

SMART+ Survey Report

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East Wollega Zone, Ethiopia

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Full Smart

Validated

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Acronyms

ACF	Action Against Hunger
AFI	Acute Febrile Illness
ARI	Acute Respiratory Infection
BoF	Bottle Feeding
CBF	Continued Breastfeeding
CDR	Crude Death Rate
CI	Confidence Interval
CLTS	Community-Led Total Sanitation
CMAM	Community Management of Acute Malnutrition
DEFF	Design Effect
DRMB	Disaster Risk Management Bureau
DRMC	Disaster Risk Management Commission
EBF	Exclusive Breastfeeding
ENA	Emergency Nutrition Assessment
FCDO	Foreign, Commonwealth & Development Office
FCS	Food Consumption Score
FEWSNET	Famine Early Warning Systems Network
GAM	Global Acute Malnutrition
HAZ	Height-for-Age Z-score
HH	Household
HSF	Hanger Maize, Sorghum & Finger Millet Livelihood Zone
IPC	Integrated Food Security Phase Classification
ISSSF	Introduction of Solid, Semi-solid or Soft Foods
IYCF	Infant Young Child Feeding
MAD	Minimum Acceptable Diet
MAM	Moderate Acute Malnutrition
MDD	Minimum Dietary Diversity
MixMF	Mixed Milk Feeding
MMF	Minimum Meal Frequency
MUAC	Mid/Upper Arm Circumference
ORS	Oral Rehydration Solution

OTP	Outpatient Therapeutic Program
PLW	Pregnant and Lactating Women
PPS	Probability Proportion to Size
PSU	Primary Sampling Unit
rCSI	Reduced Coping Strategy Index
RENCU	Regional Emergency Nutrition Coordination Unit
SAM	Severe Acute Malnutrition
SBCC	Social Behavior Change Communication
SMART	Standardized Monitoring and Assessment for Relief and Transitions
SOP	Standard Operating Procedures
SwB	Sweet Beverage Consumption
TSFP	Targeted Supplementary Feeding Program
U5DR	Under Five Death Rate
UFC	Unhealthy Food Consumption
UNICEF	United Nations Children's Fund
WASH	Water, Sanitation and Hygiene
WHO	World Health Organization
WHZ	Weight-for-Height Z-score
ZVF	Zero Vegetable and Fruits

Executive Summary

Introduction

The SMART+ Nutrition Survey was conducted by the REACH Initiative in the lowland areas of the East Wollega zone, located in the Oromia region. Nine out of fourteen planned districts were assessed, and they include, Boneya Boshe, Diga, Gudaya Bila, Guto Gida, Leka Dulechca, Nunu Kumba, Sasiga, Sibu Sire and Wama Hagalo. The survey was carried out from August 19 to 29, 2024, which coincided with the lean season. The **primary objectives** of the survey were to assess the nutritional status of children aged 6-59 months, crude mortality, and under-five mortality. Additionally, the morbidity patterns of children, infant and young child feeding practices (IYCF) for children aged 0-23 months, and the household food security, water sanitation, and hygiene situations, as well as the nutrition status of women of reproductive age, including pregnant and lactating women, were also assessed in the nine districts of the East Wollega zone.

Methodology

A cross-sectional household survey was conducted in nine districts of the lowland East Wollega zone to gather data on nutrition, mortality, food security, livelihood, and WASH indicators. A twostage cluster sampling method based on the SMART methodology was used. Clusters were first selected randomly with probability proportional to size (PPS) to ensure equal chances of selection for village. Clusters, defined as Gare (the smallest village unit with up to 30 households), were then sampled in the second stage using simple random sampling. The sample size, calculated with the SMART+ integrated platform considering parameters like estimated prevalence, household size, design effect, precision, child percentage, and non-response rate, totaled 815 households (465 children) to ensure representativeness. Ultimately, 75 clusters were chosen, each including 11 households, leading to data from 69 clusters (95% of planned), covering 750 households and 783 children (aged 6-59 months) with a non-response rate of 0.9%.

Child Nutritional Status Outcomes			
Indicator	Denominator (N)	Numerator (n)	Result (95% CI)
GAM prevalence among children 6-59 months per WHZ < -2SD*	610	62	10.2% (7.3%, 14.0%)
SAM prevalence among children 6-59 months per WHZ < -3SD	610	14	2.3% (1.1%, 4.8%)
GAM prevalence among children 6-59 months per MUAC <125 mm	618	49	7.9% (5.3%, 11.8%)
SAM prevalence among children 6-59 months per MUAC <115 mm	618	23	3.7% (2.1%, 6.6%)
Combined GAM prevalence among children 6-59 months per WHZ < -2SD or MUAC <125 mm	619	82	13.2% (9.9%, 17.6%)

Table 0-1: Summary of Findings

Child Nutritional Status Outcomes				
Indicator	Denominator (N)	Numerator (n)	Result (95% CI)	
Combined SAM prevalence among children 6-59 months per WHZ < -3SD or MUAC <115 mm	619	27	4.4% (2.4%, 7.7%)	
Stunting among children 6-59 months per HAZ < -2SD	598	221	37.0% (32.0%, 42.2%)	
Severe stunting among children 6-59 months per HAZ < -3SD	598	81	13.5% (10.3%, 17.5%)	
Underweight among children 6-59 months per WAZ < -2SD	604	129	21.4% (17.4%, 25.9%)	
Severe underweight among children 6-59 months per WAZ < -3SD	604	40	6.6% (4.6%, 9.5%)	
Crude Mortality Rate	3,800.5	3	0.09 (0.02, 0.35)	
Under 5 Mortality Rate	655.5	0	0.00 (0.00, 6.33)	
Mean FCS	745		37.61 (35.5, 39.7)	
Mean Reduced Coping Strategy Index (rCSI)	745		10.46 (8.5, 12.5)	
Moderate hunger	747	157	21.0% (16.1%, 27.0%)	
Severe hunger	747	14	1.9% (0.9%, 3.7%)	
Protected/treated water source	750	528	70.4% (60.2%, 78.9%)	
Un-protected/un-treated water source	750	222	29.6% (21.1%, 39.8%)	
Improved sanitation facilities	750	312	36.1% (27.3%, 46.1%)	
Unimproved sanitation facilities	750	238	58.4% (47.7%, 68.4%)	

Child Nutritional Status Outcomes				
Indicator	Denominator (N)	Numerator (n)	Result (95% CI)	
Prevalence of Acute respiratory infections (ARI) symptoms in the two weeks preceding the survey for children aged 6-59 months	626	26	4.2% (2.6%, 6.7%)	
Prevalence of fever in the two weeks preceding the survey for children aged 6-59 months	626	220	35.1% (28.6%, 42.3%)	
Prevalence of diarrhoea in the two weeks preceding the survey for children aged 6-59 months	626	139	22.2% (16.8%, 28.6%)	
Vitamin A supplementation coverage	627	496	79.1% (72.3%, 84.6%)	
Deworming coverage	544	229	55.0% (47.8%, 61.9%)	
Measles vaccination coverage (children aged 9-59 months)	592	518	87.5% (81.3%, 91.9%)	
Early Initiation (0-23 months)	272	176	64.7% (55.4%, 73.0%)	
Exclusive breastfeeding under 6 months	55	38	69.1% (56.4%, 79.5%)	
Minimum dietary diversity (6-23 months)	217	58	26.7% (19.9%, 34.8%)	
Minimum meal frequency (6-23 months)	217	144	66.4% (58.3%, 73.6%)	
Minimum acceptable diet (6-23 months)	217	42	19.4% (13.8%, 26.5%)	
Prevalence of MUAC < 230mm (Non-Pregnant, Non-Lactating Women)	518	140	27.2% (22.7%, 32.1%)	
Prevalence of MUAC < 230mm (Pregnant, Lactating Women with an Infant Less Than 6 Months)	149	57	38.5% (31.5%, 46.0%)	
Skilled Delivery	564	300	53.2% (45.5%, 60.7%)	

Summary findings	Recommendations ¹
 Nutrition status of children 6-59 months The prevalence of GAM among children aged 6-59 months, as defined by WHZ < -2SD, was10.2%. According to the classification by WHO/UNICEF, this falls into the high category. There were also pockets of malnutrition within the zone, particularly in Sasiga and Nunu Kumba districts, where the GAM prevalence reached 22.7% and 20.6% respectively, indicating very high level of acute malnutrition in these pockets. 	 Immediate Address the acute malnutrition districts through targeted interventions such as community management of acute malnutrition (CMAM) programs and nutrition education/IYCF. Implement nutritional screening for under five children, pregnant and lactating women during antenatal and postpartum visits, offering tailored counseling on dietary diversity, micronutrient supplements, and optimal feeding practices.
 Stunting among children 6-59 months per HAZ < -2SD was 37% which is very high according to WHO/UNICEF classification. Nutrition status of women of reproductive age 27.2% of the Non-Pregnant, Non-Lactating Women aged 15-49 years were under nourished or had a MUAC < 230mm. 38.5% of the Pregnant Women and Lactating Women with an Infant less than 6 Months were under nourished or had the MUAC < 230mm. 	 Intermediate/long term Invest in early childhood development programmes that promote holistic child development, including nutrition, health, education, and psychosocial support, to mitigate the long-term impacts of stunting on cognitive and physical development. Strengthen health systems especially where access is impeded to ensure comprehensive maternal and child health services, including access to skilled birth attendance, postnatal care, and family planning services, to support maternal and child well-being throughout the reproductive lifecycle. Implement social behavior change communication strategies (SBCC) to address basic causes of malnutrition.
 The mean FCS for the surveyed population was acceptable with possibility of deterioration. Most households (60.7%) fell under the category of acceptable food consumption score, while 29.3% fell into the borderline category indicative of IPC AFI Phase 2. Most (77.1%) surveyed households, reportedly experienced no hunger while 	 Immediate Implement livelihood support programs to enhance household resilience and income generation opportunities in the zone. Improve access to seeds, farm tools and fertilizer to improve agricultural productivity where access is impeded.

Table 0-2: Recommendations

¹ Developed in consultation with program/humanitarian actors.

Summary findings	Recommendations ¹
21% experienced moderate hunger and 1.9% severe hunger, which is indicative of IPC Phase 2 (Stressed).	
 WASH 70.4% of HHs had access to safe/improved water for drinking and cooking. Only 41.6% of HHs had access to improved sanitation facilities. This indicates challenges for the population, and a risk of outbreak of diseases affecting malnourished children. 	 Immediate Launch awareness campaigns focusing on the importance of improved sanitation facilities and proper hygiene practices. Intermediate Implement community-led total sanitation (CLTS) programs to empower communities to take ownership of improving sanitation practices and constructing household latrines, fostering a sense of collective responsibility. Conduct training programs for local authorities, community leaders, and health workers on WASH management, maintenance, and hygiene promotion.
 Health 79.1% of children aged 6-59 months were supplemented with Vitamin A and 87.5% of children 9-59 months were vaccinated against measles. However, only 55.5% of children were dewormed. Prevalence of diarrhea and ARI symptoms in the two weeks preceding the survey for children aged 6-59 months was 22.2% and 4.2% respectively. Prevalence of fever in the two weeks preceding the survey for children aged 6-59 months was 35.1% suggesting possible malaria outbreak. 69.2%, 76.4% and 66.2% of children with ARI, fever and diarrhea sought treatment respectively. More than a half (53.2%) of women were attended by a skilled attendant at delivery. Measles vaccination and Vitamin A supplementation coverage was below the recommended herd immunity threshold of 95% (87.5%) and UNICEF recommended threshold (80%). 	 Immediate Intensify outreach programs to increase coverage of vitamin A supplementation, deworming, and measles vaccination among children aged 6-59 months, particularly targeting underserved and remote communities. Strengthen integrated management of childhood illness programs (IMCI). Intermediate Improve the readiness of health facilities to diagnose and treat childhood illnesses by ensuring availability of essential medicines, diagnostic tools, and trained healthcare personnel. Expand access to malaria treatment and prevention particularly for hard-to-reach communities.
	Immediate:

Summary findings	Recommendations ¹
 IYCF Early initiation of breastfeeding for children 0-23 months was 64.7%. Exclusive breastfeeding for children under 6 months of age was 69.1%. Continued breastfeeding for children aged 12-23 months was 85.8%. Minimum dietary diversity (MDD) for children aged 6-23 months was 26.7%, indicating a high risk of deterioration of acute malnutrition. Minimum meal frequency (MMF) for children aged 6-23 months was 66.4%, indicating a medium risk of deterioration of acute malnutrition. Minimum Acceptable Diet Minimum acceptable diet for children aged 6-23 months was 19.4%, indicating a very high risk of deterioration of acute malnutrition. 	 Strengthen antenatal care services to provide comprehensive counseling on the importance of skilled delivery, early initiation of breastfeeding and exclusive breastfeeding during the first 6 months of life. Engage community health workers and volunteers to conduct home visits and community outreach activities to promote optimal feeding practices. Intermediate: Establish and support breastfeeding support groups or mother-to-mother support networks to provide peer counseling, practical support, and encouragement for breastfeeding mothers. Provide regular training and capacity-building sessions for healthcare providers on IYCF counseling. Implement community-based interventions to promote dietary diversity, including the introduction of locally available nutrient-rich foods, fruits, vegetables, and animal-source foods in the diets of children aged 6-23 months. Long Term: Integrate IYCF counseling and support services into routine maternal and child health programs at healthcare facilities. Implement social behavior change communication strategies (SBCC) targeting caregivers to promote optimal feeding practices for under two children.

1. Introduction

1.1. Organization

REACH Initiative was formed in 2010 as a joint initiative of IMPACT Initiatives (IMPACT) (a Geneva-based think-and-do-tank), its sister organization, the INGO Agency for Technical Cooperation and Development (ACTED), and United Nations Operational Satellite Applications Programme (UNOSAT), to promote and facilitate the development of information products that enhance the humanitarian community's decision-making and planning capacity. REACH is responsible for supporting humanitarian coordination mechanisms through non-proprietary information shared across organizations.

1.2. Background Information

East Wollega is one of the 21 zones of Oromia Region found in western direction of the country. The Zone is bordered on the southwest by Illubabor, on the west by the Didessa River which separates it from West Wollega, on the northwest and north by the Benishangul-Gumuz Region, on the northeast by the Horo Guduru Wollega Zone, on the east by West Shewa, and on the southeast by the Gibe River which separates it from Jimma. According to the 2022 projection by the CSA, this Zone has a total population of 1,806,001, with 897,957 men and 908,044 women. The total land coverage of the zone is 12,579.77 square kilometers with population density of 143.6 people per square kilometer.²

The East Wollega Zone features three primary agro-ecological zones: highlands (13%), midlands (57%), and lowlands (30%). The landscape is predominantly hilly, undulating, and rolling. The average annual rainfall ranging between 1,400 mm and 2,200 mm.³ The main rainy season extends from May to September.⁴ The soil is primarily composed of clay and red sandy clay. The primary livelihood of farming communities in the zone is mixed agriculture, encompassing both crop cultivation and livestock rearing. The major crops cultivated in this zone include teff, barley, wheat, faba beans, sesame, groundnuts, field peas, maize, sorghum, finger millet, potatoes, tomatoes, hot peppers, and niger seeds. East Wollega zone is known for its surplus agricultural production.⁵

However, the zone has been severely affected by conflict and insecurity since 2018. This has led to the abduction of individuals and the destruction of civilian property. The ongoing conflict in the zone has had detrimental effects on protection, health, food security, and access to humanitarian aid for affected populations. This conflict has exacerbated protection concerns, particularly for

 ² Population Size by Sex, Area and Density by Region, Zone and Wereda: July 2022. Ethiopian Statistics Service.
 2022. https://www.statsethiopia.gov.et/wp-content/uploads/2022/07/Population-Size-by-Sex-Zone-and-Wereda-July-2022.pdf

³ East Wollega Zone Finance Development Office and Socioeconomics, (2018). Zonal Abstract Report. Nekemte.

⁴ NMA, N., 2007. Climate change national adaptation programme of action (NAPA) of Ethiopia. National Meteorological Agency & Ministry of Water Resources.

⁵ Degefa, K., Biru, G. and Abebe, G., 2020. Farming system characterization and analysis of East Wollega Zone, Oromia, Ethiopia. Int. J. Manag. Fuzzy Syst, 6, pp.14-28.

https://www.sciencepublishinggroup.com/article/10.11648/j.ijmfs.20200602.11

vulnerable groups such as women, girls, and children. GBV survivors, persons with chronic illnesses, pregnant women, and lactating mothers struggle to access healthcare because of conflict and armed elements. Food insecurity is also a significant issue, with inflation, shortage of cash, and armed elements being reported as top obstacles to accessing food.⁶ Additionally, the prevalence of latrine utilization in the zone was found to be low (52.7%),⁷ which may lead to increased incidence of diarrhea and, consequently, malnutrition among children.

Amidst these challenges, a study conducted in the Gida Ayana District, East Wollega, revealed several key findings regarding the nutrition and health of young children. Most infants (88.1%) began breastfeeding within the first hour of delivery, indicating strong initial breastfeeding practice. However, for older children starting diversification, only 9.2% had a dietary diversity score that included more than five food groups, suggesting limited dietary variety in their diets. A high percentage (83.4%) of young children had received vitamin A supplementation, reflecting effective coverage of this crucial nutritional intervention.⁸

As of May 2024, five districts were classified by FEWSNET as Integrated Phase Classification (IPC) for Acute Food Insecurity (AFI) phase 2 (stressed), with the potential to deteriorate to phase 3 (crisis)⁹. In the Displacement Tracking Matrix (DTM) site assessment round 35, there were estimated over 67,000 internally displaced persons (IDPs) in East Wollega¹⁰. Various partners, including UN agencies and local and international NGOs, intervene in areas such as health and nutrition, WASH, livelihoods, and protection.

1.2.1. Survey Area

This survey is taking place in the Rural area of the survey location. The agro ecology is kolla (lowland), and temperatures are generally warm, the natural vegetation is mainly bush scrubs and grasslands.¹¹

⁶ ETHIOPIA. PROTECTION AND SOLUTIONS MONITORING (PSM) Report #11. Oromia Region (East, West and Kellem Wollega). December 2023.

 $^{{\}sf UNHCR\%20Ethiopia\%20Protection\%20and\%20Solutions\%20Monitoring\%20Report\%2011_\%20Nekemte.pdf}$

⁷ Shama AT, Terefa DR, Geta ET, Cheme MC, Biru B, Feyisa JW, et al. (2023) Latrine utilization and associated factors among districts implementing and not-implementing community-led total sanitation and hygiene in East Wollega, Western Ethiopia: A comparative cross-sectional study. PLoS ONE 18(7): e0288444. https://doi.org/10.1371/journal.pone.0288444.

⁸ Ayana, B. and Husein, G., 2019. Under-nutrition and Associated Factors among Children aged 6 months to 24 months in Gida Ayana District, East Wollega, Western Ethiopia. Arsi Journal of Science and Innovation, 4(1), pp.75-110. http://ejol.aau.edu.et/index.php/ajsi/article/view/3162/2412.

⁹ FEWS NET. Ethiopia Key Message Update May 2024: Widespread Crisis (IPC Phase 3) or worse outcomes likely until October harvest, 2024. https://fews.net/east-africa/ethiopia/key-message-update/may-2024.

¹⁰ DTM Ethiopia Site Assessment Round 35. https://dtm.iom.int/datasets/ethiopia-site-assessment-round-35

¹¹ Ethiopia Livelihood Baseline: Oromia Region. Hanger Maize, Sorghum & Finger Mllet (HSF) Livelihood Zone January 2018.

	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct
Rainy/Dry Seasons		belg			krei krei k		kre	emt				
Livestock												
Cattle												
conceptions												
births												
milk production												
Goats/Sheep												
conceptions												
births												
milk production												
Livestock migration - average year												
Livestock migration - bad year												
Livestock disease												
Livestock sales												
Crops												
Coffee												
Chat												
Wheat												
Teff												
Sorghum												
Maize												
Chick pea												
Other Income												
Agricultural labour peak												
Firewood sales												
Building material sales												
Relief distributions												
Stress & High Expenditure Periods												
High staple prices												
Festival season												
Human diseases												
Lean season												
Legend	La	nd prep	aration	So	wing	w	eeding	Gre	een har	vest	Ha	rvest

Figure 1: Seasonal Calendar for East Wollega Zone¹²

Survey Population

The target population for this survey is the general population of the surveyed districts. The nine surveyed districts are part of the lowland zone (*kolla*).

¹² Ethiopia Livelihood Baseline: Oromia Region

1.2.2. Humanitarian Assistance

According to DTM site assessment round 35, there were estimated over 67,000 internally displaced persons (IDPs) in East Wollega. The IDPs living among the host communities are in situations of protracted displacement with compounded humanitarian needs to disease, and hostilities. These IDPs require food, WASH, health, nutrition, education, protection and ES/NFI assistance. There are few international and local UN, INGO and local partners operating in the East Wollega zone and among them are UNICEF, Save the Children, FIDO, GRLA and ERCS which most of them proving nutrition responses and few of them are doing multi-sectoral response in a very limited number of districts.

1.2.3. Health and Safety Situation Update

In certain parts of East Wollega, accessibility (humanitarian access, movement between woredas) was partially hindered by insecurity particularly in Haro Limu, Ibantu, Limu, Gida Ayana, and Kiremu districts. Since the survey was conducted during the rainy season, there was a malaria outbreak in most of the districts that were assessed.

1.3. <u>Survey Type</u>

• The survey type used was a Full Smart+ survey.

1.4. Survey Timing

- The survey was carried out from August 19 to 29, 2024, which coincided with the lean season.
- The survey lasted for 16 day(s) including training days and piloting.

1.5. Type of Setting

This survey took place in the rural area of the survey location. The agroecology is kolla (lowland), and temperatures are generally warm, ranging from 14 °C to 26 °C for most of the year. The natural vegetation is mainly bush scrubs and grasslands.

1.6. Survey Location

The survey took place in East Wollega Zone, Ethiopia. A total of nine lowland woredas were selected, then kebeles were selected under each woreda, followed by zones under each kebeles and then the Gari under each zone where households were selected.



Figure 2: Map of woredas where the SMART+ was conducted.

1.7. Excluded Areas (if applicable)

This survey only included lowland agro-ecological zone districts, as determined in consultation with local partners and based on a thorough analysis of the available data. In districts with multiple agro ecological zones, only kebeles (villages) situated within the lowland zones were considered. The exclusion criteria for this survey were districts with less than 30% kebeles in the lowland agroecological zone, including Wayu Tuqa, Gobu Seyo, and Gudeya Bila. Districts that were not accessible due to insecurity at the time of data collection were also excluded and they include Haro Limu, Ibantu, Limu, Gida Ayana, and Kiremu districts Additionally, displaced population groups were not included in the survey.

2. Survey Goal and Objectives

2.1. Survey Goal and Primary Objective

The overall objective of the SMART Survey is to assess the nutritional situation and retrospective mortality rates and the possible factors contributing to acute malnutrition in lowland of East Wollega Zone. The results will be used to provide information management support to the nutrition cluster and partners to support evidence-based decision making.

2.2. Specific Survey Objectives

- To estimate the prevalence of acute malnutrition (Weight for Height and by MUAC), stunting (Height for Age) and underweight (Weight for Age) among children aged 6 59 months in East Wollega zone.
- To assess the nutritional status of women in the reproductive age (15-49 years) by MUAC in East Wollega Zone.
- To estimate the coverage of institutional delivery/skilled delivery in East Wollega Zone.
- To estimate retrospective Crude Mortality Rate (CMR) and Under 5 Mortality Rate (U5MR) in East Wollega zone.
- To assess food consumption gaps in East Wollega zone using the following indicators: reduced coping strategy index (rCSI), household hunger scale (HHS) and household food consumption score (FCS).
- To estimate the coverage of Vitamin A supplementation for children 6-59 months.
- To estimate the coverage of measles vaccination for children 9-59 months.
- To estimate the coverage of deworming treatment for children 12-59 months in East Wollega Zone.
- To assess childhood morbidity and health seeking behaviors among children aged 6-59 months two weeks prior to the survey commencement.
- To assess selected infant and young child feeding indicators among children 0-24 months
- To assess the WASH situation in East Wollega Zone. (Main water source, distance/time to water source, water treatment status, access to latrine)
- To formulate practical interventions and recommendations to inform nutrition programming in East Wollega Zone.

2.3. Survey Justification

There are 17 districts in East Wollega, primarily characterized by midland and lowland agroecologies. Of these, 14 lowland districts (with at least 30% of their kebeles or admin 4 falling under lowland agroecology), were selected in consultation with local partners and the East Wollega UNICEF focal point), considering the prevailing humanitarian conditions on the ground. Further, the SAM admission data from health facilities, of the selected districts reported a total of 10,159 SAM cases from June 2023 to May 2024, averaging 846 cases per month.

As of May 2024, among the selected districts, five were classified by FEWSNET under Integrated Food Security Phase Classification (IPC) Acute Food Insecurity (AFI) Phase 2 (Haro Limu, Jimma Arjo, Kiremu, Limu, and Sasiga). Further, looking into the hotspot classification or in-country

proxy classification for the IPC; six districts were classified as hotspot 2 or facing Acute Food and Livelihood Crisis (Diga, Gida Ayana, Guto Gida, Haro Limu, Limu, and Sasiga), and one was categorized as hotspot 1 or facing Humanitarian Emergency (Kiremu) according to the January 2024 hotspot classification. This means only 7 out of the 17 districts were categorized as hotspot 1 or 2, indicating that while certain areas were experiencing severe food insecurity and livelihood crises, most of the districts in East Wollega were not facing extreme conditions. This suggests a mixed situation in the zone, with some areas in critical need and others maintaining relative stability.

Owing to accessibility challenges in the East Wollega Zone, recent surveys on nutrition, mortality, food security, health, Water, Sanitation, and Hygiene (WASH) have not been conducted. Consequently, FENCU recommended a survey to fill these information gaps. The current SMART+ survey is intended to address these gaps, providing crucial data to support the nutrition cluster and its partners in making well-informed, evidence-based decisions.

3. Methodology

3.1. Survey Design

3.1.1. Sample Size

The following assumptions were used to calculate the sample size in terms of the number of children, which was then converted into the number of households to be surveyed. All calculations were performed using SMART+ platform. The sample size calculation takes the proxy indicator anthropometry into account. The maximum sample size obtained was the mortality sample size calculation, and this was considered the final sample size, with 715 households. The parameters for calculating the sample size are detailed in the tables 6-2 below.

Parameters for Anthropometry	Value	Assumption and Source
Estimated prevalence of GAM (%)	10.07%	2019 IHME* estimate for the East Wellaga Zone is 10.07% (CI: 6.49-14.95%). Triangulated with the Integrated Food Security Phase Classification (IPC), hotspot classification, and SAM admission trends in the selected districts, no deterioration is expected in these areas. Additionally, no other reliable data sources have been identified to suggest otherwise.
Desired precision	± 3.50	Based on Standard Operating Procedure (SOP) for SMART Surveys in Ethiopia (Nov 2020). Recommends a desired precision of $\pm 3.5\%$ for estimated GAM of 10-15%
Design effect (DEFF)	1.50	The survey was conducted in 9 lowland districts that spread across two different livelihood zones.
Children to be included	465	
Average household (HH) size	5.00	According to the 2021 Oromia Bureau of Finance and Economic Development.
% Children 6-59 months	15.0%	According to Oromia regional health bureau 2021 conversion factor

Table 3-2: Sample S	Size Calculation of	f Anthropometry
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Parameters for Anthropometry	Value	Assumption and Source
% Non-response rate	5.0%	Anticipated non-response rate based on the zonal official recommendation
Households to be included	715	Minimum sample size-Households to be surveyed.

Parameters for Mortality	Value	Assumption and Source
Estimated mortality rate/10,000/day	0.50	Assumed a baseline CMR of 0.5 deaths/10,000/day as there are no data on mortality
Desired precision/10,000/day	± 0.30	Based on 2020 Ethiopia SOP for SMART Surveys
Design effect	1.50	The woredas included in the survey spread across three different livelihood zones
Recall period in days	110	The start of recall period was May 5, 2024, which was Fasika (Ethiopian Easter) and the end of recall period was August 24, 2024, which was mid of data collection. At the planning stage 90 days was used as default value and the sample size was based on the 90 days.
Population to be included	3872	Population
Average household (HH) size	5.00	Recommended by East Wollega zone and projected from Census 2007
% Non-response rate	5.0%	Anticipated non-response rate based on the recent surveys conducted in the Oromia regions
Households to be included	815	Households to be included

Table 3-3: Sample Size Calculation of Mortality

3.1.2. Sampling Method

This survey applied a two-stage cluster sampling using the SMART methodology with the clusters (primary sampling unit) being selected using the probability proportional to population size (PPS). Stage one sampling involved the sampling of the clusters to be included in the survey while the second stage sampling involved the selection of the households from the sampled cluster. For this assessment, a cluster is defined as the smallest unit in the district, which in this case it is a Gare

3.1.3. Second Stage Sampling Method (if applicable)

At second stage, households were selected using the simple random sampling within the cluster. In each area, the households list was updated during data collection in collaboration with kebele leaders. The survey team provided a number to each house. The team selected households to be

interviewed using random generator number mobile app (RGN) according to the target number of households per cluster, which was 11 HHs, regardless of the number of children interviewed. First zones were selected using PPS and then Gari selected using simple random if the HHs in each Gari are almost equal or PPS if the HHs in each Gari varied. Then, the teams randomly selected a number within a range of one to the total number of households, using a random number generator (RGN) in each Gari. This number determined the specific area within the segment that would be surveyed. Please revise below section I have added to show how you have calculated the total number of clusters, and the number of households completed per day per team.

3.1.4. Sampling Procedure – Cluster Sampling

Population data was initially collected at the district level by UNICEF field officer 3 weeks before actual data collection, and then triangulated with Data for good at Meta population density information.¹³ This data collection occurred at both the kebele and zonal levels. During the training phase, all kebeles and zones were verified for security and accessibility with the assistance of Ethiopian Red Cross Society (ERCS) and enumerators from the respective localities. Subsequently, a final clean sampling frame was obtained.

Using the SMART+ platform, a total of 75 clusters were randomly selected based on the Probability to Population Size (PPS) technique. This approach ensured that every household in the 9 lowland districts of the East Wollega zone had an equal chance of being chosen, irrespective of zone size. Thirteen clusters were not visited due to security constraints, and they were replaced with 7 seven reserve clusters reached 92% of planned clusters which is acceptable according to SMART methodology.

In instances of empty households or were abandoned, replacements were not made, as nonresponse was factored into the sample size calculations. However, households with absent children were revisited at the end of the day, and if still absent during the second visit, their absence was recorded in the cluster control form.

Initially, zones were selected using the PPS method, and then Gares were chosen using simple random sampling if the number of households in each Gare was nearly equal or using PPS if there was variability in the number of households per Gare. Subsequently, teams randomly selected a number within the range of one to the total number of households in each Gari using a random number generator (RGN).

¹³ Ethiopia: High Resolution Population Density Maps + Demographic Estimates - Humanitarian Data Exchange (humdata.org)

3.1.5. Training, Team Composition, and Supervision

The SMART+ survey was conducted by seven survey teams, each comprised of a team leader, an interviewer, a measurer, and an assistant measurer. Most of the enumerators had a background in health with a minimum qualification of a bachelor's degree. The team leader was responsible for supporting tablet filling, household selection, and assisting with anthropometric measurements. Daily monitoring was conducted by the survey manager to verify the accuracy and consistency of data through regular field visits, cross-checking, and plausibility testing via the SMART+ platform.

Before commencing field data collection, the survey team underwent five days of SMART methodology training, followed by one day of piloting. They were trained by one SMART+ certified manager. The SMART training tools and presentations were customized to align with the survey's objectives and were utilized throughout the training sessions. Topics covered during the training included survey objectives, household selection strategies, demonstration and standardization of anthropometric measurements, data collection techniques, interview skills through group work, and questionnaire field testing. A total of 21 households were piloted during the field-testing phase, and feedback was provided to ensure that proper data collection procedures were followed before initiating the actual data collection process.

3.1.6. Data Analysis

Data collection was conducted using smartphones equipped with the SMART Collect application. Daily feedback on the quality of the data was provided to the survey teams by the Survey Manager, who also offered support on enhancing the quality of the measures based on plausibility checks. The SMART+ platform was utilized to automatically analyze anthropometric data and additional indicators. During the analysis process, any data flagged using SMART flag criteria was used to ensure accuracy and reliability. Furthermore, quality checks were performed for the food security indicators, and daily feedback was provided accordingly.

4. Indicators: Definition, Calculations, and Interpretation

4.1. Overview of Indicators

The survey conducted utilized a range of standardized integrated SMART indicators to comprehensively assess various aspects of health, nutrition, WASH and food security within the surveyed population of East Wollega Zone, Ethiopia. These indicators covered household, child, and women's health, providing valuable insights into the overall status of the community.

At the household level, malnutrition and mortality rates were examined to understand the general health outcomes across the total population. Additionally, food security indicators such as the Food Consumption Score (FCS), Reduced Coping Strategy Index (rCSI), and Household Hunger Scale (HHS) were assessed, shedding light on the adequacy of food access and diversity within households. Moreover, water, sanitation, and hygiene (WASH) indicators were evaluated to gauge access to safe drinking water and improved sanitation facilities, crucial factors for maintaining health and nutrition.

For children aged 6-59 months, anthropometric measurements were taken to assess nutritional status. Health interventions such as Vitamin A supplementation coverage, deworming coverage, and measles vaccination coverage were also measured to evaluate the effectiveness of preventive health measures. Additionally, episodes of Acute Respiratory Infection (ARI), diarrhoea, and fever were recorded, along with care-seeking behaviors and utilization of appropriate treatments during these episodes. Furthermore, Infant and Young Child Feeding (IYCF) indicators provided insights into feeding practices and nutritional adequacy among infants and young children aged 0-23 months.

Women's health indicators focused on anthropometry, particularly Mid-Upper Arm Circumference (MUAC) measurements, to assess the nutritional status of women aged 15-49 years. Additionally, skilled attendant delivery rates were examined to understand access to safe childbirth practices and maternal health services.

Indicator	Target Population
Household Indicators	
Mortality	
Mortality	Total population
Food Security	
Food Consumption Score (FCS)	Total population
Reduced Coping Strategy Index (rCSI)	Total population
Household Hunger Scale (HHS)	Total population
WASH	
Access to safe/improved water for drinking and cooking	Total population
Access to improved sanitation facilities	Total population
Child Indicators	
Anthropometry	6-59 months
Vitamin A supplementation coverage	6-59 months
Deworming coverage	12-59 months
Measles vaccination coverage	9-59 months
Episode of ARI, and care-seeking for children with ARI	6-59 months

Table 4-4: Standardized Integrated SMART Indicators

Indicator	Target Population
Episode of diarrhoea, care-seeking for children with diarrhoea, and use of ORS and Zinc during an episode of diarrhoea	6-59 months
Episode of fever and care-seeking for children with fever	6-59 months
IYCF (EvBF, EIBF, EBF2D, EBF, MixMF, CBF, ISSSF, MDD, MMF, MMFF, MAD, EFF, SwB, UFC, ZVF, BoF)	0-24 months
Women Indicators	
Anthropometry (MUAC)	15-49 years
Health (skilled attendant delivery)	15-49 years

4.2. Anthropometric Indicators

The survey conducted comprehensive assessments of the nutritional status of children aged 6-59 months using various anthropometric indicators. These included Mid-Upper Arm Circumference (MUAC), Weight-for-Height Z-score (WHZ), Height-for-Age Z-score (HAZ), and Weight-for-Age Z-score (WAZ). MUAC measurements were employed to determine acute malnutrition status, with specific thresholds established for different categories. Children with a MUAC measurement greater than 125 mm were classified as having no malnutrition, while those with a measurement of 125 mm or less fell under the category of Global Acute Malnutrition (GAM). Within the GAM, further differentiation was made between Moderate Acute Malnutrition (MAM), defined as MUAC between 115 mm and 125 mm, and Severe Acute Malnutrition (SAM), indicated by MUAC below 115 mm.

In addition to MUAC, WHZ was utilized to assess acute malnutrition and overweight status. The criteria for WHZ categories were delineated, with thresholds for normal, undernutrition, and overweight conditions. Similarly, HAZ measurements were employed to evaluate stunting, with specific cut-off points set to distinguish between normal, moderate stunting, and severe stunting. Finally, WAZ was utilised to assess underweight status, with criteria established to differentiate between varying degrees of undernutrition.

These anthropometric indicators provided a comprehensive framework for assessing the nutritional status of children in the surveyed population. By utilising multiple indicators, the survey aimed to capture a holistic picture of nutritional status, encompassing acute malnutrition, chronic malnutrition, and underweight. The use of standardised cut-off points for each indicator enabled consistent interpretation of the data and facilitated comparisons across different populations and

Nutritional Status	Definition
No malnutrition	125 mm > MUAC
Global Acute Malnutrition (GAM)	$125 \text{ mm} \le \text{MUAC}$
Moderate Acute Malnutrition (MAM)	$115 \text{ mm} \le \text{MUAC} < 125 \text{ mm}$
Severe Acute Malnutrition (SAM)	MUAC < 115 mm

Table 4-5: MUAC cut off points for children 6-59 months.

Nutritional Status	Definition
No undernutrition	WHZ \geq -2 and no oedema
Global Acute Malnutrition (GAM)	WHZ < -2 or bilateral oedema (or both)
Moderate Acute Malnutrition (MAM)	$(-3 \le WHZ \le -2)$ and absence of bilateral oedema
Severe Acute Malnutrition (SAM)	WHZ < -3 or bilateral oedema (or both)
Overweight	WHZ > 2 and no oedema
Moderate overweight	$(2 < WHZ \le 3)$ and no oedema
Severe overweight	WHZ \geq 3 and no oedema

Table 4-6: Cut off points for the WHZ index expressed in Z-score, WHO Standards

Table 4-7: Cut off points for the HAZ index expressed in Z-score, WHO Standards

Nutritional Status	Definition
Not stunted	$HAZ \ge -2$
Stunted	HAZ < -2
Moderate stunting	$-3 \le HAZ \le -2$
Severe stunting	HAZ < -3

Table 4-8: Cut off points for WAZ Index expressed in Z-scores, WHO Standards

Nutritional Status	Definition
Not underweight	$WHZ \ge -2$
Global underweight	WAZ < -2
Moderate underweight	$-3 \leq WAZ < -2$
Severe underweight	WAZ < -3

4.3. Mortality

All visited households, including those without children aged 6–59 months, were surveyed for retrospective mortality statistics. The start of recall period was May 5, 2024, which was Fasika (Ethiopian Easter) and the end of recall period was August 24, 2024, which was mid of data

collection. At the planning stage 90 days was used as default value and the sample size was based on the 90 days. Thus, a total of110-day recall period was employed. Using individual mortality questionnaires, the following data were collected:

- Mid-population
- Number of children under the age of five
- Number of people who left the household during the recall period (total and children under the age of five)
- Number of individuals who joined the household during the recall period (total and children under five years)
- Number of births in the household during the recall period
- Number of deaths and reason for death.

4.4. Other Indicators (Immunization, Food Security Infant and Young Child Feeding)

In addition to anthropometric indicators, the survey incorporated several other key indicators to assess various aspects of household food security and child nutrition. These additional indicators provided valuable insights into dietary diversity, coping strategies during times of food scarcity, and household hunger levels.

The Minimum Acceptable Diet (MAD) indicator was utilized to evaluate the proportion of children aged 6-23 months who received a minimum acceptable diet according to WHO guidelines. This indicator considers the diversity of food groups consumed by children, as well as the frequency of feeding, to assess whether dietary needs are being met adequately.

The Reduced Coping Strategy Index (rCSI) was employed to measure the extent to which households' resort to coping strategies during periods of food insecurity or economic hardship. This index captures the variety and severity of coping mechanisms adopted by households to mitigate the impact of food shortages, such as reducing meal portions or borrowing food or money.

The Household Hunger Scale (HHS) provided a quantitative assessment of household hunger levels, capturing the frequency and severity of experiences related to food insecurity within the household. This scale evaluates the occurrence of specific hunger-related events, such as going to bed hungry or skipping meals, to gauge the severity of household food insecurity.

The Food Consumption Score (FCS) was utilized to assess the adequacy of household food consumption based on a standardized scoring system. This indicator considers the diversity of food items consumed by households over a defined period, as well as the frequency of consumption, to evaluate overall food security status.

	1 – None	2 – Stressed	3 – Crisis	4 – Emergency	5 – Catastrophe	
HHS	0	1 to 2	3 4		5 to 6	
CSI	Reference, stable	Reference, but unstable	> Reference and increasing Significantly > reference		Far > reference	
rCSI	0 to 4	5 to 20	≥ 21			
HDDS	5 to 12		3 to 4	0 to 2		
FCS	35 to 112†		13 to 34.5‡	0 to 12.5		

Table 7-9: Recommended indicators range for food security

* The standard FCS-based food consumption categories are: < 21 = "Poor," 21–35 = "Borderline," and > 35 = "Acceptable." In areas where oil and sugar are regularly consumed, the thresholds are adjusted as follows: < 28 = "Poor," 28–42 = "Borderline," and > 42 = "Acceptable."

5. Questionnaire

The SMART+ standard questionnaire encompassed a comprehensive set of indicators covering various domains as mentioned in the previous section.

To ensure the effectiveness and reliability of data collection, the survey team conducted a pre-test of the questionnaire in Afaan Oromo, as it is the main local language spoken in the surveyed communities. This pre-testing phase was crucial in evaluating the clarity and understandability of the questions from the perspective of the respondents. By administering the questionnaire in the local language, the team aimed to facilitate clear communication and accurate interpretation of the questions, thereby enhancing the quality and reliability of the data collected.

The pre-testing process allowed the survey team to identify any potential ambiguities or challenges in question comprehension, enabling them to refine and adjust the questionnaire accordingly. This iterative approach to questionnaire development ensured that the final instrument was culturally appropriate, linguistically accessible, and effectively captured the information needed to achieve the survey objectives.

6. Limitations

As the survey was conducted during the lean season or hunger gap, the results may be affected, as peaks of acute malnutrition are expected during this time. The data was collected during the rainy season, which limited access to some clusters. Additionally, the presence of armed forces and security risks further complicated the situation. As a result, five of the fourteen districts planned were avoided due to the security challenges.

7. Survey Findings

7.1. Survey Sample

For anthropometry data, the survey sample included 69 out of the planned 75 clusters, achieving a coverage of 92%. In terms of households, 750 out of the planned 815 were surveyed, representing 92% of the intended sample for the anthropometry data. In addition, 621 children were surveyed out of the planned 465, exceeding the target by 33.56%.

Regarding demographic characteristics, the survey covered 750 households, with an average household size of 5.23 individuals. Among total households surveyed, 68.18% have children under the age of five, with an average of 17.97% of the total population falling within this age group. The birth rate was estimated at 1.11, while the in-migration and out-migration rates were 1.93% and 0.70% respectively. The population distribution by gender indicated that females constituted 48.9% of the population, slightly lower than males at 51.1%.

Non-response rates were minimal, with household and child non-response rates recorded at 1.06% and 0.9%, respectively. The population age and sex pyramid depicted a relatively balanced distribution across age groups and genders, with no significant deviations. Among population aged 25 to 29 years, the distribution showed a slight predominance of female over male. Overall, the

survey sample achieved comprehensive coverage across demographic variables, ensuring robust data collection for analysis and interpretation.

Indicator	Planned	Achieved	Percentage
Number of clusters	75	69	92.0%
Number of households planned	815	750	92%
Number of children planned	465	621	133%

Table 7-9: Proportion of Household and Child Sample Achieved (Anthropometry Data)

Indicator	Value	95% CI
Number of HHs surveyed	750	
Number of clusters surveyed	69	
Number of HHs surveyed with children under five	495	
% of HHs surveyed with children under five	68.18%	
Average household size	5.23	(4.91, 5.55)
Mid Interval Population Size	3,800.5	(3,568.1, 4,032.9)
Percentage of children under five	17.97%	(16.9%, 19.1%)
Birth Rate	1.11	(0.73, 1.68)
In-migration Rate (Joined)	1.93	(0.86, 4.26)
Out-migration Rate (Left)	0.70	(0.48, 1.03)
Female % of the population	48.9%	(47.6%, 50.0%)
Male % of the population	51.1%	(50.0%, 52.4%)

 Table 7-10: Demographic Summary (Mortality Data)

Table 7-11: Non-Response Rates (NRR)

Level	Consented or Measured	Refused	Absent	Sample Non- Response Rate
Household	750	0	8	1.06% ^a
Children under 5	621		6	0.96% ^b

^aThe household non-response rate (NRR) is defined as the number of households not interviewed out of all households selected for interview. The formula for HH NRR is (total HH refused + total HH absent) / (total HH consented + total HH refused + total HH absent).

Level	Consented or Measured	Refused	Absent	Sample Non- Response Rate
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^bThe child non-response rate (NRR) is defined as the number of unmeasured children out of all eligible children. The formula for the child NRR is (total eligible children absent) / (total eligible children measured + total eligible children absent).



Figure 7-1: Population Age and Sex Pyramid

	Boys		Girls		Т	Ratio		
Age (Months)	n	%	n	%	n	%	Boy:Girl	
6 to 17	76.0	23.7%	74.0	24.2%	150.0	23.9%	1.03	
18 to 29	71.0	22.1%	68.0	22.2%	139.0	22.2%	1.04	
30 to 41	67.0	20.9%	63.0	20.6%	130.0	20.7%	1.06	
42 to 53	77.0	24.0%	61.0	19.9%	138.0	22.0%	1.26	
54 to 59	30.0	9.3%	40.0	13.1%	70.0	11.2%	0.75	
Total	321.0	100.0%	306.0	100.0%	627.0	100.0%	1.05	

Table 7-12: Distribution of age and sex among	g children 6-59 months (SMART exclusions)
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7.2. Data Quality

The overall data quality was 6 which is **excellent**. In terms of anthropometric indicators among children aged 6-59 months, the standard deviation (SD) was within reasonable ranges for all the three indices.

- The design effect for weight-for-height indicator was 1.63, indicating some clustering effect but still within an acceptable range. However, there were 12 instances where Z-scores were not available, and nine cases where Z-scores were out of range, indicating some data completeness and accuracy issues.
- Similarly, the design effect for weight-for-age indicator was 1.60, again suggesting some clustering effect. 11 cases had missing Z-scores, and 12 cases were out of range.
- Height-for-age showed a design effect for this indicator was 1.66, suggesting some clustering effect. However, there were 8 instances of missing Z-scores, and twenty-one cases where Z-scores were out of range, indicating potential data accuracy issues.

Indicator	N	Mean z-scores ± SD	Design effect (z-score < -2)	Z-scores not available*	Z-scores out of range
Weight-for-Height	610	-0.56 ± 1.06	1.63	12	9
Weight-for-Age	610	-1.24 ± 1.05	1.60	11	12
Height-for-Age	598	-1.66 ±1.18	1.66	8	21

Table 7-13: Mean Z-scores, Design Effects, Missing and Out-of-Range Data of

 Anthropometric Indicators among Children 6-59 months (SMART exclusions)

7.3. Prevalence of Acute Malnutrition

The prevalence of acute malnutrition based on WHZ and/or oedema indicated that GAM was 10.2% (8.0%, 12.8%), with 7.9% classified as Moderate Acute Malnutrition (MAM) and 2.3% as Severe Acute Malnutrition (SAM). When cases were disaggregated by sex, boys had higher prevalence rates compared to girls. WHZ tends to be more sensitive to identify boys with SAM than girls. Notably, 0.5% and 0.2% of children were identified with kwashiorkor and marasmic kwashiorkor respectively.

Furthermore, the prevalence of acute malnutrition was also assessed based on MUAC and/or oedema. The findings revealed GAM of 7.9%, with 4.2% classified as moderate acute malnutrition and 3.7% as severe acute malnutrition. When examining combined GAM and SAM, the prevalence was reported to be 13.2% and 4.4%, respectively.

Among the age groups surveyed, children aged 6 to 17 months had a higher prevalence of wasting, with 10.3% of children classified as wasted (WHZ < -2). These findings suggest that older children may be more vulnerable to acute malnutrition, warranting targeted interventions to address this issue.

The mean Z-score was -0.56 ± 1.06 . That indicates a distribution slightly below the WHO reference curve, suggesting a marginally higher prevalence of acute malnutrition within the surveyed population.

Of the 13.2% of the combined GAM, 0.6% of the cases were identified based on oedema, 4.0% by both MUAC and WHZ, 5.3% by WHZ and 3.3% by MUAC. Similarly, of the 4.4% of the combined SAM, 0.6% of the cases were identified based on oedema, 1.0% by both MUAC and WHZ, 0.6% by WHZ and 2.1% by MUAC.

Table 7-14: Prevalence of Acute Malnutrition by WHZ (and/or oedema) by Severity and Sex
among Children 6-59 months (SMART exclusions), WHO 2006 Reference

Indicator	All	Boys	Girls
	(N=610)	(N=310)	(N=300)
No undernutrition	(548) 89.8%	(274) 88.4%	(274) 91.3%
	(86.0%, 92.7%)	(84.0%, 91.7%)	(86.1%, 94.7%)
Prevalence of global acute malnutrition (<-2 z-score and/or oedema)	(62) 10.2%	(36) 11.6%	(26) 8.7%
	(8.0%, 12.8%)	(8.5%, 15.7%)	(6.0%, 12.4%)
Prevalence of moderate acute malnutrition (<-2 to \geq -3 z-score)	(48) 7.9%	(31) 10.0%	(17) 5.7%
	(6.0%, 10.3%)	(7.1%, 13.8%)	(3.6%, 8.9%)
Prevalence of severe acute malnutrition (<-3 z-	(14) 2.3%	(5) 1.6%	(9) 3.0%
score and/or oedema)	(1.4%, 3.8%)	(0.7%, 3.7%)	(1.6%, 5.6%)

 Table 7-15: Prevalence of Acute Malnutrition per WHZ and/or Oedema by Severity and Age Group (SMART exclusions)

Age (Months)	N	No wasting (WHZ \geq -2)		Wasting (WHZ < -2)		Moderate wasting (-3 ≤ WHZ < - 2)		Severe wasting (WHZ < -3)		Oedema	
		n	%	n	%	n	%	n	%	n	%
6 to 17	145	125	86.2	19	13.80	15	10.3	4	2.8	1	0.7
18 to 29	133	121	91.0	12	9.10	7	5.3	5	3.8	0	0.0
30 to 41	127	117	92.1	8	7.90	8	6.3	0	0.0	2	1.6
42 to 53	136	121	89.0	14	11.00	13	9.6	1	0.7	1	0.7
54 to 59	69	64	92.8	5	7.20	5	7.2	0	0.0	0	0.0
All	610	548	89.8	62	10.20	48	7.9	10	1.6	4	0.7

Figure 7-2: Distribution of WHZ Sample Compared to the WHO 2006 WHZ Reference Curve



Figure 7-3: Mean WHZ by Age Group



 Table 7-16: Distribution of Severe Acute Malnutrition per Oedema among Children 6-59 months (SMART exclusions)

	WHZ < -3	WHZ \geq -3
Presence of Oedema*	Marasmic kwashiorkor 1 (0.2%)	Kwashiorkor 3 (0.5%)

	WHZ < -3	WHZ ≥ -3
Absence of Oedema	Marasmic 10 (1.6%)	Not severely malnourished 596 (97.7%)

 Table 7-17: Prevalence of acute malnutrition based on MUAC cut off's (and/or oedema) and by sex.

Indicator	All	Boys	Girls		
	(N=618)	(N=315)	(N=303)		
No malnutrition	(569) 92.1%	(294) 93.3%	(275) 90.8%		
	(88.2%, 94.7%)	(89.2%, 96.0%)	(85.1%, 94.4%)		
Prevalence of global acute malnutrition (< 125 mm and/or oedema)	(49) 7.9%	(21) 6.7%	(28) 9.2%		
	(6.0%, 10.2%)	(4.3%, 9.8%)	(6.4%, 12.9%)		
Prevalence of moderate acute malnutrition (< 125 and \geq 115 mm, no oedema)	(26) 4.2%	(13) 4.1%	(13) 4.3%		
	(2.8%, 6.0%)	(2.4%, 6.8%)	(2.5%, 7.1%)		
Prevalence of severe acute malnutrition (< 115 mm and/or oedema)	(23) 3.7%	(8) 2.5%	(15) 5.0%		
	(2.5%, 5.4%)	(1.3%, 4.8%)	(3.0%, 7.9%)		

 Table 7-18: Prevalence of Acute Malnutrition per MUAC and/or Oedema by Severity and Age Group

Age (Months)	N	No malnutrition		GAM		MAM		SAM		Oedema	
		n	%	n	%	n	%	n	%	n	%
6 to 17	146	126	87.0	19	13.0%	12	8.2	6	4.1	1	0.7
18 to 29	138	122	88.4	16	11.6%	9	6.5	7	5.1	0	0.0
30 to 41	127	117	93.7	8	6.3%	2	1.6	4	3.1	2	1.6
42 to 53	138	129	94.2	8	5.8%	4	2.9	3	2.2	1	0.7
54 to 59	69	68	98.6	1	1.4%	1	1.4	0	0.0	0	0.0
All	618	562	91.7	52	8.3%	28	4.5	20	3.2	4	0.6
Table 7-19: Prevalence of combined GAM and SAM based on WHZ and MUAC cut off's (and/or oedema) and by sex.

Indicator	All	Boys	Girls
	(N=619)	(N=315)	(N=304)
Prevalence of combined GAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(82) 13.2%	(43) 13.7%	(39) 12.8%
	(10.7%, 15.9%)	(10.1%, 17.6%)	(9.5%, 16.9%)
Prevalence of combined SAM (WHZ <-2 and/or MUAC < 125 mm and/or oedema)	(27) 4.4%	(10) 3.2%	(17) 5.6%
	(3.0%, 6.2%)	(1.7%, 5.6%)	(3.5%, 8.7%)

*With SMART or WHO flags a missing MUAC/WHZ or not plausible WHZ value is considered as normal when the other value is available

	Global A	Acute Malnutrition (GAM)	Severe Acute Malnutrition (SAM)			
	n	%	n	%		
Oedema	4	0.6% (0.2%, 2.1%)	4	0.6% (0.2%, 2.1%)		
Both	25	4.0% (2.4%, 6.7%)	6	1.0% (0.4%, 2.4%)		
WHZ	33	5.3% (3.5%, 8.1%)	4	0.6% (0.2%, 1.7%)		
MUAC	20	3.2% (2.1%, 5.0%)	13	2.1% (1.1%, 4.0%)		
Total	82	13.2% (9.9%, 17.5%)	27	4.4% (2.4%, 7.7%)		

Table 7-20: Detailed number for combined GAM and SAM

7.4. Prevalence of Chronic Malnutrition

The prevalence of chronic malnutrition, as indicated by height-for-age z-score (HAZ) measurements was 37.0% among the surveyed children, with 23.4% classified as moderately stunted and 13.5% as severely stunted. When analyzed by sex, a slightly higher prevalence of chronic malnutrition was observed among boys, with 41.4% classified as stunted compared to 32.3% among girls. Additionally, among children aged 18 to 29 months, the prevalence of stunting was highest at 45.6%.

The mean height-for-age z-score (HAZ) of -1.66 ± 1.18 suggests a substantial proportion of children exhibiting stunting in the surveyed population. The distribution of the HAZ sample compared to the WHO 2006 reference curve indicates that children in the surveyed population

were shorter than the reference population, indicating a prevalent issue of chronic malnutrition manifested as stunting.

Indicator	All	Boys	Girls
	(N=598)	(N=304)	(N=294)
Not stunted	(377) 63.0%	(178) 58.6%	(199) 67.7%
	(57.8%, 68.0%)	(52.0%, 64.9%)	(61.0%, 73.7%)
Prevalence of chronic malnutrition (HAZ < -2 SD)	(221) 37.0%	(126) 41.4%	(95) 32.3%
	(33.2%, 40.9%)	(36.0%, 47.1%)	(27.2%, 37.9%)
Prevalence of moderate chronic malnutrition (HAZ \geq -3 to -2 SD)	(140) 23.4%	(78) 25.7%	(62) 21.1%
	(20.2%, 27.0%)	(21.1%, 30.8%)	(16.8%, 26.1%)
Prevalence of severe chronic malnutrition (HAZ < -3 SD)	(81) 13.5%	(48) 15.8%	(33) 11.2%
	(11.0%, 16.5%)	(12.1%, 20.3%)	(8.1%, 15.3%)

Table 7-21: Prevalence of Chronic Malnutrition by HAZ by Severity and Sex among Children 6-59 months (SMART exclusions)

Table 7-22: Prevalence of Chronic Malnutrition per HAZ by Severity and Age Group (SMART
exclusions)	

Age (Months)	N	No stunting $(HAZ \ge -2)$		Stu (HA	inting Z < -2)	Moderate stunting $(HAZ \ge -3 \text{ to } <-2)$		Severe stunting (HAZ < -3)	
		n	%	n	%	n	%	n	%
6 to 17	141	106	75.2	35	24.80	27	19.1	8	5.7
18 to 29	136	74	54.4	62	45.60	32	23.5	30	22.1
30 to 41	124	78	62.9	46	37.10	32	25.8	14	11.3
42 to 53	131	74	56.5	57	43.50	35	26.7	22	16.8
54 to 59	66	45	68.2	21	31.80	14	21.2	7	10.6
All	598	377	63.0	221	36.90	140	23.4	81	13.5



Figure 7-4: Distribution of HAZ Sample Compared to the WHO 2006 WHZ Reference Curve

Figure 7-5: Mean HAZ by Age Group



7.5. Prevalence of Underweight

The prevalence of underweight among children aged 6 to 59 months was assessed using the weight-for-age z-score (WAZ). The results revealed that 21.4% of the children were underweight, with 14.7% classified as moderately underweight and 6.6% as severely underweight.

When disaggregated by sex, the prevalence of underweight among boys and girls was comparable, with 24.8% of boys and 17.7% of girls classified as underweight. Similar prevalences of moderate and severe underweight were observed across both sexes.

Analysis by age group indicated variations in the prevalence of underweight. The youngest age group (54 to 59 months) had the highest prevalence of underweight at 26.1%.

The mean weight-for-age z-score (WAZ) of -1.41 ± 1.05 indicates that, on average, children in the surveyed population exhibited a lower weight-for-age compared to the reference population. This suggests a prevalent issue of undernutrition among the surveyed children.

Table 7-23: Prevalence of Underweight by WAZ by Severity and Sex among Children 6-59
months (SMART exclusions), WHO 2006 Reference

Indicator	All	Boys	Girls
	(N=604)	(N=311)	(N=293)
Not underweight	(475) 78.6%	(234) 75.2%	(241) 82.3%
	(74.1%, 82.6%)	(69.3%, 80.3%)	(77.0%, 86.5%)
Prevalence of underweight (WAZ < -2 SD)	(129) 21.4%	(77) 24.8%	(52) 17.7%
	(18.3%, 24.8%)	(20.3%, 29.8%)	(13.8%, 22.5%)
Prevalence of moderate underweight (WAZ \geq -3 to -2 SD)	(89) 14.7%	(54) 17.4%	(35) 11.9%
	(12.1%, 17.8%)	(13.6%, 22.0%)	(8.7%, 16.2%)
Prevalence of severe underweight (WAZ < -3 SD)	(40) 6.6%	(23) 7.4%	(17) 5.8%
	(4.9%, 8.9%)	(5.0%, 10.9%)	(3.7%, 9.1%)

Table 7-24: Prevalence of Underweight per WAZ by Severity and Age Group (SMA	ιRT
exclusions)	

Age (Months)	N	Not underweight		Underweight (WAZ < -2)		Moderat (-3 ≤	e Underweight WAZ < -2)	Severe Underweight (WAZ < -3)	
		n	%	n	%	n	%	n	%
6 to 17	145	115	79.3	30	20.7%	21	14.5	9	6.2
18 to 29	132	104	78.8	28	21.2%	16	12.1	12	9.1
30 to 41	123	99	80.5	24	19.6%	20	16.3	4	3.3
42 to 53	135	106	78.5	29	21.4%	18	13.3	11	8.1

Age (Months)	ge (Months) N		lerweight	Underweight (WAZ < -2)		Moderate Underweight (-3 ≤ WAZ < -2)		Severe Underweight (WAZ < -3)	
		n	%	n	%	n	%	n	%
54 to 59	69	51	73.9	18	26.1%	14	20.3	4	5.8
All	604	475	78.6	129	21.3%	89	14.7	40	6.6

Figure 7-6: Distribution of WAZ Sample Compared to the WHO 2006 WHZ Reference Curve



Weight-for-Age z-scores

Figure 7-7: Mean WAZ by Age Group



7.6. Prevalence of Overweight

The prevalence of overweight among the surveyed children, based on weight-for-height zscore (WHZ), was found to be relatively low. Specifically, the survey results indicated that 0.2% of the children were classified as overweight. No cases of severe overweight were identified in the surveyed population.

Furthermore, the prevalence of overweight remained consistently low across different age groups, with no notable variations observed. However, a slightly higher prevalence was observed among children aged 42 to 53 months, with 0.7% classified as overweight.

Indicator	All	Boys	Girls
	(N=610)	(N=310)	(N=300)
Prevalence of overweight (WHZ > 2 SD)	(1) 0.2%	(1) 0.3%	(0) 0.0%
	(0.0%, 0.9%)	(0.1%, 1.8%)	(0.0%, 1.3%)
Prevalence of moderate overweight (WHZ from 2 to 3 SD)	(0) 0.0%	(0) 0.0%	(0) 0.0%
	(0%, 0%)	(0%, 0%)	(0%, 0%)
Prevalence of severe overweight (WHZ > 3 SD)	(0) 0.0%	(0) 0.0%	(0) 0.0%
	(0%, 0%)	(0%, 0%)	(0%, 0%)

 Table 7-25: Prevalence of overweight based on weight for height cut off's and by sex (no oedema) (SMART exclusions)

 Table 7-26: Prevalence of overweight by age, based on weight for height (no oedema) (SMART exclusions)

Age (Months)	N	Overweight (WHZ > 2)		Moder (2	rate Overweight < WHZ ≤ 3)	Severe Overweight (WHZ > 3)		
		n	%	n	%	n	%	
6 to 17	145	0	0.0	0	0.0%	0	0.0%	
18 to 29	133	0	0.0	0	0.0%	0	0.0%	
30 to 41	127	0	0.0	0	0.0%	0	0.0%	
42 to 53	136	1	0.7	0	0.0%	0	0.0%	
54 to 59	69	0	0.0	0	0.0%	0	0.0%	
All	610	1	0.2	0	0.0%	0	0.0%	

7.7. Mortality Results

The mortality results from the survey indicate a relatively low overall mortality rate, with a crude mortality rate (CMR) of 0.09 deaths per 10,000 people per day. When disaggregated by sex, females had a slightly higher mortality rate of 0.12 compared to males at 0.06.

By age group, the mortality rate was highest among adults aged 18 to 49 years, with a CMR of 0.15 deaths per 10,000 people per day. Among children under five, the under-five mortality rate (U5MR) was 0.00 deaths per 10,000 per day. Both the CMR and the U5MR were below the WHO emergency thresholds of 1/10,000/day and 2/10,000/day respectively.

Population	Mortality Rate (/10,000/Day)	Design Effect
Overall	0.09 (0.02, 0.35)	1.65
By Sex		
Male	0.06 (0.01, 0.33)	1.00
Female	0.12 (0.03, 0.44)	1.00
By Age Group		
0 to 4	0.00 (0.00, 6.33)	1.00
5 to 11	0.14 (0.02, 0.82)	1.02
12 to 17	0.00 (0.00, 6.52)	1.00
18 to 49	0.15 (0.03, 0.86)	1.98
50 to 64	0.00 (0.00, 7.06)	1.00
65 to 120	0.00 (0.00, 12.38)	1.00

Table 7-27: Mortality Rate by Age and Sex with Reported Design Effect

Table 7-28: CMR and U5MR

Population	Unit	Rate (95% CI)
Crude Mortality Rate	deaths per 10,000 people per day	0.09 (0.02, 0.35)
U5 Mortality Rate	deaths per 10,000 children under five per day	0.00 (0.00, 6.33)

7.8. Other Indicator Results

7.8.1. Indicators at the Household Level

Food Security

Food Consumption Score (FCS)

The mean FCS for the surveyed population was 37.61, indicating acceptable food consumption. Most households (60.7%) fell under the category of acceptable food consumption score, while 29.3% fell into the borderline category indicative of IPC AFI Phase 2. Although East Wollega

is known for its food surplus production, there are security-related challenges that hinder agricultural activities. **Table 7-29:** Average FCS*

Variable	Mean	95% CI	Obs.	SD	Min	Max
FCS	37.61	(35.5, 39.7)	745	12.52	2.5	79.5

* Maximum FCS is 112 (129.5 if specialized nutritious foods are included).

Level Freq. Proportion 95% CI Acceptable (FCS > 35) 452 60.7% (52.1%, 68.6%)Borderline $(21.5 \le FCS \le 35)$ 218 29.3% (23.3%, 36.0%)75 Poor (FCS ≤ 21) 10.1% (5.9%, 16.6%)745 100.0% Total

Table 7-30: Food Consumption Score by Category

* In countries where households have a high sugar and oil consumption (oil and sugar eaten on a daily basis - ~7 days per week), cut-off points of 28 (poor/borderline) and 42 (borderline/acceptable) are usually recommended.

Negative coping strategies and Reduced Coping Strategy Index (rCSI)

The mean Reduced Coping Strategy Index (rCSI) was 10.46 which is medium and indicative of IPC AFI Phase 2 (stressed). A significant portion of the surveyed population resorted to negative coping strategies in the 7 days prior to data collection. About 51.6% relied on less preferred or less expensive foods, while 35.0% borrowed food or relied on help from friends or relatives. Additionally, 48.1% limited portion sizes at mealtime, and the same percentage reduced the number of meals eaten in a day. Furthermore, 43.9% reduced consumption by adults so children could eat. From this data, can we conclude that nearly half of the population exercising coping mechanisms indicating stress situation in the area?

Table 7-31: Negative coping strategies used by the surveyed population in the 7 days prior to data collection.

Level	Freq.	Proportion	95% CI
Rely on less preferred and/or less expensive foods	386	51.6%	(44.7%, 58.5%)
Borrow food, or rely on help from a friend or relative	262	35.0%	(29.1%, 41.4%)

Level	Freq.	Proportion	95% CI
Limit portion sizes at mealtime	360	48.1%	(41.1%, 55.3%)
Reduce the number of meals eaten in a day	389	52.1%	(45.3%, 58.9%)
Reduce consumption by adults so children could eat	328	43.9%	(37.7%, 50.3%)

* The total will be over 100% as households may use several negative coping strategies.

Table 7-32: Average rCSI

Variable	Mean	95% CI	Obs.	SD	Min	Max
Reduced Coping Strategy Index (rCSI)	10.46	(8.5, 12.5)	745	12.29	0	56

* Maximum rCSI is 56

Household Hunger Scale (HHS)

The majority, comprising 77.1% of surveyed households, reportedly experienced no or little hunger. However, 21.0% experienced moderate hunger indicative of IPC AFI phase 2 or stressed. Please would you indicate for what purpose we have used this indicator and what it tells about?

Table 7-33: Median Household Hunger Score

Variable	Median	IQR	Min	Max
Household Hunger Scale	0	[0 - 1]	0	5

* Maximum HHS is 6

Table 7-34: Household Hunger Score by Category

	Freq.	Proportion	95% CI
Little to no hunger in the household	576	77.1%	(70.9%, 82.3%)
0 HHS = 0	484	64.8%	(57.5%, 71.5%)
HHS = 1	92	12.3%	(9.1%, 16.5%)
Moderate hunger in the household	157	21.0%	(16.1%, 27.0%)
2 HHS = 2	92	12.3%	(9.1%, 16.5%)
3 HHS = 3	65	8.7%	(5.9%, 12.7%)

	Freq.	Proportion	95% CI
Severe hunger in the household	14	1.9%	(0.9%, 3.7%)
4 HHS = 4	13	1.7%	(0.8%, 3.6%)
5 $HHS = 5$	1	0.1%	(0.0%, 1.0%)
6 HHS = 6	0	0.0%	(0%, 0%)
Total	747	100.0%	-

WASH

Access to safe/improved water for drinking and cooking

Among the households surveyed, 70.4% reported access to protected or treated water sources, considered safe for consumption. However, 29.6% of households depended on unprotected or untreated water sources. These included surface water (7.9%) and unprotected springs (21.5%). Access to safe water is crucial for public health, and while a significant portion of households had access to safe water, there remains a notable proportion relying on potentially unsafe sources. Unsafe water leads to health problems, including waterborne diseases and malnutrition, particularly impacting vulnerable groups like women and children.

Please indicate what impact did unsafe water has on community?

	Freq.	Proportion	95% CI
Protected/treated	528	70.4%	(60.2%, 78.9%)
Public tap/standpipe	61	8.1%	(3.8%, 16.6%)
2 Handpumps/boreholes	144	19.2%	(11.8%, 29.7%)
3 Protected well	5	0.7%	(0.3%, 1.6%)
4 Water seller/kiosks	0	0.0%	(0%, 0%)
5 Piped connection to house (or neighbour's house)	10	1.3%	(0.2%, 7.8%)
6 Protected spring	305	40.7%	(30.5%, 51.7%)
7 Bottled water, water sachets	3	0.4%	(0.1%, 1.2%)
8 Tanker trucks	0	0.0%	(0%, 0%)
Un-protected/un-treated	222	29.6%	(21.1%, 39.8%)
9 Unprotected hand-dug well	2	0.3%	(0.1%, 1.1%)
10 Surface water (lake, pond, dam, river)	59	7.9%	(3.9%, 15.2%)
11 Unprotected spring	161	21.5%	(14.0%, 31.5%)

Table 7-35: Water Quality

	Freq.	Proportion	95% CI
12 Rain water collection	0	0.0%	(0%, 0%)
96 Other unprotected	0	0.0%	(0%, 0%)
Unknown	0	0.0%	(0%, 0%)
98 Don't know	0	0.0%	(0%, 0%)
Total	750	100.0%	-

Access to improved sanitation facilities

Less than half of the surveyed population (41.6%), reported having access to improved sanitation facilities. Conversely, more than half (58.4%) of the surveyed households relied on unimproved sanitation facilities. These unimproved facilities often lack proper sanitation infrastructure or hygiene standards. Poor sanitation has consequences for community health leading to a higher prevalence of diseases like diarrhea, cholera, and dysentery, especially for vulnerable populations.

What is the consequence of an improved sanitation on the livelihood and health of the community?

	Freq.	Proportion	95% CI
Improved	312	41.6%	(31.6%, 52.3%)
1 An improved excreta disposal facility	271	36.1%	(27.3%, 46.1%)
2 A shared family toilet	31	4.1%	(2.4%, 7.1%)
3 A communal toilet	10	1.3%	(0.6%, 3.1%)
Unimproved	438	58.4%	(47.7%, 68.4%)
4 An unimproved toilet	438	58.4%	(47.7%, 68.4%)
Other	0	0.0%	(0%, 0%)
98 Don't know	0	0.0%	(0%, 0%)
Total	750	100.0%	-

 Table 7-36:
 Safe Excreta Disposal

7.8.2. Indicators at individual level – Children 6-59 months

Nutrition and Health Vitamin A Supplementation

Out of the total surveyed children aged 6 to 59 months, 79.1% were supplemented with vitamin A. This included 26.2% with a formal record of the supplementation received. Additionally, 53.0% of caregivers reported supplementation through recall. On the other hand, 20.9% of children did not receive any vitamin A supplementation. Vitamin A supplementation coverage was below the recommended UNICEF recommended threshold (80%).

	Freq.	Proportion	95% CI
Supplementation	496	79.1%	(72.3%, 84.6%)
Yes, card	164	26.2%	(19.5%, 34.2%)
2 Yes, recall	332	53.0%	(46.2%, 59.6%)
No supplementation	131	20.9%	(15.4%, 27.7%)
3 No or don't know	131	20.9%	(15.4%, 27.7%)
Total	627	100.0%	-

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Deworming coverage

Deworming coverage for children aged 12-59 months within the 6 months prior to data collection was 45%. Conversely, 55% of the children, did not receive deworming treatment in the 6 months prior to data collection. Ensuring adequate coverage of deworming interventions is crucial for promoting the health and well-being of children by mitigating the risks associated with parasitic infections.

 Table 7-38: Deworming coverage for children aged 24-59 months within the 6 months prior to data collection*

Level	Freq.	Proportion	95% CI
No	299	55.0%	(47.8%, 61.9%)
Yes	245	45.0%	(38.1%, 52.2%)
Total	544	100.0%	-

* Note that this refers to large-scale campaigns done with mebendazole and/or albendazole.

Measles vaccination coverage

Measles vaccination coverage for children aged 9-59 months was 87.5% while for children aged 9-23 months was 80.8%. Among these vaccinated children aged 9-23 months, 36.3% had

vaccination documented through a vaccination card. Measles vaccination coverage was below the WHO recommended herd immunity threshold of 95%.

	Freq.	Proportion	95% CI
Yes	518	87.5%	(81.3%, 91.9%)
Yes, card	199	33.6%	(26.2%, 41.9%)
2 Yes, recall	319	53.9%	(46.2%, 61.4%)
No	74	12.5%	(8.1%, 18.7%)
3 No or don't know	74	12.5%	(8.1%, 18.7%)
Total	592	100.0%	-

 Table 7-39: Measles vaccination coverage for children aged 9-59 months.

 Table 7-40: Measles vaccination coverage for children aged 9-23 months

	Freq.	Proportion	95% CI
Yes	147	80.8%	(70.9%, 87.9%)
1 Yes, card	66	36.3%	(26.2%, 47.7%)
2 Yes, recall	81	44.5%	(35.5%, 53.9%)
No	35	19.2%	(12.1%, 29.1%)
3 No or don't know	35	19.2%	(12.1%, 29.1%)
Total	182	100.0%	-

Morbidity results and health-seeking behaviour

A total of 4.2% of surveyed 6-59 months children exhibited symptoms indicative of ARI in the two weeks prior to data collection, which typically involve cough accompanied by short, rapid breathing or difficulty breathing related to the chest. Fever was reported in 35.1% of the surveyed children, while diarrhea affected 22.2%.

Among the children who experienced diarrhea, 15.8% received ORS, and 15.8% were administered zinc tablets or syrup. Furthermore, 7.2% received both ORS and zinc during their diarrhea episode.

For children with symptoms of ARI, 69.2% sought advice or treatment from a health facility/provider. Similarly, 76.4% children with fever and 66.2% children with diarrhea sought treatment from healthcare facilities or providers.

Table 7-41: Prevalence of ARI symptoms, fever and diarrhoea in the two weeks preceding the	he
survey for children aged 6-59 months.	

Level	Freq.	Proportion	95% CI
ARI symptoms*	26	4.2%	(2.6%, 6.7%)
Fever	220	35.1%	(28.6%, 42.3%)
Diarrhoea	139	22.2%	(16.8%, 28.6%)

* Cough accompanied by short, rapid breathing which was chest related or with difficulty breathing which was chest related

Table 7-42: ORS and zinc use during diarrhoea episode for children aged 6-59 months

Level	Freq.	Proportion	95% CI
ORS use during diarrhoea episode	22	15.8%	(10.0%, 24.2%)
Zinc tablet or syrup use during diarrhoea episode	22	15.8%	(10.3%, 23.5%)
ORS and zinc tablet or syrup use during diarrhoea episode	10	7.2%	(3.6%, 13.7%)

Table 7-43: Treatment for ARI symptoms, fever and diarrhoea for children aged 6-59 months

Level	Freq.	Proportion	95% CI
Children with symptoms of ARI	18	69.2%	(46.4%, 85.4%)
Children with fever	168	76.4%	(67.3%, 83.6%)
Children with diarrhea	92	66.2%	(57.4%, 74.0%)

* Prevalences relate to whether advice or treatment was sought from a health facility/provider (excludes pharmacy, shop and traditional practitioners)

Infant and Young Child Feeding (IYCF) Practices

The data reveals high rates of breastfeeding indicators, with 94.4% of children aged 0-23 months reported to have ever been breastfed. Additionally, 64.7% of infants received early initiation of breastfeeding, while 70.2% were exclusively breastfed for the first 2 days after birth. However, exclusive breastfeeding under 6 months was 69.1% of infants aged 0-5 months. Nevertheless, continued breastfeeding was prevalent, with 85.8% of children aged 12-23 months still being breastfed.

Regarding complementary feeding practices, the introduction of solid, semi-solid, or soft foods was reported for 67.6% of children aged 6-8 months. However, minimum dietary diversity was relatively very low, with only 26.7% of children aged 6-23 months meeting the recommended practice. Similarly, 66.4% of children in the same age group achieved the minimum required meal frequency. However, only 19.4% of children aged 6-23 months received a minimum acceptable diet. Egg and/or flesh food consumption was reported for 41.9% of children, while 28.1% consumed sweet beverages. Additionally, 53.5% of children in this age group did not

consume any vegetables or fruits. Additionally, approximately one in four children in this age group are being bottle-fed, a practice that can increase the risk of infections, such as diarrhea, especially in areas with poor hygiene. Complementary feeding practices reveal gaps in meeting recommended nutritional standards for infants and young children.

Indicator	Age range	Freq	Proportion	95% CI		
	Breastfeeding I	ndicators				
Ever breastfed	0-23 months	255	94.4%	(90.5%, 96.8%)		
Early Initiation	0-23 months	176	64.7%	(55.4%, 73.0%)		
Exclusively breastfed for the first 2 days after birth	0-23 months	191	70.2%	(61.9%, 77.4%)		
Exclusive breastfeeding under 6 months	0-5 months	38	69.1%	(56.4%, 79.5%)		
Mixed milk feeding under 6 months	0-5 months	2	3.6%	(0.9%, 13.9%)		
Continued breastfeeding	12-23 months	127	85.8%	(77.3%, 91.5%)		
Complementary Feeding Indicators						
Introduction of solid, semi-solid or soft foods	6-8 months	23	67.6%	(50.4%, 81.1%)		
Minimum dietary diversity	6-23 months	58	26.7%	(19.9%, 34.8%)		
Minimum meal frequency	6-23 months	144	66.4%	(58.3%, 73.6%)		
Minimum milk feeding frequency for non-breastfed children	6-23 months	7	28.0%	(12.6%, 51.2%)		
Minimum acceptable diet	6-23 months	42	19.4%	(13.8%, 26.5%)		
Egg and/or flesh food consumption	6-23 months	91	41.9%	(32.4%, 52.1%)		
Sweet beverage consumption	6-23 months	61	28.1%	(20.9%, 36.7%)		
Unhealthy food consumption	6-23 months	25	11.5%	(7.0%, 18.4%)		
Zero vegetable or fruit consumption	6-23 months	116	53.5%	(45.2%, 61.5%)		
	Other Indic	ators				
Bottle feeding	0-23 months	72	26.5%	(19.8%, 34.5%)		

Table 7-44: Prevalence of Infant and Young Child Feeding Practices Indicators

7.8.3. Indicators at individual level – Women 15-49 years

Physiological Status and Age

Among women in this age group(n=597), 60.6% were non-pregnant and non-lactating. Additionally, 7.1% were reported as pregnant and 31.9% as lactating with infants less than 6 months. The mean age of women in this age range was 27.22 years.

• •		0	
Level	Freq.	Proportion	95% CI
Non-pregnant, non-lactating	518	60.6%	(56.9%, 64.2%)
Pregnant	61	7.1%	(5.3%, 9.5%)
Lactating with an infant less than 6 months	88	31.9%	(23.9%, 41.1%)
Lactating with an infant greater than 6 months	188	68.1%	(58.9%, 76.1%)

Table 7-45: Physiological status for women aged 15-49.

Table 7-46: Women's Age (all women aged 15-49)

Variable	Mean	95% CI	Obs.	SD	Min	Max
Age	27.22	(26.8, 27.7)	857	8.25	15	49

MUAC in women

Among non-pregnant, non-lactating women aged 15-49, 6.2% had MUAC measurements below 210 mm, indicating undernutrition. However, when the threshold was adjusted to MUAC < 230 mm, **the prevalence of malnutrition increased notably to 27.2%.** Conversely, **pregnant and lactating women with infants under 6 months old** showed a different prevalence. In this group, 8.1% had MUAC measurements below 210mm, indicating undernutrition. When considering MUAC threshold of < 230mm, **the prevalence of malnutrition rose to 38.5%**. The malnutrition rates among women of reproductive age, based on MUAC measurements, are concerningly high.

 Table 7-47: Prevalence of MUAC Malnutrition in Non-Pregnant, Non-Lactating Women (Aged 15-49)

Level	Freq.	Proportion	95% CI
Prevalence of MUAC < 210mm	32	6.2%	(4.3%, 8.8%)
No malnutrition (MUAC \geq 210mm)	483	93.8%	(91.2%, 95.7%)
Prevalence of MUAC < 230mm	140	27.2%	(22.7%, 32.1%)
No malnutrition (MUAC \geq 230mm)	375	72.8%	(67.9%, 77.3%)

Level	Freq.	Proportion	95% CI
Prevalence of MUAC < 210mm	12	8.1%	(4.6%, 14.0%)
No malnutrition (MUAC \geq 210mm)	136	91.9%	(86.0%, 95.4%)
Prevalence of MUAC < 230mm	57	38.5%	(31.5%, 46.0%)
No malnutrition (MUAC \geq 230mm)	91	61.5%	(54.0%, 68.5%)

Table 7-48: Prevalence of MUAC Malnutrition in Pregnant Women and Lactating Women with an Infant Less Than 6 Months

Skilled attendant at delivery

Among the women who had given birth in the 5 years prior to data collection, 53.2% reported assistance from a skilled provider. Specifically, 3.9% received assistance from a doctor, while 49.1% were assisted by a nurse or midwife. However, a significant proportion, constituting 46.8%, either received assistance from unskilled providers or had no assistance during delivery: 23.2% by traditional birth attendants, and 17.0% by relatives or friends. Additionally, 6.0% of women reported having no assistance during delivery, indicating deficiencies in healthcare access or infrastructure, particularly in remote or underserved areas. This situation not only poses significant risks for maternal and newborn health, but it also underscores the need for improved service delivery, including better access to skilled providers and increased efforts to build trust and raise awareness about the importance of professional care during childbirth.

Table 7-49: Assistance During Delivery (Includes Only the Most Recent Birth in the 5 Years

 Preceding the Survey)

	Freq.	Proportion	95% CI
Skilled provider	300	53.2%	(45.5%, 60.7%)
1 Doctor	22	3.9%	(2.1%, 7.0%)
2 Nurse / midwife	277	49.1%	(41.9%, 56.4%)
3 Auxiliary midwife	1	0.2%	(0.0%, 1.3%)
Other provider or no assistance	264	46.8%	(39.3%, 54.5%)
4 Community health worker	0	0.0%	(0%, 0%)
5 Traditional birth attendant	131	23.2%	(16.0%, 32.5%)
6 Relative / friend	96	17.0%	(11.6%, 24.2%)
7 Other	3	0.5%	(0.2%, 1.6%)
8 No one	34	6.0%	(3.0%, 11.8%)
Total	564	100.0%	-

8. Discussion

8.1. Nutritional Status of East Wollega Zone

The prevalence of acute malnutrition, as determined by WHZ and/or edema, revealed a GAM rate of 10.2% in children 6-59 months. 7.9% were categorized as MAM, and 2.3% as SAM. Based on MUAC and/or edema, the findings indicated a GAM of 7.9%, with 4.2% classified as moderate acute malnutrition and 3.7% as severe acute malnutrition. When combined, the prevalence of GAM and SAM in children 6-59 months was reported to be 13.2% and 4.4%, respectively.

Comparing these findings to previous surveys, we observe relatively higher prevalence. For instance, the national food and nutrition strategy baseline survey from March 2023, GAM was reported at 9%¹⁴ for Oromia region and according to the 2019 Ethiopian Demographic and Health Survey (EDHS)¹⁵, the GAM for Oromia was 4.3%, with SAM at 0.3%.

Assessing these prevalence rates against benchmarks, we utilize the WHO/UNICEF classification for the severity of malnutrition by prevalence thresholds. The prevalence of wasting (WHZ) is high, indicating critical levels. Considering seasonality, though the survey in the lean seasons, there were aggravating factors like malaria outbreak in the survey areas.

8.2. Mortality

The crude mortality rate was 0.09 and the under-five mortality rate was 0.00. Both the CMR and the U5MR were below the WHO emergency thresholds of 1/10,000/day and 2/10,000/day respectively. Compared to other recent SMART surveys conducted in Oromia region, the current survey results show similarity in both crude and under-five mortality rates.

8.3. Determinants of Malnutrition

The nutrition status of children aged 6-59 months reveals a prevalence of global acute malnutrition (GAM) at 10.2%, falling into the high category according to WHO/UNICEF classification. However, specific areas like Guto Gida and Sasiga districts exhibit a very high levels of acute malnutrition, with a GAM prevalence of >15%¹⁶. Stunting, another critical indicator, affects 37% of children aged 6-59 months, classified as very high according to WHO/UNICEF standards.

Among women of reproductive age, particularly non-pregnant, non-lactating women aged 15-49 years, 27.2% had MUAC measurements below 230mm, indicating undernutrition. A similar trend was observed among pregnant and lactating women with infants less than 6 months old, with 38.5% having MUAC measurements below 230mm. Furthermore, 6.2% and 8.1% of non-pregnant

¹⁴ Ethiopian Public Health Institute (EPHI) [Ethiopia]. National food and nutrition strategy baseline survey. March 2023

¹⁵ Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF. 2021. Ethiopia Mini Demographic and Health Survey 2019: Final Report. Rockville, Maryland, USA: EPHI and ICF.

¹⁶ The calculated sample size was representative at the zonal level, not the district level. Therefore, these results are indicative and do not reflect the estimated prevalence precisely.

non-lactating women and pregnant and lactating women were severely malnourished (MUAC <210mm).

Most households were found to have an Acceptable FCS (60.7%), while 29.3% reportedly had a Borderline FCS, indicative of IPC AFI Phase 2 (Stressed). The majority (77.1%) of surveyed households reportedly experienced little or no hunger according to the Household Hunger Scale while 21.0% were stressed and 1.9% experiencing severe hunger. Women's nutrition especially during the nutritionally vulnerable period of pregnancy and breastfeeding is also an important determinant of children's nutrition, growth, health and development outcomes during the 1,000-day window from conception to age two, and beyond.¹⁷

Vitamin A supplementation coverage for children aged 6-59 months in the 6 months prior to data collection was 79.1%, deworming coverage for children aged 12-59 months was 45%, and measles vaccination coverage for children aged 9-59 months was 87.5%. In addition,, the prevalence rates for **fever** (35.1%) among children aged 6-59 months in the two weeks prior to data collection remained concerning, and may be indicative of **malaria** as the survey area was malaria endemic. Diarrhea also affected 22.2% of the children and can leads to reduced absorption of essential nutrients, further contributing to malnutrition. **Vitamin A coverage in Oromia, according to the 2019 mini-EDHS, was 42%, which is lower than in the East Wollega (79.1%). However, coverage in East Wollega was still below the WHO/UNICEF threshold of 80%. Similarly, measles vaccination coverage was below the recommended herd immunity threshold of 95%, which is necessary to achieve high population immunity against measles. Increase in rates of malaria infection is associated with peaks in admission to therapeutic feeding programs, children with malnutrition also showed a greater risk of complications from malaria, requiring hospitalization¹⁸.**

Despite relatively better optimal IYCF practices, there were areas where improvement was needed. While early initiation of breastfeeding and exclusive breastfeeding rates was 64.7% and 69.1%, respectively, the percentage of children aged 6-23 months **meeting minimum acceptable diet remains low at 19.4% indicating a very high risk of deterioration of acute malnutrition**. This suggests gaps in nutritional practices that need to be addressed through targeted interventions and awareness campaigns aimed at caregivers and communities.

Moreover, inadequate sanitation facilities further compound the challenges related to nutrition and health. Only 41.6% of households had access to improved sanitation facilities. These figures highlight the urgent need for investments in sanitation infrastructure to improve health outcomes and mitigate the risk of waterborne diseases that can exacerbate malnutrition.

The prospects for the coming months, particularly in Guto Gida, and Sasiga districts, remain the same, with projected food security outcomes indicating a stressed status from October 2024 to January 2025, according to Fewsnet. Seasonal changes or insecurity may exacerbate existing challenges, further compromising food security, health, and nutrition.

¹⁷Likhar, A. and Patil, M.S., 2022. Importance of maternal nutrition in the first 1,000 days of life and its effects on child development: a narrative review. Cureus, 14(10). https://pmc.ncbi.nlm.nih.gov/articles/PMC9640361/

¹⁸ Wurr C, Zeydner J, van der Kam S, 2015. Malnutrition peaks during malaria epidemic in northwest Ni geria. Field Exchange.

In conclusion, the data underscores the multifaceted nature of malnutrition, influenced by various factors including food security, IYCF practices, and access sanitation. Addressing these challenges requires a comprehensive approach that integrates nutrition-sensitive interventions with efforts to improve food security, promote healthy feeding practices, and enhance access to WASH services.

8.3.1. Additional Indicators

The data on skilled attendance at delivery show that 53.2% of surveyed individuals reported assistance from a skilled provider, which is higher than the Oromia region's average of 43.3%.¹⁹ The fact that 46.8% either received assistance from other non-skilled providers or had no assistance during delivery highlights gaps in access to quality maternal healthcare services.

This finding intersects with broader health indicators and nutrition status within the population. Adequate prenatal and postnatal care, including skilled attendance at delivery, is crucial for ensuring positive maternal and child health outcomes. However, inadequate access to skilled providers during delivery can lead to complications and adverse outcomes for both mothers and newborns, contributing to the prevalence of maternal and child health issues observed in the region.

The prevalence of acute malnutrition among children and women, coupled with food insecurity and limited access to safe water and sanitation, further emphasizes the importance of comprehensive maternal and child health services. Skilled attendance at delivery is not only essential for ensuring safe childbirth but also for providing critical health education and support to mothers, contributing to improved nutrition outcomes and overall well-being.

Addressing the challenges identified in skilled attendance at delivery requires a multi-faceted approach that includes strengthening health systems, increasing access to skilled healthcare providers, improving infrastructure and facilities, and raising awareness about the importance of maternal healthcare services. By addressing these factors holistically, communities can work towards improving maternal and child health outcomes and reducing the prevalence of malnutrition and related health issues.

9. Conclusion

The high prevalence of acute malnutrition, as classified by WHO/UNICEF, necessitates nutrition interventions and preventive measures. Although mortality rates are below WHO emergency thresholds, indicating relative health stability, addressing malnutrition's root causes remains essential. The survey underscores the importance of a comprehensive strategy, integrating nutrition-sensitive interventions with food security, healthy feeding practices, and improved water and sanitation access. Future projections for certain districts highlight potential challenges, requiring proactive measures to support at-risk populations. Tackling malnutrition demands cross-sector collaboration, prioritizing underlying determinants and fostering partnerships to achieve sustainable nutrition and well-being improvements.

¹⁹ Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF. 2021. Ethiopia Mini Demographic and Health Survey 2019: Final Report. Rockville, Maryland, USA: EPHI and ICF.

Annexes

Annex 1 - <u>Cluster Selection</u>

Attach the cluster assignment that is being used for the survey.

Kebele	Kebele zone	Population	Cluster
Gala Gura	Dovu	<u>size</u>	1
Gala-Oule	Goli	2000	1
Eiorea Guto	Diba	2554	2
Ejersa-Oute	Diba	2534	3
	Golo Jawia	2017	4
Ario Gudetu Town/Ario	1ffaa	2097	5
Konan Bula	111aa	2192	0
	3ffaa	2391	7
	2ffaa	2047	8
	3ffaa	779	9
	3ffaa	1276	10
	6ffaa	2481	11
	2ffaa	1912	12
	5ffaa	1042	13
	3ffaa	2086	14
	3ffaa	1574	15
Degaga Dedesa	1ffaa	654	RC
	wirtu	1178	16
	Zone 2	1417	17
	Alaltu and adisalem	4703	18
	Foki (zone 3)	1183	19
	Zone 2	3145	20
	Agiroo(zone 3)	5546	21
	Mayeti	1822	22
Gadisa Oda	6ffaa guddaa(1ffaa)	2986	23
	7fffaa kaambii(3ffaa)	1958	24
	Dandi gudina	2155	RC
	Dipo	1108	25
	Jarso 2	1150	26
	Harbu	1234	27
Meta	Ageta	3085	28
	Meta	3268	RC
Bedasa Dedesa	Soyoma	1659	29

HundeGudina	Soyoma	1669	30
Seka	Saqaa	2469	31
	Kooyyee	2497	32
Bedho	Digo	3035	33
	Dagaga	1150	34
Karu Nageso	Goji	3029	RC
	Belam	2135	35
	Ajamo	1490	36
	D/Abbonnoo	966	37
	Sire Lenca	1402	38
	Lalo	3311	39
	Dimitu	1865	40
	Burqa gudina	1487	41
Wama Bidru	Lafa Gabaa	1234	RC
Wama Lelisa	Komaa	1164	42
Wama Adera	Ejersa	1239	43
	Dooshee	1482	44
	Abboonnoo	1069	45
	shumbee		
	Waatiraa 2ffaa	2060	46
	Goluu	2662	47
	Kuraa	1616	48
	Jaanoo 2ffaa	1138	49
	Tullu kormaa	1885	50
Kortu Lago	Jarii	1822	51
Adaree 01	Kafaa Barri	1554	52
Handure Bello	Fayinera	1411	RC
	Kubata	1104	53
Qersa Mojo	Laljstu mojo	1090	54
Mede Jelella	Elili jalela	2211	55
	Hunde jalela	2605	56
Hore Watta	Laga hora	2045	57
	Simitegna	2357	58
	Haqa mulis	1575	59
	Walin	2525	60
	Belo zone2	1282	RC
	Bule hora	1504	61
	Zone 3	1324	62
Beko Jimma	Garadoo	1769	63
	Lalistu Baqoo	2940	RC
	1ffaa		
	Warakkee Alama	1960	64
	2ffaa		

	Xixxiixxaa	1664	65
	Kombo	2763	66
Elu Agelo	Guji	2672	67
	Kilo	2941	68
	Jidha	1374	69
Gosani Babo	Babo	1928	70
Bata Awangiro	Awangiro	1872	71
	Akona	3287	72
	Daba	1528	73
Go/Ija	Kalala	4063	74
	Gombo Irbo	3863	75

Annex 2 - <u>Standardization Test Results</u>

Table 9-50: Bias and Technical Error of Measurement (TEM) Results for Weight

	No. of subjects	TEM	Bias	Bias relative to	ns relative to Outcome (TEM)			
Individual TEM (intra)								
665.0								
Observer 1	9	0.10	0.01	Supervisor	TEM acceptable	Bias good		
Observer 2	10	0.08	0.01	Supervisor	Supervisor TEM acceptable			
Observer 3	10	0.10	-0.06	Supervisor	TEM poor	Bias acceptable		
Observer 4	4	0.08	-0.02	Supervisor	TEM acceptable	Bias good		
Observer 5	8	0.09	0.00	Supervisor	TEM acceptable	Bias good		
Observer 6	9	0.08	-0.01	Supervisor	TEM acceptable	Bias good		
Observer 7	8	6.75	1.91	Supervisor	TEM reject	Bias reject		
Observer 8	9	0.08	-0.01	Supervisor	TEM acceptable	Bias good		
Observer 9	10	0.10	-0.05	Supervisor	TEM poor	Bias acceptable		
Observer 10	10	0.07	-0.06	Supervisor	TEM acceptable	Bias acceptable		
Observer 11	9	0.14	-0.04	Supervisor	TEM poor	Bias acceptable		

	No. of subjects	TEM	Bias	Bias relative to	Outcome (TEM)	Outcome (Bias)
Observer 12	10	0.09	-0.04	Supervisor	TEM acceptable	Bias good
Supervisor 1	9	0.07	0.04	Median	TEM acceptable	Bias acceptable
Team TEM (inter)						
665.0						
enum inter 1st	7x10	0.13			TEM acceptable	
enum inter 2nd	10x10	2.85			TEM reject	

 Table 9-51: Bias and Technical Error of Measurement (TEM) Results for Height

	No. of subjects	TEM	Bias	Bias relative to	Outcome (TEM)	Outcome (Bias)		
Individual TEM (intra)								
665.0								
Observer 1	9	2.47	2.29	Supervisor	TEM acceptable	Bias poor		
Observer 2	9	1.53	2.71	Supervisor	TEM good	Bias poor		
Observer 3	10	1.80	-0.94	Supervisor	TEM good	Bias good		
Observer 4	4	0.61	1.50	Supervisor	TEM good	Bias acceptable		
Observer 5	8	1.48	0.25	Supervisor	TEM good	Bias good		
Observer 6	10	1.82	1.00	Supervisor	TEM good	Bias acceptable		
Observer 7	8	3.08	3.75	Supervisor	TEM poor	Bias reject		
Observer 8	9	2.71	2.43	Supervisor	TEM poor	Bias poor		
Observer 9	10	1.00	2.56	Supervisor	TEM good	Bias poor		
Observer 10	10	1.83	-1.69	Supervisor	TEM good	Bias acceptable		
Observer 11	9	1.97	0.29	Supervisor	TEM good	Bias good		
Observer 12	10	1.58	1.50	Supervisor	TEM good	Bias acceptable		
Supervisor 1	8	1.03	-1.13	Median	TEM good	Bias acceptable		
Team TEM (inter)								
665.0								

	No. of subjects	TEM	Bias	Bias relative to	Outcome (TEM)	Outcome (Bias)
enum inter 1st	6x10	3.26			TEM poor	
enum inter 2nd	10x10	2.59			TEM acceptable	

Table 9-52: Bias and Technical Error of Measurement (TEM) Results for MUAC

	No. of subjects	TEM	Bias	Bias relative to Outcome (TEM)		Outcome (Bias)
Individual TEM (intra)			_			-
665.0						
Observer 1	9	2.47	2.29	Supervisor	TEM acceptable	Bias poor
Observer 2	9	1.53	2.71	Supervisor	TEM good	Bias poor
Observer 3	10	1.80	-0.94	Supervisor	TEM good	Bias good
Observer 4	4	0.61	1.50	Supervisor	TEM good	Bias acceptable
Observer 5	8	1.48	0.25	Supervisor	TEM good	Bias good
Observer 6	10	1.82	1.00	Supervisor	TEM good	Bias acceptable
Observer 7	8	3.08	3.75	Supervisor	TEM poor	Bias reject
Observer 8	9	2.71	2.43	Supervisor	TEM poor	Bias poor
Observer 9	10	1.00	2.56	Supervisor	TEM good	Bias poor
Observer 10	10	1.83	-1.69	Supervisor	TEM good	Bias acceptable
Observer 11	9	1.97	0.29	Supervisor	TEM good	Bias good
Observer 12	10	1.58	1.50	Supervisor	TEM good	Bias acceptable
Supervisor 1	8	1.03	-1.13	Median	TEM good	Bias acceptable
Team TEM (inter)						
665.0						
enum inter 1st	6x10	3.26			TEM poor	
enum inter 2nd	10x10	2.59			TEM acceptable	

Annex 3 - Plausibility Check

Attach the plausibility check here.

Component	Value	Score	Outcome
Flagged data	0.6%	0	Excellent
Overall Sex ratio	p=0.858	0	Excellent
Age ratio(6-29 vs 30-59)	p=0.360	0	Excellent
Dig pref score - weight	4	0	Excellent
Dig pref score - height	8	0	Good
Dig pref score - MUAC	5	0	Excellent
Standard Dev WHZ	0.98	0	Excellent
Skewness WHZ	0.00	0	Excellent
Kurtosis WHZ	-0.14	0	Excellent
Poisson dist WHZ-2	p<0.001	3	Acceptable
OVERALL SCORE WHZ =		6	Excellent

Annex 4 - <u>Integrated Questionnaire</u>

Region / State
District
Team number
The number you have typed is outside the expected range (1-99).
Cluster number
The number you have typed is outside the expected range (1-999).
Household number
The number you have typed is outside the expected range (1-99).

Hello my name is ______. I am with ______ [organization/governmental agency]. Please let me introduce you to the other team members: _______ and ______. We are here today to gather household information related to nutrition and _______. If there are any children under 5 in the household, we would like to take some measurements (weight, height, MUAC, oedema / explain) to help determine the overall under 5 nutrition status in \${region} region, district of \${district}. Please note that it is not currently known what actions (if any) will be taken after the results of the survey are finalized. All information will be kept completely confidential. Do you have any questions? May I begin?

Yes (present/agreed)

No (refusal)

Absent

CONSENT REFUSED: Please ensure that Team Leader has explained clearly the objectives of the survey. If the head of household / respondent still refuses, go to end of questionnaire.

CURRENT HOUSEHOLD MEMBERS: Please complete the following questions for each household member who lives in the household.

Press "Add Group" - to add another household member until all members are listed. When listing is complete, press "Do Not Add" to continue with the questionnaire.

Household Members

First Name

Gender

Male

Female

What is the age of the household member \${name} (in completed years)?

Please enter an age in complete years for every household member. You do not need to see proof of age. If age is less than 1 year, record 0.

Age in years must be between 0 and 120.

Did the household member \${name} join the household during the recall period?

EXCLUDE BIRTHS

Yes

No
Was the household member \${name} born during the recall period?
Yes
No
Was the household member \${name} pregnant at the start of the recall period?
Yes
No
Just to confirm, you have mentioned \${numfamily} person(s)/people in the household today?
Yes
No
Warning: In the listing of the current household members, you have recorded \${numfamily} person(s)/people. If the reported number does not match the total number of current household members, please return to the listing and correct the information.
To delete one person, do a long press in the area where an answer for this person is entered, then select "Remove group". All data for that group/person will be deleted.
What is the total number of household members that LEFT this household during the recall period?
MEMBERS WHO LEFT HOUSEHOLD: Please complete the following information for all household members who moved away from the household during the recall period.
Members that have left:
First Name
Gender
Male
Female
What is the age of the household member \${name_left} (in completed years)?

Please enter an age in complete years for every household member. You do not need to see proof of age. If age is less than 1 year, record 0.

Age in years must be between 0 and 120.

Did the household member \${name_left} join the household during the recall period?

EXCLUDE BIRTHS

Yes

No

Was the household member \${name_left} born during the recall period?

Yes

No

Just to confirm, you have mentioned \${numdepart} person(s)/people who moved away from the household during the recall period?

Yes

No

Warning: In the listing of the household members who moved away, you have recorded ${\text{numdepart}}$ person(s)/people. If the reported number does not match the total number of household members that LEFT during the recall period, please return to the total number of household members who moved away and correct the information.

To delete one person, do a long press in the area where an answer for this person is entered, then select "Remove group". All data for that group/person will be deleted.

What is the total number of household members that DIED during the recall period?

MEMBERS WHO PASSED AWAY: Please complete the following information for all household members who died during the recall period.

Members that have died:

First Name

Gender

Male

What was the age of the household member ${name_death}$ (in completed years)?

Please enter an age in complete years for every household member. You do not need to see proof of age. If age is less than 1 year, record 0.

Age in years must be between 0 and 120.

Did the household member \${name_death} join the household during the recall period?

EXCLUDE BIRTHS

Yes

No

Was the household member \${name_death} born during the recall period?

Yes

No

What was the cause of the death of ${\text{mame_death}}?$

Traumatic

Non-traumatic

Unknown

In which location did the household member \${name_death} died?

In current location

During migration

In place of last residence

Other

Just to confirm, you have mentioned \${numdeath} person(s)/people who died during the recall period?

Yes

No

Warning: In the listing of the household members who died, you have recorded \${numdeath} person(s)/people. If the reported number does not match the total number of household members that DIED during the recall period, please return to the total number of household members who died and correct the information.

To delete one person, do a long press in the area where an answer for this person is entered, then select "Remove group". All data for that group/person will be deleted.

Food Security

Food Consumption Score

How many days over the last 7 days, did members of your household eat the following food items, prepared and/or consumed at home?

READ THE LIST OF FOODS AND DO NOT PROBE. ONLY RECORD THE CONSUMPTION OF SIGNIFICANT QUANTITIES OF FOOD BY THE HOUSEHOLD. WRITE '0' IF NOT CONSUMED IN THE LAST 7 DAYS.

In the past 7 days, how many days did your household eat any cereals such as wheat, corn/maize, barley, buckwheat, millet, oats, rice, rye, sorghum, teff, or any foods made from these such as bread, porridge, noodles, ugali, nshima, pasta. Or any white roots and tuers such as lotus root, parsnip, taro, white potatoes, white yam, white cassava, white sweet potato, or any foods made from roots. Or any other starchy foods such as green bananas or plantains?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household eat any legumes, nuts and seeds such as dried beans, chickpeas, lentils, or any foods made from these such as hummus, peanut butter?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household eat any dairy products such as fresh milk, sour milk, infant formula, cheese, kefir, yogurt?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household eat any meat, fish and eggs (e.g. goat, beef, chicken, pork, blood, fish including canned tuna, snails, and/or other seafood, eggs)?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household eat any vegetables and leaves such as spinach, cassava leaves, onion, carrot, lettuce, bamboo shoots, cabbage, pepper, tomato, eggplant, zucchini, olives, avocado, cucumber, etc.?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household eat any fruits including wild fruits and 100% fruit juice made from these (e.g. mango, apricot, peach, apple, banana, coconut flesh, lemon, orange, etc.)?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household eat any oils and fats added to food or used for cooking (e.g. vegetable / nut oil made from almond, avocado, canola, coconut, cottonseed, groundnut, maize, olive, rapeseed, safflower, sesame, soybean, sunflower/walnut, ghee, butter, margarine, mayonnaise, palm oil -not red palm oil, shortenings, sour cream)?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household eat any sweets, sweetened soda or juice drinks and sugary foods (e.g. sugar, honey, syrup, soda drinks, chocolates, candies, cookies, sweet biscuits and cakes)?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household eat any spices, condiments and beverages (e.g. black pepper, salt, chilies, soy sauce, hot sauce, fish powder, fish sauce, ginger, herbs, magi cubes, ketchup, mustard, coffee, tea, milk/cream in small quantities)?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

Coping Strategies

EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.

In the past 7 days, how many days did your household rely on less preferred and/or less expensive food due to lack of food or money to buy food?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household borrow food or rely on help from a friend or relative due to lack of food or money to buy food?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household reduce the number of meals eaten in a day due to lack of food or money to buy food?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household limit portion sizes at mealtime due to lack of food or money to buy food?

RECORD THE NUMBER OF DAYS, FROM 0-7.

Please add acceptable range as 0-7.

In the past 7 days, how many days did your household reduce consumption by adults so children could eat, due to lack of food or money to buy food?

RECORD THE NUMBER OF DAYS, FROM 0-7. IN HOUSEHOLDS WITHOUT CHILDREN UNDER 5 YEARS OF AGE, THE ANSWER SHOULD BE '0'.

Please add acceptable range as 0-7.

Household Hunger Scale

EXPLAIN TO THE RESPONDENT THAT THE QUESTIONS APPLY TO ALL HOUSEHOLD MEMBERS AND NOT ONLY TO HIM/HER.

In the past 4 weeks, was there ever no food to eat of any kind in your house because of lack of resources to get food?

Yes

No

How often did this happen in the past 4 weeks?

Rarely (1-2 times)

Sometimes (3-10 times)

Often (more than 10 times)

In the past 4 weeks, did you or any household member go to sleep at night hungry because there was not enough food?

Yes

No

How often did this happen in the past 4 weeks?

Rarely (1-2 times)

Sometimes (3-10 times)

Often (more than 10 times)

In the past 4 weeks, did you or any household member go a whole day and night without eating anything at all because there was not enough food?

Yes

No

How often did this happen in the past 4 weeks?

Rarely (1-2 times)

Sometimes (3-10 times)

Often (more than 10 times)

Water, Sanitation and Hygiène (WASH)

What is the main source of water used by your household for drinking and cooking?

SELECT ONE BUT DO NOT PROMPT WITH RESPONSES. CONSIDER DRINKING AND COOKING WATER ONLY.

Public tap/standpipe

Handpumps/boreholes

Protected well

Water seller/kiosks
Piped connection to house (or neighbour's house)
Protected spring
Bottled water, water sachets
Tanker trucks
Unprotected hand-dug well
Surface water (lake, pond, dam, river)
Unprotected spring
Rainwater collection
Other
Don't know
What kind of toilet/latrine does your household usually use?
DO NOT READ THE ANSWERS. SELECT ONE ONLY.
Flush or pour/flush toilet
Pit latrine with a slab or platform
Pit VIP latrine
Hanging toilet/latrine
Pit latrine without a slab or platform
Open hole
Bucket toilet
No facility, field, bush, plastic bag
Do you share this toilet/latrine with other households?
Yes
No
How many households use this toilet/latrine?
THIS INCLUDES THE SURVEYED HOUSEHOLD. RECORD NUMBER OF HOUSEHOLDS IF KNOWN. RECORD '96' IF PUBLIC TOILET OR '98' IF UNKNOWN

Child Section

Now entering data for child: \${child_name} (\${CHSEX}) with age in years: \${child_age_years}

Do you have an official age documentation for \${child_name}?

The exact date of birth (day, month, year) is recorded from either a birth registration, child health card or EPI card if available.

Yes

No

\${child_name}'s date of birth:

The exact birth date should only be taken from an age documentation showing day, month and year of birth

\${child_name}'s month and year of birth:

IT IS IMPORTANT TO ESTIMATE THE AGE VERY CAREFULLY. Since no age documentation is available, estimate month and year of birth using a local events calendar.

Verify that ${\rm end}_name$ is ${\rm NONTHS}$ months old. Remember, if they are older than 59 months; they are not eligible for inclusion, and you should stop here

Warning: In the listing of the current household members, you have recorded that \${child_name} is \${child_age_years} years old.

His/her age in months (\${MONTHS}) should match with the age in completed years.

If the age in months is not matching the age in completed years, go back and correct the previous entries.

Is \${child_name} currently present in the household?

Yes

No

If eligible child is absent, team should revisit the household once before leaving the village to conduct the interview and/or measure the child.

Weight in KG of \${child_name}:

The child must be weighed naked. Remove diapers, necklaces and other items that could increase the weight before measuring. REMINDER: Always record weight with one digit after the decimal point.

Please remeasure child's weight

Was \${child_name} dressed with clothes for the weight measurement?

Yes

No

Height in CM of \${child_name}:

Children younger than 24 months are measured lying down, while standing height is measured in children aged 24 months and older. REMINDER: Always record height with one digit after the decimal point.

Please remeasure child's Height

Record measurement taken: Length or Height

Standing height

Length (lying horizontal on board)

PLEASE, MEASURE LENGTH. Children younger than 24 months are measured lying down. If possible, to abide by the protocol, please retake length measurement and correct the information on measurement taken.

PLEASE, MEASURE HEIGHT. Children aged 24 months and older are measured standing up. If possible, to abide by the protocol, please retake height measurement and correct the information on measurement taken.

MUAC in MM of \${child_name}

Please remeasure child's MUAC

Does \${child_name} have bilateral oedema, that is swelling with pitting oedema in both feet?

Yes

No

Please confirm with the team leader. Does \${child_name} have bilateral oedema?

Yes

No

Please take a picture of the bilateral oedema

MAKE SURE TO ONLY PHOTOGRAPH THE FEET

REMEASURE: \${child_name} (\${CHSEX}) aged \${child_age_years} year(s) must be remeasured

REMEASURE: Do you have an official age documentation for \${child_name}?

The exact date of birth (day, month, year) is recorded from either a birth registration, child health card or EPI card if available.

Yes

No

REMEASURE: \${child_name}'s date of birth:

The exact birth date should only be taken from an age documentation showing day, month and year of birth

REMEASURE: \${child_name}'s month and year of birth:

IT IS IMPORTANT TO ESTIMATE THE AGE VERY CAREFULLY. Since no age documentation is available, estimate month and year of birth using a local events calendar.

REMEASURE: Verify that \${child_name} is \${MONTHS_2} months old. Remember, if they are older than 59 months; they are not eligible for inclusion, and you should stop here

REMEASURE: Weight in KG of \${child_name}:

The child must be weighed naked. Remove diapers, necklaces and other items that could increase the weight before measuring. REMINDER: Always record weight with one digit after the decimal point.

Please remeasure child's weight

REMEASURE: Was \${child_name} dressed with clothes for the weight measurement?

Yes

No

REMEASURE: Height in CM of \${child_name}:

Children younger than 24 months are measured lying down, while standing height is measured in children aged 24 months and older. REMINDER: Always record height with one digit after the decimal point.

Please remeasure child's Height

REMEASURE: Record measurement taken: Length or Height

Standing height

Length (lying horizontal on board)

PLEASE, MEASURE LENGTH. Children younger than 24 months are measured lying down. If possible, to abide by the protocol, please retake length measurement and correct the information on measurement taken.

PLEASE, MEASURE HEIGHT. Children aged 24 months and older are measured standing up. If possible, to abide by the protocol, please retake height measurement and correct the information on measurement taken.

REMEASURE: MUAC in MM of \${child_name}

Please remeasure child's MUAC

REMEASURE: \${child_name} (\${CHSEX}) aged \${child_age_years} year(s) must be remeasured

REMEASURE: Do you have an official age documentation for \${child_name}?

The exact date of birth (day, month, year) is recorded from either a birth registration, child health card or EPI card if available.

Yes

No

REMEASURE: \${child_name}'s date of birth:

The exact birth date should only be taken from an age documentation showing day, month and year of birth

REMEASURE: \${child_name}'s month and year of birth:

IT IS IMPORTANT TO ESTIMATE THE AGE VERY CAREFULLY. Since no age documentation is available, estimate month and year of birth using a local events calendar.

REMEASURE: Verify that \${child_name} is \${MONTHS_3} months old. Remember, if they are older than 59 months; they are not eligible for inclusion, and you should stop here REMEASURE: Weight in KG of \${child_name}:

The child must be weighed naked. Remove diapers, necklaces and other items that could increase the weight before measuring. REMINDER: Always record weight with one digit after the decimal point.

Please remeasure child's weight

REMEASURE: Was \${child_name} dressed with clothes for the weight measurement?

Yes

No

REMEASURE: Height in CM of \${child_name}:

Children younger than 24 months are measured lying down, while standing height is measured in children aged 24 months and older. REMINDER: Always record height with one digit after the decimal point.

Please remeasure child's Height

REMEASURE: Record measurement taken: Length or Height

Standing height

Length (lying horizontal on board)

PLEASE, MEASURE LENGTH. Children younger than 24 months are measured lying down. If possible, to abide by the protocol, please retake length measurement and correct the information on measurement taken.

PLEASE, MEASURE HEIGHT. Children aged 24 months and older are measured standing up. If possible, to abide by the protocol, please retake height measurement and correct the information on measurement taken.

REMEASURE: MUAC in MM of \${child_name}

Please remeasure child's MUAC

Has \${child_name} received a vitamin A capsule in the past 6 months?

CHECK VACCINATION/HEALTH CARD AND SHOW CAPSULE

Yes, card

Yes, recall

No or don't know

Was \${child_name} given any drug for intestinal worms in the last 6 months?

SHOW TABLET

Yes

No

Don't know

Has \${child_name} been vaccinated against measles?

CHECK VACCINATION/HEALTH CARD

Yes, card

Yes, recall

No or don't know

Has \${child_name} had diarrhoea in the past 2 weeks?

CASE DEFINITION: THREE OR MORE LOOSE OR LIQUID STOOLS DURING 24 HOURS (INCLUDING BLOODY STOOLS)

Yes

No

Don't know

Did you seek any advice or treatment for the diarrhoea from any source?

Yes

No

Don't know

Where did you seek advice or treatment?

IF SEVERAL ANSWERS ARE MENTIONED, RECORD THE FIRST PLACE WHERE THE CAREGIVER SEEK ADVICE OR TREATMENT

Public sector: Government hospital

Public sector: Government health center

Public sector: Government health post

Public sector: Mobile clinic
Public sector: Fieldworker
Other public sector
Private medical sector: Private hospital / clinic
Private medical sector: Pharmacy
Private medical sector: Private doctor
Private medical sector: Mobile clinic
Private medical sector: Fieldworker
Other private medical sector
Other source: Shop
Other source: Traditional practitioner
Other source: Market
Other source: Itinerant drug seller
Other
Did you give ORS to \${child_name} when s/he had diarrhoea?
SHOW ORS SACHET
Yes
No
Don't know
Did you give zinc tablets or syrup to \${child_name} when s/he had diarrhoea?
SHOW ZINC TABLET OR SYRUP
Yes
No
Don't know
Has \${child_name} been ill with a fever in the past 2 weeks?

Yes
No
Don't know
Did you seek any advice or treatment for the fever from any source?
Yes
No
Don't know
Where did you seek advice or treatment?
IF SEVERAL ANSWERS ARE MENTIONED, RECORD THE FIRST PLACE WHERE THE CAREGIVER SEEK ADVICE OR TREATMENT
Public sector: Government hospital
Public sector: Government health center
Public sector: Government health post
Public sector: Mobile clinic
Public sector: Fieldworker
Other public sector
Private medical sector: Private hospital / clinic
Private medical sector: Pharmacy
Private medical sector: Private doctor
Private medical sector: Mobile clinic
Private medical sector: Fieldworker
Other private medical sector
Other source: Shop
Other source: Traditional practitioner
Other source: Market
Other source: Itinerant drug seller

Other
Has \${child_name} had an illness with a cough in the past 2 weeks?
Yes
No
Don't know
Has \${child_name} had fast, short, rapid breaths or difficulty breathing in the past 2 weeks?
Yes
No
Don't know
Was the fast or difficult breathing due to a problem in the chest or a blocked or runny nose?
Problem in chest only
Blocked or runny nose only
Both
Other
Don't know
Did you seek any advice or treatment for the illness from any source?
Yes
No
Don't know
Where did you seek advice or treatment?
IF SEVERAL ANSWERS ARE MENTIONED, RECORD THE FIRST PLACE WHERE THE CAREGIVER SEEK ADVICE OR TREATMENT
Public sector: Government hospital
Public sector: Government health center
Public sector: Government health post

Public sector: Mobile clinic
Public sector: Fieldworker
Other public sector
Private medical sector: Private hospital / clinic
Private medical sector: Pharmacy
Private medical sector: Private doctor
Private medical sector: Mobile clinic
Private medical sector: Fieldworker
Other private medical sector
Other source: Shop
Other source: Traditional practitioner
Other source: Market
Other source: Itinerant drug seller
Other
\${child_name}' has conditions indicating SEVERE ACUTE MALNUTRITION (SAM).
COMPLETE REFERRAL FORM to the SAM TREATMENT PROGRAM (Do not refer to BSFP)
Have you referred the child for management of severe acute malnutrition services?
Yes
No, already enrolled in a nutrition treatment program
No, there is no nutrition treatment program in place
\${child_name}' has conditions indicating MODERATE ACUTE MALNUTRITION (MAM).
COMPLETE REFERRAL FORM to the MAM TREATMENT PROGRAM (Do not refer to BSFP)
Have you referred the child for management of moderate acute malnutrition services?

Yes
No, already enrolled in a nutrition treatment program
No, there is no nutrition treatment program in place
\${child_name}' doesn't have conditions indicating acute malnutrition
Was \${child_name} ever breastfed?
Yes
No
How long after birth was \${child_name} first put to the breast?
Less than 1 hr
Between 1 hr and 23 hrs
24 hrs and more
In the first two days after delivery, was \${child_name} given anything other than breast milk to eat or drink - anything at all like water, infant formula or ritual feeds?
Yes
No
Was \${child_name} breastfed yesterday during the day or at night?
Yes
No
Don't know
Did \${child_name} drink anything from a bottle with a nipple yesterday during the day or at night?
Yes
No
Don't know
Now I would like to ask you about liquids that \${child_name} had yesterday during the day or at night. Please tell me about all drinks, whether \${child_name} had

them at home, or somewhere else. Yesterday, during the day or at night, did \${child_name} receive any of the following?

ASK ABOUT EVERY LIQUID. EVERY QUESTION MUST HAVE AN ANSWER.

IF ITEM WAS GIVEN, SELECT 'YES'. IF ITEM WAS NOT GIVEN, SELECT 'NO'. IF CAREGIVER DOES NOT KNOW, SELECT 'DON'T KNOW'.

Plain water

Yes

No

Don't know

Infant formula

Yes

No

Don't know

How many times did \${child_name} drink formula?

IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'.

Please add acceptable range as 1-8.

Milk from animals such as fresh, tinned or powdered milk

Yes

No

Don't know

How many times did \${child_name} drink milk?

IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'.

Please add acceptable range as 1-8.

Was the milk or were any of the milk drinks a sweet or flavoured type of milk?

Yes
No
Don't know
Yogurt drinks (animal milk-based yogurt drink or drinkable fermented milks such as buttermilk or kefir)
Yes
No
Don't know
How many times did \${child_name} drink yogurt?
IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'.
Please add acceptable range as 1-8.
Was the yogurt or were any of the yogurt drinks a sweet or flavoured type of yogurt drink?
Yes
No
Don't know
Chocolate-flavoured drinks including those made from syrups or powders
Yes
No
Don't know
Fruit juice or fruit-flavoured drinks, including those made from syrups or powders
Yes
No
Don't know
Sodas, malt drinks, sports drinks or energy drinks
Yes

No
Don't know
Tea, coffee, herbal drinks or infusion, including those given as traditional medicine
Yes
No
Don't know
Was the drink or were any of these drinks sweetened?
Yes
No
Don't know
Clear broth or clear soup
Yes
No
Don't know
Any other liquid of any type (e.g. water with added sugar, vegetable juices, coconut water, soy milk or nut milk)
Yes
No
Don't know
Was the drink or were any of these drinks sweetened?
Yes
No
Don't know

Now I would like to ask you about foods that $f(hild_name)$ had yesterday during the day or the night. I am interested in foods ate whether at home or somewhere else. Please think about snacks and small meals as well as main meals. I will ask you about different types of foods, and I would like to know whether your child ate the food even if it was combined with other foods in a mixed dish. Please do not answer "yes" for any food or ingredient used in a small amount to add flavour to a dish. Yesterday, during the day or at night, did $f(hild_name)$

ASK ABOUT EVERY FOOD GROUP. EVERY QUESTION MUST HAVE AN ANSWER.

IF ITEM WAS GIVEN, SELECT 'YES'. IF ITEM WAS NOT GIVEN, SELECT 'NO'. IF CAREGIVER DOES NOT KNOW, SELECT 'DON'T KNOW'.

Any yogurt, other than yogurt drinks?

Yes

No

Don't know

How many times did \${child_name} eat yogurt?

IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'.

Please add acceptable range as 1-8.

Any cereals such as wheat, corn/maize, corn soy blend, barley, buckwheat, millet, oats, rice, rye, sorghum, teff, or any foods made from these such as bread, porridge, noodles, ugali, nshima, paste?

Yes

No

Don't know

Any Vitamin A rich vegetables and tubers such as carrot, pumpkin, squash, red sweet pepper or sweet potatoes that are orange inside?

Yes

No

Don't know

Any white roots and tubers such as lotus root, parsnip, taro, plantains, white potatoes, white yam, white cassava, white sweet potatoes, green bananas, or any foods made from roots and tubers?

Yes
No
Don't know
Any dark green leafy vegetables such as spinach, amaranth, arugula, cassava leaves, kale?
Yes
No
Don't know
Any other vegetables such as cabbage, green pepper, tomato, onion, eggplant, zucchini, avocado, cucumber, lettuce, olives or cauliflower?
Yes
No
Don't know
Any Vitamin A rich fruits such as mango, ripe papaya or cantaloupe melon, apricot (fresh and dried), passion fruit, peach, red palm fruit, red palm pulp?
Yes
No
Don't know
Any other fruits such as apple, banana, coconut flesh, lemon, orange, dates, etc.?
Yes
No
Don't know
Any organ meat or blood-based foods such as liver, kidney, heart?
Yes
No
Don't know
Any sausages, hot dogs, ham, bacon, salami, corned beef, canned meat?

Yes
No
Don't know
Any flesh meat such as beef, goat, lamb, mutton, pork, rabbit, chicken, duck, cane rat, guinea pig, rat, agouti, frogs, snake, insects?
Yes
No
Don't know
Any eggs (eggs from chicken, duck, guinea fowl)?
Yes
No
Don't know
Any fresh, frozen, dried, or canned fish or shellfish such as anchovies, tuna, sardines, shark, whale, roe/fish eggs, clam, crab, lobster, crayfish, mussels, shrimp, octopus, squid, sea snails?
Yes
No
Don't know
Any legumes, nuts, and seeds such as dried peas, dried beans, lentils, peanuts, almonds, sesame, sunflower or any foods made from these such as hummus, peanut butter?
Yes
No
Don't know
Hard or soft cheese
Yes
No
Don't know

Any sweet foods such as chocolates, candies, pastries, cakes, biscuits, or ice cream?
Yes
No
Don't know
Any chips, crisps, puffs, French fries, fried dough, instant noodles, etc.?
Yes
No
Don't know
Any other solid, semi-solid or soft food?
Yes
No
Don't know
Did \${child_name} eat any solid, semi-solid or sof food yesterday during the day or at night?
IF 'YES', GO BACK TO PREVIOUS ENTRIES AND RECORD FOOD ITEM(S)
Yes
No
IF YES, PROBE: What kind of solid, semi-solid or soft food did \${child_name} eat? AND MARK FOOD GROUP.
How many times did \${child_name} eat any solid, semi-solid, or soft foods yesterday during the day or night?
IF 7 OR MORE, RECORD '7'. IF NUMBER OF TIMES NOT KNOWN, RECORD '8'.
Please add acceptable range as 0-8.
Woman Section
Now entering data for woman: \${woman_name} with age in years: \${woman_age_years}
Are you pregnant?

Yes
No
Don't know
Are you currently breastfeeding?
Yes
No
Don't know
Is the child you are breastfeeding younger than 6 months old?
Yes
No
Don't know
Who assisted with the delivery of your last child?
PROBE FOR THE TYPE(S) OF PERSON(S) AND RECORD THE HIGHEST TYPE OF PROVIDER FROM THE LIST IF MORE THAN ONE PERSON IS MENTIONED. IF RESPONDENT SAYS NO ONE ASSISTED, PROBE TO DETERMINE WHETER ANY ADULTS WERE PRESENT AT DELIVERY.
No birth (live birth) in the past 5 years
Health personnel: Doctor
Health personnel: Nurse / Midwife
Health personnel: Auxiliary midwife
Health personnel: Community health worker
Other person: Traditional birth attendant
Other person: Relative / Friend
Other
No one assisted
MUAC in MM of \${woman_name}
Please remeasure woman's MUAC

Please take a GPS reading

Push the 'Save GeoPoint' button when the accuracy of the GPS measure is less than 25 m. Avoid taking it inside house or under trees (to make it faster).

If household is absent, team should revisit the household once before leaving the village to conduct the interview.

Please add any relevant comments (OPTIONAL)

I confirm that questionnaire is complete

Yes

No

Annex 5 - <u>Map of Area</u>

Figure 9-8: Survey Area



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