to data collection

Household-level data collection	Population (n=301)
Reduced coping strategy index (rCSI)	
High	48% (125)
Medium	52% (137)
Low	0% (1)
Reduced coping strategy index (rCSI)	
Rely on lower-quality food	2.8
Borrowing	2
Reducing meal size	3
Reducing meals for adults	2.2
Reducing number of meals	2.6

Findings on the food-based coping strategies reinforces the results of severe acute food insecurity in Nyal. All surveyed households reported frequent use of consumption-based coping strategies and obtained scores indicative of medium (52%) or high (48%) (rCSI), with none reporting low coping levels.[15] Households reported repeatedly reducing meal sizes, skipping meals entirely, and relying almost exclusively on wild foods and fishing.

Table 8 - Results of Food Security and Livelihood Indicators – part 2

Household-level data collection	Population (n=301)
Main barriers to accessing food	
Not enough food is available	39% (260)
Transportation to food source too expensive	23% (153)
Live too far from food sources/no means of transport	22% (145)
Damage to the main source of food	13% (89)
Main source of income	
First main income source	
Selling of collected firewood, charcoal, wild foods	56% (170)
Fishing	15% (46)
Shopkeeper or trader	8% (24)
Daily labour-casual	4% (12)
Selling own-produced agricultural products	3% (8)
Daily labor – agricultural (farm, gardens, etc.)	3% (8)
Second main income source	
Fishing	37% (111)
Selling collected firewood, charcoal, wild foods	19% (57)
Daily labor – casual (petty trade, taxi, etc.)	11% (32)
Shopkeeper or trader	5% (15)
Remittances/support from family	5% (14)
Daily labor – agricultural (farm, gardens, etc.)	3% (8)

[15] The reduced Coping Strategies Index (rCSI) is an indicator used to compare the hardship faced by households due to a shortage of food. The index measures the frequency and severity of the food consumption behaviours the households had to engage in due to food shortages in the 7 days prior to the survey. Index results from 0-3 are indicative of IPC AFI Phase 1, results from 4-18 are indicative of IPC AFI Phase 2, and results over 19 are indicative of IPC AFI Phase 3 to 5. WFP, VAM Resource Centre; Integrated Food Security Phase Classification, Technical Manual

Loans from community	2% (7)
Main source of energy used for food preparation	
Firewood	100% (301)
Livelihoods Coping Strategies Index	
None	54% (163)
Stress	0% (0)
Crisis	1% (2)
Emergency	45% (136)
Households registered and receiving a general food distribution/cash/voucher	
Yes	35% (106)
No	65% (195)
Food security and livelihood assistance modality	
Food (in-kind)	5% (5)
Cash	16% (17)
Food (vouchers)	2% (2)

Livelihoods and Coping Strategies

The survey findings show that households heavily relied on natural resources and informal labour to meet their basic needs. The sale of firewood, charcoal, and wild foods remains the dominant primary income source for 56% of households, followed by fishing (15%), small trade (8%). Secondary income sources reflect a similar pattern, with fishing supporting 37% of households, followed by natural-resource sales (19%), casual labour (11%), small trade (5%), remittances (5%).

Qualitative findings from community members and leaders indicated a significant reduction in traditional livelihood activities, largely attributed to prolonged flooding and the loss of productive assets. With the traditional livelihood base eroded, only a small number of fragile and low-return activities remain. Fishing-related trade emerged as the most frequently reported activity, while other sources such as petty trade, local brewing, small-scale crop or vegetable sales, firewood and charcoal extraction, harvesting fencing materials, poultry keeping, and canoe transport, were mentioned only sporadically. These activities are practiced by very few individuals and contribute minimally to household or community income.

KIs further highlighted significant asset depletion as a major barrier to livelihood recovery. Households face widespread shortages of essential tools and inputs, including fishing equipment (nets, spears), transport assets (canoes, plastic sheeting), and tools for forest-based activities (axes, pangas, saws). The lack of start-up capital compounds these challenges. Additionally, long distances to remaining resource areas and security risks from snakes and wild animals, particularly in flooded zones, restrict mobility and limit opportunities for income generation.

Table 9- Different negative coping strategies adopted by households (disaggregated by severity)

Livelihood Coping Strategy	Category		% of HHs who have used or exhausted LCS (n = 301)		
Livelihood Coping Strategy	Category	Used LCS	Exhausted LCS	Total	N/A
Send household members to eat with another household	Stress	26%	11%	37%	8%
Sell more animals than usual for this time of year	Stress	22%	16%	38%	4%
Borrow money or purchase food on credit	Stress	37%	6%	43%	3%
Gather wild foods more than normal for this time of the year	Stress	27%	11%	38%	4%
Sell productive assets or means of transport (fishing net, hoe, axe, spear, hooks, wheelbarrow, bicycle, plough, etc.)	Crisis	24%	13%	37%	4%
Send more household members than normal to cattle and/or fishing camps	Crisis	14%	16%	30%	10%
Sell or eat seeds intended for planting this season	Crisis	37%	5%	32%	2%
Sell or slaughter the last of your cows and goats	Emergency	17%	16%	33%	9%
Travel to another village or cattle camp or fish camp to look for food	Emergency	38%	5%	33%	1%
Beg other community members for food	Emergency	22%	11%	33%	8%

The (LCSI) measures the share of the population that adopted coping strategies of varying severity in the 30 days prior to data collection or exhausted them within the 12 months prior to the assessment. Findings indicate widespread use of negative coping strategies to meet food needs. Overall, 54% of households reported using at least one emergency coping strategy as their most severe livelihood coping response, while 1% reported crisis-level coping strategies. A further 54% of households reported not using any livelihood coping strategies. This should be interpreted with caution, as non-use in the module typically implies no perceived food stress. Given the convergence of other indicators showing severe food consumption gaps and livelihood collapse, the high share of "no" or "not applicable" responses likely reflects limited applicability or misunderstanding of the coping strategies module in this context, particularly where households lack access to the assets or options required to engage in the strategies captured.

Water, Sanitation, and Hygiene

The survey findings show that access to improved water sources is relatively high, with 79% of households reporting reliance on an improved source. When assessed through the WHO/UNICEF Joint Monitoring Programme (JMP) drinking-water service ladder, this suggests that a large share of households fall within the basic drinking-water service category, given that physical accessibility also appears adequate, with 83% of households able to collect water within 30 minutes of their dwelling.[16]

In terms of storage, nearly all households (97%) reported having containers for water collection and storage, with an average of two containers per household. This suggests that most families are equipped to safely collect and store water for daily use. However, despite these positive indicators,

[16] WHO/UNICEF: Joint Monitoring Programme (JMP)

water safety remains a significant concern: 79% of households do not treat their water before consumption, increasing their exposure to waterborne diseases.

KIIs indicated severe challenges in many assessed locations outside Nyal town. In these areas, functioning boreholes were often absent, and where they do exist, the water quality is poor, forcing households to rely on floodwater or swamp water. KIs reported that several boreholes have been submerged or damaged by recurrent flooding, leaving communities with no viable alternative for safe water. A community leader in Nyijam explained that their only borehole was submerged due to floods and all the equipment sank down. Likewise, participants in Nyoat and Kairuel noted that their islands don't have boreholes and depend entirely on the surrounding swamp water.

Water quality concerns were consistently raised by KIs. Swamp, river, and floodwater, primary drinking sources for many island communities, are widely reported to be contaminated with human waste, animal faeces, and decomposing remains. A KI from Nyal stated that the surface water is contaminated with human and animal waste. In Nyijam, leaders reported that human waste is dumped into the swamps, and the same water is used for drinking. Even where boreholes remain present, such as in parts of Kairuel, the water is considered unsafe.

Table 10 - Results of Water, Sanitation, and Hygiene

Household-level data collection	Population (n=301)
Main source of drinking water	
Improved (public tap, borehole, etc.)	79% (237)
Non-improved (surface water like river, stream, etc.)	21% (62)
Main water treatment methods	
No treatment	74% (224)
Filter cloth	10% (30)
Chlorine tablet / Aqua tab	10% (29)
Boil water	6% (17)
Households with access to functioning latrines	
Open defecation	83% (251)
Pit latrine with slab	9% (26)
Pit latrine without slab/open pit	8% (23)
Households with access to soap	
No soap in the house	97% (292)

Sanitation conditions are critically poor across the assessed areas. A significant majority of households (83%) reported having no access to a functioning latrine, resulting in widespread open defecation. Field observations confirmed open defecation occurring within homesteads, along the dyke, and directly into surface water sources, the sources relied upon by at least 20% of the population for drinking. These practices pose severe public health risks by contaminating water sources and increasing the likelihood of waterborne disease outbreaks.[17]

KIs noted that the collapse of latrine structures is driven largely by flooding. Because latrines are typically constructed on lower ground, many have been submerged or destroyed. KIs reported having no tools, materials, or financial means to rebuild even basic emergency latrines. Floodwaters have also restricted movement, preventing access to potential construction materials sites and hindering rehabilitation efforts.

[17] UNICEF: Sanitation is essential to children's survival and development.

Hygiene service availability is critically low across all assessed locations. An overwhelming 97% of households reported lacking access to soap, significantly limiting their ability to maintain basic hygiene practices such as bathing and handwashing. KIs consistently emphasized the absence of hygiene inputs across communities. Furthermore, KIs mentioned that women and girls face heightened vulnerabilities due to the widespread lack of sanitary materials. This situation undermines dignity, restricts mobility, and limits participation in daily activities, particularly during menstruation, exacerbating protection and gender-based risks. KIIs also highlighted unsafe disposal of child faeces as a widespread practice. With the environment heavily saturated due to flooding and many latrines collapsed or non-functional, caregivers frequently resort to disposing of child waste in open areas. This practice has significantly increased environmental contamination, further elevating the risk of diarrhoeal disease transmission in already high-risk settings.

Nutrition

The Mid-Upper Arm Circumference (MUAC) measurements were conducted to determine the prevalence of global acute malnutrition (GAM) among children aged 6–59 months. Acute malnutrition was classified using the WHO standard MUAC cut-off[18]: SAM as MUAC <115 mm, MAM as MUAC 115–<125 mm, and GAM as MUAC <125 mm and/or the presence of bilateral pitting oedema. GAM estimates are reported using age-adjusted weighted results generated with the CDC Excel MUAC calculator, which accounts for the relative representation of children under two years and those aged two to five years in the sample.[19]

MUAC screening of 372 children aged 6–59 months indicated a medium burden of acute malnutrition, with a GAM prevalence of 6.7% (95% CI: 4.3–9.4), composed of 5.6% CI 95 (3.5 to 8.1) Moderate Acute Malnutrition (MAM) and 1.1% CI 95 (0.3 – 2.2) Severe Acute Malnutrition (SAM).

This level of acute malnutrition reflects nutritional vulnerability, suggesting that malnutrition is widespread among children under five in the assessed population. The observed prevalence points to a progressively deteriorating nutrition situation, likely driven by high levels of childhood morbidity, widespread household food insecurity, and poor water, sanitation, and hygiene (WASH) conditions. These underlying factors continue to heighten the risk of acute malnutrition and compromise child health and survival.

The proxy GAM by MUAC 6.7%; (95% CI: 4.3–9.4) indicates a serious nutrition situation. Based on established relationships and trend analyses in South Sudan between MUAC-derived and weight-for-height Z-score (WHZ) estimates, the true GAM by WHZ is estimated to be likely above 10%.

Table 11-Prevalence of acute malnutrition based on MUAC cut offs and/or oedema, by sex

Data collection method	All N= (372)	Boys N= (178)	Girls N= (194)
Prevalence of global acute malnutrition (≥125 mm and/or oedema)	93.3% (347)	93.8% (167)	92.8% (180)
Prevalence of moderate acute malnutrition (=115 mm, no oedema)	5.6% (21)	3.9% (7)	7.2% (14)
Prevalence of severe malnutrition (< 115 mm and/or oedema)	1.1% (4)	2.2% (4)	0.0% (0)

[18] WHO standard MUAC cut-off
[19] U.S. Centers for Disease Control and Prevention (CDC). *MUAC-for-Age Tools and Calculators (Excel-based).*

Infant and Young Child Feeding Practice (IYCF)

Proper feeding of infants and young children can increase their chances of survival and promote optimal growth and development, especially in the critical window from birth to two years of age.[20] The findings of the survey are presented in the following tables, graphs, and discussions. Information on child feeding practices was gathered for all children aged 0–23 months and analysed as described below. The sample sizes obtained for Infant and Young Child Feeding (IYCF) practices in this survey were small (N=137), so the results should only be viewed as indicative rather than representative of the broader population's knowledge and practices.

The individual-level data indicates that breastfeeding practices remain high, with 93% (95% CI: 88.3–97.1) of children reported to have been breastfed the previous day. Among the small number of children did not breastfeed, the most common reason was that the mother was pregnant (50%), followed by lack of breastmilk (6%) and the child being fed with other breastmilk substitutes (6%).

In terms of foods consumed, breast milk accounted for more than half (52%) of all reported food types, underscoring its central role in infant diets. However, consumption of other nutrient-dense food groups was limited, with relatively low intake of dairy products (9%) and eggs (5%). This pattern indicates that many children are not consuming a sufficiently diverse range of food groups, suggesting low attainment of Minimum Dietary Diversity (MDD) among children receiving complementary foods. Households reported multiple constraints affecting complementary feeding practices. The most frequently cited barriers were lack of money (38%) and high food prices (35%), highlighting severe economic limitations to accessing nutritious foods. Additional challenges included limited information on infant and young child feeding (14%) and child illness or low appetite (5%), further constraining appropriate feeding practices. Taken together, these factors point to poor achievement of the Minimum Acceptable Diet (MAD), reflecting both inadequate dietary diversity and insufficient overall diet quality and quantity among young children.

Table 12 - Results of Nutrition Indicators – part 1

Individual-level data collection	Population (n)
Child breastfed yesterday during the day or night by sex	
Overall	93% (134)
Female	96% (54)
Male	90% (73)
Reasons for not breastfeeding	
Mother is pregnant	50% (8)
Mother has no milk	6% (1)
Child fed other breastmilk substitutes	6% (1)
Food types consumed by children	
Breast milk	52% (128)
Dairy products (milk, infant formula, yogurt, cheese)	9% (21)
Eggs	5% (12)
Challenges households faced with the complementary feeding of the child	
Lack of money/financial barriers to buy food	38% (119)
High food prices/food is expensive	35% (110)
Lack of adequate information on IYCF	14% (43)
Child is sick/has a low appetite	5% (16)

[20] Infant and Young Child Feeding, WHO, December 2023.

Health

Morbidity levels among the assessed population were high, with 53% of individuals reporting illness in the two weeks prior to the survey. Children under five were the most affected, with 60.9% experiencing illness. Additionally, 13% of individuals reported unmet health care needs during the same period. The most reported symptoms were fever (75%), cough (35%), and diarrhoea (29%), indicating a high burden of communicable diseases.

Findings from KIIs aligned with household data. Waterborne diseases were identified as the most widespread health concern, largely due to heavy reliance on contaminated surface water for domestic use. Some KIs also reported skin infections, commonly linked to prolonged exposure to stagnant floodwaters. Malaria remains a persistent and severe health problem, exacerbated by frequent drug stockouts as reported by health facility KIIs. Acute respiratory infections were less frequently reported but were associated with overcrowding and exposure to cold conditions.

Access to health care was constrained by multiple barriers. Over half of households (52%) cited inability to afford medication, driven by rising costs. Long waiting times (49%) and distance to health facilities (27%) were also key obstacles limiting timely access to care.

Furthermore, KIIs reported that the area is served by only one PHCC, which is insufficient for the population, particularly for island and remote communities who face severe access constraints. Drug stockouts, including antimalarials, antibiotics, and ORS were widely reported, with no supplies received in the seven months prior to data collection. Health services are further weakened by a shortage of qualified staff, the absence of a doctor, and lack of emergency obstetric care at the time of data collection. Emergency referral transport is unavailable under the current HSTP, and private transport costs are unaffordable, limiting timely referrals to Leer or Ganyliel. Limited diagnostics, seasonal flooding, lack of functional lighting, and the withdrawal of NGOs further restrict service delivery, while outreach to remote islands remains minimal or absent. The PHCC lacks a functioning lighting system, reducing operating hours and emergency response. Outreach services to remote islands are minimal or absent.

Table 13 - Results of Health Indicators – part 1

Individual-level data collection	Population (n)
Individuals within households who reported being sick during the two weeks prior to data collection	(n = 1904)
Overall	53% (1008)
Female	59% (663)
Male	44% (345)
Main symptoms reported in the past 2 weeks	(n = 1008)
Fever	75% (753)
Cough	35% (348)
Diarrhoea	29% (290)
Fast and difficulty breathing	10% (98)
Eye infection or red eyes	6% (62)
Skin infection	5% (46)
Individuals reporting unmet healthcare needs, by % of individuals with a health problem in the two weeks prior to data collection	(n = 1008)
Overall	13% (131)
Female	13% (87)
Male	13% (44)

Household-level data collection	
Main barriers to accessing healthcare	(n= 301)
Could not afford the cost of medication (price increased)	52% (157)
Long waiting time for the service	49% (146)
Health facility is too far away	27% (82)
Could not afford the cost of medication (at regular price)	26% (79)
Specific service sought unavailable	15% (37)
Not enough staff at health facility	11% (33)
No means of transport	10% (30)

Despite these challenges, preventive child health services show relatively strong coverage. Coverage levels for cholera vaccination (70%), measles vaccination among children aged 9–59 months (77.9%), and vitamin A supplementation (88.9%) indicate that outreach and routine preventive services continue to function effectively. However, these coverage still levels fall below the recommended SPHERE standards of 95% for measles vaccination and vitamin A supplementation and 90% for cholera vaccination.[21]

Therefore, overall, the findings reflect a population facing high preventable morbidity, particularly among young children, driven by limited access to curative services and essential supplies. While preventive programming has mitigated some risks, strengthening curative care, supply chains, referral systems, and outreach to hard-to-reach areas remains critical to improving health outcomes and preventing excess illness.

Table 14 - Results of Health Indicators – part 2

Individual-level data collection	Population
Children 6-59 months who received vitamin A supplementation during the six months prior to data collection	
Overall	89% (362)
Female	90% (191)
Male	88% (171)
Children 9-59 months who received the measles vaccination	
Overall	78% (299)
Female	81% (165)
Male	74% (134)
Participants who have received oral cholera vaccination	
Overall	70% (1202)
Female	68% (710)
Male	73% (491)
Households having access to healthcare within one hour by their normal means of transportation	
Yes	54% (163)

Mortality

The assessment findings show an elevated Crude Mortality Rate (CMR) of 1.211 deaths per 10,000 persons per day, exceeding the emergency threshold. The 95% CI (0.694–1.729) indicates that true mortality may be substantially higher, reflecting a clear public-health concern. In contrast, the Under-Five

[21] Sphere standards handbook 2018

Mortality Rate (U5MR) was indicatively 0.757 deaths per 10,000 children under five per day, however, the wide 95% CI (0.103–1.616) means low certainty of the result. Analysis of mortality patterns shows that approximately 95% of reported deaths were non-trauma related. Community member KIs highlighted several critical factors contributing to elevated mortality risk. Water-contamination-related mortality was the most prominent concern. Extensive flooding and stagnant surface water have forced households to rely on unsafe drinking sources, increasing exposure to life-threatening diarrheal diseases such as cholera.

Table 15 – Mortality rates

Population	Mortality Rate (/10,000/Day)	Design Effect
Overall	1.211 (0.694-1.729)	1.00
U5dr	0.757 (0.1.3-1.616)	1.00
Male	1.481 (0.57-2.393)	1.00
Female	1.025 (0.393-1.656)	1.00

Shelter

Findings indicated that households are predominantly living in Tukul structures (64%), with a significant proportion residing in Rakooba shelters (27%), which are more temporary and structurally fragile. Across both shelter types, conditions are poor: 98% of households reported at least one shelter-related issue, with common problems including major roof damage (51%), damaged walls (46%), damaged floors (40%), and leaks during rain (28%).

Across the assessed locations in Nyal, Nyoat, Kairuel, and Nijiam, KIs reported widespread shelter inadequacy, primarily driven by prolonged flooding. Floodwaters have submerged or destroyed traditional building materials, including thatching grass, poles, and trees leaving people unable to rebuild or maintain their homes. KIs noted that thatching grass has "disappeared" after years of flooding and that any remaining materials are now far from settlements and accessible only through swamp, requiring transport that is either costly or unavailable for most people. Most people rely on old, torn plastic sheets, many distributed in 2022 or earlier, with some KIs reporting their last shelter NFIs in 2018. Lack of money further restricts households' ability to improve their shelters; most KIs reported being unable to afford plastic sheets and shelter materials due to high market prices and near-total livelihood collapse. Shelter overcrowding is common, especially on the islands where land is limited. Some households host displaced relatives, and some reported up to three families sharing a single hut, reducing privacy and increasing disease transmission risks.

Table 16 - Results of Shelter Indicators

Individual-level data collection	Population (n=301)
Types of shelter	
Tukul[22]	64% (209)
Rakooba (Rectangular-shaped grass roof house)[23]	27% (8)
Unfinished / non-enclosed building	1% (4)

[22] It is typically constructed using local materials such as mud or earth for the walls, wooden poles or branches for support, and a thatched grass roof. Tukuls are often used as permanent or semi-permanent shelters.
[23] A **rakooba** is a temporary or semi-permanent shelter structure, usually built using wooden poles for the frame and covered with materials like grass, plastic sheeting, or iron sheets.

None (sleeping in open)	1% (2)
Shelter issues	
Major damage to the roof	51% (151)
Damage to walls	46% (138)
Major damage to the floors	40% (119)
Damage to windows / doors	36% (107)
Leaks during rain	28% (83)

DISCUSSION

The assessment findings demonstrate a clear convergence of public health risk factors that together explain the elevated morbidity, malnutrition, and mortality observed in Nyal Payam. Prolonged and recurrent flooding has fundamentally altered the living environment, destroyed productive livelihoods, and severely disrupted access to basic services, leaving the population trapped in a cycle of vulnerability.

Food insecurity emerges as the most critical underlying determinant. Nearly all households reported poor or borderline food consumption, severe hunger, and reliance on emergency coping strategies. The collapse of agriculture and livestock production, combined with inflated market prices and physical isolation, has eliminated households' ability to meet minimum dietary needs. These consumption gaps directly contribute to malnutrition and weaken immunity, particularly among children, increasing susceptibility to illness and death.

The nutrition situation, while classified as medium by MUAC (GAM 6.4%), should be interpreted with caution. Given the severe food insecurity, high burden of childhood illness, and poor WASH conditions, the proxy GAM suggests that malnutrition measured by WHZ could exceed 10%, indicating a potentially serious nutrition emergency. Without timely intervention, malnutrition levels are likely to rise further, particularly during the coming lean and rainy seasons.

The WASH crisis is a central driver of morbidity and mortality. Although some households report access to improved water sources, the lack of water treatment, extensive open defecation, collapsed latrines, and near-absence of soap have created an environment highly conducive to disease transmission. The strong association between under-five deaths and diarrhoea disease underscores the urgent need for WASH interventions as a life-saving priority.

Health system constraints further exacerbate these risks. While vaccination and preventive outreach remain comparatively strong, curative health services are insufficient to meet population needs. Drug stockouts, inadequate staffing, lack of diagnostics, and absence of functional referral mechanisms severely limit timely treatment, especially for remote island communities. These gaps help explain why most deaths were non-trauma related and potentially preventable.

Overall, the severity of public health outcomes cannot be attributed to a single sector. Instead, they reflect interacting shocks across food systems, water and sanitation, health service delivery, and livelihoods, all intensified by environmental hazards and physical isolation.

Table 17- Comparison between IPHRA Core Indicator Thresholds

Category	Domain	Evidence	Standard (If applicable)	Severity Population
Health Outcomes	Mortality	CMR: 1.211 deaths per 10,000 persons per day (Emergency) 95% CI: 694 – 1.729 U5MR: 0.757 deaths per 10,000 under-5 persons per day (below the emergency threshold) 95% CI: 0.103 – 1.616	1 death per 10,000 per day; 2 under-5 deaths per 10,000 per day	**High**
	Malnutrition	Based on MUAC results: SAM: 1.1% MAM: 5.6% GAM: 6.7%	>5-<10% GAM MUAC default	**Medium**
	Morbidity	53% of individuals have been sick in the last 2 weeks. 61% of under-5 children were sick in the last 2 weeks. 13% of individuals with any health care need in the last 2 weeks	>20% people with any health care need in 2 weeks	**Medium**
Immediate Drivers	Individual food consumption	93% of children under 2 breastfed during the day and night yesterday	>60% of infants breastfeeding until two years of age	**Low**
	Individual water consumption	Not available	15 lpd for all purposes	Not assessed
Direct Contributing Factors	Household Food Security	Indicative IPC Phase 4 Emergency. Severe reliance on unstable food sources, such as wild food and fish.	20% Severe and Very Severe hunger Very few households acceptably diverse food consumption (<40% Acceptable FCS or High HDDS) >80% Household convergence Matrix classification of P3, P4 or P5 Survival food sources or mainly for aid	**High**
	Household Water Security	93% of households have at least 2 water containers for collection and storage	At least 2 water containers per household for collection and storage	**Low**
	Household water consumption (quality)	79% of households reporting reliance on improved		**Low**
	HH Assets and Coping	Livelihood Coping Strategy Index (LCSI) results show that 45% of households are employing emergency coping strategies Main source of income: 56.5% sell firewood and 15.3 fishing	Most households are relying on humanitarian assistance, begging, or other severe coping strategies (>50%) Exhausted, Survival income sources or mainly aid	**High**
	Living Conditions	18% of households report major damage to shelter		**Low**

Indirect Contributing Factors	Natural and built environment	Approximately 83.4% of households reported no access to a functioning latrine, resulting in widespread open defecation.	Most households have access to a latrine (80%)	**High**
	Market Functionality	Market barriers reported by households (lack of transport (41.5%), long distances (39.9%), and flooded roads (30.9%) Purchasing barriers (91% lack of money, 86.4% high prices, and 71.4% limited availability of goods)		**High**
	WASH Service Adequacy	82.7% of households can collect water in 30 minutes	Some households can fetch water within 30 minutes (50-<80%)	**Low**
	Health Service Adequacy	13% of individuals have unmet healthcare 54.2% of households can access a health facility within 1 hr 70% of individuals over five years had received a cholera vaccination, 78% of children aged 6–59 months had received a measles vaccine, and 89% of children aged 6–59 months received vitamin A supplementation in the past 6 months.	>20% of individuals with an unmet healthcare need; At least 80% of population access healthcare in 1 hour; 95% measles vaccination coverage; 95% coverage of vitamin A doses within last 6 months	**Medium**
	Nutrition Service Adequacy	Not available	>90% CMAM coverage in formal camp setting	**Not assessed**
Integrated Analysis Score (High =5; Medium = 3; Low = 5) **High** – Indicates the population is currently experiencing emergency levels, or risk of emergency levels, of public health outcomes (morbidity, malnutrition, or mortality) **Medium** – Elevated but not necessarily emergency levels of public health outcomes **Low** – Non-emergency or elevated levels of public health outcomes.				**High severity of 5 elements**
Risk of Excess Mortality Statement: High severity public health situation, driven by emergency-level crude mortality and widespread preventable disease in a context of extreme food insecurity.				

CONCLUSION AND RECOMMENDATIONS

The public health situation in Nyal Payam, Panyijiar County is critical and worsening, marked by excess mortality, widespread preventable illness, acute food insecurity, unsafe water and sanitation conditions, and fragile health service delivery. The assessment confirms that the population, particularly children under five, is facing a high risk of further morbidity, disease outbreaks, and excess mortality. Without immediate, integrated, and adequately resourced multi-sectoral interventions, current conditions are likely to deteriorate further, especially with the continuation of flooding and seasonal disease risks. Life-saving priorities include large-scale food assistance, emergency WASH interventions, strengthened curative health and referral services, and nutrition support, alongside measures to restore livelihoods and physical access.
Addressing these interconnected drivers simultaneously is essential to stabilize public health outcomes, prevent avoidable deaths, and protect the most vulnerable groups in the months ahead.

Table 18 - Recommendations

Risk of Excess Mortality Dimension	Severity	Period	Recommendation
Household Food Consumption	**High**	Short-term	Improve the coverage of FSL interventions by scaling up emergency food assistance with adequate coverage, frequency, and ration sizes to address extreme acute food insecurity (IPC AFI Phase 4 with pockets of Phase 5)
Livelihoods	**High**	Short term	Most households across all population groups reported lacking access to fishing equipment. Provide livelihoods interventions like fishing nets and canoes to sustain and improve access to food and livelihoods.
Sanitation and Hygiene	**High**	Medium-term	Noting that 83% of the households practice open defecation, and that 97% households lack access to soap and lack of sanitary and materials, recommend that emergency sanitation, and hygiene supplies, including soap, to reduce diarrhoeal disease and prevent outbreaks during the lean season
Health Service Adequacy	**Medium**	Medium-term	Noting that 45% of households reported to reach a healthcare facility more than 1 hour, recommend to prioritize health service interventions that will increase access in the assessed area. Particular attention could be paid to children under 2, whose measles vaccination and vitamin A supplementation rates were lower than the recommended thresholds.
Nutrition service adequacy	**Medium**	Short-term	Given the high rates of children with malnutrition and low rates of CMAM coverage, recommend to scale up nutrition service interventions in the assessed population.

ANNEXES

References

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3. WHO: Public Health Situation Analysis (PHSA)
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9. South Sudan: Acute Food Insecurity Situation for September - November 2025 and Projections for December 2025 - March 2026 and for April - July 2026
10. International Medical Corps: Situation update: South Sudan flood emergency. September 9, 2025
11. Ibid
12. South Sudan: Acute Food Insecurity Situation for September - November 2025 and Projections for December 2025 - March 2026 and for April - July 2026
13. The FCS measures dietary diversity and frequency over a 7-day recall period, combining the consumption of different food groups into a single score.
14. The Household Hunger Scale (HHS) is a household food deprivation developed to allow for cross-cultural comparisons. It classifies households into five categories, None (indicative of IPC AFI Phase 1), Slight (Phase 2), Moderate (Phase 3), Severe (Phase 4) and Very Severe (Phase 5). WFP, VAM Resource Centre.
15. The reduced Coping Strategies Index (rCSI) is an indicator used to compare the hardship faced by households due to a shortage of food. The index measures the frequency and severity of the food consumption behaviours the households had to engage in due to food shortages in the 7 days prior to the survey. Index results from 0-3 are indicative of IPC AFI Phase 1, results from 4-18 are indicative of IPC AFI Phase 2, and results over 19 are indicative of IPC AFI Phase 3 to 5. WFP, VAM Resource Centre; Integrated Food Security Phase Classification, Technical Manual
16. WHO/UNICEF: Joint Monitoring Programme (JMP)
17. UNICEF: Sanitation is essential to children's survival and development.
18. WHO standard MUAC cut-off
19. U.S. Centers for Disease Control and Prevention (CDC). MUAC-for-Age Tools and Calculators (Excel-based).
20. Infant and Young Child Feeding, WHO, December 2023.
21. Sphere standards handbook 2018
22. It is typically constructed using local materials such as mud or earth for the walls, wooden poles or branches for support, and a thatched grass roof. Tukuls are often used as permanent or semi-permanent shelters.
23. A **rakooba** is a temporary or semi-permanent shelter structure, usually built using wooden poles for the frame and covered with materials like grass, plastic sheeting, or iron sheets.

Analysis

The household data were cleaned and analysed using IPHRA R scripts, which were developed by IMPACT HQ. Various statistics have been computed on the data, including percentages, means, and medians. The analysed data were presented in both tabular and Excel files. KIIs analysis was conducted using the REACH Data Saturation Analysis Grid (DSAG). The quantitative data were cleaned and analysed two days after data collection, and preliminary findings were drafted and shared with key partners, including donors, within seven days after the last day of data collection.

Limitations

The IPHRA methodology is intended to be a lightweight method to assess the most key public health outcomes and service coverage indicators compared to other more robust methods. Given the suggested IPHRA methods, there are several key limitations:

- **Not a causal analysis** – The IPHRA method intends to understand the severity of public health needs and service gaps, however given this focus it may not fully explain the reasons or causes of the results. Some analysis and triangulation with qualitative components may give an indication, but it will likely be limited.
- **Not-generalizable** – Cluster sampling approaches are not recommended for IPHRA assessments. The allowance of purposive sampling means that results (although representative per strata) shouldn't be generalized to a wider population beyond the sites and facilities assessed.
- **Likely not reaching saturation** – For the qualitative components, sample sizes are likely not adequate to reach a full saturation of responses in the population. The intent of these is to provide some light-touch information to triangulate with household survey results.

For more information on the research design, refer to the Terms of Reference.