Joint Approach for Nutrition and Food Security Assessment (JANFSA) in Borno, Yobe and Adamawa States

Nigeria

NATIONAL BUREAU OF STATISTICS

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LIST OF ACRONYMNS

AAH	Action Against Hunger
ACF	Action Contre La Faim
BAY	Borno, Adamawa and Yobe States
CAPI	Computer-Assisted Personnel Interview
CARI	Consolidated Approach to Reporting Food Security Indicators
CDR	Crude Death Rate
CH	Cadre Harmonisé
DTM	Displacement Tracking Matrix
EA	Enumeration Area
ENA	Emergency Nutrition Assessment (Software)
FAO	Food and Agriculture Organization of the United Nations
FEWSNET	Famine Early Warning System Network
FMARD	Federal Ministry of Agriculture and Rural Development
FMOH	Federal Ministry of Health
GAM	Global Acute Malnutrition
GDP	Gross Domestic Product
HDDS	Household Dietary Diversity Score
IDP	Internally Displaced Person
IMC	International Medical Corps
IOM	International Organization for Migration
IYCF	Infant and Young Child Feeding
JANFSA	Joint Approach for Nutrition and Food Security Assessment
LGA	Local Government Area
MNCHW	Maternal, Newborn and Child health Week
MNP	Micro-nutrient Powder
MUAC	Mid-upper Arm Circumference
NBS	National Bureau of Statistics
NEMA	National Emergency Management Agency
NFSS	Nutrition and Food Security Survey
NGO	Non-Governmental Organisation
NPFS	National Programme for Food Security
NSAG	Non-State Armed Group
ODK	Open Data Kit
PHC	Primary Health Care
SAM	Severe Acute Malnutrition
SBCC	Social and Behavioral Change Communication
SMART	Standardized Monitoring and Assessment of Relief and Transitions
UNICEF	United Nations Children's Fund
VTS	Vaccination Tracking System
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WHZ	Weight for Height Z-Score

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Executive Summary

Executive Summary

The conflict in Nigeria's three north eastern states of Borno, Adamawa and Yobe (BAY) continues to undermine social stability and economic development due to the scale of displacement, disrupted livelihoods and diminished agricultural production due to the protracted nature of the crisis, which has consequential impact on the food security and nutrition situation. United Nations Children's Fund (UNICEF) and World Food Programme (WFP) with the support of the government of Nigeria through the National Bureau of Statistics (NBS), conducted a Joint Approach for Nutrition and Food Security Assessment (JANFSA) in order to gain updated insights into the evolution of the nutrition and food security situation in BAY states and further explore linkages and interrelationship between both constructs, with the aim to better inform programmatic decision-making.

Nutrition Situation

Findings showed that prevalence of global acute malnutrition (GAM) remains at serious levels in several domains, particularly in Borno and Yobe states. The prevalence of GAM was higher among boys compared to girls in all domains with the exception of Northern Adamawa and Central Borno. Age disaggregated findings show that prevalence of GAM was highest among children in the younger age cohorts (*6-11 and 12-23 months*) compared to older counterparts under the age of five. Some of the drivers of malnutrition were poor dietary diversity, low rates of exclusive breastfeeding (particularly in Yobe), incidence of common childhood illnesses (fever, diarrhoea, cough etc.) and poor water, sanitation and hygiene practices. Under five mortality rates among children under five exceeded the emergency threshold in Southern Adamawa and Northern Yobe B, but was also very high in all domains of Adamawa, Central Borno A, South Borno, Northern Borno, MMC & Jere, Northern Yobe A and Southern Yobe. Moreover, the nutrition situation of women of childbearing age (15 to 49 years) was assessed during the survey considering the critical role they play in the nutrition outcome of children, their families and the community at large. Findings revealed that adolescent women aged 15 to 19 years were six times more likely to be malnourished (17.8 percent) compared to adults aged 20 to 49 years, which is a worrisome trend.

Food Security Situation

Overall, 39 percent of households in BAY states were food insecure, 32.5 percent and 6.5 percent of which were moderately and severely food insecure respectively. The domains with the highest prevalence of food insecurity were Central Borno A, Central Borno B, East Borno, Southern Yobe (bordering some parts of Borno), Northern Adamawa and Southern Adamawa, where prevalence rates exceeded 40 percent. In most of these domains, insecurity was found to be a cross cutting challenge, which hampers access to land for farming, the functioning of markets, and access to agricultural inputs. Additionally, one of the drivers of food insecurity in Southern Adamawa was seasonal flooding, which was a peculiar shock encountered in the domain. Contrariwise, food insecurity was lowest in MMC & Jere and Southern Borno where the ongoing food and livelihood assistance, coupled with improved security conditions and recovering livelihoods appear to have impacted positively on households' purchasing power and access to food. Among households in the three north eastern states, reliance on less preferred foods remained the most frequently reported coping strategy (63 percent), but reduction in number of meals (44.9 percent) and reduction of portion size of meals (41.8 percent) were also commonly used. The use of livelihood based coping strategies was also found to be commonplace as 65 percent of households have used one or more of such strategies to bridge gaps. Moreover, one in every five (20 percent) of households in BAY states resorted to emergency coping strategies, which depicts depleted productive assets with consequential implication for future

productivity, deepened vulnerability and invariably, food security of affected households.

Linkage between Nutrition and Food Security

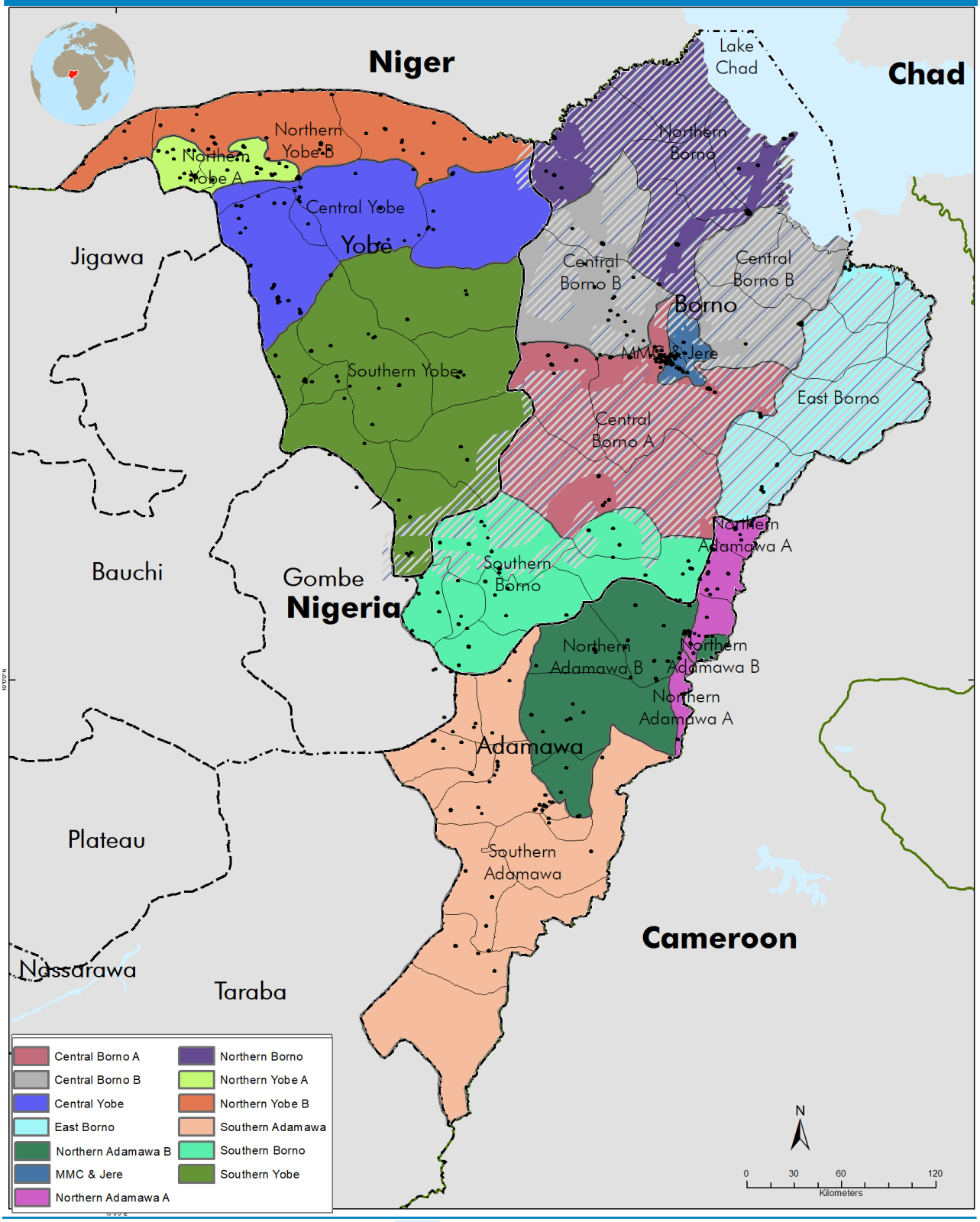
The findings indicate that predictors of stunting, acute malnutrition and underweight were either individual based (sicknesses, dietary pattern and behavioural) or household based (dietary diversity, food expenditure share, socio-economic status, use of coping strategies etc.). The risk of stunting among children in a given household could be heightened by factors related to poor hygiene practices, poor dietary diversity and use of coping due to constraints to access food and sicknesses, which corroborates existing body knowledge about the multi-sectoral nature of the underlying drivers of malnutrition. Moreover, acutely malnourished children were negatively affected when they had diarrhoea, did not meet minimum meal frequency, or were from households with poor diets with limited dietary diversity (household dietary diversity score) and higher food expenditures, with household dietary diversity score (HDDS) being the predictor with the highest negative impact on wasting. The strong correlation between household dietary diversity, which is a key composite indicator of food security and malnutrition, again demonstrates the inextricable linkage between malnutrition and food security. The likelihood of being underweight by children was negatively affected (statistically significant) by presence of diarrhoeal episodes, failure to meet the requirements for minimum meal frequency or minimum diet diversity, or socio-economic status of households (poor households). These negative effects were most pronounced within children that were girls, or children from households with poor diversified diets (HDDS), or those that used emergency coping strategies, and/or with few assets (wealth index). The household size was also found to be a predictor for being underweight among children with larger households having more odds of hosting an underweight child, which could be underscored by high level of competition for available food.

Conclusion and Recommendation

Findings from this study support existing body of knowledge regarding the complex and multi-sectorial drivers of malnutrition (Health, WASH, food security etc.). Therefore, government, humanitarian and development actors need to collaborate effectively under a common framework to provide multi-sectoral response that are integrated with nutrition, food security, livelihoods, health, and WASH, in order to tackle the malnutrition and food insecurity, and other drivers of both constructs (WASH challenges) in parallel. These interventions, integrated with social and behavioural change communication (SBCC), should be tailored to the most vulnerable such as poorest conflict affected households with little or no assets, households with vulnerable members such as pregnant women and children, households with limited livelihood opportunities and female headed households, considering the finite nature of humanitarian, development and government resources. However, the SBCC component of the intervention should target the entire population regardless of socio-economic or vulnerability status considering the widespread poor dietary diversity, hygiene practices and exclusive breastfeeding practice.

Nigeria

JANFSA Coverage Map - December 2019



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Map Reference:
NGA_JANFSA_Coverge_Map_A3P

JANFSA Coverage
Nigerian states
Country Boundary
Water Body
Inaccessible areas
Domain Boundary

Data sources: WFP, UNGIWG, GeoNames, GAUL

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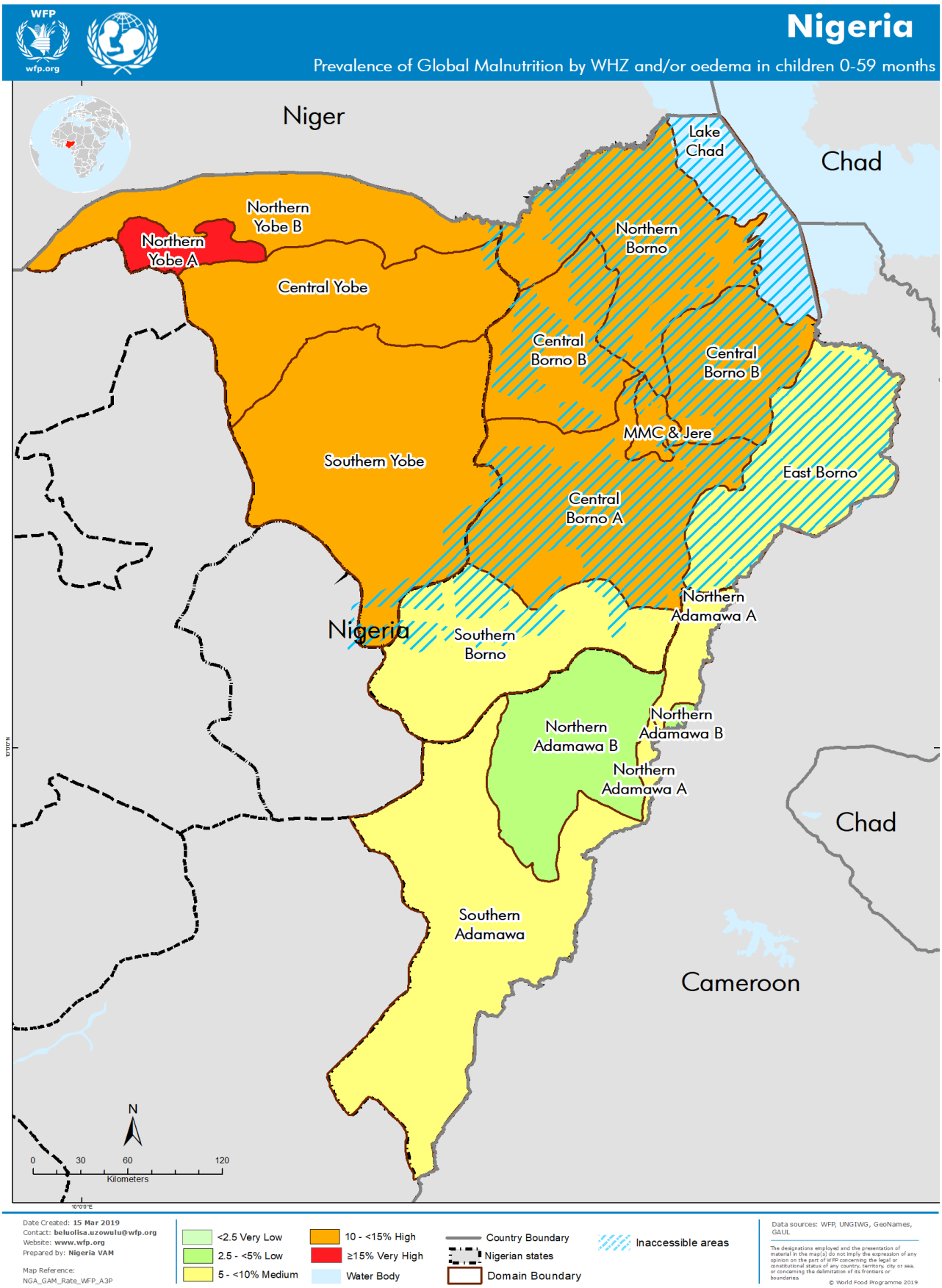
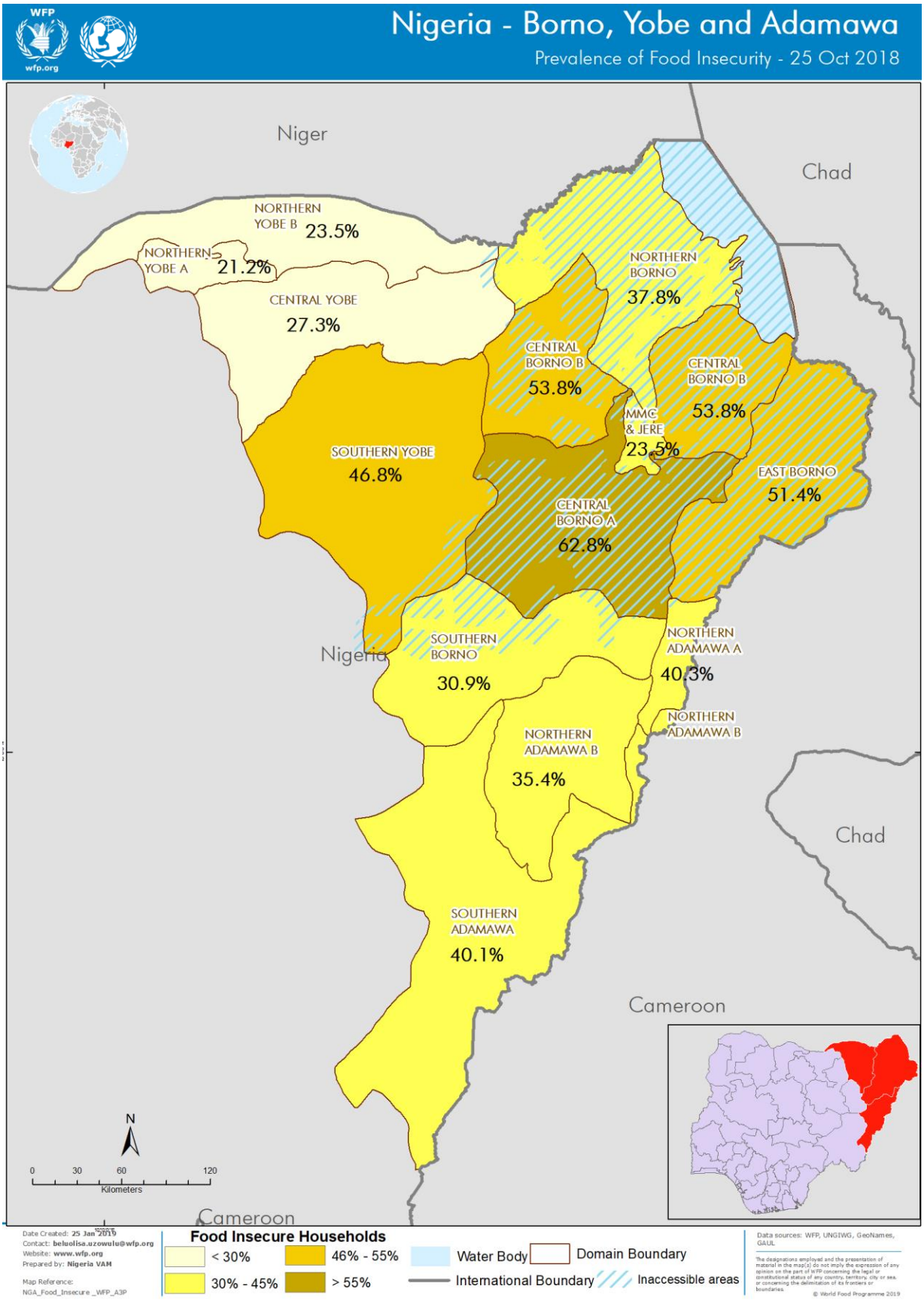


Note: Findings from the assessment should be interpreted cautiously as data was only collected from accessible areas of Borno, Adamawa and Yobe States. GAM rates in inaccessible areas shaded in light blue in the map may be similar or worse.



Note: Findings from the assessment should be interpreted cautiously as data was only collected from accessible areas of Borno, Adamawa and Yobe States. Food insecurity rates (moderate + severe) inaccessible areas shaded in light blue in the map may be similar or worse.

1 Introduction

1. Introduction

The conflict in Nigeria's three north eastern states of Borno, Adamawa and Yobe (BAY) has undermined social stability and economic development and disrupted the functioning of markets as the insecurity and large-scale displacements have triggered tremendous loss of livelihoods for most agriculturalist and pastoral households, and increased the incidence of poverty, food insecurity and undernutrition in the worst affected areas.

Currently, there are 1,762,793 million individuals who remain displaced[1] in camps and host communities, and who are reliant on humanitarian assistance to meet their essential needs. While some affected populations have made efforts to resettle back into their communities and resume their livelihoods, pervasive security threats and constraints have hampered access to the most productive agricultural fields and the cultivation of wide range of crops.[2] Between July and August 2018, a total of 24,872 new arrivals were recorded in the key hotspots of Bama, Banki, Damboa, Dikwa, Gwoza, Pulka, Mafa, Monguno, Magumeri and Ngala LGAs in Borno State, with poor living conditions, voluntary relocation, ongoing conflict and fear of attacks as the four main triggers for such movement[3].

In Borno State, the highest rate of new arrival influx was recorded in Bama local government area (LGA) where the number went up by 16 per cent, from 52,911 to 61,473 persons[1]. The reason for the increase has been due to arrivals from inaccessible locations in the LGA including Soye, Gulumba and Goniri wards, as well as people returning from Cameroon into situations of secondary displacement. Similarly, Gwoza and Ngala recorded increases of 3,468 and 3,462 persons respectively from inaccessible LGAs, areas of ongoing military operations and returning refugees. On the other hand, a decrease of 7,564 persons was recorded in Jere LGA as IDPs left to their place of origin in Bama and Konduga. The second largest decrease in IDP numbers was observed in Maiduguri Metropolitan Council where 6,340 displaced persons departed. Improvement in security situation and agriculture-related movements were the key reasons for population mobility.[4]

The high influx of new arrivals and returnees in these LGAs has aggravated the humanitarian situation as high caseloads of acute malnutrition in children under five years have been reported. A September 2018 nutrition survey in Bama found high rates of severe and moderate acute malnutrition among newly arrived children who were measured by mid-upper arm circumferences (MUAC) in reception sites for referral to the appropriate treatment or prevention programme. The high rate of malnutrition has been attributed to poor living conditions in camps, which affects children, as well as the prevalence of diarrhoea and malaria among this demographic.[5]

In Borno and Adamawa states, the December 2017 Nutrition Surveillance Round IV found slight improvements in global acute malnutrition (GAM) rates for children 6 to 59 months at 6 percent and 9 percent, respectively[6]. This was consistent with seasonal variations observed in March 2017, and likely influenced by a scale-up of the emergency nutrition humanitarian response. However, in Yobe State, a GAM rate of 12 percent, and an under-five death rate of 3.05 children per 10,000 children under-five per day, indicated a concerning situation. These state figures, however, mask more critical rates at regional

[1] IOM (August 2018), Displacement Tracking Matrix Round 24.
[2] FAO, August 2018, North eastern Nigeria (Adamawa, Borno, Yobe) – Situation report
[3] OCHA, August 2018, North-east Nigeria Humanitarian Situation Update, August 2018 Edition - Progress on key activities from the 2018 Humanitarian Response Plan
[4] IOM (August 2018), Displacement Tracking Matrix Round 24.
[5] Nutrition and food security surveillance: Bama emergency SMART survey, September 2018.
[6] National Bureau of Statistics and UNICEF. Multi-Indicator Cluster Survey, Nigeria, October 2017.

levels where, for example, the GAM prevalence in North Yobe is 14 percent. The nutrition situation for women of reproductive age (15 to 49 years) remains a concern, as the most current data found acute malnutrition rates of 10 percent in Borno State and 12 percent in Yobe State and only 42 percent and 31 percent of these women met the minimum dietary diversity (in Borno and Yobe states, respectively).

The scale-up of humanitarian food, nutrition and livelihoods assistance, as well as favourable agricultural production, along with some initial market and trade recovery have brought about notable improvement in the food security situation across the three north eastern states. Between January and June 2018, over 3 million people were assisted through nutrition and food security interventions supported by UNICEF, WFP and humanitarian partners.[7] The February/March 2018 Emergency Food Security Assessment found that 27 percent of Borno, Yobe and Adamawa households were food insecure, which was an improvement from February 2017 (45 percent). A seasonal decrease by 8 percent of the overall proportion of food insecure households was observed from October 2017 to February 2018.[8] Despite the improvements the volatile nature of the crisis continue to keep a large number of households food insecure. The March 2018 Cadre Harmonisé analysis found that food availability and access are expected to decline towards the June to August lean season due to a decrease in supply, high food prices, and depletion of households' stock levels.

In Nigeria, the economy remains fragile as the Gross Domestic Product (GDP) declined to 1.50% in the second quarter of 2018 from 1.95% in the first quarter of 2018 largely due to a decline in oil production from 2 million barrels per day in Q1 to 1.84 million barrels per day in Q2. This resulted in a decline in the corresponding contribution of the oil sector to GDP from 9.61% in Q1 to 8.55 percent in Q2 although oil revenue still accounted for 10% of the GDP. These weak economic fundamentals along with other risk to output growth such as weakening demand and consumer spending, rising debts of contractors, low minimum wage, the impact of flooding on agricultural production as well as continuing security problems in the north east and north central parts of the country have raised concerns that economy could slip back into a recession.

In September, the Consumer Price Index recorded a rate of 11.28 percent (year-on-year), increasing by 0.05 percent from August 2018. The composite food index on the other recorded a rate of 13.31 in September as compared to 13.17 percent in August 2018, with increases in prices of potatoes, yam, vegetables fruits, meat, milk and cheese, eggs bread, cereal and fish accounting for the rise in the index[9]. The fragile economic conditions have implications for employment, the purchasing power of households and access to food.

[7] North-East Nigeria: Humanitarian Situation Update, June 2018

[8] National Bureau of Statistics (NBS), National Programme for Food Security (NPFS), FAO, FEWSNET, ACF, OXFAM and WFP. Emergency Food Security Assessment (EFSA) in Borno, Yobe and Adamawa States. February/March 2018.

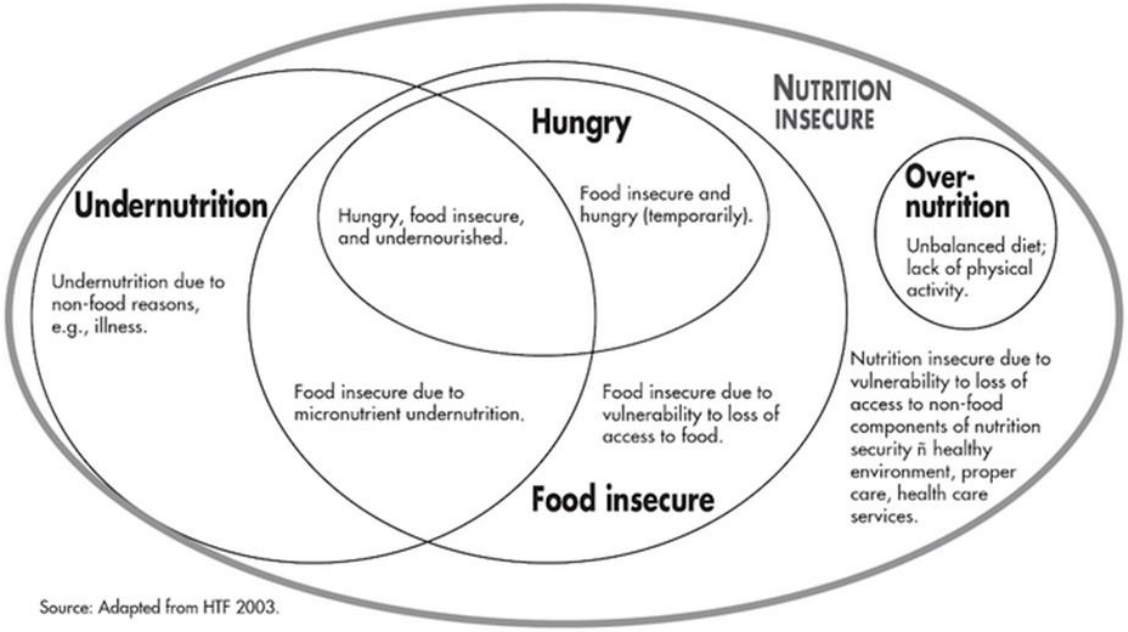
[9] National Bureau of Statistics (October 2018), Consumer Price Index for September 2018.

2. Justification

Despite the linkages and interrelationship, UNICEF, WFP and partners have carried out nutrition and food security assessments in parallel. Separate measurements of food security indicators and direct measurement of nutrition status do not completely reveal the underlying causes of undernutrition and food insecurity. There is a need for a broader analysis that will provide a holistic view of the nutrition and food security situation to better inform programmatic decision-making.

Although food security is essential to ensure adequate nutrition and prevent hunger, the concepts of food security, optimal nutrition and lack of hunger and undernutrition are interlinked but not synonymous. Figure 1: illustrates the distinctions and overlaps between hunger, food insecurity, nutrition insecurity and undernutrition.

Figure 1 Distinctions and overlaps between hunger, food insecurity, nutrition insecurity and undernutrition (4)



Source: IFRI, 2004[10]

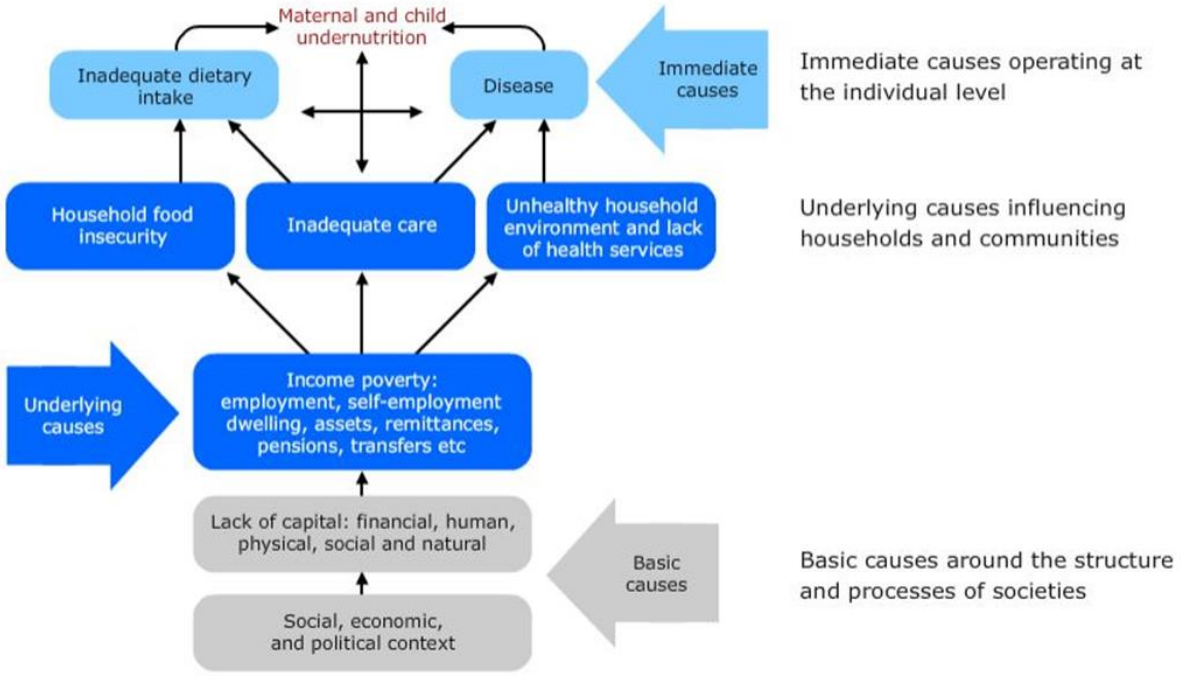
The causes of food insecurity and nutrition insecurity are interconnected and are rooted in poverty, and are affected by cultural factors and social, economic and political structures that differ by context[11]. The UNICFEF conceptual framework (Figure 2) illustrates the individual level immediate causes of malnutrition, its underlying causes at the household and community level and the basic structural causes at the societal level. In this framework, household level food insecurity is on the causal pathway between poverty and inadequate dietary intake and malnutrition. Originally developed to explain the causes of childhood undernutrition, this framework has proven to be relevant in describing various forms of malnutrition as well as the intergenerational effects of poverty and poor nutrition.

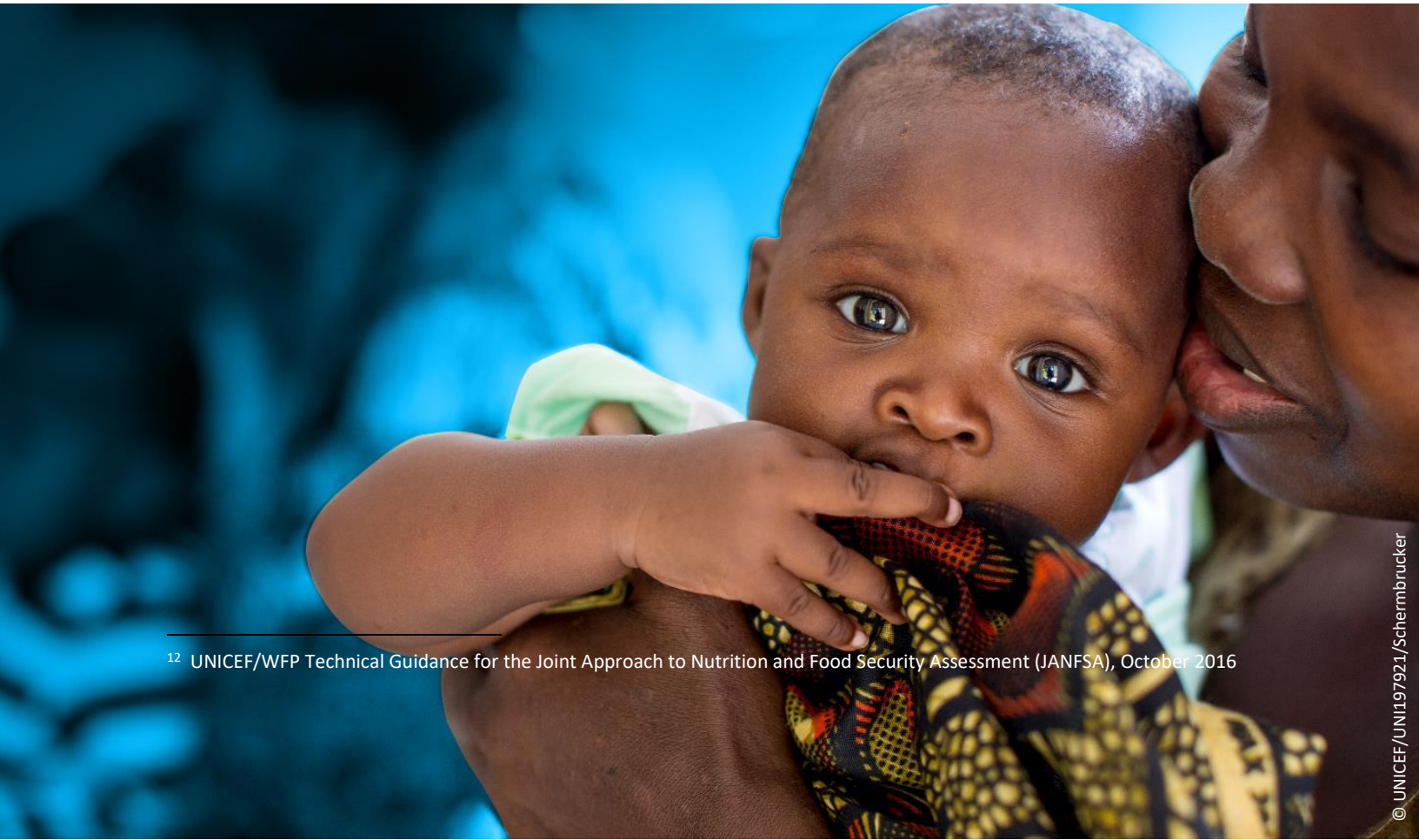
[10] Africa's Food and Nutrition Security Situation: Where are we and how did we get here? Todd Benson, 2020 Discussion, paper 37, Aug 2004, IFPRI

[11] UNICEF Conceptual Framework, https://www.unicef.org/nutrition/training/2.5/4.html

A standardised JANFSA methodology and protocol[12] harmonises approaches, fosters cost savings, allows integrated analysis, and can strengthen the joint programming of UNICEF, WFP and stakeholders; thus, having greater impact towards addressing the underlying determinants of undernutrition and food insecurity. UNICEF and WFP, in close collaboration with the Nigerian government and partners, jointly carried out a JANFSA, for the first time in West Africa and Nigeria, from August to October 2018.

Figure 2 The UNICEF conceptual framework for the causes of undernutrition (10, 11)





[12] UNICEF/WFP Technical Guidance for the Joint Approach to Nutrition and Food Security Assessment (JANFSA), October 2016

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3. Objectives

The overall goal of the JANFSA was to gather comprehensive, useful, timely and cost-effective data on the extent and determinants of household food insecurity and maternal and child malnutrition including mortality rates (both crude death rate and under 5 death rate) in order to improve food security and nutrition programming in Borno, Adamawa and Yobe States.

3.1 Core Objectives

1. Estimate the current prevalence of acute malnutrition (wasting), chronic malnutrition (stunting) and underweight among children aged 6-59 months.
2. Estimate the current prevalence of acute malnutrition (wasting) among pregnant and lactating women.
3. Estimate the current prevalence and severity of food insecurity based on CARI[13].
4. Describe who the food insecure and malnourished are and where they live, by gender and household demographics.
5. Support the design of existing food or non-food based interventions, recommend appropriate programme responses, and contribute information for nutrition-sensitive programming.

3.2 Secondary Objectives

6. Contribute assessment findings to the Cadre Harmonisé exercise in October/November 2018.
7. Contribute assessment findings to the 2019 Humanitarian Needs Overview and 2019 Humanitarian Response Plan for North-East Nigeria.
8. Provide a baseline for joint analysis of integrated nutrition and food security.

[13] The Consolidated Approach for Reporting Indicators of Food Security (or CARI) is a method used by WFP to analyze and report the level of food insecurity within a population.

4 Methodology

4.1 Coordination Mechanisms

UNICEF and WFP jointly funded (with donor support) and led the JANFSA, in close collaboration with the National Bureau of Statistics (NBS), the Federal Ministry of Health (FMoH), and the National Programme for Food Security (NPFS). A technical working group was formed by UNICEF and WFP. Other UN agencies UN agencies, such as FAO, and other partners, e.g. FEWSNET and Action Against Hunger (AAH), were consulted based on their technical expertise and the Food Security Sector and Nutrition Sector were consulted to leverage existing data collection mechanisms, including best practices, and to minimize any risk of duplication.

Involved partners contributed in various ways, e.g. provision of resources, including staff time, and technical inputs; reciprocally, partners had the opportunity to benefit from training on the JANFSA. These stakeholders supported JANFSA data collection in partially accessible LGAs, particularly those areas inaccessible to NBS representatives.

The preparation and execution of the assessment was supported by the UNICEF and WFP Regional Bureaux and Headquarters. Participation of all stakeholders was based on their comparative advantage while the overall technical and logistical efforts were based on division of labour subject to availability of human, physical and financial capacities.

4.2 Survey Design

There are a total of 65 LGAs in the three states, two of which were inaccessible to the humanitarian community (*Abadam and Marte in Borno State*). These LGAs were further grouped in 13 domains and leveraged the same rationale used in the Nutrition and Food Security Surveillance (NFSS)[14] which considered comparability between LGAs clustered within the same domains based on livelihood zones, geographic proximity, socio-economic homogeneity, displacement trends and patterns from IOM's DTM[15], accessibility, proximity and security situation. The two inaccessible LGAs in Borno (*Abadam and Marte*) were excluded for coverage within their domains (*Northern Born and Central Borno B*) during the assessment due to access constraints, hence 63 LGAs were considered for coverage within the domains.

The survey was a cross sectional study which covered Adamawa, Borno and Yobe states. The survey used a two-stage cluster sampling method which provided representative samples at the domain and state levels for food security and nutrition.

Table 1 JANFSA domains and LGAs, October 2018

DOMAIN	LGAS INCLUDED
Northern Adamawa A	Madagali, Michika, Maiha, Mubi North
Northern Adamawa B	Gombi, Hong, Mubi South, Song
Southern Adamawa	Demsa, Girei, Guyuk, Lamurde, Numan ,Shelleng ,Yola North, Ganye Jada, Mayo-Belwa, Teungo, Fufore, Yola South
Northern Borno	Abadam, Mobbar, Guzamala, Kukawa, Nganzai
Southern Borno	Askira/Uba, Bayo, Biu, Chibok, Hawul, Kwaya Kusar, Shani
East Borno	Bama, Dikwa, Gwoza, Kala/Balge, Ngala
Central Borno A	Damboa, Kaga, Konduga,
Central Borno B	Gubio, Mafa, Magumeri, Marte, Monguno
MCC/Jere	Maiduguri, Jere
Central Yobe	Bade, Bursari, Geidam, Jakusko
Southern Yobe	Damaturu, Fika, Fune, Gujba, Gulani, Nangere, Potiskum, Tarmuwa
Northern Yobe A	Karasuwa, Nguru
Northern Yobe B	Machina, Yunusari, Yusufari

4.3 Sample Design

Administratively, Nigeria is divided into states, each state is sub-divided into LGAs, and each LGA is divided into wards. In addition to these administrative units, each locality has been subdivided into census enumeration areas (EAs), which are based on the 2006 Nigeria population census.

Based on the JANFSA Technical Guideline[16], the sample for the JANFSA was selected using a two-stage cluster design. The unit of analysis and reporting for the JANFSA was the domain level and food security and nutrition indicators were collected at this level.

The 2017 population figures for each EA is estimated based on projection from the 2006 census, as calculated by the Nigeria National Population Council, and triangulated against population figures from the Vaccination Tracking System (VTS).[17] For Borno State, the sampling frame considered population movements using the location of IDP camps and population figures from IOM's DTM.[18] The JANFSA sample design followed SMART methodology guidelines[19], and formed the basis for the collection of food security

[14] Nutrition and Food Security Surveillance Protocol, 2016. https://reliefweb.int/sites/reliefweb.int/files/resources/20161002_ne_nigeria_nutrition_surveillance_protocol.pdf

[15] Displacement Tracking Matrix, Round XXIII, June 2018. https://reliefweb.int/report/nigeria/dtm-nigeria-baseline-dashboard-round-23-june-2018

[16] UNICEF/WFP Technical Guidance for the Joint Approach to Nutrition and Food Security Assessment (JANFSA), October 2016.

[17] The Nigeria Vaccination Tracking System. http://vts.eocng.org

[18] IOM (August 2018), Displacement Tracking Matrix Round 24.

[19] SMART Methodology, https://smartmethodology.org/

indicators. At the first stage of the two-stage cluster design, clusters (EAs) were randomly drawn from each domain using probability proportional to size (PPS) and number of households per cluster were derived taking into account the design effect noted from previous rounds of the NFSS. Inaccessible areas were excluded a-priori, and there was no selection of extra clusters unless predetermined criteria for using reserve clusters were met.

The sample sizes for anthropometry and mortality were calculated using the ENA for SMART application. The sample size for anthropometry was derived using the GAM prevalence in children 6 to 59 months from the NFSS Round V (April 2018) for the three states. The upper confidence interval of the state level estimate was used as a conservative estimate. The sample size for mortality was calculated with an estimated crude death rate (CDR) based on findings from NFSS Round V. The estimates used domain level average deaths per 10,000 persons per day, rounded up to the nearest 0.05 deaths, with a recall period covering approximately four months.

Based on these parameters and those from previous NFSS rounds, the JANFSA planned for a total sample size of 8,363 households across 437 clusters in the 13 JANFSA domains in Adamawa, Borno and Yobe states (See Table 2 & Table 3). During the data collection exercise, clusters in most domains were accessible, with the exception of Southern Adamawa, Central Borno B, MMC & Jere and Northern Yobe A where some clusters were inaccessible. These clusters were inaccessible due to insecurity in some areas of the three states, seasonal flooding in Southern Adamawa, while others clusters were vacant and uninhabited on arrival. Overall, the required sample size was attained in all the domains with the exception of northern Borno where the required minimum sample size was not achieved primarily due to lack of access from insecurity.

4.4 Training and Data Collection

Household and individual level data was collected through structured household questionnaires that covered demographic information, housing and access to assets, agriculture and livelihoods, expenditure and debt, food consumption, exposure to shocks, health and nutrition.

The training was conducted at two levels. The first level was a national level training-of-trainers (ToT) in Abuja for staff of the NBS, NPFS, FMoH, National Emergency Management Agency (NEMA), and other UN agencies and partners such as FAO, FEWSNET, and ACF. Subsequently, training was provided in the three surveyed states for the NBS enumerators involved in the JANFSA data collection. The national ToT took place over two days while the state-level trainings were held over a period of seven days - six days of training, and one day of field tests. During these workshops, participants were trained on the aim, objectives and methodologies of the JANFSA, the use of anthropometric tools, and computer assisted personal interviewing (CAPI) questionnaires in the open data kit (ODK) platform.

Trained enumerators visited households selected by systematic random sampling within the clusters and administered the CAPI-based questionnaire over a period of 30 days. All eligible women and children within the surveyed households were assessed for nutrition indicators (see Annex 1). The fieldwork was supervised by NBS representatives (national, zonal and state levels), and supervisors from UNICEF, WFP, NPFS, FMoH, FAO, FEWSNET and International Medical Corps (IMC).

4.5 List of Indicators

The JANFSA covered household, and individual level indicators for children from birth to 59 months and women of reproductive age (15 to 49 years) including demographic information, housing and access to assets, agriculture and livelihoods, expenditure and debt, food consumption, exposure to shocks, and health and nutrition (See Figure 3).

Table 2 Anthropometry sample size inputs

Parameters	SA	NA-A	NA-B	NB	SB	EB	CB-A	CB-B	M&J	CY	SY	NY-A	NY-B	Source
Estimated prevalence of Global Acute Malnutrition (GAM)	10.7	10.6	10.6	16.1	12.2	13.8	21.6	21.6	16	17.9	13.4	16.8	16.8	Upper confidence interval of estimate from emergency surveillance (April/May 2018)
Precision	3.5	3.5	3.5	4.0	3.5	3.5	5.0	5.0	4.0	4.0	3.5	4.0	4.0	Recommended precision for prevalence 10-15%
Design effect for WHZ	1.2	1.16	1.16	1.03	1.01	1	2.26	2.26	1.35	1.29	1.06	1.06	1.06	Conservative estimate from emergency surveillance (April/May 2018)
Number of children to be included	**489**	**485**	**485**	**530**	**549**	**609**	**640**	**640**	**527**	**576**	**594**	**548**	**548**	
Average number of persons per household	4.9	5.7	5.7	4.5	5.4	5.2	5.2	5.2	6	5.6	6.4	5.1	5.1	Estimate from emergency surveillance (April/May 2018)
Percent of under five children in total population	17.1	17.6	17.6	19.1	19.4	18	18.6	18.6	17.7	20.7	20.5	18.9	18.9	Estimate from emergency surveillance (April/May 2018)
Percent of non-response households	0.84	0.69	0.69	2.98	1.69	0.49	1.66	1.66	1.74	1.47	2.09	1.45	1.45	Estimate from emergency surveillance (April/May 2018)
Number of Households to be included	**654**	**541**	**541**	**706**	**592**	**727**	**746**	**746**	**561**	**561**	**514**	**641**	**641**	

Note: Domain Names

SA – Southern Adamawa

NA A – Northern Adamawa A

NA B – Northern Adamawa B

SB – Southern Borno

EB – East Borno

CB A – Central Borno A

CB B – Central Borno B

M&J – MMC & Jere

CY – Central Yobe

SY – Southern Yobe

NY A – Northern Yobe A

NY B – Northern Yobe B

Table 3 Parameters and source used for mortality sample size calculation

Parameters	SA	NA-A	NA-B	NB	SB	EB	CB-A	CB-B	M&J	CY	SY	NY-A	NY-B	Source
Estimated prevalence of Crude Death Rate (CDR)	0.18	0.45	0.45	0.17	0.26	0.23	0.33	0.33	0.25	0.52	0.44	0.51	0.51	State level estimate from emergency surveillance – rounded up (April/May 2018)
Precision	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	
Design effect for Crude Death Rate (CDR)	1.28	1.24	1.24	1	1	1.42	1.38	1.38	1.08	1.45	1	1.1	1.1	State level observed DEFF from emergency surveillance – rounded up (April/May 2018)
Recall period in days	142	142	142	142	142	142	142	142	142	142	142	142	142	From 17th May 2018 (beginning of Ramadan)
Number of persons to be included, Number of households to interview	**754**	**1826**	**1826**	**556**	**851**	**1069**	**1490**	**1490**	**884**	**2497**	**1440**	**1836**	**1836**	
Average number of persons per household	4.9	5.7	5.7	4.5	5.4	5.2	5.2	5.2	6	5.6	6.4	5.1	5.1	Estimate from emergency surveillance (April/May 2018)
Percent of non-response households	0.84	0.69	0.69	2.98	1.69	0.49	1.66	1.66	1.74	1.47	2.09	1.45	1.45	Estimate from emergency surveillance (April/May 2018)
Number of Households to be included	**155**	**323**	**323**	**127**	**160**	**207**	**291**	**291**	**150**	**447**	**230**	**365**	**365**	

Note: Domain Names

SA – Southern Adamawa

NA A – Northern Adamawa A

NA B – Northern Adamawa B

SB – Southern Borno

EB – East Borno

CB A – Central Borno A

CB B – Central Borno B

M&J – MMC & Jere

CY – Central Yobe

SY – Southern Yobe

NY A – Northern Yobe A

NY B – Northern Yobe B

Figure 3 Indicators covered in the JANFSA

Household Level	Individual Level
Demographics → Literacy level of head of HH → Sex of head of HH and marital status → Age of HH members and size of HH → Vulnerable HH members **HH Consumption** → Food Consumption Score → Household Dietary Diversity → Share of Food Expenditure **Coping Strategies** → Food based coping → Livelihood based coping **Water and Sanitation** → Access to improved water source → Access to improve sanitation **Income** → Livelihood activities → Crop and livestock **Shocks** → HHs affected by main shocks	***Anthropometry of children 6-59 months*** → *Weight for Height, Weight for Age, and Height for Age* → *MUAC* → *Bilateral oedema* ***Anthropometry for PLW*** → *MUAC* ***Morbidity*** → *Diarrhea* → *ARI* → *Fever* ***Core IYCF indicators*** → *Minimum dietary diversity (6-23 months)* → *Minimum meal frequency (6-23 months)* → *Minimum acceptable diet (6-23 months)* ***Women's consumption*** → *Minimum dietary diversity for women (aged 15-49 years)*

4.6 Data Quality

To ensure the quality of data, supportive supervision was provided for the team at different levels. The first level of supervision was provided by the team supervisors who were responsible for close monitoring of the work of the teams to ensure that all eligible children and women within the visited sampled households were included in the survey. An important element of the supervision was periodic return to few selected households to re-interview and examine the list of included household members in order to compare the list with what was being reported originally by the team. The main aim of such re-interviews was to uncover any deliberate distortion of age or omission of household members by interviewers so as to reduce their workload. They also observed the interviews to ensure that the survey team were conducting the interviews as per the guidelines.

Daily plausibility checks was undertaken using ENA for SMART application in order to identify and summarize key quality issues from data that was sent to the Ona server through the smart phones. The review looked at issues such as response rates, the age distribution of children, women and household members, the level of missing values for key indicators, time of data collection and quality of anthropometric measurements. Problems identified through the daily review was discussed with the appropriate teams and with corrective measures enacted to mitigate future reoccurrence of such problems.

Overall the JANFSA data quality was good, with eight of 13 domains reaching an overall score of 'excellent', two domains rated as 'good', and the remaining three domains rated as 'acceptable'. None of the domains was classified as problematic.

Table 4 Data Quality Check by Domain

Domain	Flagged data	Sex Ratio	Age Ratio	Digit Preference			SD WHZ	Skewness WHZ	Kurtosis WHZ	Poisson WHZ	Overall Score
		M/F	6-23/30-59	Weight	Height	MUAC					
Southern Adamawa	2.6	1.00	0.86	5	7	9	1.12	- 0.04	-0.34	p=0.000	18
Northern Adamawa A	0.6	0.87	0.85	6	8	7	1.01	0.15	0.02	p=0.574	2
Northern Adamawa B	0.7	1.00	0.92	5	8	8	1.02	0.25	0.09	p=0.365	5
Northern Borno	3.9	1.02	1.04	9	9	11	1.14	0.11	0.09	p=0.684	18
Southern Borno	1.5	1.03	0.91	4	8	9	1.04	-0.03	-0.07	p=0.052	4
East Borno	3.0	0.95	0.83	4	10	8	1.08	0.01	-0.21	p=0.001	13
Central Borno A	2.4	0.98	1.10	6	8	6	1.09	0.2	-0.14	p=0.714	7
Central Borno B	2.3	1.07	0.96	5	7	7	1.09	-0.01	-0.27	p=0.225	1
MMC/Jere	1.3	1.18	0.80	5	8	11	1.05	-0.01	-0.31	p=0.108	7
Central Yobe	1.3	0.94	1.11	6	12	7	1.09	0.09	-0.06	p=0.003	9
Southern Yobe	1.3	1.16	1.01	4	9	9	1.08	-0.13	0.02	p=0.016	9
Northern Yobe A	2.8			3	12	6	1.07	-0.06	-0.07	p=0.089	11
Northern Yobe B	3.3	0.96	0.91	6	14	6	1.07	-0.07	-0.22	p=0.000	15

Excellent
Good
Acceptable
Problematic

5 Results

WFP/Rein SKULLERUD

5.1 SOCIO-DEMOGRAPHIC CHARACTERISTICS

5.1.1 Survey Coverage

In total, 7,424 households (89 percent of planned) across 405 clusters (93 percent of planned) were covered by the assessment.

Table 5 JANFSA Planned versus Achieved Coverage by Domain

Domain	Number of Clusters			Number of Households			Number of Children 0-59m			Population Parameters		
	Planned	Surveyed	%	Planned	Surveyed	%	Planned	Measured	%	Ave HH Size	U5 Prop (%)	Migration *
Southern Adamawa	33	33	100.0	660	628	95.2	489	467	95.5	5.2	17.6	2.72
Northern Adamawa-A	31	28	90.3	558	510	91.4	485	528	108.9	5.8	16.3	1.73
Northern Adamawa-B	31	28	90.3	558	466	83.5	485	448	92.4	5.4	18.8	1.61
Northern Borno	36	23	63.9	720	397	55.1	530	299	56.4	4.4	18.3	2.02
Southern Borno	32	31	96.9	608	584	96.1	549	578	105.3	5.8	17.5	1.07
East Borno	37	37	100.0	740	701	94.7	609	585	96.1	4.9	19.8	1.50
Central Borno-A	38	32	84.2	760	635	83.6	640	607	94.8	4.7	22.0	1.78
Central Borno-B	38	38	100.0	760	683	89.9	640	605	94.5	4.8	19.2	1.68
MMC & Jere	32	32	100.0	576	576	100.0	527	593	112.5	6.5	16.8	2.00
Central Yobe	32	29	90.6	576	516	89.6	576	543	94.3	6.1	18.3	2.72
Southern Yobe	31	30	96.8	527	488	92.6	594	532	89.6	6.0	19.3	2.82
Northern Yobe-A	33	33	100.0	660	647	98.0	548	665	121.4	5.8	19.1	2.64
Northern Yobe-B	33	31	93.9	660	593	89.8	548	620	113.1	5.3	21.5	1.77

** is expressed as number of persons left per 10,000 populations per day*

5.1.2 Age and sex distribution of sampled children

The survey covered a total of 6,801 children between 0 to 59 months. As summarized in Table 6, the demographic sex ratio of children under five covered in this assessment comprised of nearly equal proportion of males and females. The overall balanced ratio of approximately 1:1 female to male across the different age groups indicates that there was no selection bias in the survey. A similar trend was observed at the domain level as well (*see Table 6*) which demonstrates minimal or no selection bias of children under five at the geographic level.

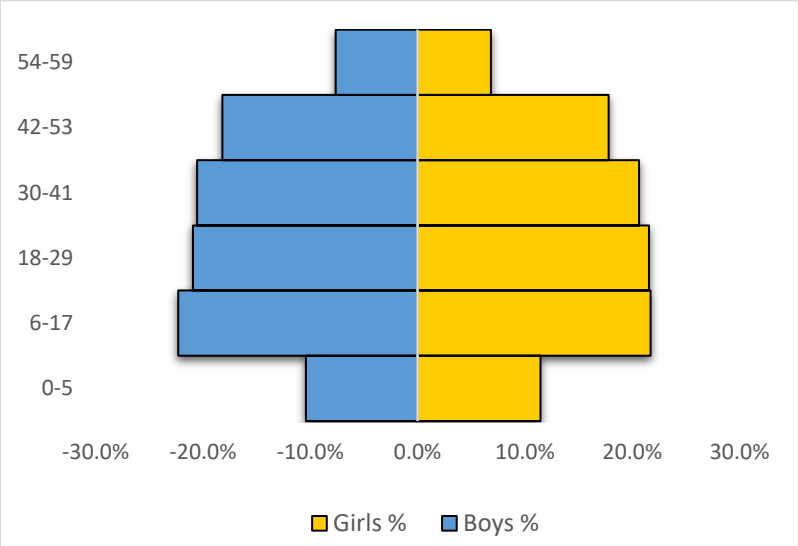
Table 6 Distribution of age and sex of sampled children

	Boys		Girls		Total		
	no.	**%**	**no.**	**%**	**no.**	**%**	**Boy: girl**
0-5	354	47.6%	389	52.4%	743	10.9%	1
6-17	759	50.7%	738	49.3%	1497	22.0%	1
18-29	712	49.3%	733	50.7%	1445	21.2%	1
30-41	699	49.9%	701	50.1%	1400	20.6%	1
42-53	619	50.6%	605	49.4%	1224	18.0%	1
54-59	260	52.8%	232	47.2%	492	7.2%	1
TOTAL	3403	50.0%	3398	50.0%	6801	100.0%	1

Table 7 Distribution of Selected Children for Anthropometry by Gender and Domain

Domain	Boys	Girls	Total
Central Borno A	286 (49%)	298 (51%)	584 (8.6%)
Central Borno B	299 (51.5%)	282 (48.5%)	581 (8.5%)
Central Yobe	256 (49%)	266 (51%)	522 (7.7%)
East Borno	275 (48.3%)	294 (51.7%)	569 (8.4%)
MCC & Jere	301 (53.4%)	263 (46.6%)	564 (8.3%)
Northern Adamawa A	208 (47.2%)	233 (52.8%)	441 (6.5%)
Northern Adamawa B	219 (51.8%)	204 (48.2%)	423 (6.2%)
Northern Borno	149 (51%)	143 (49%)	292 (4.3%)
Northern Yobe A	305 (47%.3)	340 (52.7%)	645 (9.5%)
Northern Yobe B	305 (50.7%)	297 (49.3%)	602 (8.9%)
Southern Adamawa	260 (50.8%)	252 (49.2%)	512 (7.5%)
Southern Borno	267 (48.5%)	284 (51.5%)	551 (8.1%)
Southern Yobe	273 (53%)	242 (47%)	515 (7.6%)
Total	**3403 (50.0%)**	**3398 (49.9%)**	**6801**

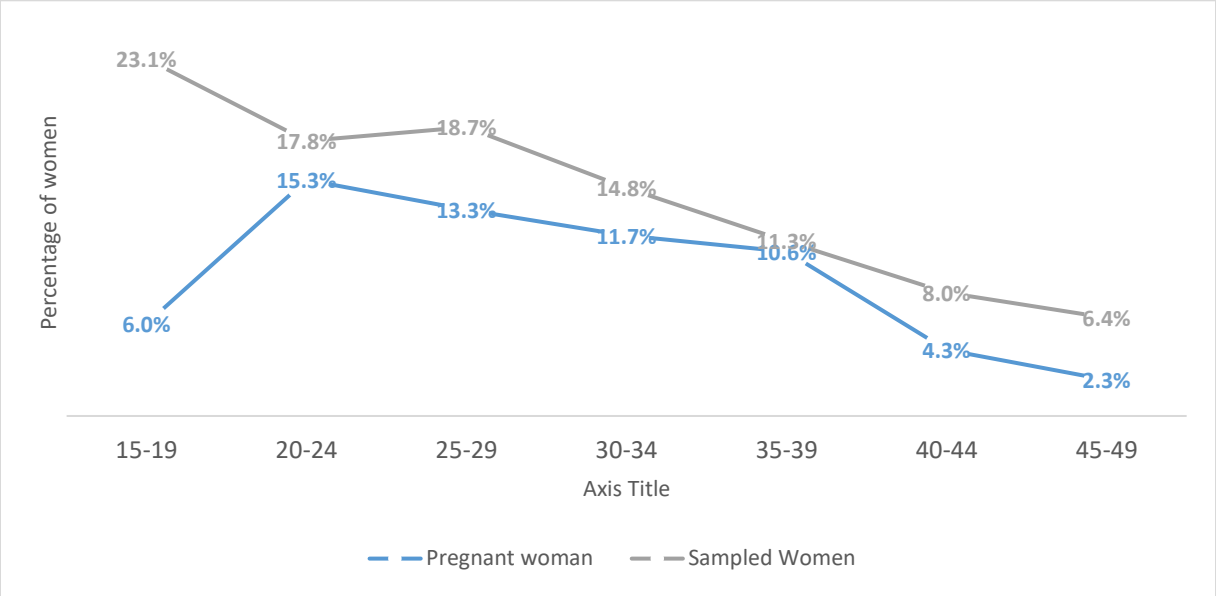
Figure 4 Population age and sex pyramid



5.1.3 Age of mothers and/or caregivers

The figure 5 below shows the proportion of selected age groups of surveyed women aged between 15 to 49 years. Over half of these women (62.6 percent) were between 20 – 39 years while 23.1 percent were under 20 years old and 14.4 percent between 40 – 49 years. 10.4 percent of all the women of reproductive age surveyed were either pregnant, breastfeeding (26.0 percent), pregnant and breastfeeding (0.4 percent) or not pregnant and not breastfeeding (63.0 percent). There were comparatively less teenage mothers' age 15 – 19 years (6.0 percent) compared to overall population of mothers sampled within the same age group (see Figure 5).

Figure 5 Age distribution of pregnant women versus all surveyed women aged 15 to 49 years



At the domain level, the highest proportion of pregnant women were reported in Central Borno B (14.5 percent), Southern Yobe (12.5 percent), Central Borno A (11.7 percent) and East Borno (10.6 percent). Similarly, a high proportion of breastfeeding mothers were found in most of these same areas with the highest proportion of pregnant women as seen in the cases of Central Borno A (35.5 percent), Southern Yobe (34.1 percent) and East Borno (31.7 percent). Table 8 below gives a detailed breakdown of the characteristics of women of reproductive age surveyed at the domain level.

Table 8 Characteristics of women aged between 15 to 49 years by Domain

	Pregnant		Breastfeeding		Pregnant and Breastfeeding		Not Pregnant Not Breastfeeding	
Domain	**Number**	**%**	**Number**	**%**	**Number**	**%**	**Number**	**%**
Northern Adamawa A	51	8.1%	103	16.5%	2	0.3%	471	75.2%
Northern Adamawa B	49	9.3%	129	24.5%	2	0.4%	351	66.6%
Southern Adamawa	75	10.5%	143	19.9%	2	0.3%	501	69.9%
Central Borno A	64	11.7%	193	35.5%	0	0.0%	286	52.5%
Central Borno B	50	14.5%	93	26.9%	2	0.6%	202	58.4%
East Borno	11	10.6%	33	31.7%	0	0.0%	60	57.7%
MCC & Jere	58	7.9%	150	20.5%	2	0.3%	525	71.7%
Northern Borno	9	10.5%	30	34.9%	0	0.0%	47	54.7%
Southern Borno	62	8.8%	174	24.7%	2	0.3%	470	66.7%
Central Yobe	59	10.8%	170	31.4%	2	0.4%	315	57.9%
Northern Yobe A	58	8.5%	207	30.3%	3	0.4%	420	61.5%
Northern Yobe B	59	10.5%	191	33.9%	2	0.4%	309	54.8%
Southern Yobe	63	12.5%	172	34.1%	5	1.0%	274	54.4%

6 Nutritional Status of Women & Children

WFP/Inger Marie VENNIZE

6.1 Children – Prevalence of Acute Malnutrition by Weight-for-Height

At the State level, using weight-for-height z-scores (WHZ)[20] and/or oedema, the prevalence of global acute malnutrition (GAM) was above 10 percent, and hence, high in Borno (10.6 percent) and Yobe (13.3 percent) based on WHO classification of nutrition situation,[21] compared to 6.5 percent in Adamawa where the nutrition situation is medium. The manifestation of severe acute malnutrition (SAM) was highest in both Yobe and Borno where SAM rates stood at 2.5 percent and 1.8 percent respectively compared to 0.3 percent in Adamawa.

At the domain level, the prevalence of GAM was very highin Northern Yobe A (16.1 percent), whereas the situation was high in Central Yobe, Northern Yobe B and Northern Borno, where the prevalence of GAM was 14.0 percent. The results also reveal that GAM rates were at high levels in Central Borno B (12.1 percent), Southern Yobe (12.0 percent), Central Borno A (11.5 percent) and MMC & Jere (10.6 percent), and medium in most of the remaining domains (East Borno: 9.9 percent, Southern Adamawa: 7.8 percent, Southern Borno: 6.6 percent and Northern Adamawa A: 5.4 percent) except for Northern Adamawa B (4.9 percent) where the rate was low. The prevalence of severe acute malnutrition (<-3 WHZ) was highest at 3.7 percent, 3.1 percent, 2.9 percent and 2.8 percent in Northern Borno, Northern Yobe B, Northern Yobe A and Southern Yobe respectively. Only three cases of nutritional oedema were verified: two cases in Northern Yobe A and one case in Southern Adamawa. See, Table 9

The prevalence of GAM was higher among boys than girls in all domains[22] with the exception of Northern Adamawa and Central Borno. Disaggregation by child's age shows that prevalence of GAM was highest among children in the younger age cohorts (6-11 months and 12-23 months).Table 9 below presents the prevalence of acute malnutrition by state and domain among children 0-59 months of age based on weight-for-height z-scores and/or edema, disaggregated by sex.

6. 2 Children – Prevalence of Acute Malnutrition by Mid-Upper Arm Circumference

The prevalence of acute malnutrition based on MUAC among children 6 to 59 months is shown in Table 10. At the State level, the prevalence of acute malnutrition by MUAC (<12.5 cm) rates were highest in Yobe (5.6 percent) followed by Borno (5.1 percent) and Adamawa (1.7 percent) while the SAM proxy prevalence (MUAC < 11.5 cm) was highest in Borno (2.2 percent). At the domain level, the prevalence of acute malnutrition by MUAC (<12.5 cm) was highest in Northern Borno (10.2 percent). When disaggregated by sex, the prevalence of acute malnutrition was higher among girls than boys in all domains except Central Borno A and Northern Yobe A.

While MUAC and WHZ are different indicators for identifying different children as acutely malnourished, they both suggest a similar finding – the rates of acute malnutrition are higher in Borno and Yobe relative to Adamawa.

[20] https://www.who.int/childgrowth/standards/weight_for_height/en/

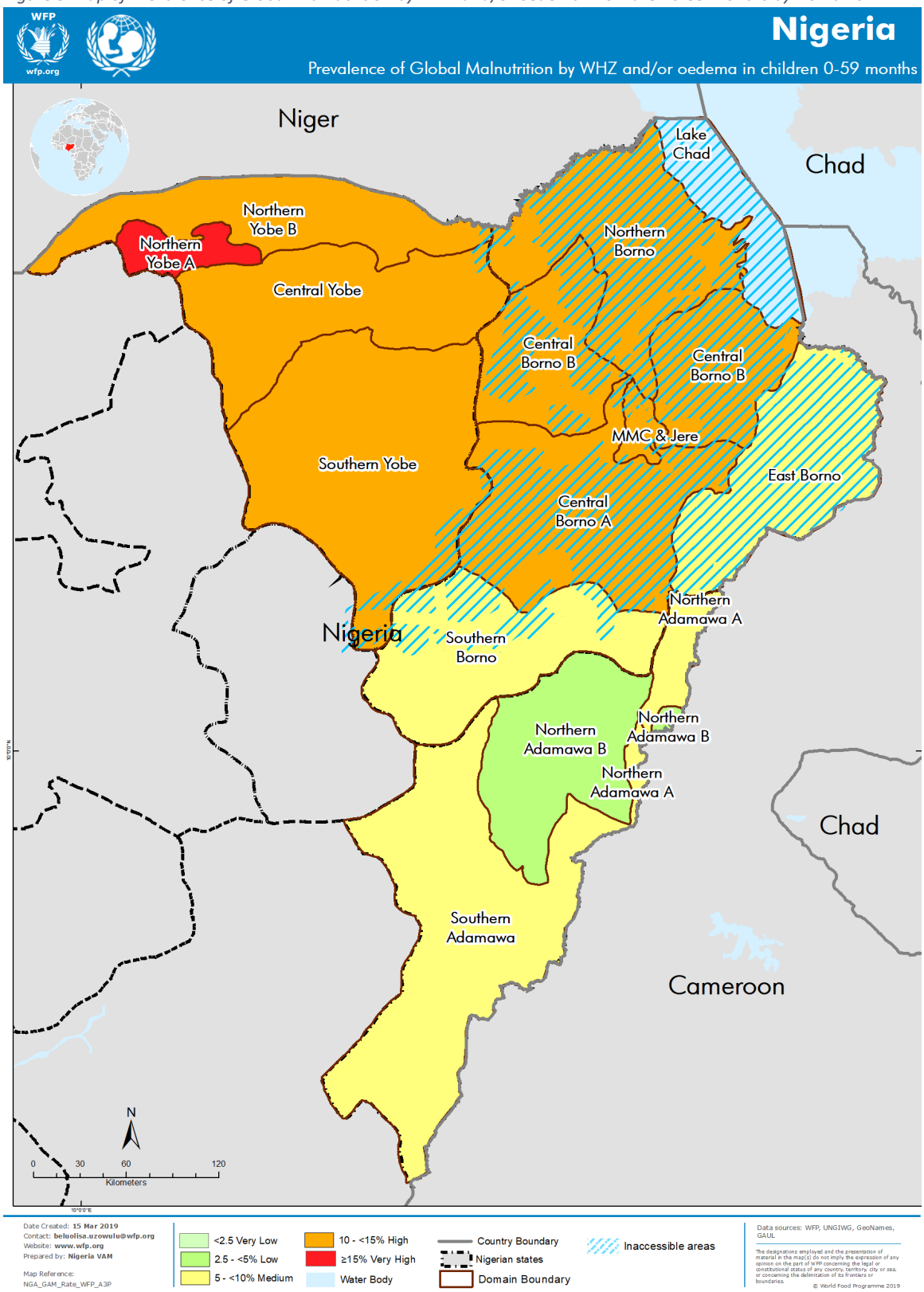
[21] WHO Classification of the Public Health Importance of Prevalence of Malnutrition (classification of the nutrition situation)-2018 for acute malnutrition is very low at <2.5%, low at 2.5- < 5%, medium at 5-< 10%, high at 10-< 15% and very high at >15%.

[22] P value=0.003

Table 9 Prevalence of acute malnutrition by WHZ and/or oedema in children 0-59 months, disaggregated by sex, by state and domain

	Prevalence of global malnutrition (<,2 z, score and/or oedema)			Prevalence of moderate malnutrition (<,2 z, score and >=,3 z, score, no oedema)			Prevalence of severe malnutrition (<,3 z, score and/or oedema)			Number of children 0,59 months
	All	Boys	Girls	All	Boys	Girls	All	Boys	Girls	
State										
Adamawa	(86) 6.5	(43) 6.0	(43) 7.0	(83) 6.2	(42) 5.8	(41) 6.6	(3) 0.3	(1) 0.2	(2) 0.4	1443
	[4.7,9.0]	[4.0,9.1]	[4.7,10.3]	[4.4,8.6]	[3.8,8.9]	[4.3,9.9]	[0.1,1.0]	[0.0,1.5]	[0.1,1.7]	
Borno	(340) 10.6	(198) 12.5	(142) 8.8	(292) 8.9	(172) 10.6	(120) 7.1	(48) 1.8	(26) 1.9	(22) 1.7	3266
	[9.4,12.0]	[10.8,14.5]	[7.3,10.5]	[7.8,10.0]	[9.2,12.2]	[5.8,8.7]	[1.2,2.6]	[1.2,3.0]	[1.0,2.7]	
Yobe	(332) 13.3	(176) 13.4	(156) 13.1	(272) 10.8	(142) 10.6	(130) 11.0	(60) 2.5	(34) 2.9	(26) 2.1	2360
	[11.4,15.4]	[10.7,16.8]	[10.7,15.9]	[9.2,12.6]	[8.4,13.2]	[8.9,13.6]	[1.7,3.5]	[1.8,4.7]	[1.3,3.4]	
Domain										
S. Adamawa	(41) 7.8	(17) 6.5	(26) 9.8	(39) 7.4	(16) 6.1	(23) 8.6	(4) 0.8	(1) 0.4	(3) 1.1	
	[4.9,12.1]	[3.4,12.0]	[6.0,15.5]	[4.7,11.5]	[3.1,11.7]	[5.0,14.5]	[0.3,1.9]	[0.1,2.6]	[0.4,3.4]	528
N. Adamawa A	(25) 5.4	(13) 5.9	(12) 4.9	(24) 5.1	(13) 5.9	(11) 4.5	(1) 0.2	(0) 0.0	(1) 0.4	
	[3.6,7.9]	[3.4,10.1]	[2.9,8.0]	[3.5,7.4]	[3.4,10.1]	[2.7,7.3]	[0.0,1.6]	[0.0,0.0]	[0.1,2.9]	467
N. Adamawa B	(22) 4.9	(15) 6.6	(7) 3.2	(22) 4.9	(15) 6.6	(7) 3.2	(0) 0.0	(0) 0.0	(0) 0.0	
	[3.2,7.5]	[4.1,10.4]	[1.6,6.2]	[3.2,7.5]	[4.1,10.4]	[1.6,6.2]	[0.0,0.0]	[0.0,0.0]	[0.0,0.0]	448
Southern Borno	(38) 6.6	(24) 8.4	(14) 4.8	(35) 6.1	(21) 7.3	(14) 4.8	(3) 0.5	(3) 1.0	(0) 0.0	
	[4.3,9.8	[5.6,12.4]	[2.6,8.8}	[4.1,9.0]	[4.9,10.9]	[2.6,8.8]	[0.2,1.6]	[0.3,3.2]	[0.0,0.0]	578
Central Borno A	(70) 11.5	(39) 13.3	(31) 9.9	(64) 10.5	(37) 12.6	(27) 8.6	(6) 1.0	(2) 0.7	(4) 1.3	
	[9.5,14.0]	[9.9,17.7]	[7.4,13.1]	[8.5,13.0]	[9.3,16.9]	[6.3,11.6]	[0.5,2.1]	[0.2,2.7]	[0.5,3.3]	606
Central Borno B	(73) 12.1	(41) 13.2	(32) 10.8	(62) 10.2	(35) 11.3	(27) 9.2	(11) 1.8	(6) 1.9	(5) 1.7	
	[9.5,15.3]	[10.2,17.0]	[7.1,16.1]	[7.9,13.2]	[8.5,14.8]	[5.8,14.1]	[1.0,3.4]	[0.9,4.0]	[0.7,3.9]	605
MCC & Jere	(63) 10.6	(41) 12.9	(22) 8.0	(54) 9.1	(36) 11.3	(18) 6.6	(9) 1.5	(5) 1.6	(4) 1.5	
	[8.0,13.9]	[9.7,16.9]	[5.2,12.2]	[6.9,11.9]	[8.4,15.0]	[4.0,10.5]	[0.7,3.3]	[0.6,4.2]	[0.6,3.8]	593
East Borno	(58) 9.9	(31) 11.3	(27) 8.7	(48) 8.2	(25) 9.1	(23) 7.4	(10) 1.7	(6) 2.2	(4) 1.3	
	[6.9,14.1]	[7.5,16.7]	[5.7,13.0]	[5.8,11.4]	[5.9,13.7]	[5.1,10.7]	[0.8,3.5]	[1.0,4.7]	[0.4,4.1]	585
Northern Borno	(42) 14.0	(25) 16.9	(17) 11.3	(31) 10.4	(20) 13.5	(11) 7.3	(11) 3.7	(5) 3.4	(6) 4.0	
	[10.4,18.8]	[10.6,25.8]	[7.3,16.9]	[7.5,14.2]	[8.9,20.0]	[3.9,13.1]	[1.6,8.1]	[1.1,9.8]	[1.7,8.8]	299
Central Yobe	976) 14.0	(39) 14.5	(37) 13.5	(67) 12.3	(35) 13.0	(32) 11.7	(9) 1.7	(4) 1.5	(5) 1.8	
	[10.8,18.0]	[10.3,20.1]	[9.6,18.7]	[9.5,15.9]	[8.9,18.6]	[8.6,15.7]	[0.7,3.8]	[0.6,3.7]	[0.7,4.8]	543
Southern Yobe	(64) 12.0	(32) 11.3	(32) 12.9	(49) 9.2	(22) 7.7	(27) 10.9	(15) 2.8	(10) 3.5	(5) 2.0	
	[8.9,16.1]	[6.9,17.9]	[8.7,18.7]	[6.7,12.6]	[4.7,12.4]	[7.0,16.5]	[1.6,5.0]	[1.6,7.6]	[0.8,4.7]	532
Northern Yobe A	(107) 16.1	(58) 18.4	(49) 14.0	(88) 13.2	(45) 14.3	(43) 12.3	(19) 2.9	(13) 4.1	(6) 1.7	
	[13.0,19.7]	[13.6,24.4]	[11.0,17.6]	[10.4,16.6]	[10.4,19.2]	[9.2,16.1]	[1.7,4.9]	[2.4,7.1]	[0.6,5.2]	665
Northern Yobe B	(87) 14.0	(48) 15.6	(39) 12.5	(68) 11.0	(40) 13.0	(28) 8.9	(19) 3.1	(8) 2.6	(11) 3.5	
	[10.4,18.7]	[10.0,23.6]	[8.9,17.2]	[7.5,15.8]	[8.0,20.5]	[5.6,14.1]	[1.6,5.7]	[1.0,6.7]	[1.7,7.3]	620

Figure 5 Map of Prevalence of Global Malnutrition by WHZ and/or oedema in children 0-59 months by Domains



Note: Findings from the assessment should be interpreted cautiously as data was only collected from accessible areas of Borno, Adamawa and Yobe States. GAM rates in inaccessible areas shaded in light blue in the map may be similar or worse.

Table 10 Prevalence of Acute Malnutrition in Children 6-59 months by mid-upper arm circumference (MUAC)

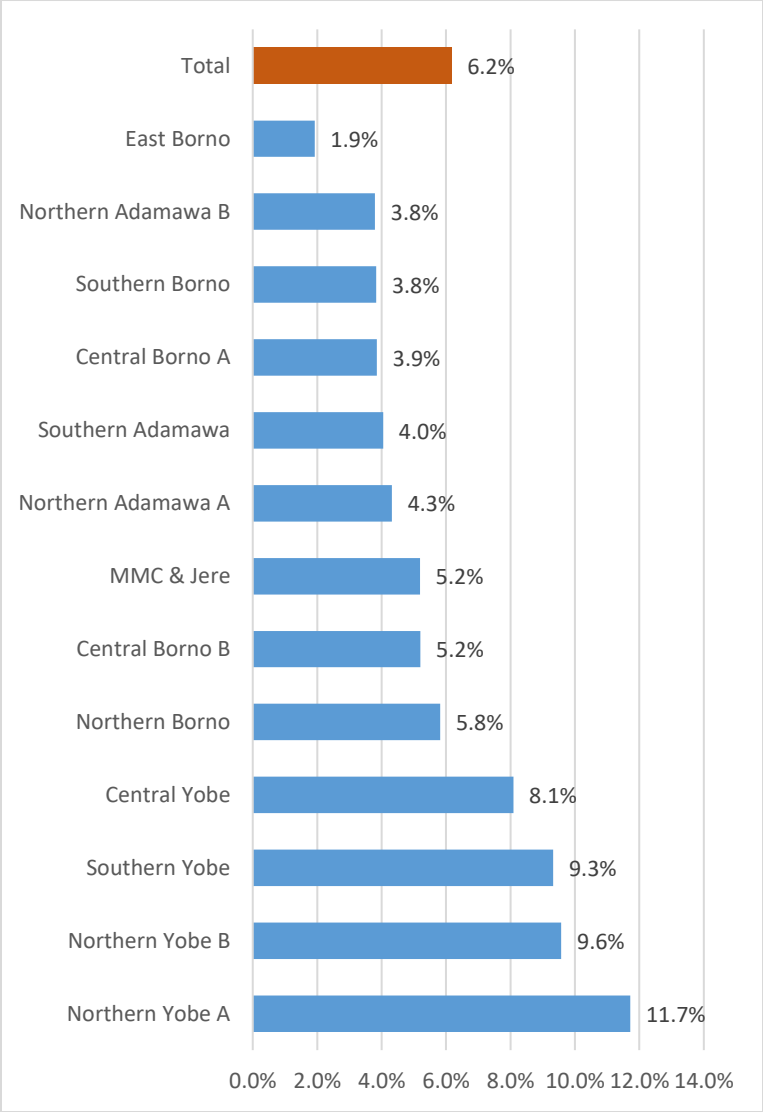
	Prevalence of global malnutrition (< 125 mm and/or oedema)			Prevalence of moderate malnutrition (< 125 mm and >= 115 mm, no oedema)			Prevalence of severe malnutrition (< 115 mm and/or oedema)			Number of children 6-59 months
	All	Boys	Girls	All	Boys	Girls	All	Boys	Girls	
State										
Adamawa	(19) 1.7	(4) 0.7	(15) 2.6	(15) 1.2	(2) 0.2	(13) 2.2	(4) 0.4	(2) 0.5	(2) 0.3	
	[0.9,3.0]	[0.2,2.0]	[1.3,4.9]	[0.6,2.5]	[0.0,0.8]	[1.1,4.5]	[0.2,1.1]	[0.1,1.9]	[0.1,1.5]	1329
Borno	(134) 5.1	(61) 4.5	(73) 5.8	(86) 2.9	(34) 2.3	(48) 3.4	(52) 2.2	(27) 2.2	(25) 2.3	
	[4.0,6.6]	[3.3,6.0]	[4.3,7.7]	[2.2,3.7]	[1.6,3.4]	[2.5,4.7]	[1.5,3.3]	[1.4,3.2]	[1.4,3.9]	2964
Yobe	(132) 5.6	(63) 5.1	(68) 6.0	(91) 4.0	(46) 4.1	(44) 3.9	(41) 1.5	(17) 1.0	(24) 2.1	
	[4.4,7.1]	[3.6,7.3]	[4.4,8.2]	[2.9,5.5]	[2.7,6.2]	[2.6,5.9]	[1.0,2.3]	[0.5,1.8]	[1.2,3.6]	2155
Domain										
S. Adamawa	(10) 2.1	(2) 0.8	(8) 3.3	(6) 1.2	(0) 0.0	(6) 2.5	(4) 0.8	(2) 0.8	(2) 0.8	
	[0.9,4.5]	[0.2,3.3]	[1.4,7.6]	[0.4,3.7]	[0.0,0.0]	[0.8,7.1]	[0.3,2.2]	[0.2,3.3]	[0.2,3.5]	486
N. Adamawa A	(5) 1.2	(1) 0.5	(4) 1.7	(4) 0.9	(1) 0.5	(3) 1.3	(1) 0.2	(0) 0.0	(1) 0.4	
	[0.4,3.2]	[0.1,3.8]	[0.5,5.6]	[0.4,2.4]	[0.1,3.8]	[0.4,4.0]	[0.0,1.7]	[0.0,0.0]	[0.1,3.1]	433
N. Adamawa B	(4) 1.0	(1) 0.5	(3) 1.5	(4) 1.0	(1) 0.5	(3) 1.5	(0) 0.0	(0) 0.0	(0) 0.0	
	[0.3,3.2]	[0.1,3.8]	[0.5,4.3]	[0.3,3.2]	[0.1,3.8]	[0.5,4.3]	[0.0,0.0]	[0.0,0.0]	[0.0,0.0]	410
Southern Borno	(10) 1.9	(3) 1.1	(7) 2.8	(8) 1.6	(3) 1.1	(5) 2.0	(2) 0.4	(0) 0.0	(2) 0.8	
	[1.0,3.9]	[0.3,4.9]	[1.2,6.2]	[0.7,3.3]	[0.3,4.9]	[0.8,4.7]	[0.1,1.6]	[0.0,0.0]	[0.2,3.2]	515
Central Borno A	(26) 4.7	(15) 5.5	(11) 3.9	(18) 3.2	(11) 4.0	(7) 2.5	(8) 1.4	(4) 1.5	(4) 1.4	
	[2.5,8.7]	[2.7,10.5]	[1.8,8.2]	[1.5,7.0]	[1.8,8.5]	[0.9,6.7]	[0.5,4.4]	[0.4,4.7]	[0.4,5.5]	557
Central Borno B	(39) 7.1	(20) 7.0	(19) 7.2	(22) 4.0	(8) 2.8	(14) 5.3	(17) 3.1	(12) 4.2	(5) 1.9	
	[4.7,10.5]	[4.6,10.5]	[4.1,12.2]	[2.5,6.3]	[1.5,5.1]	[2.8,9.7]	[1.8,5.3]	[2.2,7.8]	[0.8,4.5]	550
MCC & Jere	(12) 2.2	(4) 1.4	(8) 3.2	(9) 1.6	(2) 0.7	(7) 2.8	(3) 0.5	(2) 0.7	(1) 0.4	
	[1.1,4.3]	[0.4,4.5]	[1.5,6.7]	[0.7,3.9]	[0.1,5.0]	[1.2,6.3]	[0.2,1.7]	[0.2,2.8]	[0.1,3.1]	546
East Borno	(19) 3.6	(6) 2.4	(13) 4.9	(13) 2.5	(4) 1.6	(9) 3.4	(6) 1.2	(2) 0.8	(4) 1.5	
	[1.9,6.7]	[1.0,5.8]	[2.7,8.7]	[1.3,4.6]	[0.6,4.1]	[1.8,6.3]	[0.4,3.2]	[0.2,3.2]	[0.6,3.8]	521
Northern Borno	(28) 10.2	(13) 9.4	(15) 11.0	(12) 4.4	(6) 4.3	(6) 4.4	(16) 5.8	(7) 5.0	(9) 6.6	
	[6.1,16.5]	[5.4,15.7]	[6.2,18.8]	[2.4,7.7]	[2.1,8.7]	[2.2,8.6]	[3.1,10.8]	[2.6,9.6]	[3.1,13.7]	275
Central Yobe	(23) 4.6	(7) 2.9	(16) 6.3	(19) 3.8	(7) 2.9	(12) 4.7	(4) 0.8	(0) 0.0	(4) 1.6	
	[2.8,7.5]	[1.1,7.6]	[3.5,11.0]	[2.1,7.0]	[1.1,7.6]	[2.2,9.8]	[0.3,2.1]	[0.0,0.0]	[0.6,4.0]	498
Southern Yobe	(26) 5.4	(14) 5.4	(12) 5.4	(19) 3.9	(12) 4.6	(7) 3.1	(7) 1.4	(2) 0.8	(5) 2.2	
	[3.4,8.3]	[2.9,9.7]	[2.9,9.9]	[2.2,7.0]	[2.4,8.7]	[1.4,7.0]	[0.6,3.2]	[0.2,3.2]	[0.8,6.1]	485
Northern Yobe A	(44) 7.2	(27) 9.0	(16) 5.1	(26) 4.2	(17) 5.7	(8) 2.5	(18) 2.9	(10) 3.3	(8) 2.5	
	[4.7,10.7]	[6.0,13.5]	[2.7,9.6]	[2.5,7.0]	[3.4,9.3]	[1.0,6.6]	[1.8,4.8]	[1.8,6.1]	[1.1,5.8]	615
Northern Yobe B	(39) 7.0	(15) 5.5	(24) 8.5	(27) 4.8	(10) 3.6	(17) 6.0	(12) 2.2	(5) 1.8	(7) 2.5	
	[4.3,11.1]	[2.5,11.7]	[5.3,13.3]	[2.8,8.2]	[1.5,8.7]	[3.5,10.1]	[1.0,4.6]	[0.6,5.7]	[0.9,6.5]	558

6.4 Maternal Nutrition

6.4.1 Prevalence of acute malnutrition based on MUAC in women aged 15-49

The nutrition of women is critical, not only for the life the women and pregnancy outcome for those that are pregnant, but also, those of their families (particularly children), community and the country at large. Unfortunately, women and children are often the most affected during humanitarian crisis. The mid-upper arm circumference (MUAC) of all women in reproductive age (15 – 49 years) was taken during the survey, in order to derive their nutritional status. All women that fulfilled the age requirement were included in the sample regardless of their status with respect to pregnancy or breastfeeding.

Figure 6 Prevalence of acute malnutrition among women aged 15 - 49 years based on MUAC (<210mm) by Domain



Note: <210mm cut off used for analysis but GAM rates for <230mm are also presented in Table 11 below based on some guidelines as to its relevance for GAM of PLW

Overall, 6.2 percent of women aged 15 – 49 years were malnourished (i.e. MUAC < 210 mm). At the state level, 9.8 percent, 4.3 percent and 4.1 percent of women aged 15 – 49 years were malnourished in Yobe, Borno and Adamawa respectively. Domain level findings show that the highest prevalence of malnutrition among women aged 15 – 49 years were reported in Yobe State where the prevalence rates across the four domains: Northern Yobe A (11.7 percent), Northern Yobe B (9.6 percent), Southern Yobe (9.3 percent) and Central Yobe (8.1 percent); exceeded the average prevalence rate of 6.6 percent recorded across the three states. Also, Northern Borno (5.8 percent), MMC & Jere (5.2 percent) and Central Borno B (5.2 percent) were other domains with a relatively high level of malnourished women aged 15 – 49 years when compared to other domains.

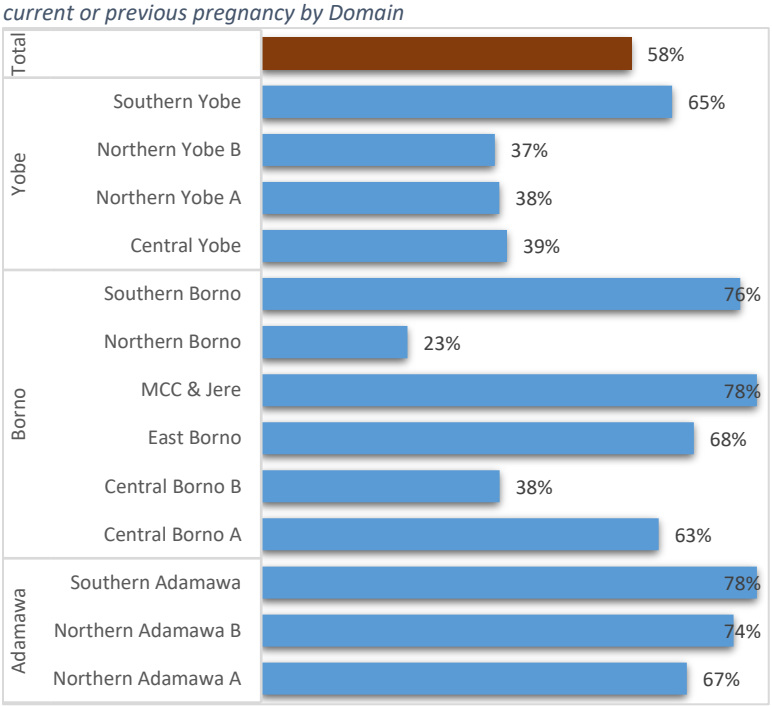
Table 11 Prevalence of acute malnutrition among women aged 15 - 49 years based on MUAC by age group and domain

	MUAC in millimeters				Number of women age 15-49 years
	< 180 mm *(n) % [95% CI]*	< 210 mm *(n) % [95% CI]*	< 230 mm *(n) % [95% CI]*	>= 230 *(n) % [95% CI]*	
Age					
15-19 years	(14) 0.9 [0.5,1.5]	(275) 17.7 [15.8,19.6]	(685) 44.0 [41.6,46.5]	(871) 56.0 [53.5,58.4]	1556
20-49 years	(13) 0.3 [0.1,0.4]	(137) 2.6 [2.2,3.1]	(573) 11.1 [10.2,11.9]	(4607) 88.9 [88.1,89.8]	5180
State					
Adamawa	(3) 0.2 [0.0,0.4]	(76) 4.1 [3.2,5.0]	(216) 11.6 [10.2,13.1]	(1654) 88.4 [86.9,89.8]	1870
Borno	(4) 0.2 [0.1,0.4]	(93) 4.3 [3.5,5.2]	(330) 15.2 [13.7,16.7]	(1842) 84.8 [83.3,86.3]	2172
Yobe	(20) 0.9 [0.6,1.3]	(225) 9.8 [8.6,11.1]	(647) 28.2 [26.4,30.1]	(1648) 71.8 [69.9,73.6]	2295
Domain					
Northern Adamawa A	(2) 0.3 [0.1,1.0]	(27) 4.3 [2.9,6.1]	(70) 11.2 [8.9,13.8]	(556) 88.8 [86.2,91.1]	626
Northern Adamawa B	(1) 0.2 [0.0,0.9]	(20) 3.8 [2.4,5.7]	(64) 12.1 [9.6,15.1]	(463) 87.9 [84.9,90.4]	527
Southern Adamawa	(0) 0.0 [0.0,0.0]	(29) 4.0 [2.8,5.7]	(82) 11.4 [9.3,13.9]	(635) 88.6 [86.1,90.7]	717
Central Borno A	(1) 0.2 [0.0,0.9]	(21) 3.9 [2.5,5.7]	(84) 15.4 [12.6,18.6]	(461) 84.6 [81.4,87.4]	545
Central Borno B	(0) 0.0 [0.0,0.0]	(18) 5.2 [3.2,7.9]	(63) 18.2 [14.4,22.5]	(283) 81.8 [77.5,85.6]	346
East Borno	(0) 0.0 [0.0,0.0]	(2) 1.9 [0.4,6.0]	(15) 14.4 [8.7,22.1]	(89) 85.6 [77.9,91.3]	104
MMC & Jere	(3) 0.4 [0.1,1.1]	(38) 5.2 [3.8,7.0]	(125) 17.1 [14.5,19.9]	(607) 82.9 [80.1,85.5]	732
Northern Borno	(0) 0.0 [0.0,0.0]	(5) 5.8 [2.3,12.3]	(14) 16.3 [9.6,25.1]	(72) 83.7 [74.9,90.4]	86
Southern Borno	(0) 0.0 [0.0,0.0]	(27) 3.8 [2.6,5.4]	(92) 13.0 [10.7,15.7]	(613) 87.0 [84.3,89.3]	705
Central Yobe	(1) 0.2 [0.0,0.9]	(44) 8.1 [6.0,10.6]	(138) 25.4 [21.8,29.1]	(406) 74.6 [70.9,78.2]	544
Northern Yobe A	(2) 0.3 [0.1,0.9]	(80) 11.7 [9.5,14.3]	(218) 31.9 [28.5,35.5]	(465) 68.1 [64.5,71.5]	683
Northern Yobe B	(3) 0.5 [0.2,1.4]	(54) 9.6 [7.4,12.2]	(159) 28.2 [24.6,32.0]	(405) 71.8 [68.0,75.4]	564
Southern Yobe	(14) 2.8 [1.6,4.5]	(47) 9.3 [7.0,12.1]	(132) 26.2 [22.5,30.2]	(372) 73.8 [69.8,77.5]	504

6.4.2 Iron Supplementation during Pregnancy

Iron supplementation during pregnancy is one of the strategies being promoted to reduce prevalence of anaemia. As illustrated in **figure 7**, approximately more than half of the selected women (58%) reported taking iron tablets or syrup during their last pregnancy. At the domain level, the highest proportion of women that reported taking iron supplementation during their last pregnancy were from Southern Adamawa and Northern Adamawa B, MMC & Jere and Southern Borno with a range of 74 percent to 78 percent, whereas Northern Borno was the domain had the lowest (23 percent).

Figure 7 Percentage of women that had Iron Supplementation in during current or previous pregnancy by Domain



6.5 Health, Water, Sanitation and Hygiene

6.5.1 Health and Morbidity

6.5.1.1 Health Status of Children Under five

Child illnesses influence their appetite and normal metabolic processes, thus contributing to the manifestation of malnutrition. Overall, 64 percent of the sampled children were free of any disease or symptoms within the two-week period preceding the survey. Among the 36 percent of affected children, fever was the most common reported illness (41 percent), followed by diarrhea (32 percent) and lastly, acute respiratory tract infections or cough (28 percent).

At the domain level, the highest percentage of children that had experienced symptoms of illnesses during the two-week that preceded the assessment were found in Southern Adamawa (46.5 percent) and Central Borno B (43 percent) whilst Northern Borno B (27.6 percent) had the lowest (see, figure 10). For children that had experienced on or more symptoms two weeks before the assessment, the prevalence of fever was relatively high (> 40 percent) across almost all domains except for Southern Adamawa (36 percent), Central Borno A (35 percent), East Borno (30 percent) and Northern Adamawa B (30 percent). The prevalence of cough was disproportionately high in East Borno and Northern Adamawa B (46 percent) and Central Borno A (39 Percent) whereas the lowest prevalence of 19 percent was reported in Northern Yobe B. For diarrhoea, more than one in every three children (> 30 percent) had experienced diarrhoeal like symptoms in almost all the domains in the northeast except for MMC & Jere (28 percent), Central Borno A (26 percent), Northern Adamawa B (24 percent) and East Borno (23 percent).

Figure 8 Presence of common child illnesses during two weeks preceding assessment for the entire sample

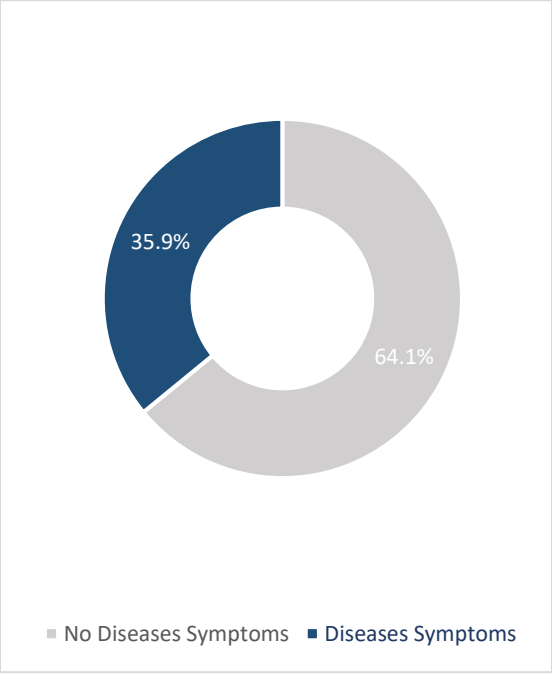


Figure 9 Common Child illnesses reported during two weeks preceding assessment for the entire sample

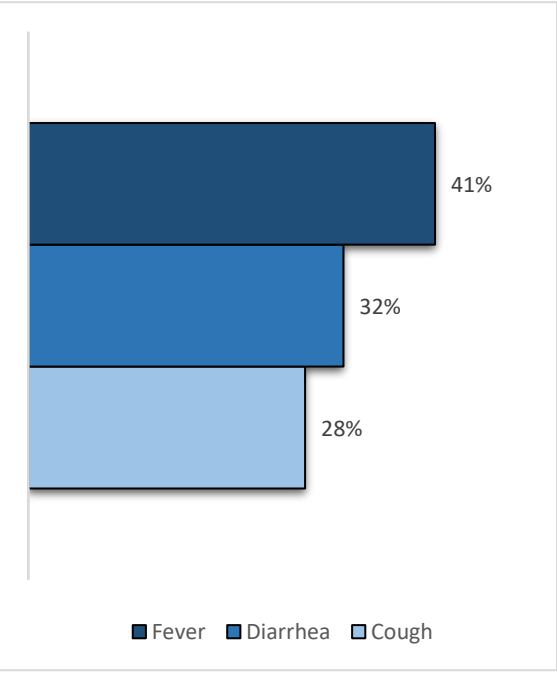


Figure 10 Presence of any common child illnesses during two weeks preceding assessment by Domain

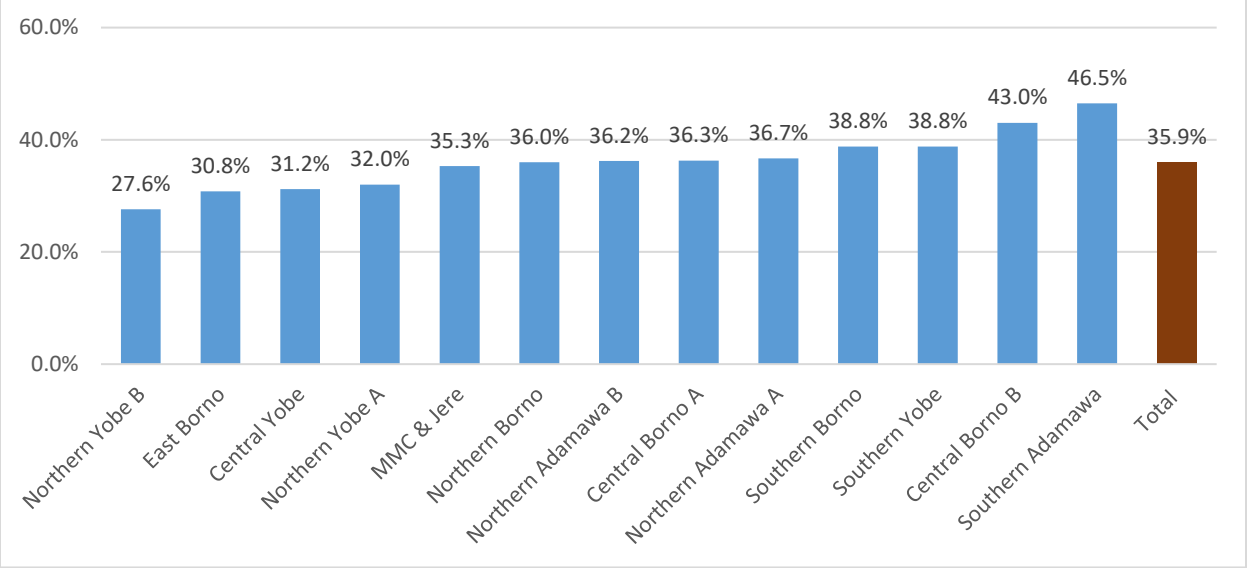
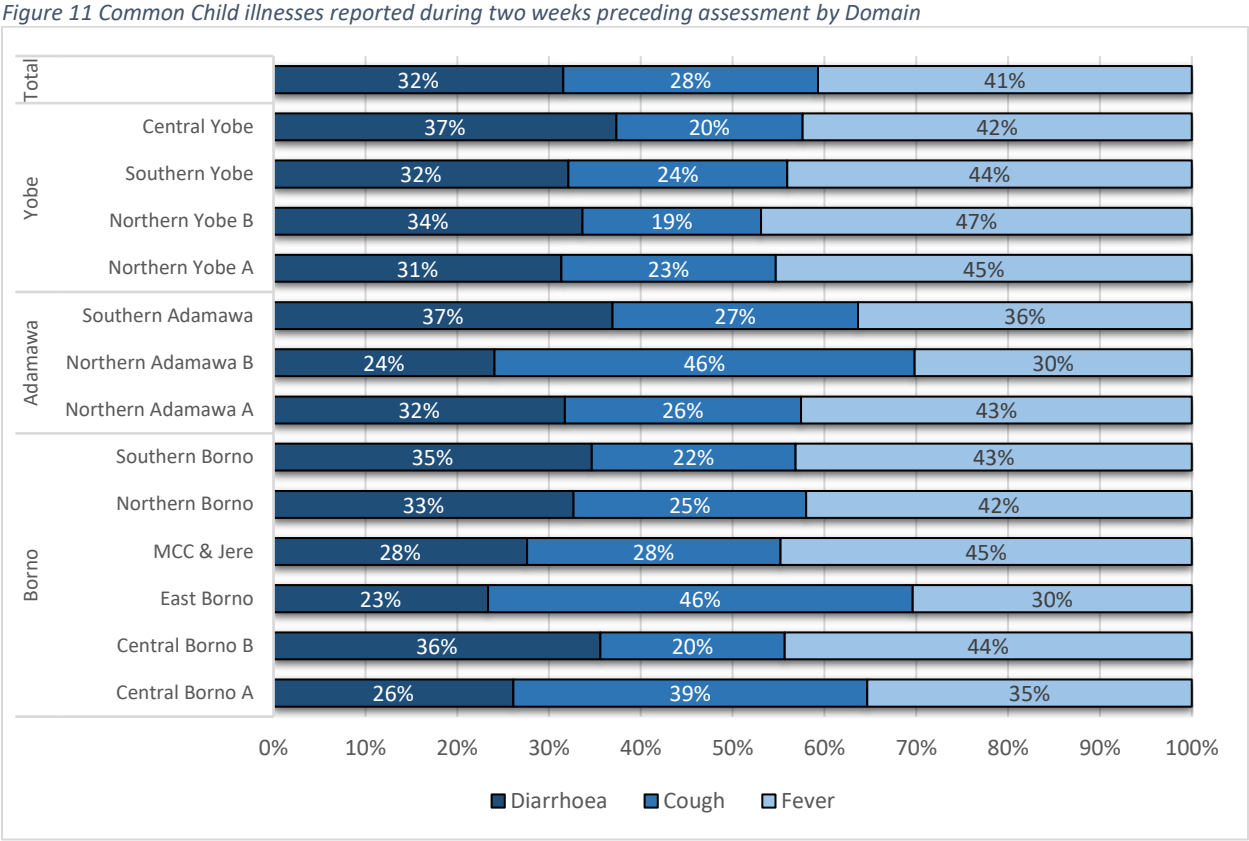


Figure 11 Common Child illnesses reported during two weeks preceding assessment by Domain



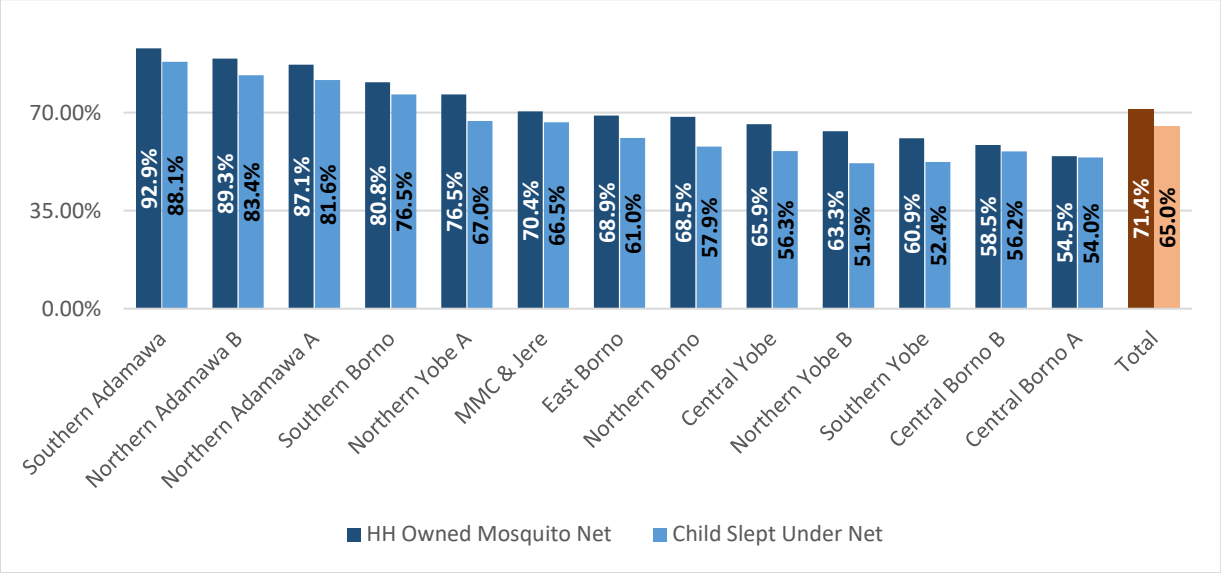
6.5.1.2 Use of Mosquito Nets

At the household level, 71.4 percent of households have one or more mosquito nets that could be used for sleeping purposes. At the domain level, the rate of ownership of mosquito nets was highest in Southern Adamawa (92.9 percent), Northern Adamawa B (89.3 percent), Northern Adamawa A (87.1 percent) and Southern Borno (80.8 percent). Contrariwise, least ownership of mosquito nets was found

in Central Borno B (58.5 percent) and Central Borno A (54.5 percent). See, Figure 12. Moreover, 65 percent of children slept under a mosquito net during the night preceding the assessment. Domain level usage of mosquito net by children was consistent with ownership of mosquito net at the household level. Therefore, the domains with the highest proportion of children that slept under a mosquito net the night that preceded the assessment were Southern Adamawa (88.1 percent), Northern Adamawa B (83.4 percent) and Northern Adamawa A (81.6 percent) whereas the least usage were reported at Central Borno B (56.2 percent) and Central Borno A (54.0 percent), both of which had the least rate of mosquito net ownership at the household level.

The prevalence of fever/malaria was not consistent with the reported very high usage of mosquito nets of 65% percent by children. The incidence of fever/malaria was about the same among children that slept (21.8%) or did not sleep (19.0%) under mosquito nets the night before the survey. However, it is worth nothing that the question in the survey lumped all types of fever together without differentiating their causes and hence, this makes it difficult to differentiate between fever caused by malaria and other diseases.

Figure 12 Household ownership of mosquito nets and Usage by children by Domain



6.5.1.3 Coverage of Childhood Immunization

Overall, 92 percent and 76 percent of the children had received polio and measles vaccine respectively. However, only 19 percent and 9 percent of these vaccinated children had verifiable evidence on the child health cards for measles and polio respectively whilst the remaining were based on the mother's or caretaker's reporting. At the domain level, Southern Borno (97 percent), MMC & Jere (97 percent) and Northern Adamawa B (96 percent) had the highest rates of polio immunization coverage, with Southern Adamawa (20 percent) and Southern Borno (18 percent) having the highest proportion of vaccinated children with verifiable child health cards. For measles, Northern Adamawa B (94 percent) and Southern Borno (90 percent) had the highest coverage rates. Both domains as well had the highest proportion of children with verifiable child health cards with rates standing at 37 percent (Northern Adamawa B) and 36 percent (Southern Borno). See, Figure 14.

Figure 13 Percentage of children that received measles and/or polio vaccine

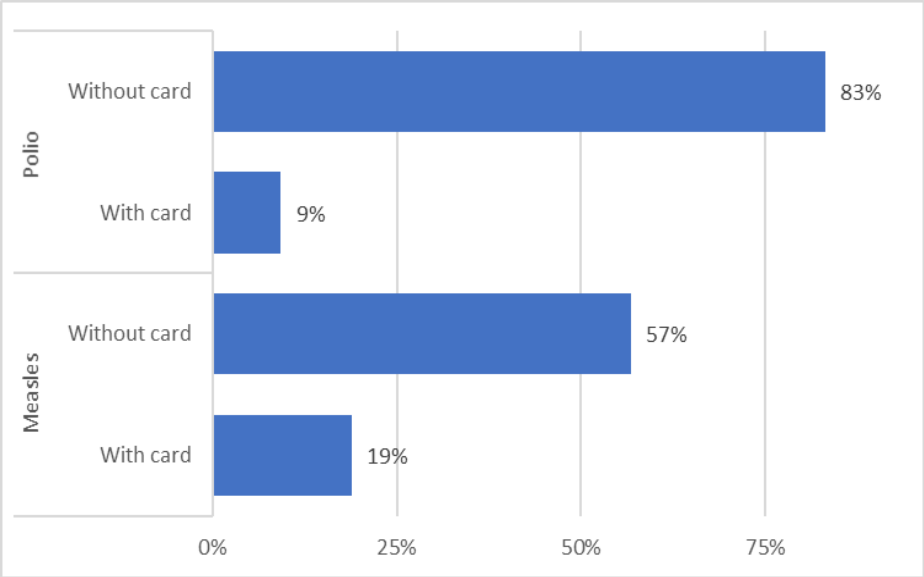
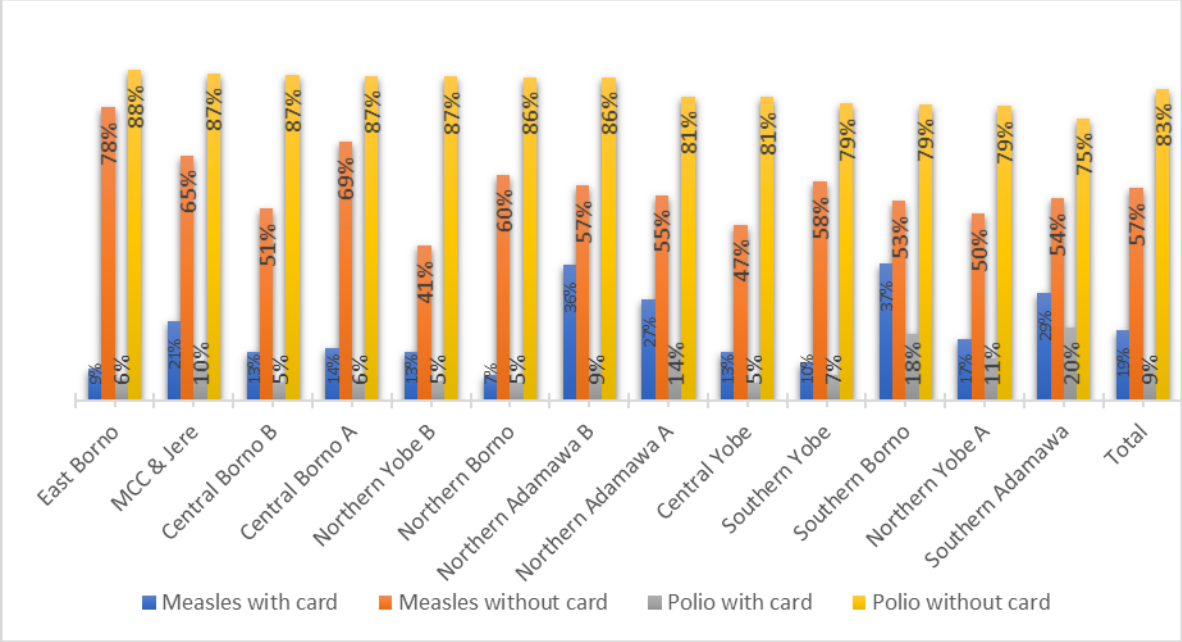


Figure 14 Percentage of children that received polio and/or measles by Domain



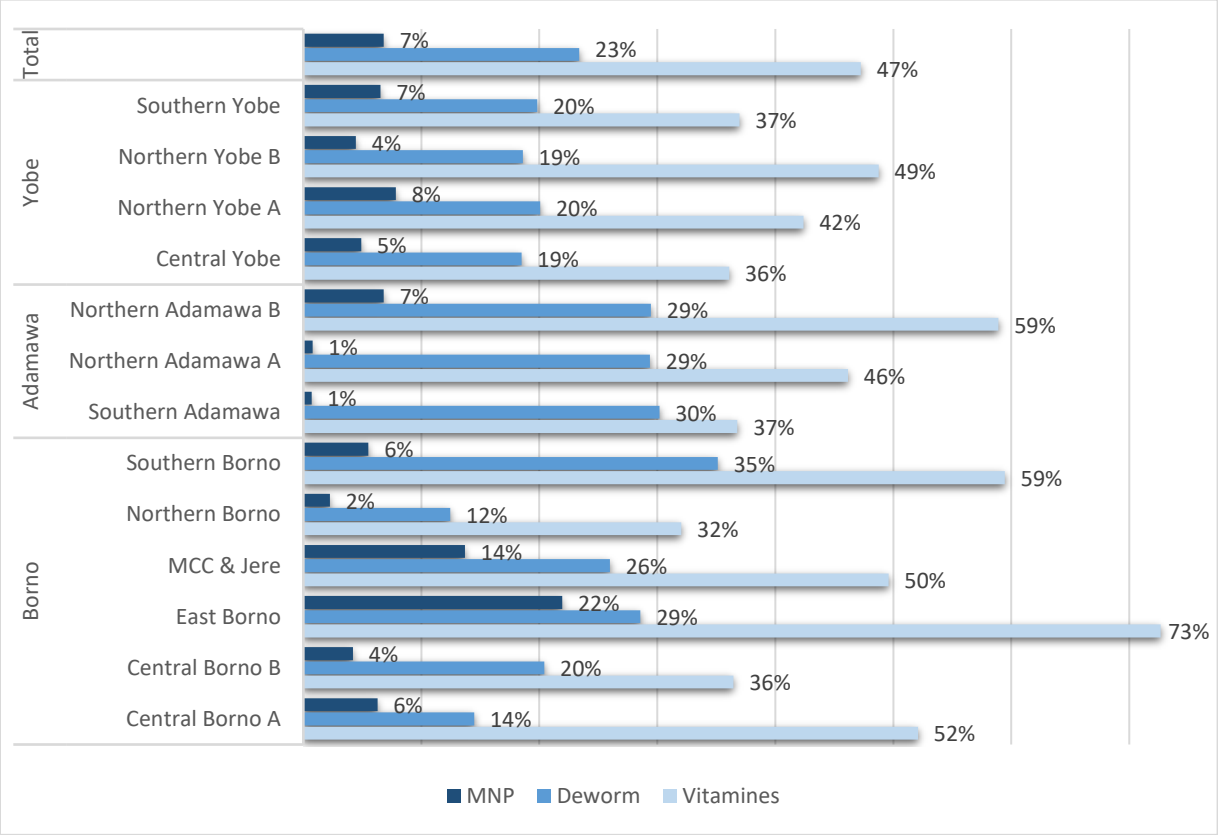
6.5.1.4 Coverage of Vitamin A Supplementation, Micronutrient Powder (MNP) and De-Worming

Vitamin A supplements is provided every 6 months to children between the age of 6 and 59 months in order to prevent vitamin A deficiency and support the growth and development. Out of the surveyed children aged 6 to 59 months within the covered households, 47 percent had received vitamin A supplements within six months that preceded the assessment, 49 percent, 43 percent and 38 percent of which were in Borno, Adamawa and Yobe respectively. The highest proportion of such children were found in East Borno (73 percent), Southern Borno (59 percent) and Northern Adamawa B (59 percent). Contrariwise, Central Borno (36 percent), Central Yobe (36 percent) and Northern Borno (32 percent) were the domains with the least proportion of children aged 6 to 59 months that received vitamin A supplements. See, Figure 15. Vitamin A capsules are given for free, hence the reason for the high update rate observed in some of the areas.

Micronutrient powders (MNP) are nutrient supplements that are rich in vitamins and minerals, which can support optimal growth and development in children aged 6–23 months. Findings from the survey showed that only 7 percent of the sampled children had MNPs added to their food during the last 6 months that preceded the assessment. Usage of MNP in the meal of children was generally low across most of the domains as well (< 10 percent) except for East Borno (22 percent) and MMC & Jere (14 percent). The low usage of MNP might be linked to the delivery platform as it is distributed through the health facility and not at the community level.

Deworming drugs are provided every 6 months to children aged 12 to 59 months for treatment of intestinal worms. Overall, 23 percent of the sampled children aged 12 to 59 months had received deworming drugs within the 6 months preceding the assessment. The highest proportion of such children were in Southern Borno domain (35 percent) whereas Central Borno A (14 percent) and Northern Borno (12 percent) had the lowest rates.

Figure 15 Vitamin A supplementation, deworming and MNP among children aged 12 to 59 months by Domain



6.5.1.4 Coverage of Preventive Nutrition Interventions

The Maternal Newborn and Child Health Week (MNCHW) intervention is primarily intended to improve access to essential and quality Maternal, Child Health and Nutrition (MCHN) as it is organized to deliver an integrated package of highly cost-effective MNCH services and interventions. These services are primarily delivered to strengthen the routine Public Health Care (PHC) services. Therefore, one of the objectives of the MNCH services, when effectively delivered, is to prevent malnutrition through blanket nutrition support to pregnant women, lactating mothers and children under two years of age.

Overall, 41 percent of households consented that the MNCH programme either held in their locality or that they participated in the MNCH programme within the last six months that preceded the assessment.

As earlier reported, some of the children that received vitamin A capsules (47 percent) and deworming drugs (23 percent) would have been from the MNCH programme as it remains a major platform for the delivery of these services. At the domain level, the highest proportion of households that reported having the MNCHW in their localities were recorded in East Borno (60 percent) and Southern Borno (54 percent), whereas, domains with the least were Northern Yobe B and Northern Borno (30 percent respectively). See Figure 16. In places where the MNCHW held within the last six months that preceded the assessment, only 32 percent of households benefited from the MNCH services (receipt of vitamin A supplementation, deworming, tetanus etc.). At the domain level, East Borno (49 percent) and Southern Adamawa (47 percent) had the highest participation rates during the MNCHW, which correlates with the high consent to the conduct of MNCHW in both domains, compared to counterparts.

Figure 16 Percent of households that had MNCHW Campaign in the last 6 months that preceded the assessment by Domain

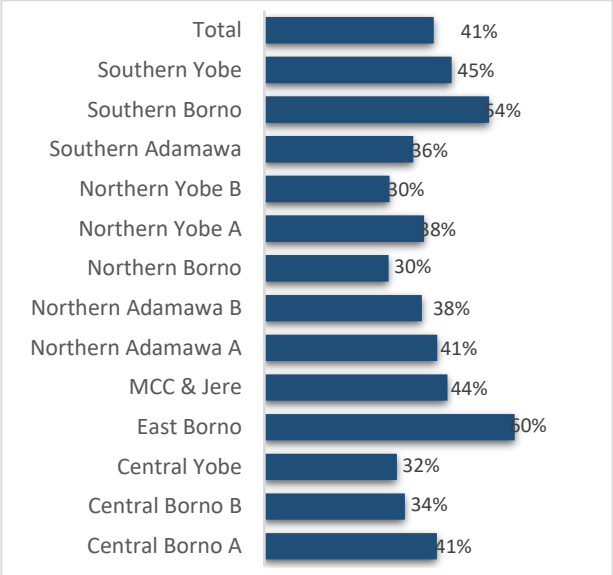
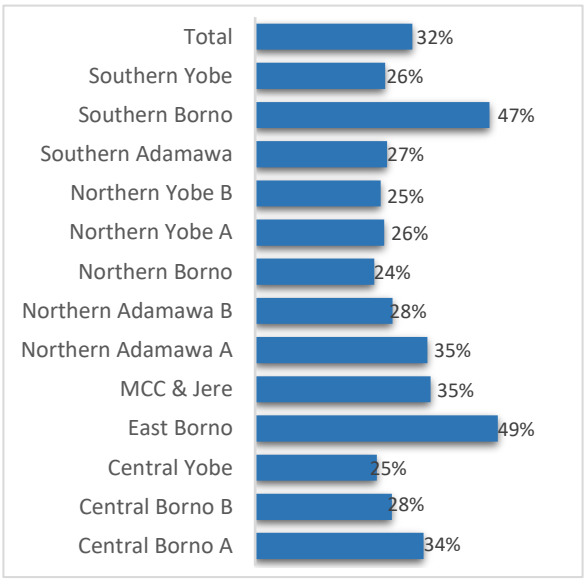
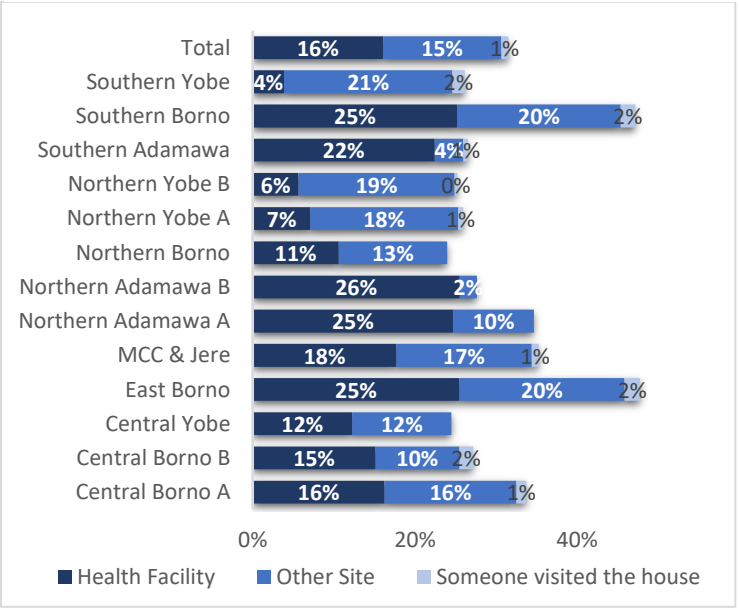


Figure 17 Percent of households that received MNCH Services during the MNCHW by Domain



For households that had participated and benefited from the MNCHW intervention within the six months that preceded the assessment, the services were mostly access through health facilities (16 percent) and other sites (15 percent) whereas only a few households (1 percent) accessed the services within their household/community. At the domain level, facility enrollment and participation in the MNCHW intervention was highest in Northern Adamawa B (26 percent), Northern Adamawa A, East Borno and Southern Borno (25 percent respectively), and Southern Adamawa (22 percent). See, Figure 18.

Figure 18 Location where households accessed MNCH Services by Domain



6.5.2 Water, Sanitation and Hygiene

6.5.2.1 Treatment of Drinking Water at the Household level

Overall, only five percent of the surveyed households in the northeast treated the water consumed by their households to make it safer. At the domain level, the practice of water treatment was most common in Southern Yobe (17 percent), East Borno (13 percent) and Southern Adamawa (11 percent) whereas, much fewer households practice such in Northern Borno (1.0 percent). For the few households that treat their water for safer consumption, the most prominent method of water treatment used by the households were chlorination (34 percent), whereas about 21 percent of households just leave the sediments in the water to settle prior to consumption or uses clean clothes as water filter (19 percent), both of which potentially increases their risk of contracting water borne diseases. Use of alum (14 percent) and boiling (10 percent) were other treatment measures practiced by households to enhance water safety. See, Figure 20.

Figure 19 Proportion of households that treated water to make safer for consumption by Domain

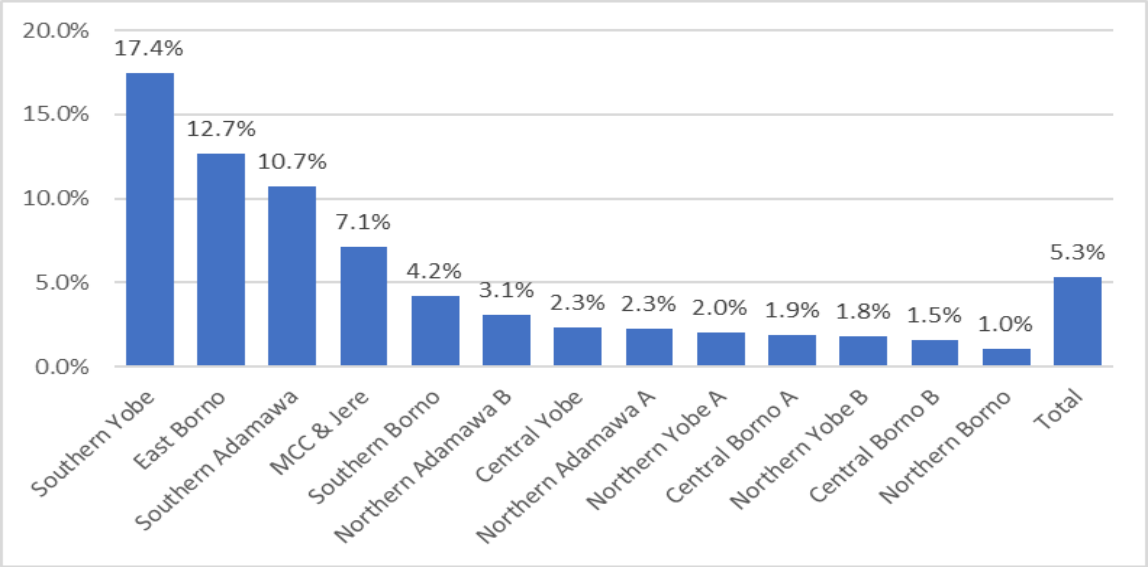
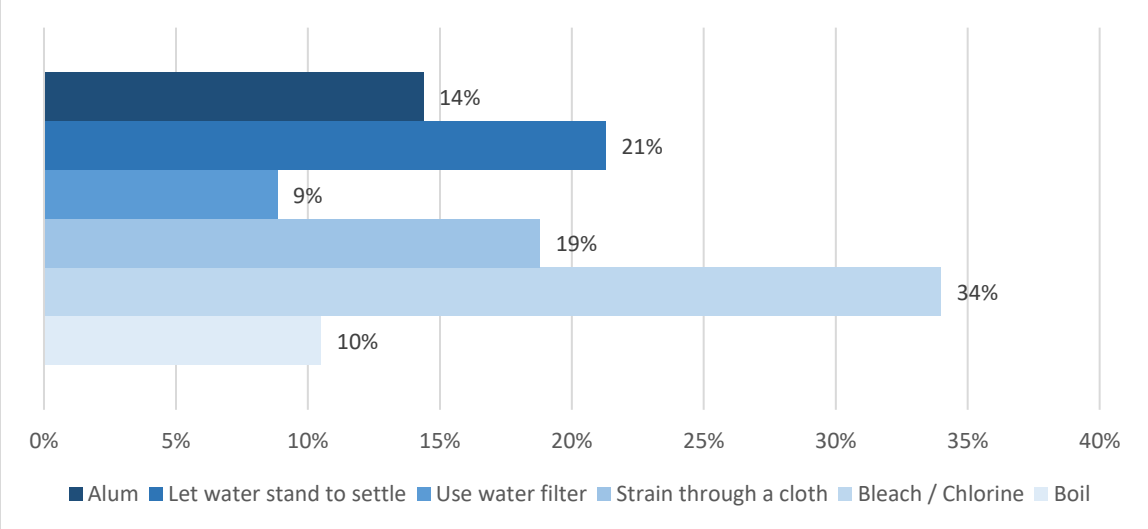


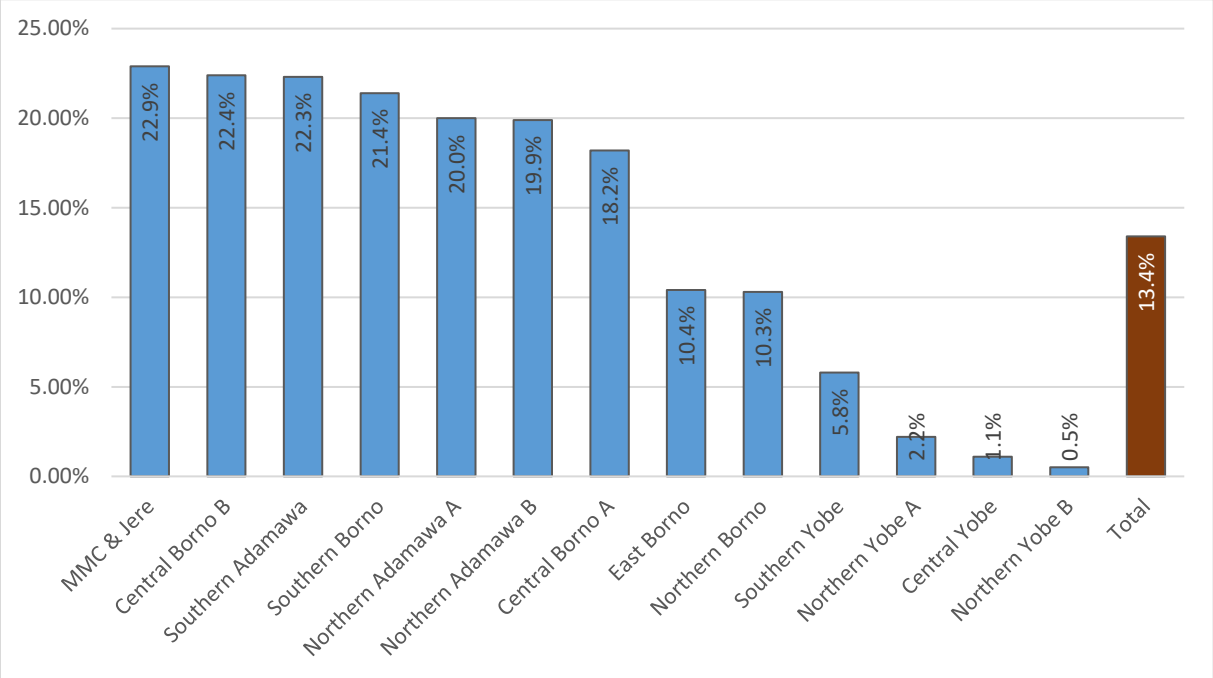
Figure 20 Water treatment methods used by households



6.5.2.2 Hygiene practices and handwashing

Only 13.4 percent of the sampled households have soap in their houses, which they could use for handwashing. The low rates of soap ownership remain worrisome since it heightens the risk of diseases since good hand hygiene reduces the spread of germs. Domains in Yobe had lower rates of soap ownership compared to Borno and Adamawa with a range of 5.8 percent in Southern Yobe to only 0.5 percent in Northern Yobe. MMC & Jere, Central Borno B and Southern Adamawa had the highest rates of soap ownership at 22.9 percent, 22.4 percent and 22.3 percent respectively.

Figure 21 Proportion of households that had soap for handwashing by Domain



6.5.3 Infant and Young Child Feeding Practices

6.5.3.1 Breastfeeding

6.5.3.1.1 Initiation of Breastfeeding

Early initiation of breastfeeding within an hour of birth is crucial to protect the newborn from acquiring infection and reduces newborn mortality, amongst other benefits. While breastfeeding rates (not exclusive) were generally high regardless of age, gender or geographic location, Table 12 shows that majority of children between 0 – 23 months in BAY states were ever breastfed, regardless of age or gender of the child. Rates of early initiation of breastfeeding within one hour of birth however varied, particularly by geographic location with rates found to be lowest in Yobe (19.3 percent) followed by Adamawa (29.5 percent) and Borno (34.7 percent). A similar trend was observed for children that were breastfed within one day of birth with the lowest rates found in Yobe (47.2 percent) compared to Borno (52.2 percent) and Adamawa (56.6 percent).

Table 12 Percent of children 0-23 months who were ever breastfed, initiation of breastfeeding, by sex, age, state and domain

	Percentage who were ever breastfed (n), %, [CI]	Number of children age 0-23 months	Percentage who were first breastfed:	
			Within one hour of birth (n), %, [CI]	*Within one day of birth (n), %, [CI]*
Male	(1303) 90.5 [88.4,92.3]	1441	(387) 28.9 [25.3,32.8]	(633) 51.1 [47.2,55.0]
Female	(1326) 90.7 [88.4,92.5]	1466	(395) 28.6 [24.9,32.5]	(652) 51.9 [47.8,56.0]
0-5	(733) 93.8 [91.3,95.6]	784	(224) 30 [25.5,35.0]	(344) 49 [44.1,53.9]
6-11	(743) 94.1 [92.0,95.6]	794	(221) 28 [23.5,33.0]	(366) 53 [48.1,57.8]
12-23	(1153) 86.5 [83.7,88.9]	1330	(337) 28.4 [24.8,32.2]	(575) 52.1 [47.9,56.3]
Adamawa	(528) 94.5 [91.0,96.7]	561	(169) 29.5 [23.9,35.9]	(275) 56.6 [49.6,63.3]
Borno	(1237) 92.1 [89.9,93.9]	1346	(436) 34.7 [29.8,40.0]	(637) 52.2 [47.3,57.1]
Yobe	(864) 86.1 [82.1,89.4]	1001	(177) 19.3 [14.5,25.2]	(373) 47.2 [41.3,53.1]

6.5.3.1.2 Exclusive breastfeeding for infants under 6 months

Six months of exclusive breastfeeding confers many benefits to the infant and mother such as enhanced immunity, protection against gastrointestinal infections, among other benefits. The assessment explored mothers' knowledge and practice on exclusive breastfeeding and introduction of solid foods. Table 13 shows that majority of children aged 0-5 months across BAY were predominantly breastfed[23] and almost half of boys (49.5 percent) and girls (44.7 percent) within this age bracket were exclusively breastfed. State level findings show that the rate of exclusive breastfeeding was relatively low in Yobe (33.9 percent) compared to Adamawa (60.8 percent) and Borno (40.7 percent).

6.5.3.1.3 Continued breastfeeding after 2 years of age

The overall goal of the National Policy on Infant and Young Child Feeding in Nigeria is to ensure the optimal growth, protection and development of children from birth to the first five years of life. The policy promotes the timely introduction of appropriate and adequate complementary foods while continuing breastfeeding up to 24 months and beyond. Assessing breastfeeding among children aged 20 – 23 months provides an accurate measure of those receiving the full benefit. Table 13 shows that 24.0 percent girls and 22.4 percent of boys aged 20–23 months were fed with breastmilk the previous day before the assessment. At the state level, about the same proportion of children continued breastfeeding after 24 months in Borno and Yobe (about 24 percent), except for Adamawa where a slightly lower proportion of children (19.7 percent) was recorded.

[23] *Predominantly breastfed includes children currently breastfeeding who are either exclusively breastfed or receiving plain water and non-milk liquids only

Table 13 Exclusive, predominant and continued breastfeeding practices by age, sex, survey domain and state

	Children age 0-5 months			Children age 12-15 months		Children age 20-23 months	
	Percent exclusively breastfed (n), %, [CI]	Percent predominantly breastfed* (n), %, [CI]	Number of children 0-5 months	Percent breastfed (Continued breastfeeding at 1 year) (n), %, [CI]	Number of children 12-15 months	Percent breastfed (Continued breastfeeding at 2 years) (n), %, [CI]	Number of children 20-23 months
Sex							
Male	(182) 49.5 [43.3,55.7]	(358) 96.7 [94.4,98.0]	374	(229) 81.0 [74.2,86.3]	280	(40) 24.0 [17.2,32.5]	181
Female	(172) 44.7 [38.9,50.6]	(404) 98.6 [97.3,99.3]	413	(249) 77.5 [71.0,83.0]	319	(37) 22.4 [15.5,31.2]	168
State							
Adamawa	(83) 60.8 [50.9,69.9]	(135) 99.1 [96.4,99.8]	137	(19) 84.5 [73.6,91.4]	110	(12) 19.7 [11.3,32.1]	78
Borno	(180) 47.8	(367) 97.1	380	(223) 83.5	269	(36) 25.2	143
	[41.2,54.5]	[94.9,98.4]		[76.1,88.9]		[18.5,33.4]	
Yobe	(91) 33.9 [30.5,46.0]	(260) 97.7 [95.4,98.9]	270	(164) 71.0 [62.0,78.6]	220	(29) 23.2 [15.4,33.3]	128
*Predominantly breastfed includes children currently breastfeeding who are either exclusively breastfed or receiving plain water and non-milk liquids only							

6.5.3.2 Complementary Feeding

6.5.3.2.1 Introduction of Solid, Semisolid or Soft Foods

Around the age of six months, an infant's need for energy and nutrients starts to exceed what is provided by breastmilk. Therefore, complementary foods are necessary to meet the energy and nutrient requirements to promote adequate growth. Overall, 53.8 percent of boys and 45.4 percent of girls aged six to eight months received solid, semi-solid or soft foods during the day before the assessment. More than half children with this age group in Yobe and Adamawa received complementary foods at the time of the assessments except for Borno, where only 45.5 percent of infants fulfilled this requirement. At the domain level, Northern Adamawa B (72.2 percent) and Northern Adamawa A (59.3 percent) had the highest proportion of infants aged six to eight months that received complementary foods a day before the assessment whereas Northern Borno (36.4 percent) had the least proportion of such children. See, Table 14.

Table 14 Percentage of infants' age 6-8 months who received solid, semi-solid, or soft foods during the previous day, by sex, survey domain and state

	Percent receiving solid, semi-solid or soft foods (n), %,[CI]	Number of children age 6-8 months	Percent 0-23 months children appropriately breastfed (n), %,[CI]	Number of children age 0-23 months
Sex				
Male	(108) 53.8 [44.6,62.8]	197	(778) 54.2 [50.7,57.7]	1453
Female	(94) 45.4 [36.8,54.3]	200	(760) 51.5 [48.4,54.5]	1479
State				
Adamawa	(38) 57 [42.1,70.8]	63	(325) 58.4 [52.5,64.0]	565
Borno	(95) 45.5 [36.0,55.3]	199	(725) 53.7 [49.7,57.7]	1353
Yobe	(69) 53.2 [39.3,66.7]	135	(488) 48.4 [44.3,52.6]	1015

6.5.3.3 Minimum Dietary Diversity

Dietary diversity is a proxy measure for adequate micronutrient density of foods. Several studies have shown that consumption of foods from at least 4 food groups upwards the previous day would mean that the child had a high likelihood of consuming at least one animal-source food and at least one fruit or vegetable, in addition to a staple food. Table 15 shows that only 14.5 percent of boys and 15.6 percent of girls aged 6–23 months ate foods from four or more food groups the day that preceded the assessment. At the state level, the highest proportion of children aged 6-23 months that ate food from four or more food groups the day before the assessment were found in Adamawa (21.3 percent) compared to Borno (13.5 percent) and Yobe (13.3 percent).

6.5.3.4 Minimum Meal Frequency

The number meals and density of the food offered to an infant or young child per day needs to meet the energy requirement of such child. Table 15 shows that only 14.8 percent of boys and 12.9 percent of breastfed and non-breastfed children aged 6–23 months received solid, semi-solid, or soft foods the met the minimum frequency of meals required for the previous day. At the state level, the highest proportion of children aged 6–23 that met the required frequency meals for the previous day were slightly higher in Borno (15.3 percent) compared to Yobe (12.1 percent) and Adamawa (13.7 percent).

6.5.3.5 Minimum Acceptable Diet

The minimum acceptable diet (MAD) for breastfed children age 6-23 months is defined as children that received the minimum dietary diversity and minimum meal frequency, while for non-breastfed children, MAD further requires at least 2 milk feedings and that the minimum dietary diversity is achieved without counting milk feeds. About the same proportion of the sampled boys and girls aged 6-23 months (1.6 percent) met the requirement for MAD. At the state level, the highest proportion of children that met the requirement for MAD were found in Adamawa (3.1 percent) compared to 1.4 percent in Yobe and 1.1 percent in Borno (See Table 15).

Table 15 Percentage of children age 6-23 months who received appropriate liquids and solid, semi-solid, or soft foods the minimum number of times or more during the previous day, by breastfeeding status, by sex, state, and domain

	Percent of children who received:			Number of children age 6-23 months
	Minimum dietary diversity[a] (n), %,[CI]	Minimum meal frequency[b] (n), %,[CI]	Minimum acceptable diet [c] (n), %,[CI]	
Sex				
Male	(112) 14.5 [11.6,18.1]	(160) 14.8 [12.1,17.9]	(18) 1.6 [1.0,2.6]	1079
Female	(111) 15.6 [12.4,19.5]	(143) 12.9 [10.6,15.7]	(16) 1.6 [0.9,2.7]	1066
State				
Adamawa	(60) 21.3 [15.3,28.9]	(54) 13.7 [9.3,19.7]	(9) 3.0 [1.3,6.4]	428
Borno	(92) 13.5 [10.0,18.0]	(153) 15.3 [12.4,18.7]	(12) 1.1 [0.6,2.3]	973
Yobe	(71) 13.3	(96) 12.1 [9.2,15.7]	(13) 1.4 [0.7,2.7]	745

'a Minimum dietary diversity is defined as receiving foods from at least 4 of 7 food groups: 1) Grains, roots and tubers, 2) legumes and nuts, 3) dairy products (milk, yogurt, cheese), 4) flesh foods (meat, fish, poultry and liver/organ meats), 5) eggs, 6) vitamin-A rich fruits and vegetables, and 7) other fruits and vegetables.

'b Minimum meal frequency among currently breastfeeding children is defined as children who also received solid, semi-solid, or soft foods 2 times or more daily for children age 6-8 months and 3 times or more daily for children age 9-23 months. For non-breastfeeding children age 6-23 months it is defined as receiving solid, semi-solid or soft foods, or milk feeds, at least 4 times.

c The minimum acceptable diet for breastfed children age 6-23 months is defined as receiving the minimum dietary diversity and the minimum meal frequency, while for non-breastfed children, it further requires at least 2 milk feedings and that the minimum dietary diversity is achieved without counting milk feeds.

6.3 Crude and Under Five Mortality Rate

Crude and under five mortality rates are measures of all causes of death occurring during the recall period. Deaths both from both conflict as well as natural causes contribute to all-cause mortality. At the State level, the crude mortality rate was highest in Adamawa at 0.89 deaths per 10,000 people per day compared to 0.59 and 0.56 deaths per 10,000 people per day in Borno and Yobe respectively. At the domain level, crude mortality rates ranged from 0.31 to 1.11 deaths per 10,000 people per day with highest rates recorded in Southern Adamawa (1.11 deaths per 10,000 people per day), Central Borno (0.91 deaths per 10,000 people per day) and Northern Yobe B (0.84 deaths per 10,000 people per day).

Similar to crude mortality rates, state level estimates for child under five (CU5) mortality rates was highest in Adamawa (1.76 CU5 deaths per 10,000 CU5 per day) compared to 1.04 and 0.99 CU5 deaths per 10,000 CU5 per day in Yobe and Borno respectively. At the domain level, child under five mortality rates (U5MR) ranged from 0.50 to 2.30 deaths in children under five per 10,000 children under five per day with the highest rates reported in Northern Yobe B (2.30 CU5 deaths per 10,000 CU5 per day), Southern Adamawa (2.01 CU5 deaths per 10,000 CU5 per day), Central Borno A (1.88 CU5 deaths per 10,000 CU5 per day) and Northern Adamawa A (1.57 CU5 deaths per 10,000 CU5 per day). Child under-five mortality rates exceeded the emergency thresholds of two deaths per 10,000 children under five per day in Northern Yobe B and Southern Adamawa and Northern Yobe B. However, the estimate for U5MR in Southern Adamawa should be interpreted cautiously given the wide confidence interval (0.73 - 5.36, 95% CI) with a high design effect of 2.8 and higher standard error showing an important heterogeneity of the surveyed population. The upper confidence intervals for U5MR in all domains also exceeded two except in Central Borno B, East Borno, Central Yobe and Northern Yobe A, suggesting a possibility that U5MR exceeded emergency thresholds in these domains as well.

Table 16 Crude and Under Five Death Rates by State and Domain

	Crude mortality rate (total deaths /10,000 people / day)		Under five mortality rate (deaths in children under five / 10,000 children under five / day)		Total Population Sampled	Number of households
	Rate [CI]	Design Effect	Rate [CI]	Design Effect		
State						
Adamawa	0.89	2.10	1.76	2.08	8,725	1,604
	[0.35, 1.43]		[0.21, 3.76]			
Borno	0.59	2.33	0.99	1.86	18,692	3,576
	[0.20, 0.98]		[0.19, 2.18]			
Yobe	0.56		1.04		12,888	2,243
	[0.19, 0.92]	2.34	[0.19, 1.88]	1.11		
Domain						
Southern Adamawa	1.11	3.55	2.01	3.38	3,256	628
	[0.63, 1.94]		[0.73, 5.36]			
Northern Adamawa A	0.54	1.20	1.57	1.86	2,969	510
	[0.34, 0.88]		[0.64, 3.77]			
Northern Adamawa B	0.64	1.54	1.19	1.00	2,500	466
	[0.36, 1.12]		[0.55, 2.53]			
Southern Borno	0.31	2.30	0.50	2.24	3,406	584
	[0.14, 0.71]		[0.11, 2.33]			
Central Borno A	0.91	3.44	1.88	3.54	3,008	635
	[0.50, 1.66]		[0.73, 4.68]			
Central Borno B	0.59	1.55	1.06	1.00	3,312	683
	[0.37, 0.94]		[0.57, 1.94]			
MCC & Jere	0.68	3.08	1.41	1.78	3,779	576
	[0.38, 1.22]		[0.64, 3.07]			
Northern Borno	0.70	1.97	0.63	1.58	1,756	397
	[0.35, 1.37]		[0.14, 2.87]			
East Borno	0.56	1.61	1.01	1.00	3,431	701
	[0.35, 0.90]		[0.54, 1.87]			
Central Yobe	0.33	2.95	0.51	1.00	3,123	516
	[0.13, 0.83]		[0.19, 1.33]			
Southern Yobe	0.58	2.03	1.05	1.16	2,919	488
	[0.32, 1.05]		[0.48, 2.29]			
Northern Yobe A	0.68	2.25	0.84	1.00	3,729	647
	[0.41, 1.13]		[0.42, 1.67]			
Northern Yobe B	0.84	2.08	2.30	1.27	3,117	592
	[0.52, 1.36]		[1.39, 3.78]			

WFP/Inger Marie VENNIZE

7 Food Security

7.1 Food Security Status

The Consolidated Approach to Reporting (CARI) indicators for food security was used to create a food security index based on data analysis of the food consumption scores, household expenditure patterns, and livelihood-based coping strategies. Findings from this composite index represents two key realms: current status and coping capacity. The systematic combination of food security indicators culminates in the classification of households into overall food security status: food secure, marginally food secure, moderately food insecure, and severely food insecure, which are representative estimates of food insecurity within a target population in a particular geographic location.

Table 17 Consolidated Approach for Reporting Indicators on Food Security (CARI) Console[24]

Domain		Indicator	Food Secure (1)	Marginally Food Secure (2)	Moderately Food Insecure (3)	Severely Food Insecure (4)
Current Status	Food Consumption	Food Consumption Group	60.2%	32.3%		7.5%
Coping Capacity	Economic Vulnerability	Food Expenditure Share	39.4%	19.7%	22.4%	18.4%
	Asset Depletion	Livelihood coping strategy categories	35.4%	25.1%	18.9%	20.4%
Food Security Index			**11%**	**50%**	**32.5%**	**6.5%**

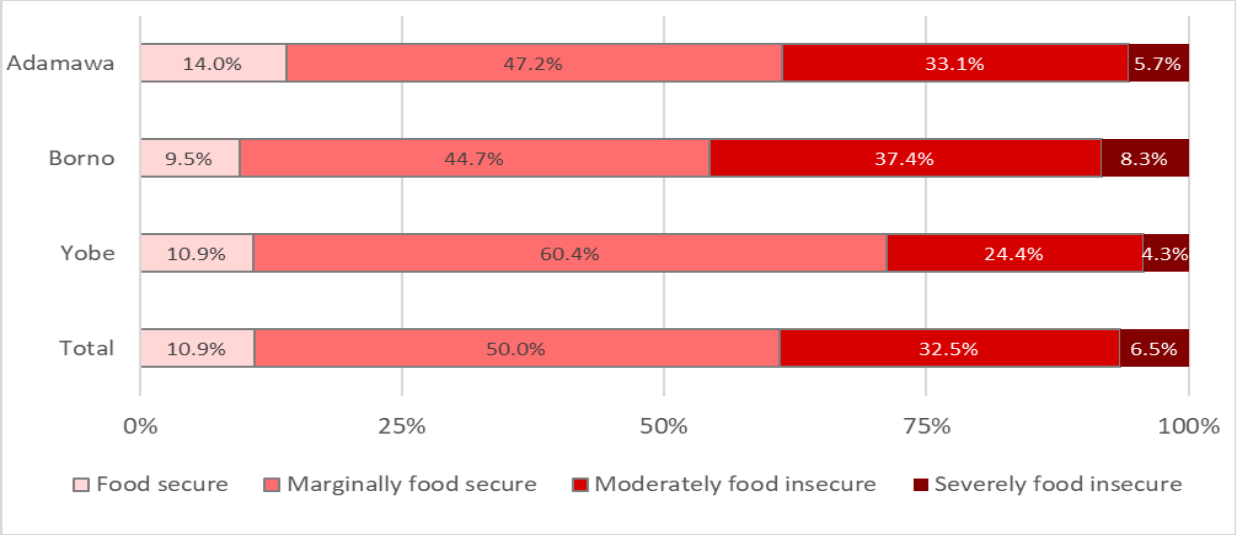
Overall, 39 percent of households in Borno, Adamawa and Yobe states were food insecure. Of these, 32.5 percent of households were moderately food insecure and 6.5 percent were severely food insecure. Borno State had the highest prevalence of food insecurity (45.7 percent), followed by Adamawa (38.8 percent) and, lastly Yobe (28.7 percent). The manifestation of severe levels of food insecurity followed a similar pattern with the highest proportion of severely food insecure households found in Borno (8.3 percent) compared to 5.7 percent and 4.3 percent in Adamawa and Yobe respectively. The impact of the 2018 lean season, which is characterized by depleted food stocks, low purchasing power and high cost of food commodities, could have affected households' access to food, and the progressive depletion of households' assets, and accounted for households that continue to face food insecurity. Additionally, food insecurity in Adamawa was aggregated by pockets of conflicts between farmers and herders which led to displacements and episodes of flooding which affected food production and household access to food[25,26].

[24] The CARI guideline is available at: https://resources.vam.wfp.org/sites/default/files/CARI%20Guidance_2nd%20ed.pdf

[25] https://punchng.com/adamawa-flood-victims-lament-fgs-neglect/

[26] https://www.vanguardngr.com/2018/08/flood-over-hundred-people-displaced-in-adamawa/

Figure 22 Food Security Situation by State



The assessment of food security status of households was also conducted at the domain level. The highest proportion of food insecure households were in Central Borno A (62.7 percent), Central Borno B (53.8 percent), and East Borno (51.4 percent), where continuing insecurity hampers access to land for farming, the functioning of markets and access to agricultural inputs. The situation is worrisome as nearly 10 percent of households in each of these three domains are severely food insecure. On the other hand, food insecurity is lowest in MMC & Jere and Southern Borno where improved security conditions, recovering livelihoods and ongoing humanitarian and livelihood assistance, have impacted positively on households' purchasing power and access to food.

In Yobe State, food insecurity conditions remain high in the Southern Yobe where security threats from Non-State Armed Groups (NSAG) remain a disruptive influence on livelihoods and agriculture and access constraints affect the delivery of humanitarian assistance.

In Adamawa state, Northern Adamawa A and Southern Adamawa had the highest food insecurity at 40.2 percent and 40.1 percent, respectively; households with severe food insecurity were higher in Northern Adamawa A (6.3 percent). This could be explained by the large number of displaced persons, and loss of livelihoods, as well as constrained access to agricultural land for food production in locations such as Michika, Madagali and Mubi which are impacted by insecurity, communal conflict between farmers and herders, and pockets of seasonal flooding.

The food security situation in Southern Yobe, Central Borno A, Central Borno A, East Borno, and to some extent, Northern Borno and Northern Adamawa A, remain worrisome, and suggest that the food security situation remain highly fragile. In the absence of food assistance and complementary livelihood support in areas where feasible, the food security situation of most households could be catastrophic. However, the situation is relatively stable and promising in Northern Yobe B, Northern Yobe A, Central Yobe, MMC/Jere, and Southern Borno where improving security conditions and ongoing market recovery continue to boost supplies and relative access to food. In most of other domains such as Southern Borno where security conditions have improved and land is accessible, the favourable agro-meteorological conditions during the 2018 growing season resulted in normal yields of most crops enabling households to accumulate sizeable food stocks and improve food access.

Figure 23 Food security index by domain

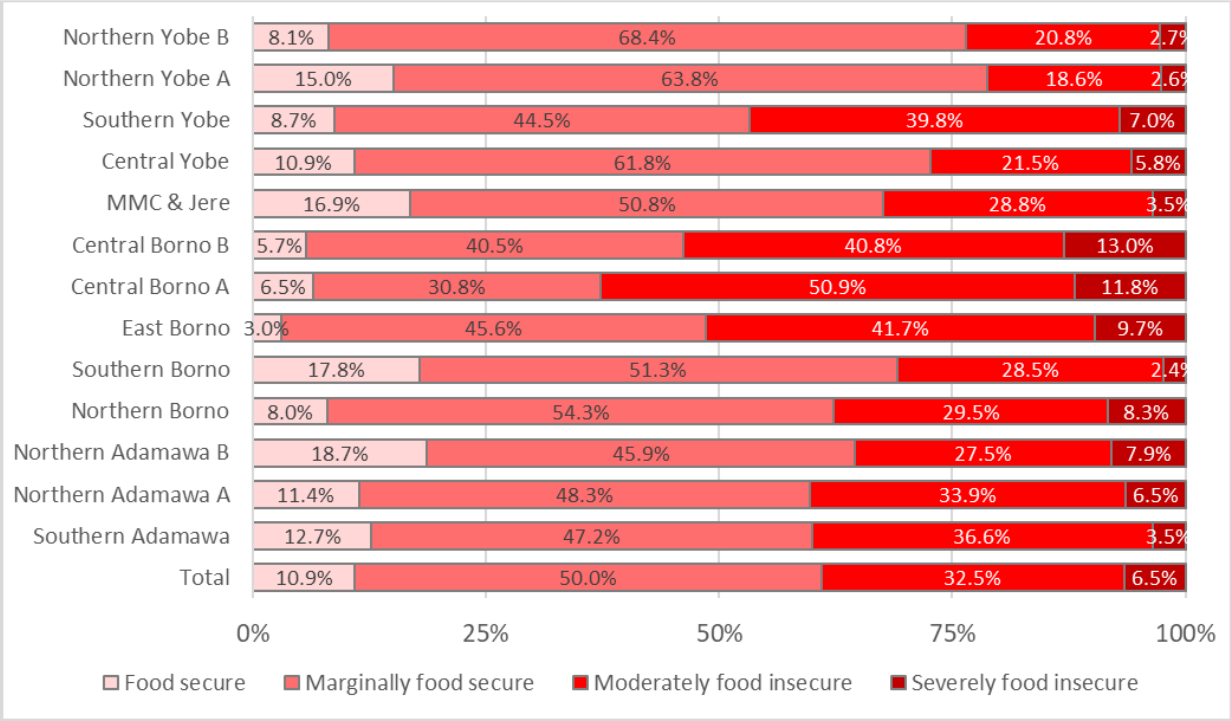


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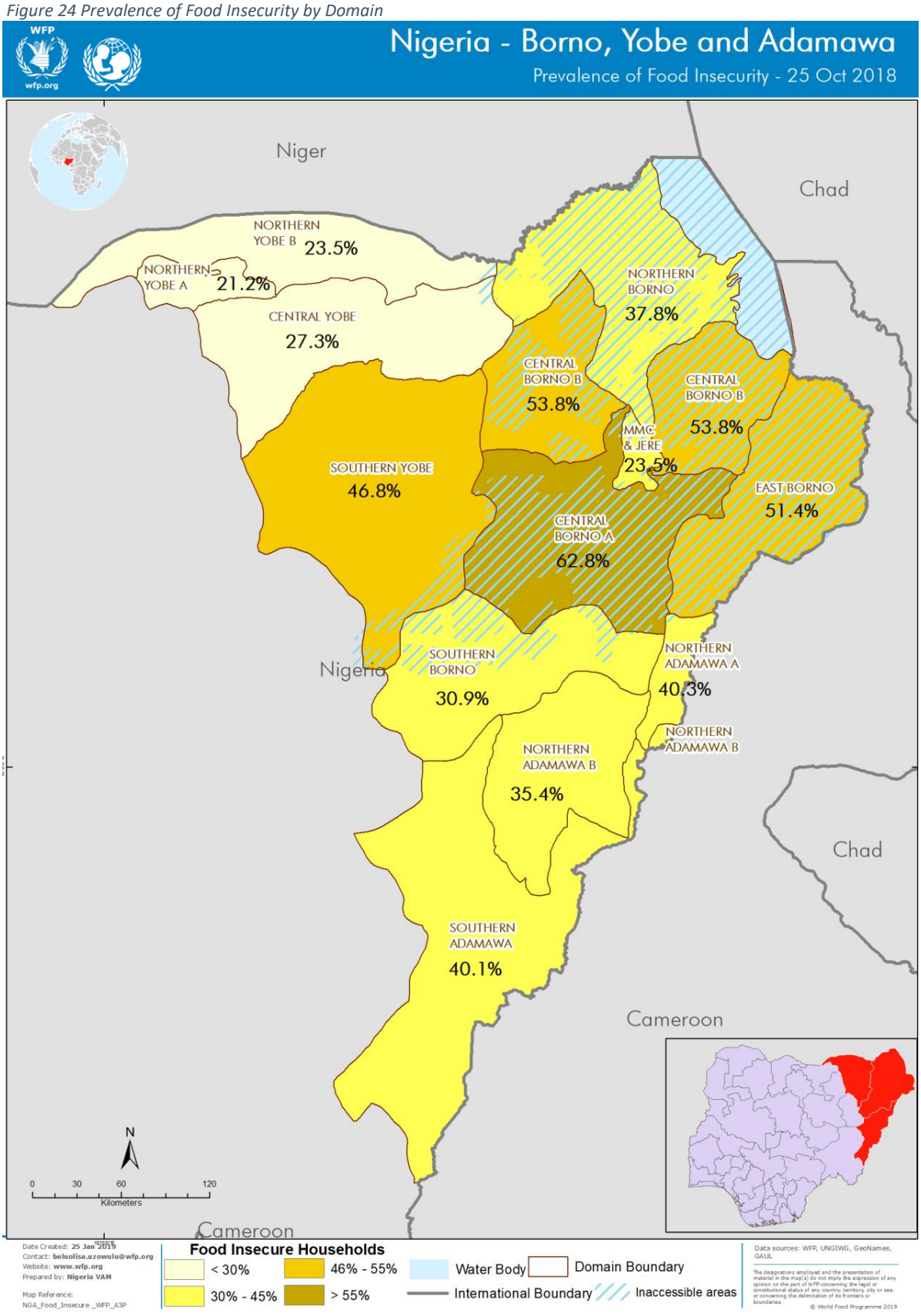
Figure 24 Prevalence of Food Insecurity by Domain



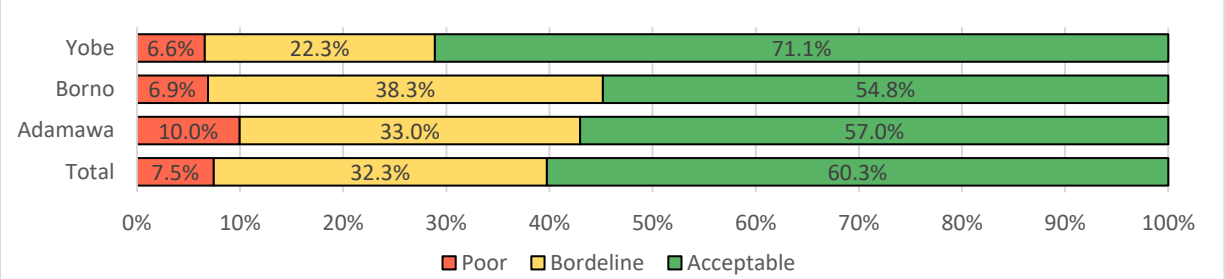
Note: Findings from the assessment should be interpreted cautiously as data was only collected from accessible areas of Borno, Adamawa and Yobe States. Food insecurity rates (moderate + severe) inaccessible areas shaded in light blue in the map may be similar or worse.

7.2 Food Consumption and Sources

7.2.1 Food Consumption

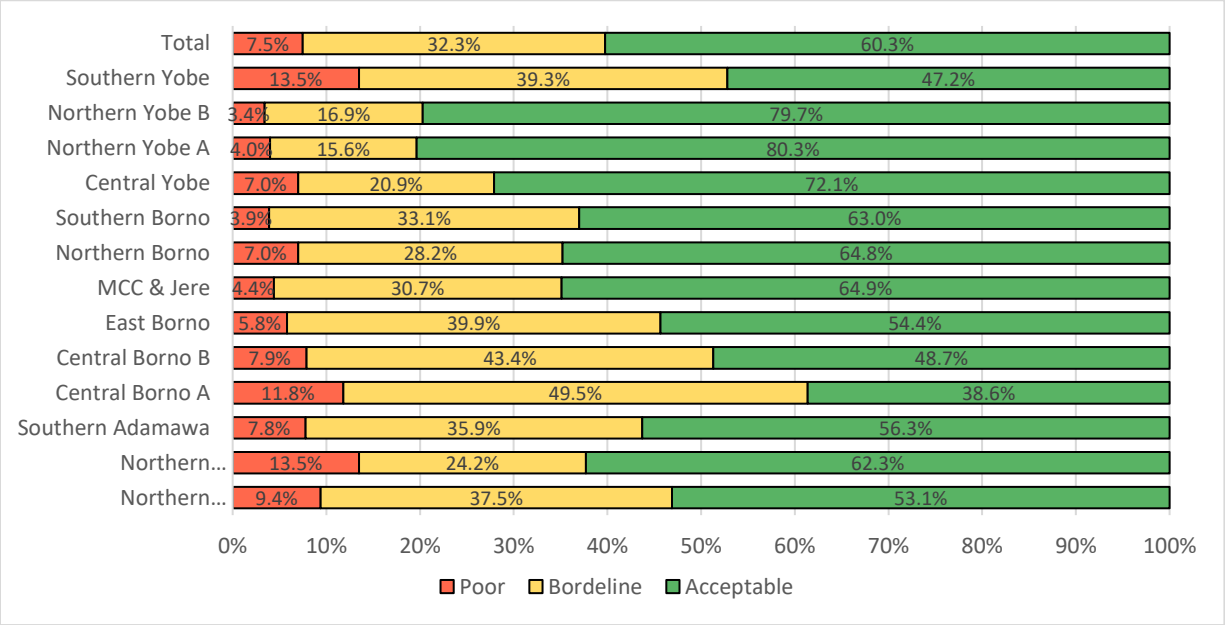
Overall, some 7.5 percent of households in the three states had poor food consumption, while the proportion of households with borderline and acceptable food consumption was 32.3 percent and 60.3 percent respectively. Adamawa had the highest proportion of households with poor food consumption (10.0 percent) followed by Borno (6.9 percent) and Yobe (6.6 percent). The relatively low prevalence of poor food consumption implies that considerable progress has been made with food intake, partly owing to the ongoing food assistance, but serious challenges remain, particularly in the face of sustained fragile security situation and inability of households to secure their own livelihoods and continuing high dependence on food assistance.

Figure 25 Food consumption by state



At the domain level, the highest level of poor and borderline food consumption is reported in Central Borno A, Central Borno B, Northern Adamawa A and Southern Yobe domains. These domains are constituted by LGAs within the Sambisa axis and central Borno where the security threats associated with activities of Non-State Armed Group (NSAG) remain a disruptive force on the lives and livelihoods of communities. In most of these locations, agricultural production is undertaken with security considerations not only in terms of access to land, but also in terms of the types of crops cultivated. With most farming households restricted from the cultivations of tall crops, food insecurity incidents tend to be partly underscored by the fact that farmers are compelled to cultivate crops of lower yields to purchase their preferred staples albeit on a rather limited scale due to security restrictions.

Figure 26 Food consumption by domain

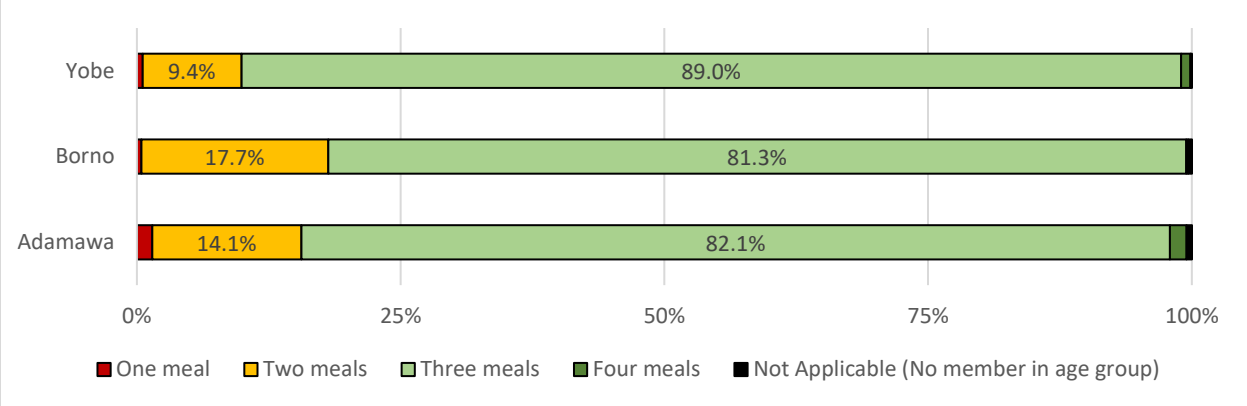


7.2.1.1 Household meal consumption during the week of the assessment

Most adults in north eastern Nigeria consumed adequate number of meals during the day prior to the assessment. Adults (Over 18 years) in 83.8% of households consumed three meals while 14.5 percent of households consumed 2 meals with less than 1 percent (0.7 percent) consuming 1 meal per day. Among households with individuals aged 6-17 years, 63.4 percent consumed three meals per day while 9.4 percent of households had individuals who consumed two meals. Among households with children aged 0-59 months, 57.5 percent of households consumed 3 to 4 meals per day during the day before the assessment. The high proportion of households with adequate meal consumption signifies reasonably good level of food access at the time of the year. Among all age groups, households that consumed fewer meals tends to have poor food consumption score than those that consumed three meals per day. For example, among households with adults aged 18 and above, 63.8 percent of households that consumed 3 meals have acceptable food consumption, as compared to as compared to 41 percent for those who consumed two meals and 17.6 percent for those who consumed only one meal.

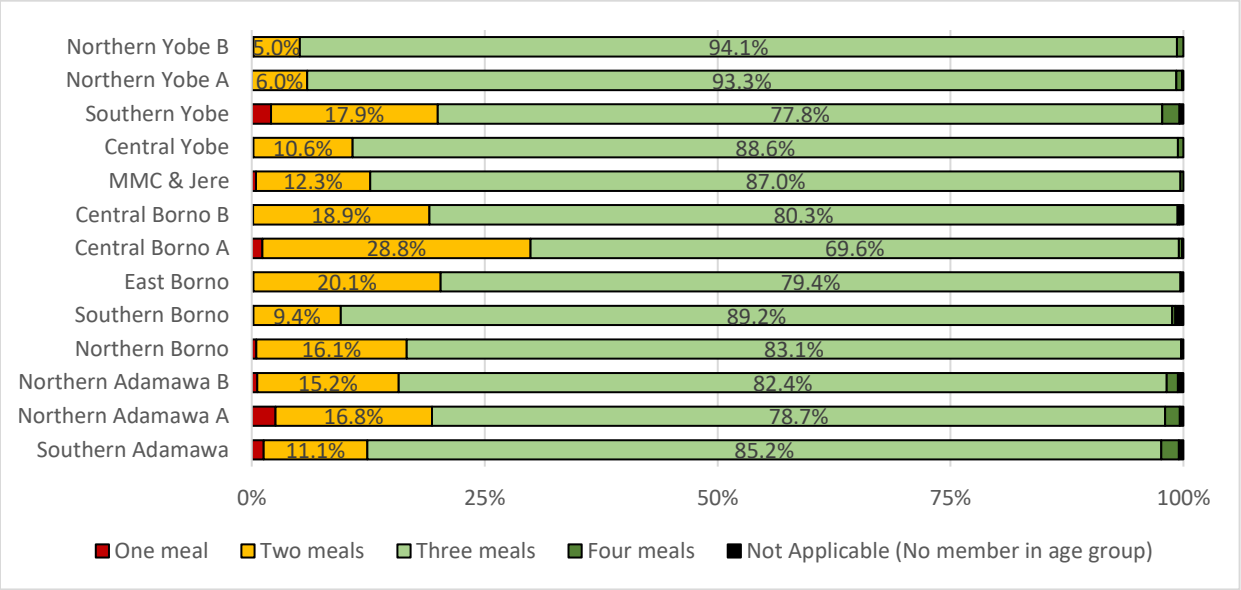
At the state level, more than 80 percent of households with adults aged 18+ years in each of the three states consumed three meals a day prior to the assessment (82.3% for Adamawa, 81.3% for Borno and 89.1% for Yobe States). Children between the ages of 0 to 59 from more than 50% of households in each of the three states consumed three to four meals a day.

Figure 27 Number of meals consumed by adults during the day preceding day of assessment by state



At the domain level, the number of meals consumed by households is generally satisfactory, with 70 percent of households in all domains able to afford three meals during the day before the assessment. However, Central Borno A which has the lowest proportion of households with acceptable food consumption and also has the lowest proportion of households that consumed three meals.

Figure 28 Number of meals consumed the preceding day of assessment by domain



7.2.2 Sources of Food

As livelihood activities are generally underpinned by prevailing security conditions, which tends to constrain access to income-earning opportunities and the quantity of own-produced stocks, humanitarian food assistance remain the main source of food for most conflict-affected households. Thus, households' sources of food are also related to the status of that household vis-a-vis the impact of the conflict. Displaced households are generally more reliant on food assistance as they mostly do not have the means to engage in agricultural production or income generating activities.

In the three north eastern states, 3 out of every 4 households was reliant on purchased grain to meet their food needs. Given the prevailing security challenges and restricted access to farmlands in several parts of the north east, 26.4 percent of households relied on own-produced grain. The low proportion of households reliant on their own-produced grains could also be explained by the current restriction on the cultivation of tall crops for security reasons. This has created a situation where farmers cultivate crops that are sold to purchase their preferred staple food highlights additional reasons for the high proportion of households who are reliant on markets to meet their food needs.

Despite the large quantity of food assistance provided to conflict affected households, only 7.5 percent of households in the BAY states relied on food assistance to meet their food needs. However, food assistance remains a key food source for displaced households. Among IDPs in camps, 34.5 percent of households relied on food assistance, while 56 percent accessed their food through market purchase. On the other hand, 30.3 percent of host community households accessed their food through own-produced grains whereas 55.3 percent predominantly comes from purchased grain. Therefore, it can be deduced that the population in the north east generally rely on food produced in other parts of the country for their survival.

Adamawa has the largest proportion of households (34.6 percent) that relied on own-produced food when compared to Borno (22.3 percent) and Yobe State (26.5 percent). The large number of households reliant on market purchase to meet their food needs even among IDPs should be put into perspective as several components of food consumed (e.g. condiments, spices, vegetables etc.) are purchased to complement the food assistance that households' receive. Moreover, only a small fraction of the total

sample (7 percent) were displaced, which are often the most vulnerable and high priority target for food assistance.

Reliance on purchased food commodities to meet households' food needs is the most common sources of food across the three north eastern states (over 50 percent of households in each state) with the proportion of households reaching 72.4 percent in MMC & Jere. At the domain level, MMC & Jere and East Borno have the lowest proportions of households with access to own-produced grains at 9.2 percent and 7.6 percent respectively. While this phenomenon is linked to insecurity, some 36.9 percent of households in East Borno domain relied on food assistance, followed by Central Borno A at 17.6 percent.

7.3 Household Economic Vulnerability

The food basket value of households along with estimates of the cash value for food items which were consumed, but not purchased during the preceding 30 days were used to calculate the share of expenditure on food which is an indicator of economic vulnerability. The share of total expenditure on food reflect economic vulnerability as households that spent a large share of their total expenditure on food tend to susceptible to the impact of prices increase which has implications for access to food. Therefore, the lower the proportion of the household's share of expenditure on food, the less economically vulnerable the household is to reduced food access.

More than 4 in 5 households in the three north eastern states spent over 50 percent of their household expenditure on food in a month and therefore face varying degrees of vulnerability to market shocks. Some 39.3 percent of households spent a very high share (75 percent) of their total expenditure on food and are therefore, remain at heightened risk of food insecurity. Specifically, the expenditure levels for households in the north east is 18.5 percent (low), 22.5 percent (medium), 19.7 percent (high) and 39.3 percent (very high).

The proportion of households that spent more than 75 percent of their total expenditure on food was 43 percent in Borno, 40.2 percent in Yobe and 30 percent in Adamawa. The domains with high proportion of economically vulnerable households spending at least 75 percent of their share of expenditure on food were East Borno (64 percent) Northern Yobe B (54.4 percent) Central Borno A (49.7 percent), Central Borno B and Northern Borno (45 percent).

Figure 29 Household expenditure on food by state

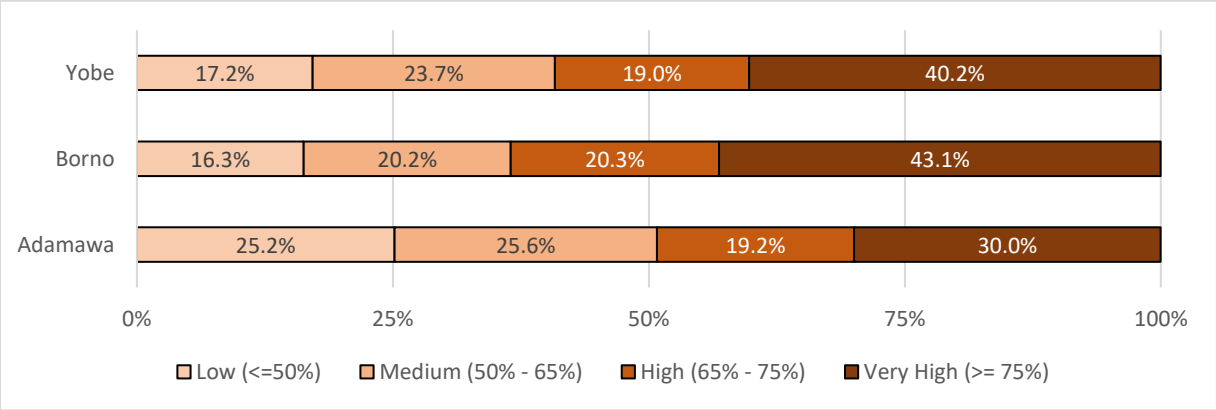
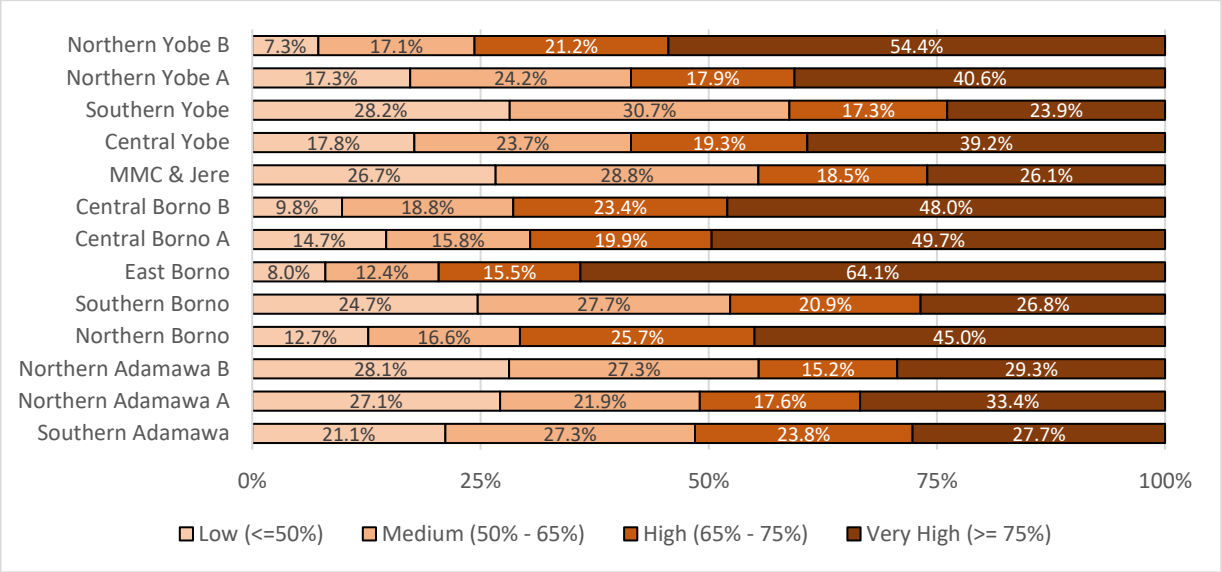


Figure 30 Household expenditure on food by state



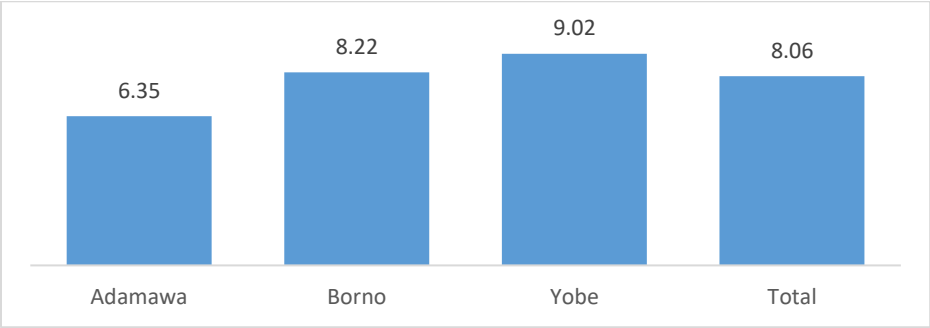
7.4 Household Coping Strategies

7.4.1 Food Based Coping Strategies

Households often resort to the use of various strategies to meet their food needs during difficult times. A set of five universally used food consumption-based strategies which are usually adopted by households facing difficulties in meeting their food needs were posed as questions to households during the assessment. Each of these five food-based coping strategies are assigned a weight based on its severity and multiplied by the frequency at which each strategy is used during the previous seven days to produce the Reduced Coping Strategy Index (rCSI).

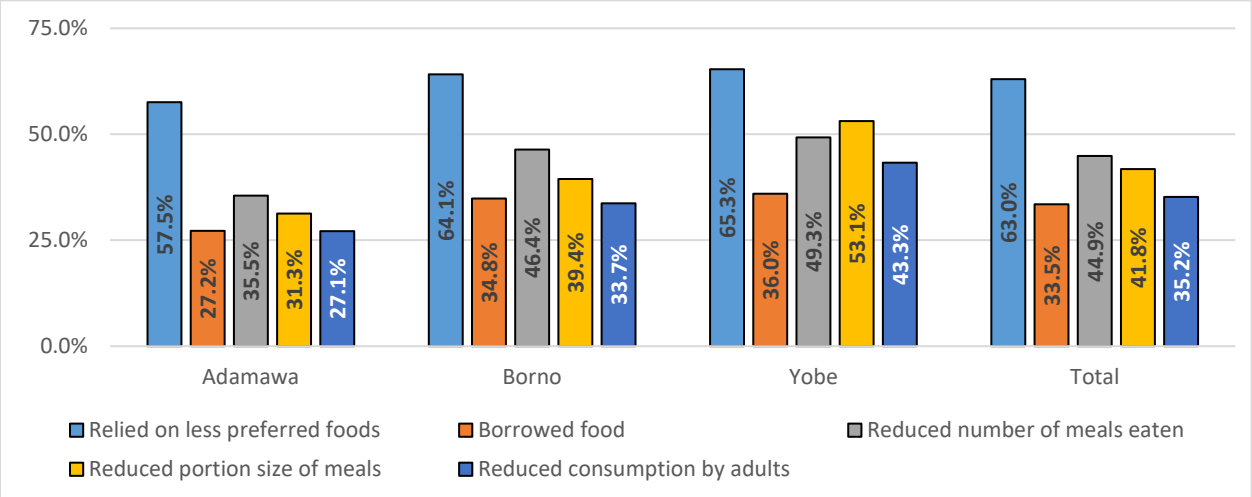
Households that resort to frequent use of these food consumption-based coping strategies and have a high rSCI score are generally affected by food shortages than those that do not use such strategies. The mean rSCI in the BAY states was 8. While the mean rCSI is currently highest in Yobe State (9.02) compared to 8.22 in Borno and 6.35 in Adamawa.

Figure 31 Mean rCSI by state



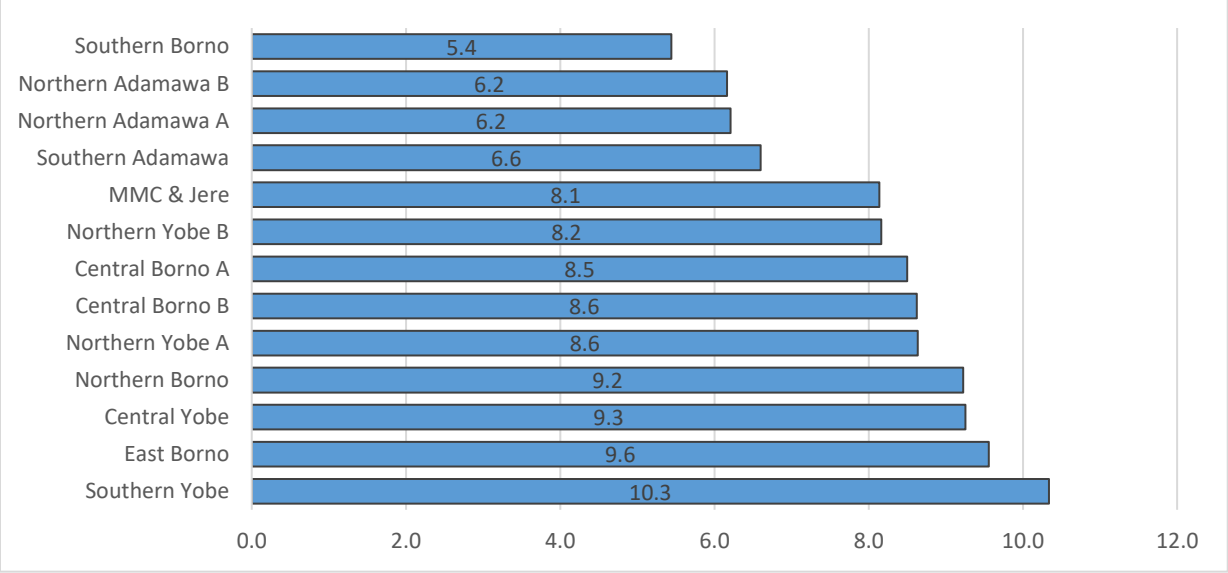
Among households in the three north eastern states, reliance on less preferred foods remains the most frequently reported coping strategy (63 percent), but reduction in number of meals (44.9 percent) and reduction of portion size of meals (41.8 percent) are also commonly used. The two least used coping strategies are Borrowing food (33.5 percent) and reduced consumption by adults for children (35.2 percent).

Figure 32 Percentage of households and types of food based coping strategies used by state



At the domain level, the manifestations of food shortage and persistent usage of food based coping strategies was found to be highest in Southern Yobe (10.3), East Borno (9.6), Central Yobe (9.3) and Northern Borno (9.2), but lowest in southern Borno and the three domains of Adamawa. Some of the domains with the highest rCSI are those with LGAs that are worst affected by the ongoing hostilities in the northeast. In Yobe for instance, the domains (Southern and Central Yobe) with the highest rCSI currently hosts LGAs such as Gujba, Gulani and Geidam, all of which are worst affected by the ongoing hostilities at the state level in Yobe.

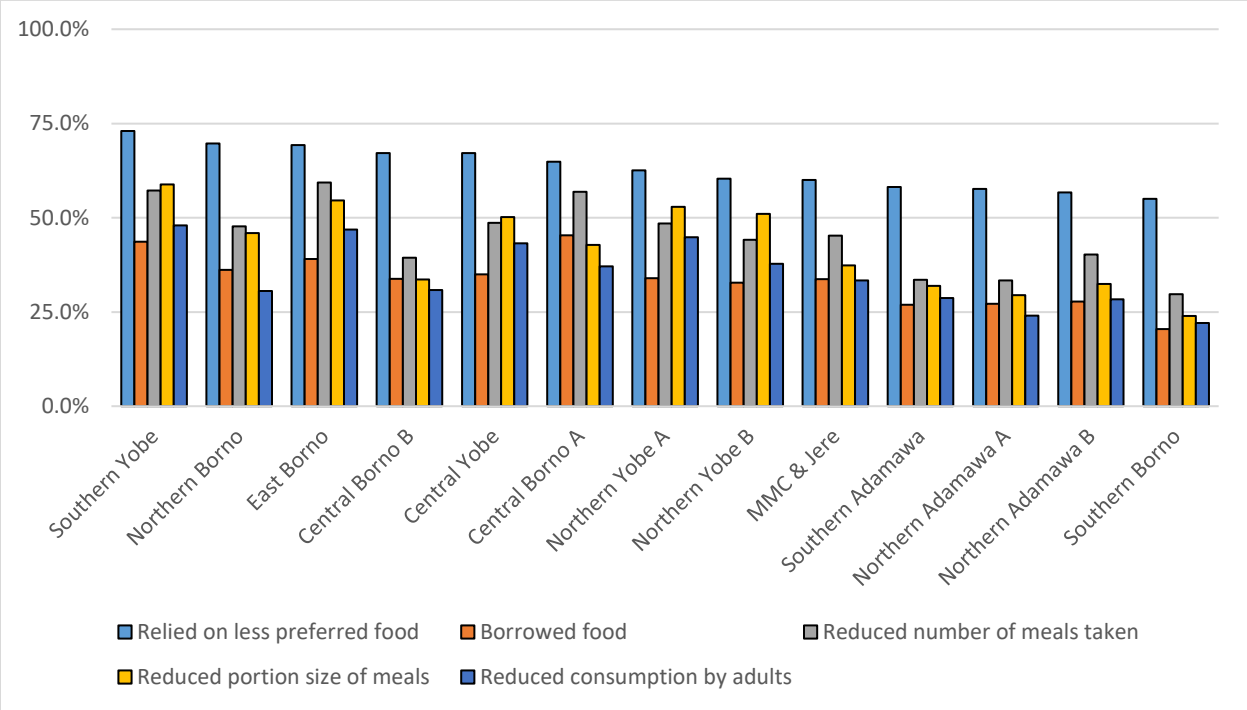
Figure 33 Mean reduce coping strategy index by domain



Similar to state level findings, reliance on less preferred meals was found to be the most frequently used food based coping strategy, with over 50 percent of households using such across all domains, highest of which was in Southern Yobe (73.0 percent), Northern Borno (69.7 percent) and East Borno (69.3 percent). Moreover, the other most prominent food based coping strategies identified in East Borno and Southern Yobe were those relating to reduction in the frequency of meals consumed and reduction in the portion

size of meals. These findings suggest that households in these areas with persistent usage of food based coping strategies recurrently experienced food shortage during the week of the assessment.

Figure 34 Percentage of households and types of food based coping strategies used by domain



7.4.2 Livelihood Based Coping Strategies

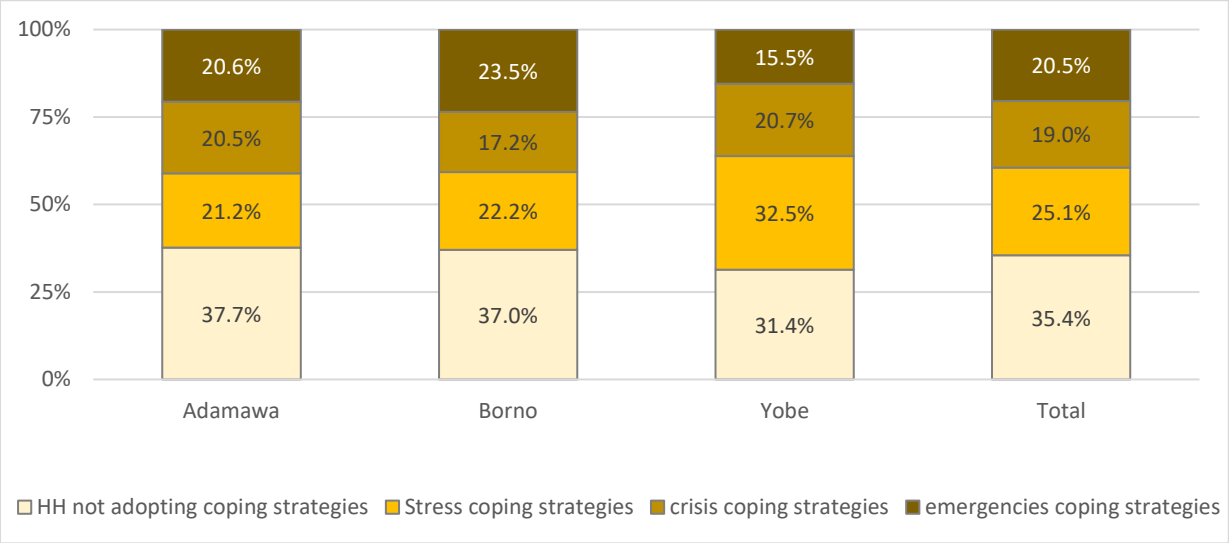
The livelihood coping strategy measures the livelihood stress and asset depletion during the 30 days prior to survey. Through this indicator, the long term coping ability of households and their capacity to produce in future can be assessed. The severity of the coping strategies used informs the classification of the households into four groups with the most affected households adopting crisis or emergency coping strategies. [27]

Overall, 65 percent of households in BAY states have used one or more livelihood based coping strategies to bridge food gaps encountered during the last 30 days that preceded the assessment. 70 percent of households in Yobe falls into category of those that have leveraged one or more livelihood coping strategies compared to 63 percent in Borno and Adamawa. Over a third of all households in the northeast have used crisis (19.0 percent) and emergency (20.5 percent) coping strategies, both of which depicts depleted productive assets with consequential implication for future productivity and food security. Households in Borno continue to experience a higher degree of vulnerability compared to neighbouring counterparts due to the impact of the ongoing conflict, which completely usurped livelihoods and resulted in gross loss of productive assets. Hence, reliance on emergency coping strategies such as sale of productive animals and reduction of expense on agricultural inputs are most pervasive across households in Borno (23.5 percent) compared to Yobe (15.5 percent) and Adamawa (20.6 percent). Almost one in every five households in BAY states have utilized stress coping strategies such as reduction of expense on health and education. However, it is noteworthy to highlight that most cases of asset depletion in Borno

[27] For more information on Livelihood Coping strategies indicator refer to the CARI technical guidance note: https://resources.vam.wfp.org/sites/default/files/CARI%20Guidance_2nd%20ed.pdf

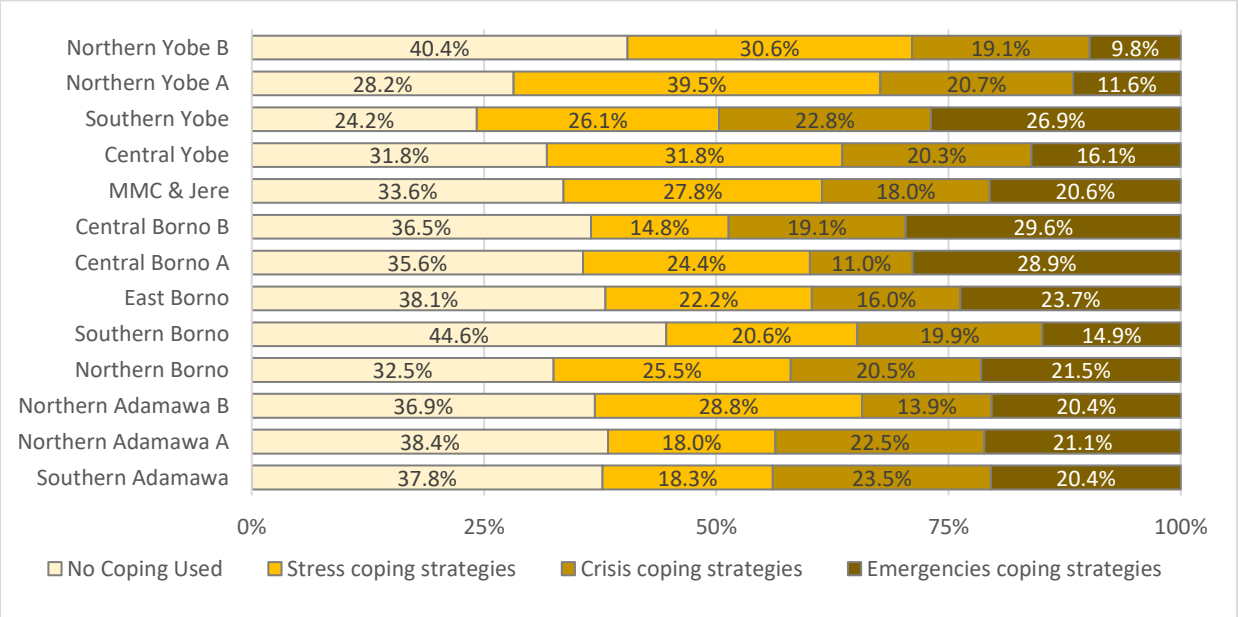
are likely not recent (*within the 30-day recall*) but households that have depleted their productive assets long before the assessment and have nothing left to deplete.

Figure 35 Livelihood based coping strategies by state



At the domain level, the prominent usage of one or more livelihood based coping strategies is highest in Southern Yobe (75.8 percent), Northern Yobe A (71.8 percent) and Central Yobe (68.2 percent). However, the manifestation of emergency coping strategies, which has dire consequences on future productivity and food security, was more pronounced in domains of Borno state, specifically Central Borno B (29.6 percent), Central Borno A (28.9 percent) and East Borno (23.7 percent). Moreover, almost 20 percent of households have leveraged crisis coping strategies to bridge their food gap in all domains of Yobe state, Central Borno B, Southern Borno and Northern Borno in Borno state, and Northern Adamawa A and Southern Adamawa in Adamawa state.

Figure 36 Livelihood based coping strategies by domain



7.5 Characteristics and Profile of Food Insecure Households

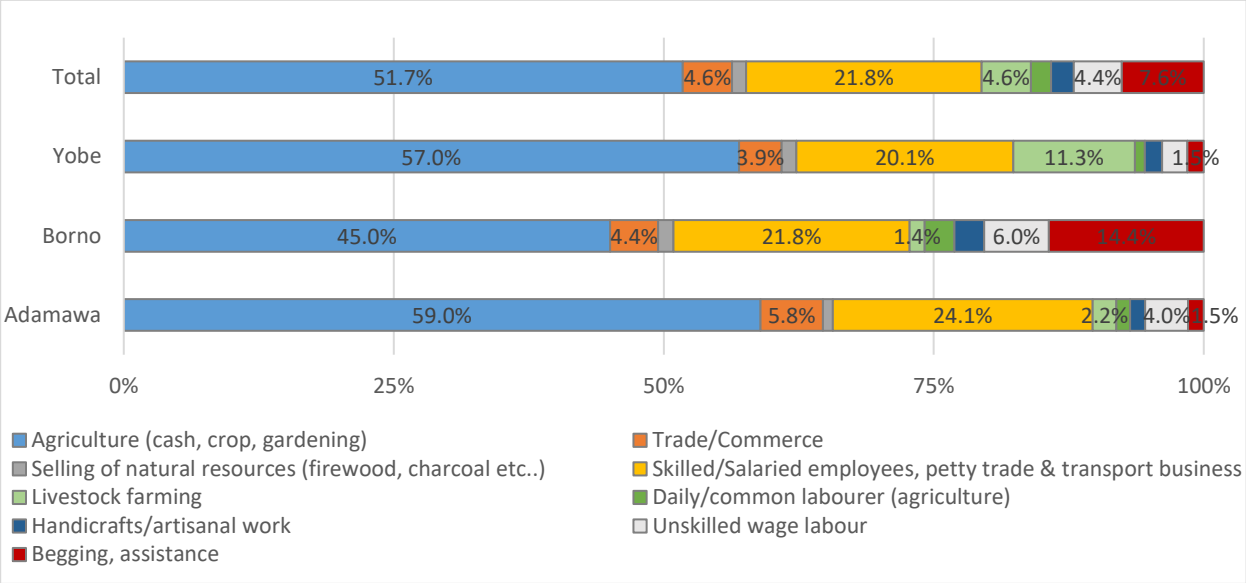
7.5.1 Food Security by Livelihoods

Agriculture continues to remain the predominant means of livelihood the three states, albeit at a limited scale when compared to pre-insurgency period. Households were as well involved in skilled and salaried employment, petty trade, transport business and or other forms of trade and commercial activities. In Borno State, households engaged in precarious income earning activities such as agricultural casual labor and begging.

Livelihood grouping and Importance for food security

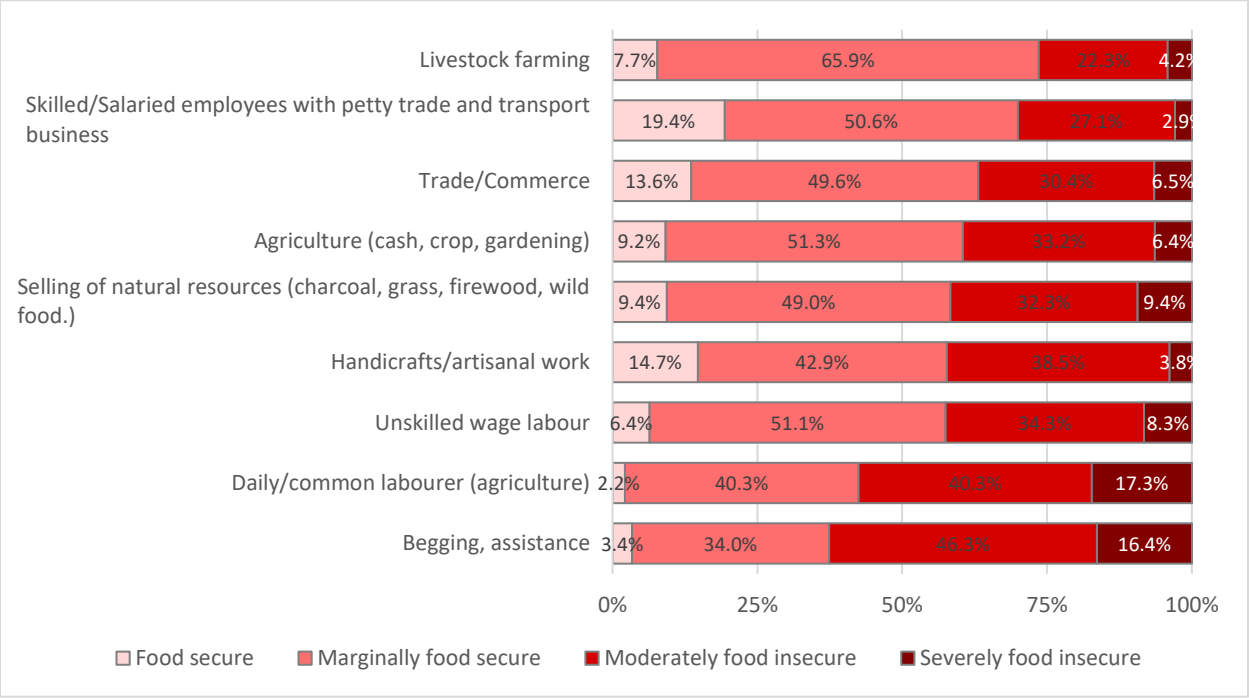
Households whose livelihoods are similar tend to be affected by the same shocks or risk factors. The livelihoods group to which a household belongs is therefore an important determinant of food security outcomes. Livelihood grouping is achieved through "a cluster analysis preceded by principal components analysis (PCA)." Primary livelihood strategies can be recognized through the PCA. Livelihood groups are then composed based on their reliance on various strategies.

Figure 37 Livelihood group by state



Food insecurity was highest among households adopting begging as their main livelihood activity (62.6 percent), followed by those primarily reliant on agricultural casual labor (57.6 percent). Moreover, the prevalence of food insecurity was most pronounced among households that involved in unskilled wage labor (42.5 percent) and artisanal work (42.3 percent).

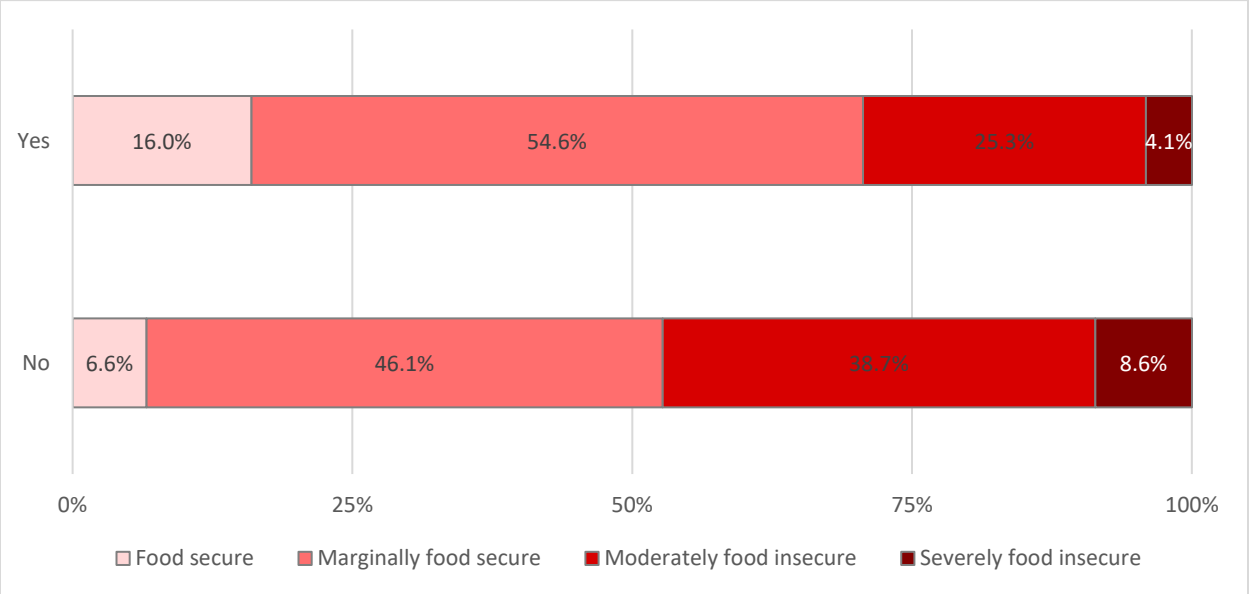
Figure 38 Food insecurity by livelihood groups



7.5.2 Food security by education level of the household's head

To gain an understanding of the interrelationship between education and food security, we explored the impact of the educational level of the household head on the household's level of food security. Households headed by an individual with no previous education (*cannot read and write in any language*) were found to be more food insecure (47.3 percent) compared to counterparts that could read and write (29.4 percent).

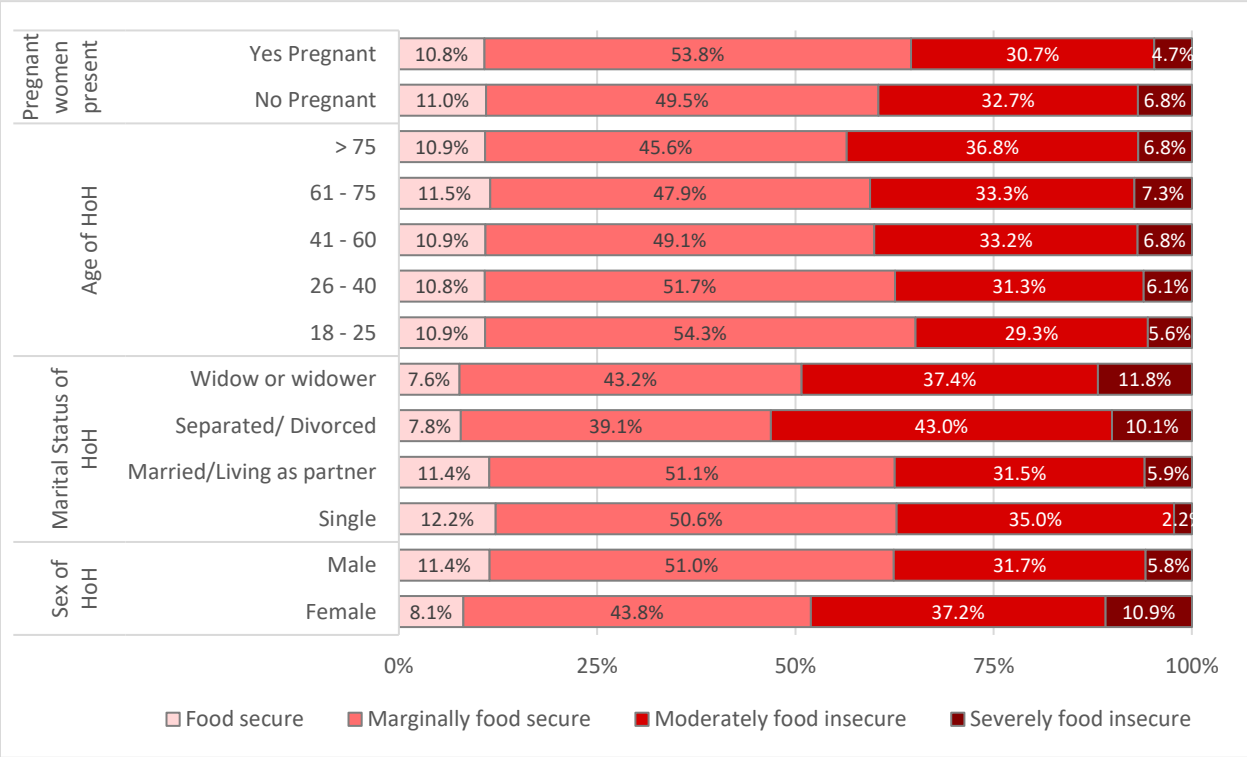
Figure 39 Food insecurity by educational level of household head



7.5.3 Food security by various vulnerable groups

Food insecurity impacts various groups differently and with different levels of intensity based on the depth of vulnerability at the household level. The prevalence of severe and moderate food insecurity was higher in female-headed households (48.0 percent) compared to male-headed counterparts (37.6 percent). Moreover, result disaggregation by marital status of the head of household showed that divorced or separated households (53.1 percent) and widowed headed households (49.3 percent) were the most affected by food insecurity compared to counterpart households in the same category. The age of the head of household also had an impact on food security as households headed by older members (> 75 years) were found to more food insecure (43.5 percent) compared with counterparts headed by younger members (34.8 percent). The level of food insecurity in households with pregnant women was slightly lower compared to households without pregnant women, which is likely due to the targeted efforts by the government and humanitarian community to prioritize them for nutrition and food assistance due to their vulnerability particularly in the context of the ongoing conflict in the northeast.

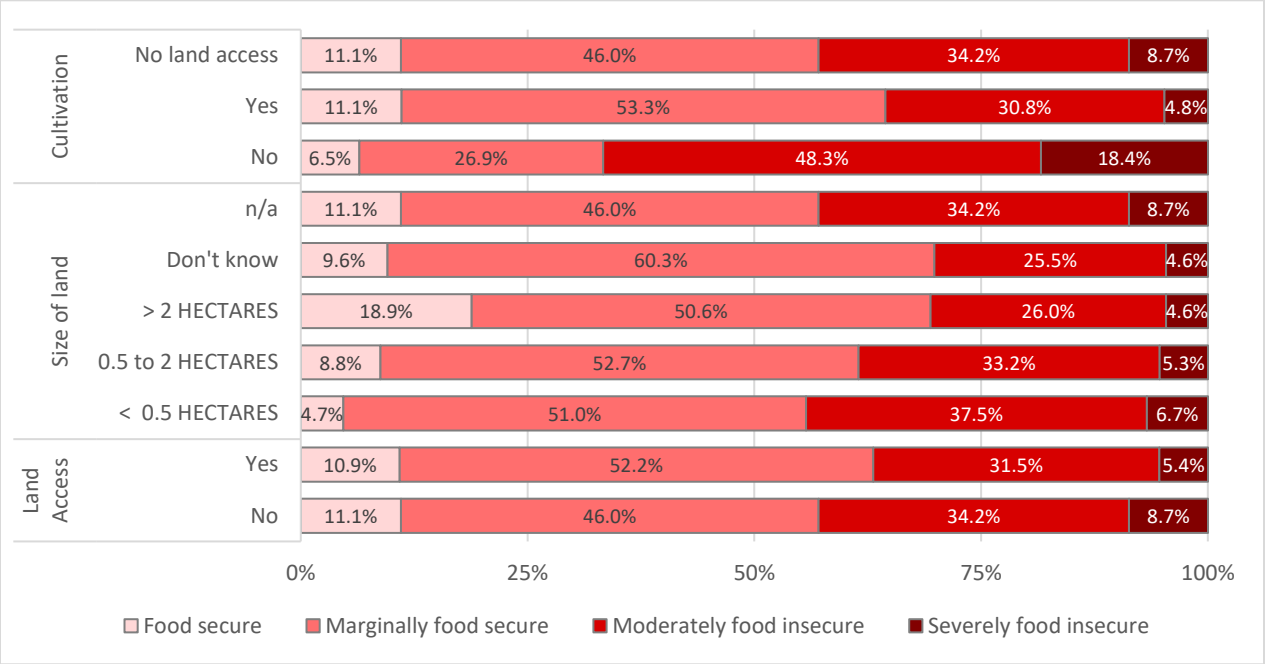
Figure 40 Food insecurity by vulnerable groups



7.5.4 Food security among farming and non-farming households

Access to farming land and cultivation opportunities continue to play a key role in food security among conflict affected households in the northeast. In general, households without access to land were more food insecure (42.9 percent) compared to counterparts with land access (36.9 percent). Households with larger expanse of land were found to be more food secure compared to those with smaller plots of land particularly in garrison towns where households have restricted access to land due to security restrictions by the military. Moreover, the level of food insecurity was found to be lowest (35.6 percent) among households that had land access and cultivated during the planting season [2017/2018] compared to counterparts with land access that did not cultivate (66.7 percent) and those without land access (42.9 percent).

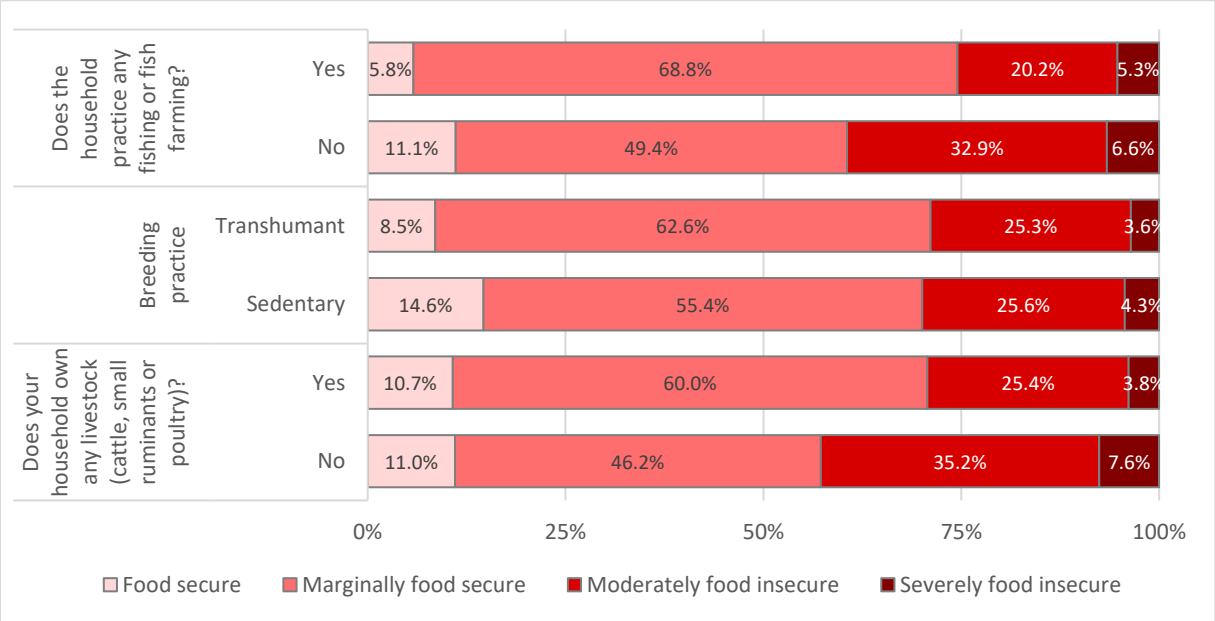
Figure 41 Food Security Status of Households by Land Access and Size of Land Cultivated



7.5.5 Food security by livestock ownership

The findings show that only 27.4 percent of the surveyed household own any type of livestock (cattle, small ruminants or poultry) whereas only 2.8 percent of households were involved in fishing activities. However, both livelihoods were found to be determinants of food security in households due to their direct benefits to food availability and nutritional wellbeing (meat, milk and other dairy products) including their contribution to the asset base of the households and resilience to shocks. The prevalence of food insecurity was 42.9 percent in households without any sort of livestock compared to 29.3 percent in households that with one or more livestock. Similarly, food insecurity was higher in households that are not in fishing activities (39.4 percent) compared to counterparts involved in fishing (25.5 percent).

Figure 42 Food security by livestock ownership and fishing activities

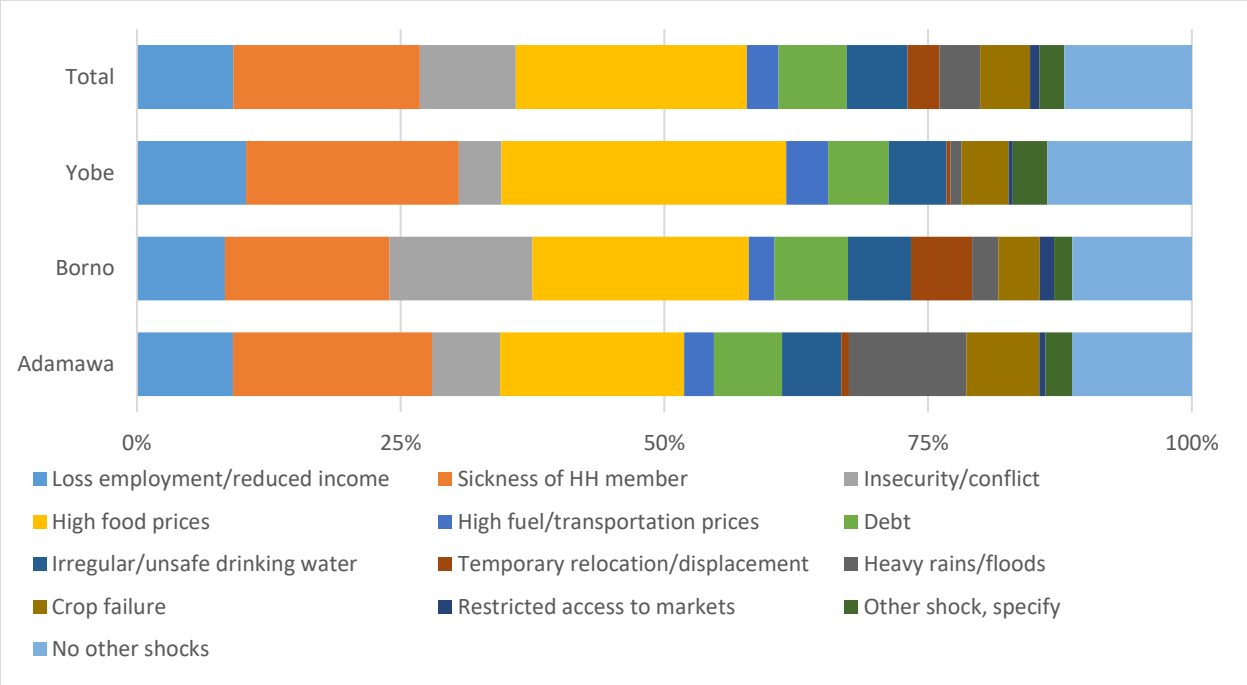


7.5.6 Food security by Shocks and Coping Strategies

Shocks have a negative impact on food security as households become highly vulnerable and oftentimes, food insecure when exposed to shocks, with duration of the impact lasting from short, medium to long term depending on the nature and frequency of the shock.

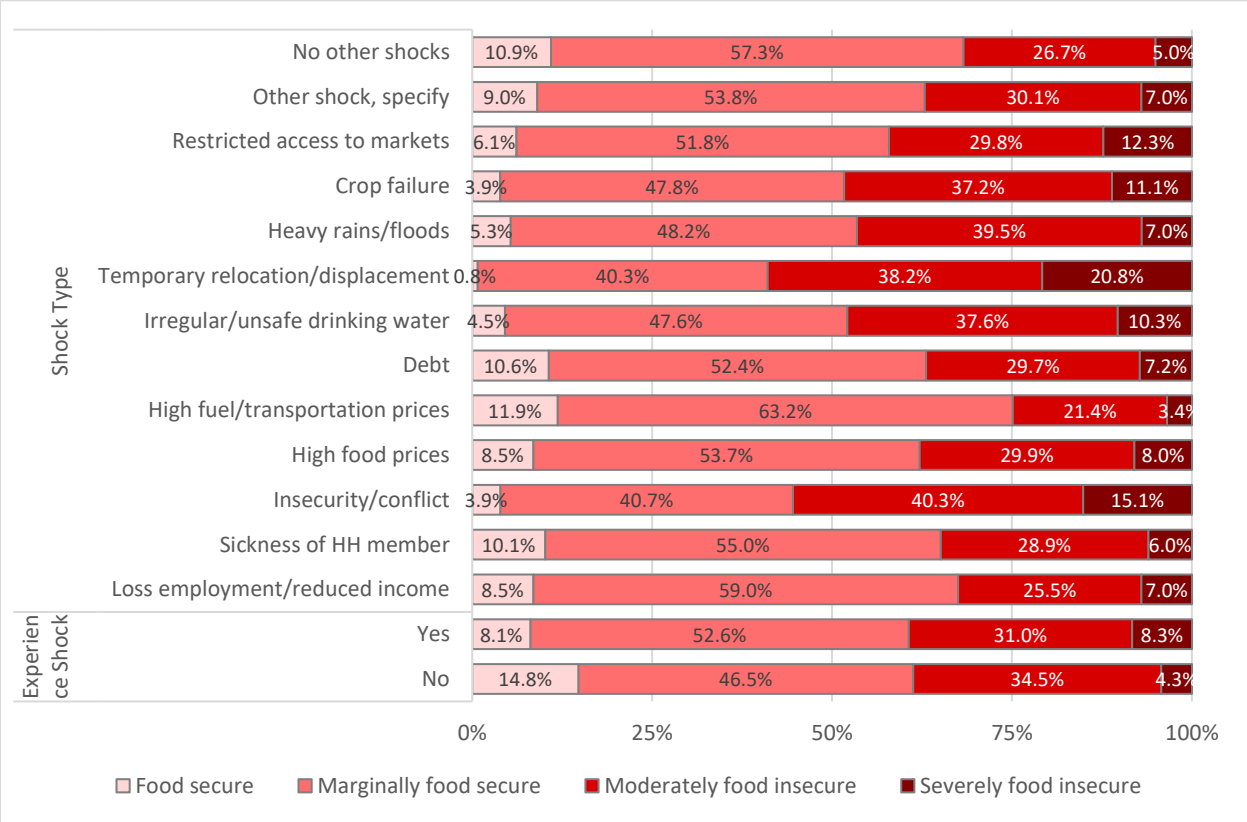
Across the three northeast states, high food prices (21.9 percent), sickness of one or more household member (17.7 percent), insecurity and conflict (9.1 percent) and loss of employment (9.1 percent) were the most significant shocks experienced by households. Households in Borno continue to experience the brunt of the ongoing conflict the most (13.6 percent) compared to neighbouring counterparts. Floods was found to be a major challenge in Adamawa (11.1 percent) which consequently resulted in crop failure (6.9 percent) in the state. The incidence of the shocks recorded across the northeast has implication for food availability within the affected households.

Figure 43 Shock Exposure by State



The results showed that severe levels of food insecurity remain higher among households that had experienced a shock (8.3 percent) compared to those that had not experienced any shock (4.3 percent). The shocks that had the most impact on households' food security were temporary displacement (59.0 percent), insecurity (55.4 percent), crop failure (48.3 percent), irregular and unsafe drinking water (47.9 percent) and floods (46.5 percent). In the face of these shocks, households often adopt a range of different coping strategies to survive, which deepens vulnerability to food insecurity if unabated.

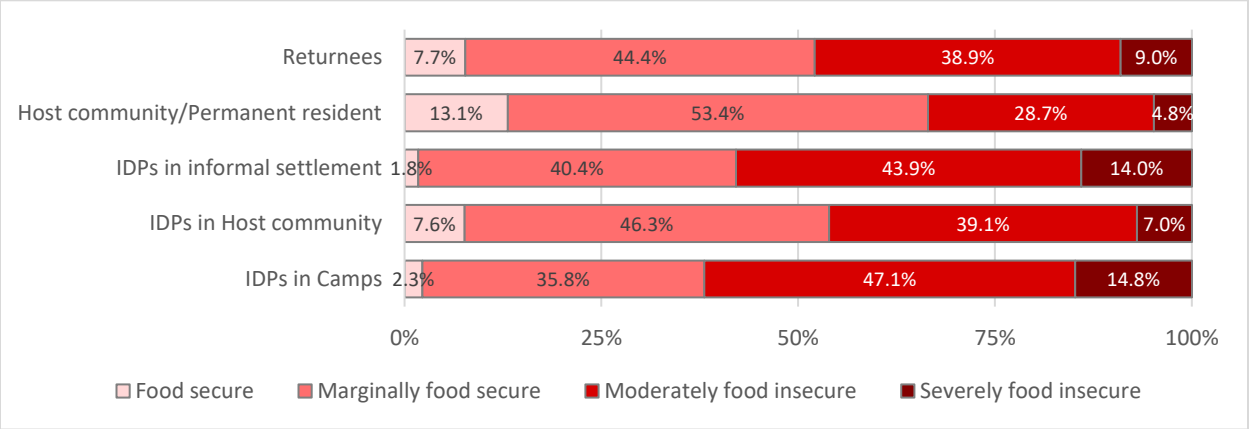
Figure 44 Food security by exposure to shock



7.5.7 IDPs and Returnees

Displaced population are more vulnerable to food insecurity since displacement causes asset loss as well as human and social capital deficit. Additionally, exposure to additional shocks, in the face of displacement, further exacerbates vulnerability among displaced individuals and forces them to rely on severe coping mechanism in order to meet their basic food needs. Generally, IDPs and returnees were more likely to be affected by food insecurity compared to permanent residents. For instance, IDPs living in camps were two times more likely to be affected by food insecurity (moderate + severe) compared to permanent residents who have never been displaced. Displacement primarily limits access to basic livelihood opportunities such as skilled employment which is often compounded by lack of skills and low level of literacy, which limits the capacity of IDPs to connect with local opportunities within areas of new habitation. This consequently forces them to engage in jobs that require less level of skills such as land clearing and manual labour.

Figure 45 Food security by household dwelling type



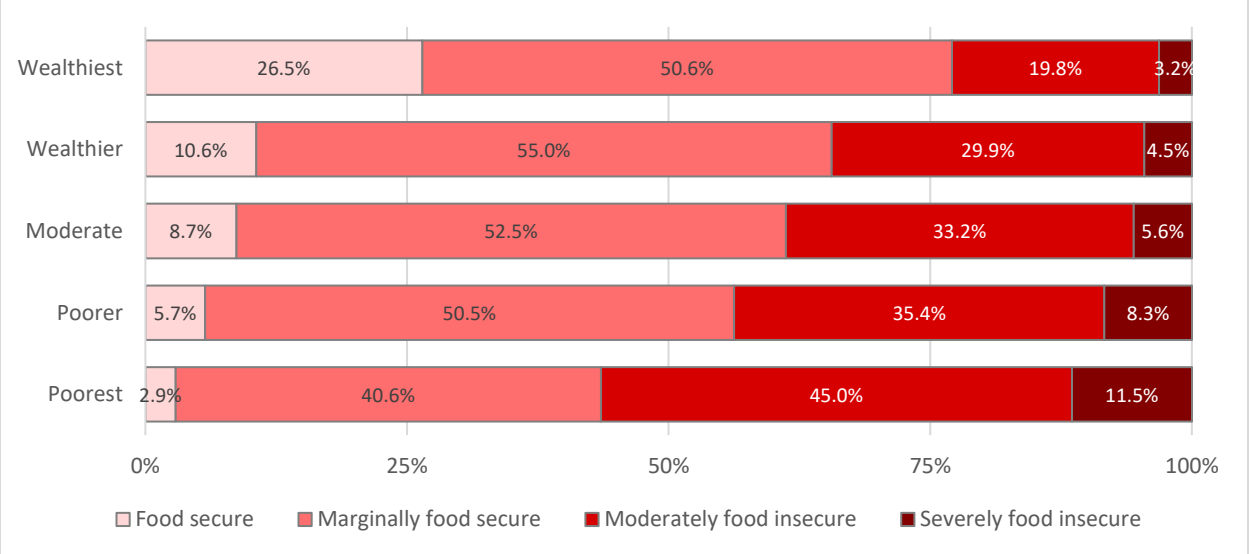
7.5.8 Poor Households or Households with Fewer or No Assets

Poor households with few assets tend to be more food insecure than better off households. Findings from the JANFSA show a correlation between wealth status and food security as the proportion of the poorest households (56.5 percent) experiencing food insecurity doubled those of wealthiest counterparts (22.9 percent). Furthermore, when confronted with shocks and threats, poorer households with lower levels of income and fewer assets are more likely to deploy extreme coping strategies to meet their basic food needs. The persistent usage of such strategies might have severe and oftentimes irreversible impacts on the food security of such affected households.

Wealth

Wealth is the value of all natural, physical and financial assets owned by a household, reduced by its liabilities. The wealth index is a composite index that combines the ownership of key assets; it is used as a proxy indicator of household level wealth. The calculation requires various steps based on a principal component analysis iteration. The following assets have been used to generate the wealth index: Beds, Sponge mattress, Table/chair, Radio, Television, Car, taxi, Cupboard/dresser, Agricultural tools (hoe/spade/cutlass), Seed for planting, Wheel barrow, Mosquito net, Cash, other savings (jewellery), Motorcycle, Bicycle, Cart (ox cart, etc.), Tricycle, Cell/Mobile phone.

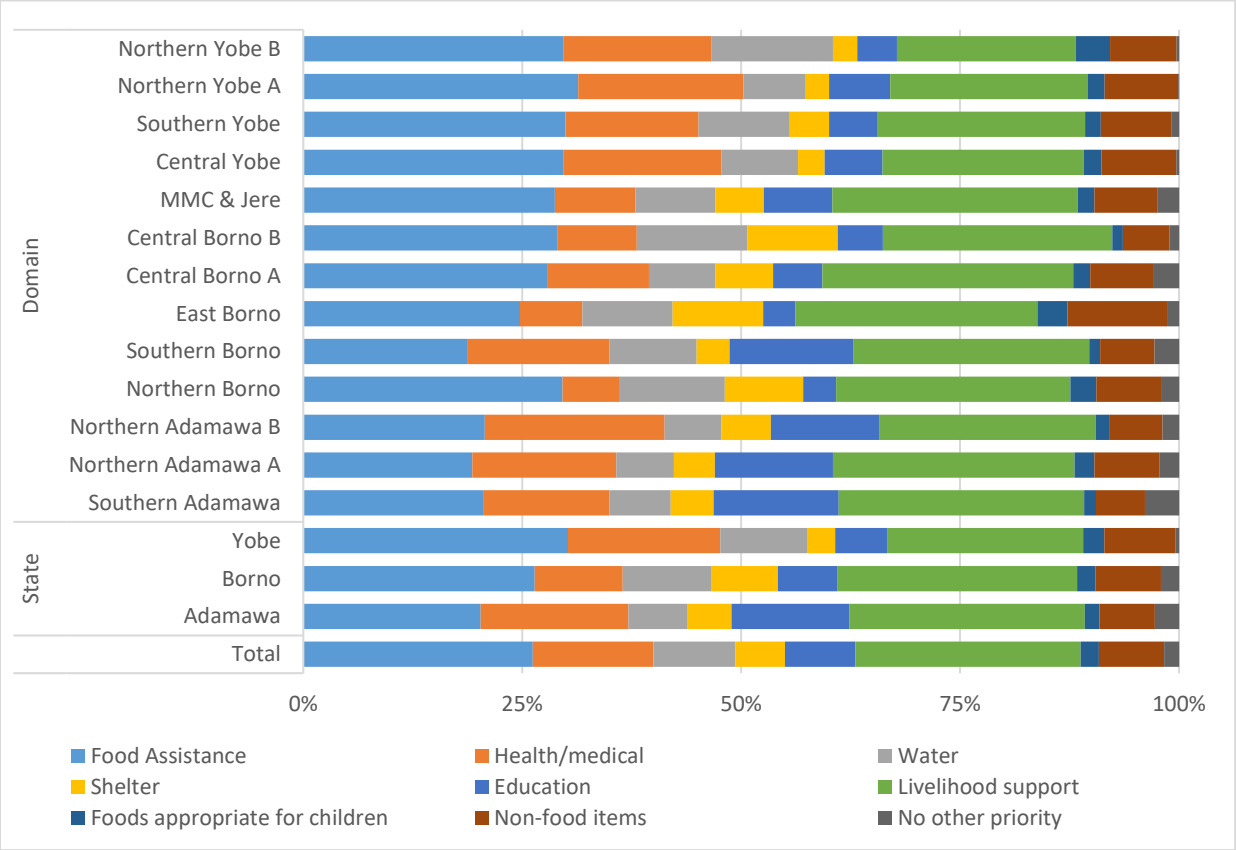
Figure 46 Food security by wealth classification



7.6 Household Priorities

Overall, the top three priority needs across the assessed households in BAY states were food assistance (26.2 percent), livelihood support (25.8 percent) and health and medical care (13.8 percent), a trend which was consistent at the state level. Similar to the state level, food assistance, livelihood support and health and medical care were all found to be priority across all the domains. However, water stood out as a priority need in Northern Yobe B (13.9 percent), Central Borno B (12.6 percent), Northern Borno (12.0 percent), Southern Yobe (10.4 percent) and East Borno (10.3 percent), which has implication for WASH and nutrition, particularly amongst children and pregnant and lactating women. The renewed desire for livelihood support by households across the northeast clearly indicates an opportunity for gradual integration of livelihood oriented assistance in areas where such is feasible, even if at a limited scale, to slowly build resilience of conflict affected communities and promote self-sufficiency and reduce dependency in parallel.

Figure 47 Priority needs by state and domain



WFP/Adedeji ADEMIGBUJI

8 Malnutrition & Food Security

8. FACTORS ASSOCIATED WITH MALNUTRITION AND FOOD SECURITY

To better understand the interrelatedness of selected independent variables on anthropometric measures (stunting, wasting and underweight) of children under five years, logistic regression was performed. The results of these analyses are presented and discussed in this section.

The means, standard deviations and frequencies of the variables selected for inclusion in the regressions are summarized in Table 18.

Table 18 Description of variables included in the logistic regression

Categorical variables	Description	Frequency	Parameter coding (1)
Diarrhoea	No	4029	1.000
	Yes	794	0.000
Sleeps under a bednet	No	563	1.000
	Yes	4260	0.000
Minimum acceptable diet	Does not meet minimum acceptable diet	4654	1.000
	Meets minimum acceptable diet	169	0.000
Minimum dietary diversity	Does not meet minimum dietary diversity	4615	1.000
	Meets minimum dietary diversity	208	0.000
Minimum meal frequency	Does not meet minimum meal frequency	3802	1.000
	Meets minimum meal frequency	1021	0.000
Anything done to the household water to make it safer to drink	No	4525	1.000
	Yes	298	0.000
Gender	Boys	2433	1.000
	Girls	2390	0.000
Head of household male or female	Female	328	1.000
	Male	4495	0.000
Head of household can read and write (in any language)	No	2208	1.000
	Yes	2615	0.000
Presence of soap for handwashing	No	4103	1.000
	Yes	720	0.000

Continuous variables	Mean	N	Std. Deviation
Wealth score (continuous)	0.00	6804.00	1.00
Household dietary diversity scale	5.20	6804.00	1.95
Reduced coping strategy index	8.58	6786.00	8.96
Household hunger score	0.93	6804.00	1.06
Household food expenditure over one month	17863.37	6804.00	17660.46
Household engaged in stress coping strategies	1.23	6786.00	0.97
Household engaged in crisis coping strategies	0.92	6786.00	1.38
Household engaged in emergency coping strategies	0.83	6786.00	1.62
Food consumption score	42.74	6804.00	17.07
Age of head of household (in years)	42.83	6804.00	11.64
Number of household members	6.80	6804.00	3.27
Number of household mosquito nets	2.41	4836.00	1.58

The factors expected to affect the weight and height of children under five years are related to indicators, directly relating to food consumption, which reflects the perception, quantity and quality of diets consumed by households and children; for example, the Household Hunger Scale (HHS), Food Consumption Score (FCS) and Household Dietary Diversity Score (HDDS) are all expected to reflect the frequency and dietary diversity of children within a given household. Moreover, it is not unexpected that a child's nutritional status would be affected by the household's socioeconomic status with children belonging to economically advantaged groups having a lower likelihood of being malnourished. Child's gender, health and hygiene status are also expected to be strong predictors of their nutrition status.

Additional variables include the age of the head of household and their education, the size of the household and the number of children under five years in the household, and food expenditures. In order to explore the potential correlation between selected predictors of malnutrition, a multicollinearity test was performed on the continuous variables of the models based on the VIF[28] value that were less than two; indicating no multicollinearity among the predictors in the models.

8.1 Factors Affecting Height-for-Age (Stunting) of Children Under Five Years

The multivariate analysis found that better diet and hygiene practices of children within the household reduces the likelihood that children within such households would be stunted. Additional significant factors found to influence child malnutrition were the experience of hunger (Household Hunger Score), the gender of the child being a boy (i.e. girls less likely to be malnourished), children with diarrhoea, and household's use of crisis coping strategies. In summary, the results for stunting indicate that the risk of stunting among children in a given household could be heightened by factors related to behavioural (hygiene practices), dietary patterns, use of coping due to constraints to access food or health (sicknesses), which further corroborates existing body knowledge about the multi-sectoral nature of the underlying drivers of malnutrition

Table 19 Significance of variables affecting height-for-age outcomes in children under five years using backward stepwise logistic regression (likelihood ratio).

Var.	Description							95% C.I.for EXP(B)	
		B	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step 8[a]	Presence of soap for handwashing (No)	0.675***	0.106	40.255	1	0.000	1.963	1.594	2.418
	Household dietary diversity scale	-0.037**	0.017	4.900	1	0.027	0.964	0.933	0.996
	Household hunger score	0.145***	0.031	21.556	1	0.000	1.156	1.088	1.229
	Minimum acceptable diet (No)	0.928**	0.386	5.765	1	0.016	2.529	1.186	5.393
	Minimum dietary diversity (No)	-0.874**	0.341	6.584	1	0.010	0.417	0.214	0.814
	Minimum meal frequency (No)	-0.203**	0.083	5.943	1	0.015	0.816	0.694	0.961
	Age of head of household	-0.005*	0.003	2.777	1	0.096	0.995	0.990	1.001
	Gender (Boy)	0.380***	0.065	34.251	1	0.000	1.463	1.288	1.661
	Diarrhoea (No)	-0.325***	0.084	15.027	1	0.000	0.722	0.613	0.851
	Household engaged in crisis coping strategies	0.057**	0.023	5.831	1	0.016	1.058	1.011	1.108
	Constant	-1.110***	0.270	16.867	1	0.000	0.330		

--2Log Likelihood = 5623.107; Cox and Snell R^2 = 0.033 and Nagelkerke R^2 = 0.048

****Significant at 99% confidence level, **Significant at 95% confidence level, and *Significant at 90% confidence level*

[28]The variance inflation factor (VIF) quantifies the extent of correlation between one predictor and the other predictors in a model. It is used for diagnosing collinearity/multicollinearity. Higher values signify that it is difficult to impossible to assess accurately the contribution of predictors to a model. If the VIF value lies between 1-10, then there is no multicollinearity.

8.2 Factors Affecting Weight-for-Height (Acute Malnutrition) of Children Under Five Years

Inferential analysis showed that children's minimum meal frequency, gender, health (episodes of diarrhoea), poor hygiene practices (handwashing), non-usage of mosquito nets and the household's engagement in emergency coping strategies were strong predictors of wasting in children under five years (significant at 99 percent confidence level). Factors that were also good predictors of acute malnutrition (90 percent confidence level) were poor diversified diets in households (low HDDS), high monthly food expenditure, reduced coping strategies, and households' engagement in stress coping strategies.

Table 20 Significance of variables affecting weight-for-height outcomes in children under five years using backward stepwise logistic regression (likelihood ratio).

								95% C.I.for EXP(B)	
Variable	*Description*	*B*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(B)*	*Lower*	*Upper*
Step 14[a]	Presence of soap for handwashing (No)	0.334*	0.160	4.378	1	0.036	1.396	1.021	1.909
	Sleeps under a mosquito net (No)	0.376***	0.137	7.578	1	0.006	1.457	1.114	1.904
	Household dietary diversity scale	-0.055*	0.025	4.894	1	0.027	0.946	0.901	0.994
	Reduced coping strategy index	0.011*	0.006	3.225	1	0.073	1.011	0.999	1.024
	Household food expenditure share	0.007*	0.003	6.593	1	0.010	1.007	1.002	1.012
	Minimum meal frequency (No)	-0.417***	0.108	15.026	1	0.000	0.659	0.534	0.814
	Gender (Boy)	0.289***	0.097	8.978	1	0.003	1.336	1.105	1.614
	Diarrhoea (No)	-0.643***	0.114	32.100	1	0.000	0.525	0.421	0.656
	Household engaged in crisis coping strategies	0.090*	0.055	2.696	1	0.101	1.094	0.983	1.218
	Household engaged in emergency coping strategies	-0.118***	0.037	10.276	1	0.001	0.889	0.827	0.955
	Constant	-2.128***	0.321	44.022	1	0.000	0.119		

-2Log Likelihood = 3101.670; Cox and Snell R^2 = 0.020 and Nagelkerke R^2 = 0.042

****Significant at 99% confidence level, **Significant at 95% confidence level, and *Significant at 90% confidence level*

Acutely malnourished children were negatively affected (statistically significant) when they had diarrhoea, did not meet minimum meal frequency, or were from households with poor diets with limited dietary diversity (HDDS) and higher food expenditures. The highest negative impact on wasting was from HDDS, followed by the children's minimum meal frequency, and diarrhoea, which increases the likelihood of being wasted. However, the likelihood of a child to be wasted was reduced with the presence of soap for handwashing, households' increased access to sufficient food (preventing food related coping strategies), and if the child was a boy.

8.3 Factors Affecting Weight-for-Age (Underweight) of Children Under Five Years

Inferential analysis showed that children's and household's food consumption indicators (minimum acceptable diet, minimum dietary diversity, minimum meal frequency, and HDDS), gender of the child, health (diarrhoea episodes, use of mosquito nets), hygiene (presence of soap for hand-washing), household's use of livelihood and food related coping strategies, and age of the head of household, were all strong predictors of a child's weight (significant at 99 percent). Other factors such as the household's socio economic status (wealth index), gender of the head of household, and number of household members were likewise good predictors of underweight (90 percent confidence level).

The likelihood of being underweight by children was negatively affected (statistically significant) by presence of diarrhoeal episodes, failure to meet the requirements for minimum meal frequency or minimum diet diversity, or socio-economic status of households (poor households). These negative effects

were most pronounced within children that were girls, or children from households with poor diversified diets (HDDS), or those that used emergency coping strategies, and/or with few assets (wealth index). The household size was also found to be a predictor for being underweight among children with larger households having more odds of hosting an underweight child, which could be underscored by high level of competition for available food. However, households headed by older members were found to be better off and children from such households tend to reach the expected weight required for their age. The predictors with the highest negative impact on underweight were poor dietary diversity, followed by diarrhoea, and frequency of meals consumed, which increases the odds of being underweight. On the positive side, these findings further reinforce the importance of meeting the minimum acceptable diet required by children in order to prevent children from being underweight.

Table 21 Significance of variables affecting weight-for-age outcomes in children under five years using backward stepwise logistic regression (likelihood ratio).

								95% C.I. for EXP(B)	
Variable	*Description*	*B*	*S.E.*	*Wald*	*df*	*Sig.*	*Exp(B)*	*Lower*	*Upper*
Step 8[a]	Presence of soap for handwashing (No)	0.660***	0.129	26.164	1	0.000	1.934	1.502	2.491
	Sleeps under a mosquito net (No)	0.275**	0.110	6.266	1	0.012	1.316	1.061	1.633
	Wealth score (continuous)	-0.069*	0.042	2.726	1	0.099	0.933	0.859	1.013
	Household dietary diversity scale	-0.057***	0.020	8.057	1	0.005	0.945	0.909	0.983
	Reduced coping strategy index	0.010***	0.005	3.829	1	0.050	1.010	1.000	1.020
	Minimum acceptable diet (No)	1.900***	0.404	22.142	1	0.000	6.683	3.029	14.743
	Minimum dietary diversity (No)	-1.698***	0.348	23.765	1	0.000	0.183	0.092	0.362
	Minimum meal frequency (No)	-0.412***	0.090	20.816	1	0.000	0.662	0.555	0.791
	Number of household mosquito nets	-0.057*	0.030	3.455	1	0.063	0.945	0.890	1.003
	Age of head of household	-0.008***	0.004	4.963	1	0.026	0.992	0.985	0.999
	Gender of head of household (Female)	-0.282*	0.158	3.192	1	0.074	0.754	0.553	1.028
	Number of household members	0.027*	0.015	3.472	1	0.062	1.027	0.999	1.057
	Gender (Boy)	0.348***	0.074	22.032	1	0.000	1.416	1.225	1.637
	Diarrhoea (No)	-0.527***	0.092	33.007	1	0.000	0.591	0.493	0.707
	Household engaged in stress coping strategies	0.119***	0.042	7.894	1	0.005	1.126	1.037	1.223
	Household engaged in crisis coping strategies	-0.080***	0.027	8.735	1	0.003	0.923	0.875	0.973
	Constant	-1.198***	0.312	14.782	1	0.000	0.302		

-2Log Likelihood = 4627.822; Cox and Snell R^2 = 0.040 and Nagelkerke R^2 = 0.063

****Significant at 99% confidence level, **Significant at 95% confidence level, and *Significant at 90% confidence level*

9 Conclusion

The humanitarian crisis in north-eastern Nigeria continues to adversely affect the food security and nutrition situation of populations in Borno, Yobe and Adamawa states.

9.1 Food security situation

The results showed that overall, 39 percent of households in the three states were food insecure; of these, 32.5 percent were moderately food insecure and 6.5 percent of households were severely food insecure. In Borno State, the highest proportion of food insecure households were found in Central Borno A (62.7 percent,) Central Borno B (53.8 percent), and East Borno (51.4 percent) where continuing insecurity hampers access to land for farming, the functioning of markets, and access to agricultural inputs - nearly ten percent of households in each of these three domains were severely food insecure. Food insecurity was lowest in MMC & Jere and Southern Borno where improved security conditions and recovering livelihoods appear to have impacted positively on households' purchasing power and access to food.

In Yobe State, food insecurity conditions remain high in the Southern Yobe where security threats from Non-State Armed Groups (NSAG) remain a disruptive influence on livelihoods and agriculture, and access constraints affect the delivery of humanitarian assistance.

In Adamawa State, Northern Adamawa A and Southern Adamawa showed the highest rates of food insecurity at 40.2 percent and 40.1 percent, respectively. The highest rate of severe food insecurity (6.3 percent), however, was in Northern Adamawa A. This can be explained by the large number of displaced people and loss of livelihood, as well as constrained access to agricultural land for food production in

locations such as Michika, Madagali and Mubi, which are impacted by insecurity, communal conflict between farmers and herders, and pockets of seasonal flooding.

Displaced households, particularly those in camps and informal settlements, returnees households, female headed households, poor households, particularly those with little or no assets, households that lack access to land for farming and households engaged in casual labor and begging, were all found to be more affected by food insecurity. The vulnerability of such households were found to be further deepened by episodes of shocks such as insecurity and communal conflicts and flooding, which aggravates the level of food insecurity in some of these already vulnerable households. The ongoing humanitarian assistance by Government of Nigerian and the international humanitarian community to restore and protect livelihoods coupled with improved security situation in some areas and slight recovery of markets continues to preserve the food security situation in some areas of the northeast.

9.2 Nutrition situation

The nutrition data showed that prevalence of global acute malnutrition remains at serious levels in several domains, particularly in Borno and Yobe states. Under five mortality rates exceeded the emergency threshold in Southern Adamawa and Northern Yobe B, but was also very high in all domains of Adamawa, Central Borno A, South Borno, Northern Borno, MMC & Jere, Northern Yobe A and Southern Yobe. Moreover, the nutrition situation of women of childbearing age (15 to 49 years) was assessed during the survey considering the critical role they play in the nutrition outcome of children, their families and the community at large. Findings revealed that adolescent women aged 15 to 19 years were six times more likely to be malnourished (17.8 percent) compared to adults aged 20 to 49 years, which is a worrisome trend.

Despite the known benefits of exclusive breastfeeding to the health and nutrition of infants and mothers alike, less than half (45 percent) of the sampled children aged 0-5 months were exclusively fed with breast milk at the time of the survey with rates lowest in Yobe state. (33.9 percent). One major concern identified amongst children aged 6-23 months was the poor dietary diversity of the meals consumed (less than four food groups) which was commonplace in spite of generally meeting the minimum meal frequency requirement. Approximately 14 percent of children met the required dietary diversity of at least four food groups during the day that preceded the assessment and these rates were higher in Adamawa compared to Borno and Yobe.

Prevalence of common childhood illnesses such as fever, diarrhoea and respiratory tract infections, including cough, was quite prevalent with a one in every three children (about 30 percent) found to be affected by one or more of such illnesses with the two-week period that preceded the assessment with burden most pronounced in Southern Adamawa, Central Borno B and Southern Yobe in order of severity. The high prevalence of common childhood illnesses in some of the areas could be potentially explained by poor hygiene practices that was generally recorded in the northeast. Only five percent of households treated their water to make safer to consumption and only 13 percent of the households had soap in their houses which they could use for handwashing. These dynamics have implications for health outcomes and consequently, nutritional status of household members as good hygiene practices minimizes the spread of germs and illnesses. The extremely low levels of safe water treatment and soap ownership observed in a few domains, particularly Northern Yobe B remains concerning as only 1.8 percent of households treated the water consumed by their households to make safer and only 0.5 percent of households had soap for handwashing in their household.

9.3 Food security and Nutrition relationship

The results for stunting indicate that the risk of stunting among children in a given household could be heightened by factors related to behavioural (hygiene practices), dietary patterns, use of coping due to constraints to access food or health (sicknesses), which further corroborates existing body knowledge about the multi-sectoral nature of the underlying drivers of malnutrition. Noteworthy to highlight that these underlying factors include key composite indicators of food security relating to food dietary diversity (household dietary diversity score) and reliance on food and livelihood based coping strategies, both of which has implication for food access with affected households.

Moreover, acutely malnourished children were negatively affected when they had diarrhoea, did not meet minimum meal frequency, or were from households with poor diets with limited dietary diversity (household dietary diversity score) and higher food expenditures. The highest negative impact on wasting was from HDDS, followed by the children's minimum meal frequency, and diarrhoea, which increases the likelihood of being wasted. The strong correlation between household dietary diversity, which is a key composite indicator of food security and malnutrition, again demonstrates the inextricable linkage between malnutrition and food security, albeit not significantly correlated with the food insecurity deduced from CARI. The likelihood of a child to be wasted was reduced with the presence of soap for handwashing, households' increased access to sufficient food (preventing food related coping strategies), and if the child was a boy.

The likelihood of being underweight by children was negatively affected (statistically significant) by presence of diarrhoeal episodes, failure to meet the requirements for minimum meal frequency or minimum diet diversity, or socio-economic status of households (poor households). These negative effects were most pronounced within children that were girls, or children from households with poor diversified diets (HDDS), or those that used emergency coping strategies, and/or with few assets (wealth index). The household size was also found to be a predictor for being underweight among children with larger households having more odds of hosting an underweight child, which could be underscored by high level of competition for available food.

9.4 Study Limitation

These findings should be understood as representative for accessible areas in the three states as large areas of the assessed domains remained inaccessible during the data collection, particularly in Borno State. Acute malnutrition prevalence, mortality rates, and other indicators are likely to be poorer in areas newly accessible to humanitarian assistance and inaccessible areas. Additionally, this assessment was conducted during the end of hunger season, and following a surge in emergency humanitarian response - factors that could possibly contribute to the lower estimated prevalence of acute malnutrition compared to estimates from other small-scale nutrition surveys. Lastly, the assessment was conducted to enhance nutrition and food security programme design, particularly in the context of conflict, and hence the assessment team laid more emphasis on the operational relevance of the analysis and findings.

10 Recommendations

As food assistance and livelihood support remains key priority needs among households in the three northeast states, the government and the humanitarian community need to sustain the ongoing assistance in order to prevent a deterioration in the food security situation particularly among households that are vulnerable and most in need. Furthermore, food assistance has to be significantly complemented by the implementation of sustainable livelihoods assistance to reduce the impact of acute food insecurity in these three states, particularly during the lean season in 2019. Specific vulnerable groups such as female-headed households, displaced households, poorest households, those with limited livelihood opportunities and land access and households involved in casual labor, should be targeted and prioritized for assistance in such areas. There is also a need to continue peace building dialogue between key stakeholders to ensure social cohesion between farmers and herders.

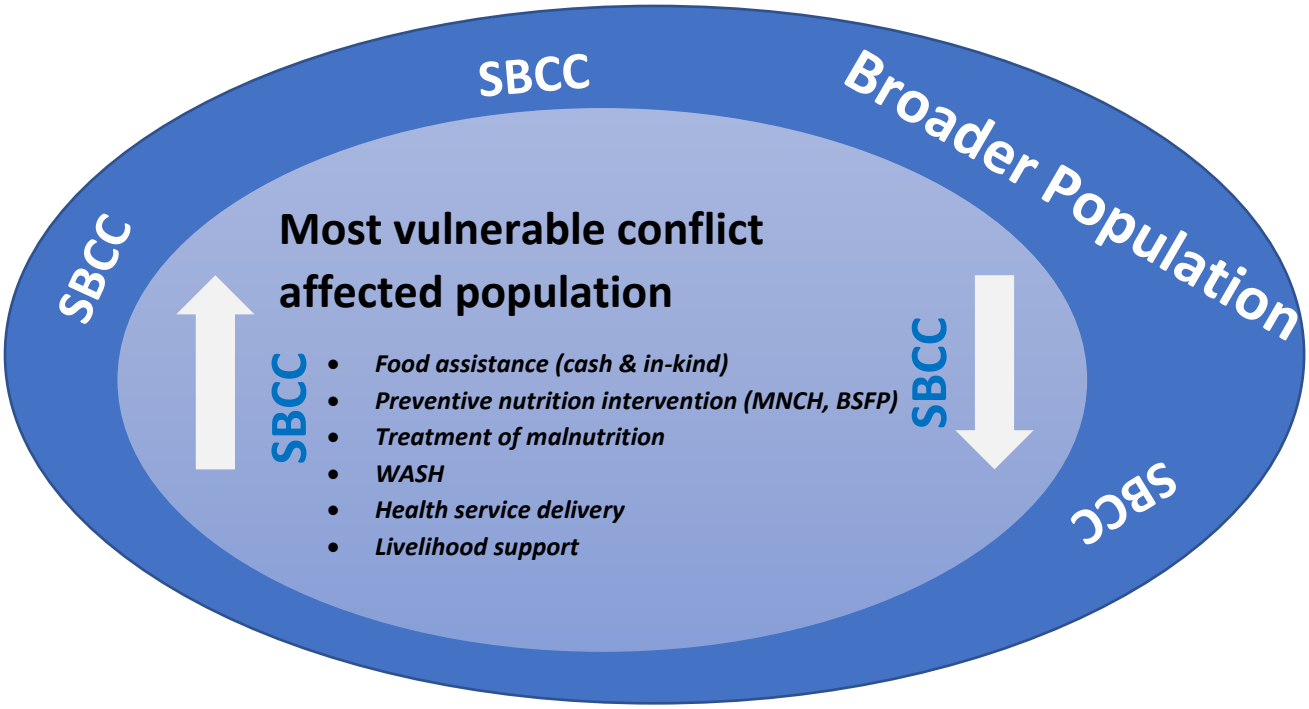
There is the need for UNICEF, WFP and the humanitarian community to strengthen the coordination efforts to prioritize and respond in some of the locations with high levels of food insecurity and malnutrition through effective advocacy and sector coordination to ensure that the current partners sustain ongoing support to beneficiaries, which should include outreaches and treatment of acute malnutrition through CMAM programs as well as general food and/or cash distributions. Such interventions should be complemented with livelihood support, particularly during the lean season which is characterized by limited food availability and access and upsurge of illnesses such as malaria and diarrhoea, which has implication for malnutrition, particularly children and other vulnerable groups such as pregnant women.

Moreover, findings from this study support existing body of knowledge regarding the complex and multi-sectorial drivers of malnutrition (Health, WASH, food security etc.). Therefore, government, humanitarian and development actors need to collaborate effectively under a common framework to provide multi-sectoral response that are integrated with nutrition, food security, livelihoods, health, and WASH, in order to tackle the malnutrition and food insecurity, and other drivers of both constructs (WASH challenges) in parallel (See Figure 48). These interventions, integrated with social and behavioural change communication (SBCC), should be tailored to the most vulnerable such as poorest conflict affected households with little or no assets, households with vulnerable members such as pregnant women and children, households with limited livelihood opportunities and female headed households, considering the finite nature of humanitarian, development and government resources. However, the SBCC component of the intervention should target the entire population regardless of socio-economic or vulnerability status considering the widespread poor dietary diversity, hygiene practices and exclusive breastfeeding practice.

Humanitarian and development actors also need to continue advocacy to the Government of Nigeria for improved security and greater humanitarian access to LGAs that are currently fully or partly accessible to the humanitarian community in order to enhance access to farmland for cultivation and also provide much needed assistance to affected households that are currently inaccessible. Moreover, the government and humanitarian actors should support households with safe access to quality agriculture inputs, water, land, fishing and grazing areas; reconstruction of productive infrastructures; and recovery of agriculture extension services, all in the efforts to harness the agricultural value chain. These interventions should be complemented by women empowerment initiatives in order to reinforce the resilience of female headed households.

Finally, there is need for continued monitoring in the north east to ensure that stakeholders have ongoing insights into the nutrition and food security situation to facilitate informed and agile response by stakeholders.

Figure 48 Multi-sectorial model for malnutrition



WFP/Amadou BERAZE

Annex 1 – List of Nutrition Indicators and Definition

S.N	Indicators	Numerator	Denominator
1.1			
1.1.1	Underweight prevalence	Number of children under age 5 who fall below minus two standard deviations from the median weight for age of the WHO standard	Total number of children age 0-59 months
1.1.2	Moderate underweight prevalence	Number of children under age 5 who fall between below minus two to greater than or equal to minus three standard deviations from the median weight for age of the WHO standard	Total number of children age 0-59 months
1.1.3	Severe underweight prevalence	Number of children under age 5 who fall below minus three standard deviations from the median weight for age of the WHO standard	Total number of children age 0-59 months
1.2			
1.2.1	Stunting prevalence	Number of children under age 5 who fall below minus two standard deviations from the median height for age of the WHO standard	Total number of children age 0-59 months
1.2.2	Moderate Stunting prevalence	Number of children under age 5 who fall between below minus two to greater than or equal to minus three standard deviations from the median height for age of the WHO standard	Total number of children age 0-59 months
1.2.3	Severe Stunting prevalence	Number of children under age 5 who fall below minus three standard deviations from the median height for age of the WHO standard	Total number of children age 0-59 months
1.3			
1.3.1	Wasting prevalence	Number of children age 0-59 months who fall below minus two standard deviations from the median weight for height of the WHO standard	Total number of children age 0-59 months
1.3.2	Moderate Wasting prevalence	Number of children age 0-59 months who fall between below minus two to greater than or equal to minus three standard deviations from the median weight for height of the WHO standard	Total number of children age 0-59 months
1.3.3	Severe Wasting prevalence	Number of children age 0-59 months who fall below minus three standard deviations from the median weight for height of the WHO standard	Total number of children age 0-59 months
S.N	**Indicators**	**Numerator**	**Denominator**
1.4	**Acute malnutrition (MUAC &/or bilateral edema)**		
1.4.1	Wasting prevalence	Number of children age 6-59 months who fall below MUAC 125 mm	Total number of children age 6-59 months
1.4.2	Moderate Wasting prevalence	Number of children age 6-59 months fall between below MUAC 125 mm and greater or equal to 115 mm	Total number of children age 6-59 months
1.4.3	Severe Wasting prevalence	Number of children age 6-59 months who fall below MUAC 115 mm	Total number of children age 6-59 months
1.5	**Acute Malnutrition (WHZ &/ or bilateral edema)**		
1.5.1	Acute malnutrition prevalence	Number of children age 6-59 months who fall below minus two standard deviations from the median weight for height of the WHO standard	Total number of children age 6-59 months
1.5.2	Moderate acute malnutrition prevalence	Number of children age 6-59 months who fall between below minus two to greater than or equal to minus three standard deviations from the median weight for height of the WHO standard	Total number of children age 6-59 months
1.5.3	Severe acute malnutrition prevalence	Number of children age 6-59 months who fall below minus three standard deviations from the median weight for height of the WHO standard	Total number of children age 6-59 months
1.6			
1.6.1	Overweight prevalence	Number of children under age 5 who are above two standard deviations of the median weight for height of the WHO standard	Total number of children age 0-59 months
2.1	Vitamin A supplementation among children under 5 years of age	Number of children age 6-59 months who received at least one high-dose vitamin A supplement in the 6 months preceding the survey	Total number of children age 6-59 months

2.2	Deworming among children under age 5	Number of children age 12-59 months who given an anthelmintic drug in the 6 months preceding the survey	Total number of children age 12-59 months
3. Women Nutrition			
3.1	Acute Malnutrition prevalence	Number of women age 15 - 49 years who fall below MUAC 230 mm	Total number of women age 15 to 49
3.2	Moderate Acute Malnutrition prevalence	Number of women age 15 - 49 years who fall between below MUAC 230 mm and greater than or equal to 180 mm	Total number of women age 15 to 49
3.3	Severe Acute Malnutrition prevalence	Number of women age 15 - 49 years who fall below MUAC 180 mm	Total number of women age 15 to 49
4. Child Health			
4.2	Measles immunization coverage	Number of children age 9 to 59 months who received measles vaccine before the survey	Total number of children 9 to 59 months
4.5	Prevalence of diarrhea among children under age 5 years	Number of children under age 5 years who had diarrhea in the last two weeks	Total number of children under age 5 years
4.6	Diarrhoea treatment with oral rehydration salts (ORS) and zinc	Number of children under age 5 years with diarrhea in the previous 2 weeks who received ORS and Zinc	Total number of children under age 5 years with diarrhea in the previous 2 weeks
4.7	Prevalence of fever among children under age 5 years	Number of children under age 5 years who had fever in the last two weeks	Total number of children under age 5 years
4.8	Treatment of fever with ACT	Number of children under age 5 years who had fever in the last two weeks who were treated with ACT	Total number of children under age 5 years with fever in the previous 2 weeks
S.N	**Indicators**	**Numerator**	**Denominator**
5.1	Household availability of mosquito nets	Number of households with (a) at least one mosquito nets (b) at least one mosquito nets for every two people	Total number of households surveyed
5.2	Children under age 5 who slept under a mosquito net	Number of children under age 5 years who slept under a mosquito net the previous night	Total number of children under age 5 who spent the previous night in the interviewed households
6. Water and Sanitation			
6.1	Household water treatment	Number of household treattreat drinking water	Total number of households
6.2	Use of handwashing location	Number of household with handwashing location / facility	Total number of households
6.3	Safe disposal of child's faeces	Number of children age under three years of age whose last stools were disposed of safely	Total number of children age 0-33 years
7. Food Security			
7.1	Household Dietary Diversity	Total number of food groups consumed by members of the household.	Total number Households (percentage of households)
7.2	Woman's Dietary Diversity	Number of women age 15 - 49 years consuming foods from more than 4 dietary groups during the day before the survey	Total number of women age 15 to 49 (percentage of households)
7.3	Livelihood Coping Strategy index	Number of households using livelihood based coping strategies during the 30 days prior to survey in situations in which they did not have access to enough food or enough money to buy food	Total number of Households per livelihood coping strategies category (percentage of households)
7.4	Reduce Coping Strategy Index (rCSI)	Number of households using five short-term (last 7 days) food based coping strategies in situations in which they did not have enough food or enough money to buy food	Total number of Households/average (percentage of households, mean)
7.5	Food Consumption Score (FCS)	Number of households categorized as consuming during the 7 days before the survey different type of food groups weighted according to their nutrition value.	Total number of Households per food consumption group (percentage of households)
7.6	Food Expenditure Share (FES)	Number of households categorized as expending certain proportion of their income on food prior to the survey.	Total number of households per FES group (percentage of households)

7.7	Food Security Status	Number of households that are food secure, marginally food secure, moderately food secure and severely food secure using combination of composite indicators (FCS, FES, Livelihood coping) through the CARI[29]	Total number of households per CARI group (percentage of households)
8. Infant & Young Child Feeding			
8.1	Children ever breastfed	Number of children 0-23 (born in the last 24) months who were ever breastfed	Total number of children aged 0-23 months
8.12	Early initiation of breastfeeding	Number of children 0-23 months who were put to the breast within the first hour of birth	Total number of children aged 0-23 months
8.3	Bottle feeding	Number of children 0–23 months of age who were fed with a bottle during the previous day	Total number of children aged 0-23 months
8.4	Exclusive breastfeeding	Number of infants 0-5 months who received breast milk the previous day (in the past 24 hours) and did not receive any other foods or liquids during the previous day	Total number of infants aged 0-5 months
8.5	Predominant breastfeeding under 6 months	Number of Infants 0–5 months of age who received breast milk as the predominant source of nourishment during the previous day	Total number of infants aged 0-5 months
8.6	Continued breastfeeding (at 1 year)	Number of children 12–15 months of age who received breast milk during the previous day	Total number of children aged 12-15 months
8.7	Continued breastfeeding at 2 years	Number of children 20–23 months of age who received breast milk during the previous day	Total number of children aged 20-23 months
8.8	Age appropriate Breastfeeding	Number of Infants 0–5 months of age who received only breast milk during the previous day and Children 6–23 months of age who received breast milk, as well as solid, semi-solid or soft foods, during the previous day	Total number of children aged 0-23 months
8.9	Introduction of solid, semi-solid or soft foods	Number of infants 6–8 months of age who breastfed and also received solid, semi-solid or soft foods during the previous day	Total number of children aged 6-8 months
8.10	Minimum Dietary Diversity	Number of children 6–23 months of age who received foods from ≥4 food groups[30] during the previous day	Total number of children aged 6-23 months
8.11	Minimum Meal Frequency	Number of breastfed and non-breastfed children 6–23 months of age who received solid, semi-solid or soft foods the minimum number of times[31] or more during the previous day	Total number of breastfed children aged 6-23 months
8.12	Minimum Acceptable Diet	Number of breastfed and non-breastfed children 6–23 months of age who had at least the minimum dietary diversity and the minimum meal frequency during the previous day	Total number of breastfed children aged 6-23 months

[29] CARI was calculated using the food consumption score, share of food expenditure and coping strategies. The CARI guideline is available at: https://resources.vam.wfp.org/sites/default/files/CARI%20Guidance_2nd%20ed.pdf

[30] Dietary diversity is computed based on 7 food groups as recommended by WHO (2008b) which comprise of: grains, roots and tubers; legumes and nuts; dairy products; flesh foods (meat, fish, poultry and organ meats); eggs; vitamin-A rich fruits and vegetables other fruits and vegetables. Consumption of any amount of food from each food group is sufficient to count except if a food item was only used as a condiment.

[31] Minimum dietary diversity is defined as: 2 times for breastfed infants 6–8 months old; 3 times for breastfed children 9–23 months old and 4 times for non-breastfed children 6–23 months old (WHO, 2008a). "Meals" include both meals and snacks (other than trivial amounts) as reported by the respondents.

Annex 2 – JANFSA Questionnaire

IDENTIFICATION

Date of interview: |__|__| / |__|__| / 2017 *day month* **Enumerator's name:** _____ **Enumerator's code |__|__|** **State: _____ Senatorial zone** **Local Government Area (LGA): |__|** **EA code/name: |__|** **1= Rural 2=Urban (Will be Recoded) |__|**	**GPS COORDINATES (At the end of the ODK form)** **a)** Latitude(N/S) |__|__|.|__|__|__|__|__| **b)** Longitude(E/W) |__|__|.|__|__|__|__|__| **c)** Altitude |__|__|.|__|__|__|__|__|

I confirm that the questionnaire is fully completed.

Signature of team leader: _____ Date: **|__|__|** / **|__|__|** / 2017
day month

Please read the following consent form:

"My name is_____. I am conducting this survey on behalf of the National Cadre Harmonisé Cell (NPFS, NBPN, NEMA, FMoH, FRD/FMARD, MBNP, FAO, WFP, and FEWS Net). We are assessing the Food Security, Livelihoods, WASH and Protection situation in Borno, Yobe, and Adamawa States. Your household was selected to be part of this survey. I would like to speak to you (and your spouse/partner). The questionnaire will take approximately one hour to complete. Any information that you provide will be kept strictly confidential and will not be shown to other people. This is voluntary and you can choose not to answer any or all of the questions. However, we hope that the research will benefit Nigeria by assisting us to understand better the needs of the people to improve the situation in the future. You will not receive any direct benefit if you join this study, your participation is voluntary. Do you have any questions for me? You may ask questions about this study at any time. May we begin now?

1- HOUSEHOLD COMPOSITION

1.1	Is the **head of household** male or female?	**1**= Male **2** = Female	**|__|**	**1.1a - Age in years**	**|__|__|**
1.2	What is the marital status of the head of the household?	**|__|**		1 = Single 2 = Married/Living as partner 3 = Separated/ Divorced 4 = Widow or widower	
1.3	Does the head of household know how to read and write? (In any language)			0= No 1= Yes	
1.4	How many people live permanently in the household?			**|__|**	
1.5	How many children from 6 to 59 months live in your household?			**|__|**	
1.6	How many children aged 6 to 59 months are currently in your household?			**|__|**	
1.7	What is the household type?	**|__|**		1. IDPs in Camps 2. IDPs in Host community 3. IDPs in informal settlement 4. Host community/Permanent resident → **skip to 2.14** 5. Returnees → **skip to section 3** 6. Other, specify: _____	
1.8	If IDPs, what is the origin (LGA/State) of respondent's household?	**|__|**		1=Adamawa (list all LGAs in State) 2=Borno (list all LGAs in State) 3=LGAs of Yobe (provide full list of LGAs) 5=Other (specify): _____	
1.9	When did your household arrive in this LGA?			**|__|__|**(Choose year)	
1.10	Do household members/relatives/friends still remain in your place of origin?			0= No 1= Yes	**|__|**
1.11	Have you tried to return to your place of origin in the past three months?			0= No 1= Yes	|__|
1.8	In the past 6 months, has your household hosted IDPs?			0 = No ⇒ If No go to next section 1 = Yes	|__|

1.13	Are these people still living in your household?	0 = No 1 = Yes	|__|
1.14	Is the Household concerned with the Nutrition part? FILTER QUESTION	0 = No 1 = Yes	|__|

2 - PROTECTION				
2.1	How would you describe the situation in the area in which you are now living (camp/community/town) with regard to your safety and the safety of your family?		1=Good: There are no threats to your safety/family's safety 2=Some concern: There are occasional threats to your safety/family's safety 3=Poor: There are frequent threats to your safety/family's safety 4=Very bad: There are constant threats to your safety/family's safety	
2.2	If the answer to the above question is (2, 3 or 4), describe the threats:		1=Physical violence 2=Rape 3=Abduction 4=Killings 5=Limitations on movement (e.g. check points, mines) 6=House, land or property destruction 7. Other (specify): _____	
2.3	Who are mainly exposed to these threats?		1.=Men 2=Women 3=Girls 4=Boys 5=People from certain groups (specify) _____	
2.3.1	Were you or your family members exposed to these threats?		1= Yes 0=No **Skip to 3.5**	
2.3.2	1 = When in IDP camp 2 = When at distribution site 3 = When accessing farm land 4 = When herding livestock	|__| |__| |__| |__|	5 = When accessing markets 6 = When collecting water 7 = When collecting firewood	|__| |__| |__|
2.4	Are these threats or fear of these threats preventing you or your family members from accessing assistance? E.g. registration or distribution sites		|__|	1= Yes 0=No
2.5	What is the relation between IDPs and the host community?		1=Good 2=Very Good 3= Poor 4=Very Poor **IF 1 or 2 skip to section 4**	
2.6	If the relations are poor/very poor, what type of tension exists?		1=Ethnicity/religion based 2=Between displaced people/refugees and host population 3=Between different areas of people's origin 4=Between recipients of humanitarian assistance and non-recipients 5=Other (specify) _____	
3 - FOOD CONSUMPTION AND FOOD SOURCE				
3.1	How many meals did the adults (**18+**) in this household eat **yesterday**?		|__| **Number of meals**	

3.2	How many meals did the members of the household between (**6-17**) eat **yesterday**?	|__| **Number of meals**
3.3	How many meals did the children (**0-5**) in the household eat **yesterday**?	|__| **Number of meals**
3.4	What is your favourite cereal between MILLET and SORGHUM?	1= Millet 2 =Sorghum 3 = None of the two
3.5	What is your favourite cereal between MILLET and MAIZE?	1= Millet 2 =Maize 3 = None of the two
3.6	What is your favourite cereal between MAIZE and SORGHUM?	1= Maize 2 =Sorghum 3 = None of the two

	Focus on food consumed by the household	**3.7-** In the last 24 hours (from this time yesterday to now) did your household consume food from any these food groups?	**3.8** - Over the last 7 days, how many days did your household consume the following foods?	**3.9** - What was the main source of the food in the past 7 days?
1	**Cereals, grains, roots and tubers:** rice, pasta, bread, sorghum, millet,maize, fonio, potato, yam, cassava, white sweet potato	|_____|	|_____|	|_____|
2	**Legumes / nuts:** beans, cowpeas, peanuts, lentils, nut, soy, pigeon pea and / or other nuts	|_____|	|_____|	|_____|
3	**Milk and other dairy products:** fresh milk / sour, yogurt, cheese, other dairy products (Exclude margarine / butter or small amounts of milk for tea / coffee)	|_____|	|_____|	|_____|
4	**Meat, fish and eggs:** goat, beef, chicken, pork, blood, fish, including canned tuna, escargot, and / or other seafood, eggs (meat and fish consumed in large quantities and not as a condiment)	|_____|	|_____|	|_____|
	If 0 skip to question 5			
4.1	**Flesh meat:** beef, pork, lamb, goat, rabbit, chicken, duck, other birds, insects	|_____|	|_____|	|_____|
4.2	**Organ meat:** liver, kidney, heart and other organ meats	|_____|	|_____|	|_____|
4.3	**Fish/shellfish:** fish, including canned tuna, escargot, and / or other seafood (fish in large quantities and not as a condiment)	|_____|	|_____|	|_____|
4.4	**Eggs**	|_____|	|_____|	|_____|
5	**Vegetables and leaves:** spinach, onion, tomatoes, carrots, peppers, green beans, lettuce, etc.			
	If 0 skip to question 6			
5.1	**Orange vegetables (vegetables rich in Vitamin A):** carrot, red pepper, pumpkin, orange sweet potatoes	|_____|	|_____|	|_____|
5.2	**Green leafy vegetables:** spinach, broccoli, amaranth and / or other dark green leaves, cassava leaves	|_____|	|_____|	|_____|
6	**Fruits:** banana, apple, lemon, mango, papaya, apricot, peach, etc.	|_____|	|_____|	|_____|
	If 0 skip to question 7			
6.1	**Orange fruits (Fruits rich in Vitamin A):** mango, papaya, apricot, peach	|_____|	|_____|	|_____|
7	**Oil / fat / butter:** vegetable oil, palm oil, shea butter, margarine, other fats / oil	|_____|	|_____|	|_____|
8	**Sugar, or sweet:** sugar, honey, jam, cakes, candy, cookies, pastries, cakes and other sweet (sugary drinks)	|_____|	|_____|	|_____|
9	**Condiments / Spices:** tea, coffee / cocoa, salt, garlic, spices, yeast /baking powder, lanwin, tomato / sauce, meat or fish as a condiment, condiments including small amount of milk / tea coffee.	|_____|	|_____|	|_____|
	FOOD SOURCES CODES			
	1 = Own production (crops, animal) 2 = Exchange of food for labor 3 = Gifts from neighbors/relatives	4 = Market (purchase on cash and credit) 5 = Borrowing 6 = Food assistance	7 =Hunting 8=Fishing 9=Gathering	

4 - (HOUSING & FACILITIES)								
4.1	Does your household **own** any of the following assets? (only if functional) **0 = No 1 = Yes** **WHILE ASKING, ALSO OBSERVE AND RECORD**	**A**	Beds	|__|	**I**	Agricultural tools (hoe/spade/cutlass)	|__|
		B	Sponge mattress	|__|	**J**	Seed for planting	|__|
		C	Table/chair	|__|	**K**	Wheel barrow	|__|
		D	Radio	|__|	**L**	Mosquito net	|__|
		E	Television	|__|	**M**	Cash, other savings (jewellery)	|__|
		F	Car, taxi	|__|	**N**	Motorcycle	|__|
		G	Cupboard/dresser	|__|	**O**	Bicycle	|__|
		H	Cell/Mobile phone	|__|	**P**	Cart (ox cart etc)	|__|
					Q	Tricycle	

5 – AGRICULTURE PRODUCTION					
5.1	Do you have access to farming land where you can grow any type of food /crops?	**0**= No **1**= Yes		**|__| If no skip to 5.14**	
5.2	How do you own this land?	1= Private ownership 2 = Rented/leased land 3 = Communion/group land	4 = Crop-shared 5 = Land allocated to IDPs by host community	**|__| if 1 go to 5.2.1**	
5.3	What is the size of this farmland? **Choose option**	1=less than 0.5 HECTARES; 2=between 0.5 to 2 HECTARES; = more than 2 HECTARES 999 = I don't know			
5.4	Has the land size cultivated changed compared to last year?	1= Increased 2 = Decreased	3 = Remained about the same 9 = Not applicable	|__|	
5.4.1	Do you have access to agricultural equipment (for production or product transformation)?	1 = Yes, I own the equipment 2 = Yes, a household member owns the equipment 3 = Yes, I am part of an Farmers Organisation that owns the equipment 4 = Yes, I can rent the equipment for a fee 5 = No		|___|	
5.5	Did your household practice agriculture this season (2017)?	0 = No 1 = Yes ⇒ **5.7**		|__|	
5.6	If No, why? (main reason) ⇒ Next section	1 = No access to land 2 = Lack of seed / tools 3 = Lack of manual labor 4 = poor soils 5 = Shortfall / Insufficient rainfall 6 = Lack of financial resources 7 = Never grown / have other sources of income 5 = Insecurity 9 = Other (specify)			|__|
5.7	**IF 5.5 = 1** How will be the harvest of this agricultural campaign? TO BE COMPARED WITH LAST YEAR	|___|	1 = Better 2= The Same 3= Less		
5.8	The harvests resulting from this campaign could cover how many consumption months?	|___|	In month		
5.81	The last year harvest covered how many months? [Zero if no harvest]	|___|	In month		
5.9	Are you going to do the next off-season campaign [December 2018 – March 2019]?	|___|	0 = No 1 = Yes		
5.10	If No, why? (main reason) ⇒ Next section	1 = No access to land 2 = Lack of seed / tools 3 = Lack of manual labor 4 = poor soils 5 = Shortfall / Insufficient rainfall 6 = Lack of financial resources 7 = Never grown / have other sources of income 5 = Insecurity 9 = Other (specify)			|__|
5.11	What are the 2 MAJOR CEREALS food crops grown by the household during 2017 cropping season? Use the codes below	**5.11a**	|__|		
		5.11b	|__|		
6=Maize 9=Rice 10=Sorghum	11=Millet 8=Acha (Hungry rice)				
5.8		**5.8a**			

	What are the 2 MAJOR cash crops grown by the household during 2016 cropping season? Use the codes below	**5.8b**	

1=Yam 2=Cassava 3=Potatoes 4=Sweet potatoes 5=Irish potato	6=Maize 7=Wheat 5=Barley 9=Rice 10=Sorghum	11=Millet 8=Acha (Hungry rice) 16=Groundnut 17=Egusi/Melon	13=Beans 14=Cowpea 15=Soybean 16= Any

5.13	What was the main source of seeds?	1= Purchase 2=Own stock 3=Loan 4=FAO 5=Government 6=NGO 7= Red Cross 5=Gift	|___|

5.14	What are the **two main constraints** your household has experienced this year in agricultural production? Provide up to **two constraints** and rank in order of negative impact on livelihoods – start with the constraint with the largest negative impact.	1. |__||__| 2. |__||__|

5.15	Does your household own any livestock (cattle, small ruminants or poultry)?	0= No 1= Yes	|__| **If no skip to 5.19**

5.16	If Yes, What type of breeding are you practicing?	|___|	1= Sedentary livestock breading 2 = Transhumant stock breeding

		Now	Same period last year
5.15	What are the **two main constraints** your household has experienced this year in livestock breeding? Provide up to **two constraints** and rank in order of negative impact on livelihoods – start with the constraint with the largest negative impact.		1. |__||__| 2. |__||__|

5.19	Does the household practice any fishing or fish farming?	0= No 1= Yes	|__| **If no Skip to 5.21**
5.20	What are the **two main constraints** your household has experienced this year in fishing? Provide up to **two constraints** and rank in order of negative impact on livelihoods – start with the constraint with the largest negative impact.		1. |__||__| 2. |__||__|

	Codes for agricultural /farming/livestock/Fishing constraints: 1 = Insecurity 2 = Lack of seeds	3 = Low soil fertility 4 = Pests and diseases 5 = Lack of cash/money 6 = Lack of land	7 = Lack of rain/delayed rainfall 5 = High costs for agricultural inputs 9 = High costs for labour	10 = Lack of access to credit, collateral 11 = Lack of storage facilities 8 = Lack of animal health staff 13= Lack of animal Feed//Fodder 14 = Lack of access to market 15= Lack of fishing inputs 16= Fish diseases

6– INCOME/LIVELIHOOD SOURCES AND DEBTS

6.1	How many household members are contributing or have contributed to the household's income in the past three months?	|__||__|

6.2 What are the **3 main income sources** (report maximum 2) of the household for the **last 3 months**? in order of importance, using the activity codes below

Use proportional piling or divide the pie method to estimate relative contribution from each income source to total household income (both cash and in-kind).

	Income source (Rank activity)	**Code** (Use codes on the right)	Using proportional piling method, estimate the relative contribution to total income of each activity (%)	Who is involved in terms of sex? 1. Male(s) 2. Female(s) 3. Both male & female 4. Children
6.2a	**Main** income activity	|__|__|	|__|__|__|	|__|
6.2b	**Second** income activity	|__|__|	|__|__|__|	|__|
	Third income activity	|__|__|	|__|__|	|__|
6.2c	**TOTAL**		**100%**	

1 = Agriculture (cash, crop, gardening) 2 = Livestock 3= Fishing 4= Hunting/gathering	7 = Skilled labour (construction, electrician, etc.) 5 = Handicrafts/artisanal work 9 = Selling of natural resources (charcoal, grass, firewood, wild food.)	8 = Petty trade, street vending (including stall/booths) 13 = Begging 14 = Gift/Aid/Assistance 15 = Trade/Commerce

5= Remittance 6= Unskilled wage labour	10. Transport/motorcycle business (operating taxi, keke (tuk-tuk) 11. Daily/common labourer (agriculture) Salaries, wages (employees)	16 = Other (specify): _____ 17= No other income activity

6.4	Have you taken any credit in the **last 3 months**?		**0**= No → **Skip to Section 5** **1**= Yes	|_|_|
6.5	**If "yes"** what was the **main reason for new debts or credit?**	**1**= To buy food **3**= To pay school, education costs **5**= To pay fines/tax **7**= To buy or rent land/dwelling **9** = To buy fuel **99**= No loan/debt taken out	**2**= To cover health expenses **4**= To pay other loans **6**= To buy agricultural inputs/tools **5**= To pay for ceremonies/donations **10**= Other (specify)_____	|_|_|_|
6.6	How much of the loan do you expect to be able to repay during the next 6 months?	1	No repayment possible	|_|_|
		2	Less than ½ possible	
		3	More than ½ possible	
		4	Half (50%) possible	
		5	Full repayment possible	
		6	Already repaid	

7– EXPENDITURES			
		7. 1 - Did you purchase any of the following food items during the **last 30 days** for domestic consumption? If **'no'**, enter '0' and proceed to next food-item. If '**yes**', ask the respondent to estimate the total cash and credit expenditure on the item for **the 30 days.** *(register the expenses according to local currency)*	**7. 2 -**During the **last 30 days** did your household consume the following foods **without purchasing** them? If so, estimated the value of non-purchased food items consumed during **the last 30 days**
		(Naira)	**(Naira)**
1.	Cereals (maize, rice, sorghum, wheat, bread)	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |
2.	Tubers (sweet potatoes, cassava)	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |
3.	Pulses (beans, peas, groundnuts)	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |
4.	Fruits & vegetables	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |
5.	Fish/Meat/Eggs/poultry	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |
6.	Oil/fat/groundnut oil/butter	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |
7.	Milk/cheese/yogurt	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |
5.	Sugar/Salt/Spices	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |
9.	Tea/Coffee	| __ || __ || __ || __ || __ |	| __ || __ || __ || __ || __ |

7.3 - Did you purchase the following items during the **last 30 days** for domestic consumption? ***If none, write 0 and go to next item***		**7.4 -** Estimated expenditure during the **last 30 days** *(register the expenses according to the currency in which it was done)*	**7.5 -** In the past **6 months how** much money have you spent on each of the following items or service? ***Use the following table, write 0 if no expenditure.***		**7.6 -** Estimated expenditure during the **last six months**
		(Naira)			**(Naira)**
10.	Kolanut/Tobacco	|__||__||__||__||__|	**19.**	Medical expenses, health care	|__||__||__||__||__|
11.	Soap (powder/ detergents)	|__||__||__||__||__|	**20**	Clothing, shoes	|__||__||__||__||__|
8.	Transport	|__||__||__||__||__|	**21**	Education, school fees, uniform, etc.	|__||__||__||__||__|
13.	Fuel (firewood/charcoal etc.)	|__||__||__||__||__|	**22**	Debt repayment	|__||__||__||__||__|
14.	Water	|__||__||__||__||__|	**23.**	Celebrations / social events	|__||__||__||__||__|
15.	Electricity/Lighting	|__||__||__||__||__|	**24.**	Agricultural seeds/tools	|__||__||__||__||__|
16.	Communication (phone)	|__||__||__||__||__|	**25.**	Savings	|__||__||__||__||__|
17.	Rent	|__||__||__||__||__|	**26.**	Constructions/house repairs	|__||__||__||__||__|
15.	Other (specify): _____	|__||__||__||__||__|	**27.**	Other long term expenditure (specify): _____	|__||__||__||__||__|

8 – SHOCKS			
8.1 Has your household experienced any difficulties over the last **3 months**?	0=No→ **Skip to Section 8** 1=Yes		|__|
If so, what are the **3 most significant ones** by order of importance? **Do not read options.**	**8.11** 1st difficulty	**8.8** 2nd difficulty	**8.13** 3rd difficulty
	|__|__|	|__|__|	|__|__|
1 = Loss employment/reduced income **2** = Sickness of HH member **3** = Insecurity/conflict **5** = High food prices **6** = High fuel/transportation prices **7** = Debt **5 =** Irregular/unsafe drinking water	**9 =** Temporary relocation/displacement **10** = Heavy rains/floods **11** = Crop failure 8= Loss of animal (disease, lack of fodder-pasture, looting or theft) 13= Fishing ban **14** = Restricted access to markets **15** = Other shock, specify_____ **16**= No other shocks		

9 – HOUSEHOLD HUNGER SCORE			
9.1	In the past four weeks (30 days), was there ever no food to eat of any kind in your house because of lack of resources to get food?	0 = No → **Skip to 8.2** 1= Yes	|___|
9.1a	How often did this happen in the past four weeks (30 days)?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	|___|
9.2	In the past four weeks (30 days), did you or any household member go to sleep at night hungry because there was not enough food?	0 = No → **Skip to 8.3** 1= Yes	|___|
9.2a	How often did this happen in the past four weeks (30 days)?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	|___|
9.3	In the past four weeks (30 days), did you or any household member go a whole day and night without eating anything at all because there was not enough food?	0 = No → **Skip to Section 13** 1= Yes	|___|
9.3a	How often did this happen in the past four weeks (30 days)?	1= Rarely (once or twice in the past four weeks) 2= Sometimes (three to ten times in the past four weeks) 3= Often (more than ten times in the past four weeks)	|___|

10 – ASSISTANCE				
10.1	Did any member of your household benefit from any **FOOD assistance** in the **past 3 months**? Circle one.		0 = No → **Skip to 13.5** 1 = Yes	|___|
10.2	a. What type of **FOOD assistance** was received? (Top 3 assistance received the last 3 months)		b. Who provides the food assistance? **Choose codes on below.**	
10.3	1. Food for school children (eaten at school or take-home) 2. Food for work / Food for training 4. Free food distributions 5. Cash Based Transfer 6. Other (specify):	|___| |___| |___|	**Codes for assistance provider/source:** 1 = Government 2 = UN agency 3 = NGOs 4 = Religious body 5 = Community 6 = Relative(s)/Friend(s) 7 = Other (specify): _____	|___| |___| |___|
10.11	What are the **TOP 3** priority needs for your household?	1. Health/medical 2. Food 3. Water 4. Shelter 5. Non-food items 6. Education 7. Livelihood support 5. Foods appropriate for children		|___| |___| |___|

Nutrition Data collection form

WE WOULD LIKE TO CONTINUE WITH THE INTERVIEW OF MOTHERS OR CARETAKERS OF CHILDREN UNDER FIVE. FIRST, WE WOULD LIKE TO START WITH SOME QUESTIONS ABOUT HEALTH IN THE RECENT PAST

11 – IDENTIFICATION OF CHILDREN UNDER FIVE					
START WITH THE YOUNGEST CHILDREN 0 TO 59 MONTHS					
11.1	Number of the child from the roster	|___|___|	|___|___|	|___|___|	|___|___|
11.2	Name	_____	_____	_____	_____
11.3	Sex: 1= Male 2= Female	|___|	|___|	|___|	|___|
11.4	Age in completed months	|___|___|	|___|___|	|___|___|	|___|___|
12- HEALTH OF CHILDREN UNDER FIVE					
12.1	**In the past 2 weeks, has (NAME) had any fever?** 0 = No -> 8.04 1 = Yes 9 = Don't know	|___|	|___|	|___|	|___|
12.2	**If yes, has (*NAME*) been taken to a health centre for treatment of fever?** *0 = No 1 = Yes 9 = Don't know*	|___|	|___|	|___|	|___|
12.3	**If no, why not?** 1. Disease not serious 2. Lack of money 3. Health centre too far 4. Other (specify ……..)	|___|	|___|	|___|	|___|

12.4	**In the past 2 weeks, has (*NAME*) had any diarrhoea?** *0 = No -> **8.07** 1 = Yes 9 = Don't know*	|___|	|___|	|___|	|___|
12.5	**If yes, has (*NAME*) been taken to a health centre for diarrhoea?** *0 = No 1 = Yes 9 = Don't know*	|___|	|___|	|___|	|___|
12.6	**If no, why not?** 1. Disease not serious 2. Lack of money 3. Health center too far 4. Other (specify ……)	|___|	|___|	|___|	|___|
12.7	**In the past 2 weeks, has (NAME) had any difficult or rapid breathing with cough?** **0 = No -> 8.11 1 = Yes 9 = Don't know**	|___|	|___|	|___|	|___|
12.8	**If yes, has (*NAME*) been taken to a health centre for cough?** *0 = No 1 = Yes 9 = Don't know*	|___|	|___|	|___|	|___|
12.9	**If no, why not?** 1. Disease not serious 2. Lack of money 3. Health centre too far 4. Other (specify ……)	|___|	|___|	|___|	|___|
12.10	**Has (NAME) ever received measles vaccine?** **0 = No** **1 = Yes (vaccination book seen)** **2= Yes (mother's memory)** **3= Not applicable** **9 = Don't know**	|___|	|___|	|___|	|___|
12.11	**Did (NAME) receive a vitamin A capsule in the past 6 months? (Show mother vitamin A capsule)** **0 = No 1 = Yes 9 = Don't know**	|___|	|___|	|___|	|___|
12.12	**Did (NAME) receive a vitamin A capsule in the past 6 months? (Show mother vitamin A capsule)** **0 = No 1 = Yes 9 = Don't know**	|___|	|___|	|___|	|___|
12.13	**Did (NAME) receive deworming medication in the past 6 months? (Show mother deworming tablet)** **0 = No 1 = Yes 9 = Don't know**	|___|	|___|	|___|	|___|
12.14	**Did (*NAME*) sleep under ITN last night? *(look if the ITN exists)*** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
12.15	**Has (${child_name}) received a vitamin A dose within the last 6 months?** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
12.16	**Has (${child_name}) received a deworming tablet within the last 6 months? SHOW DEWORMING TABLET** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
12.17	**Has (${child_name}) ever had a measles vaccine? Measles vaccine is an injection (shot) in the arm normally given at the age of 9 months or older to prevent him/her from getting measles?** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
12.18	**Has (${child_name}) ever received a polio vaccine (oral dose or injection) either through a campaign or routine care?** **How many doses of polio vaccine has (${child_name}) received in total ?** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
12.19	**Has (${child_name}) and family been displaced in the past year?** **Now I would like to ask you about cleaning up after your child:**	|___|	|___|	|___|	|___|

12.20	**The last time (${child_name}) passed stools, what was done to dispose of the stools?** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
13- ANTHROPOMETRIC MEASUREMENTS OF CHILDREN 6 -59 MONTHS					
13.1	**Number of the child (6-59 months) from the roster**	|___|___|	|___|___|	|___|___|	|___|___|
13.2	**Sex (F or M)**				
13.3	**Date of birth (JJ/MM/AA)**	_/__/__	_/__/__	_/__/__	_/__/__
13.4	**or Age in months**				
13.5	**Weight (0.1 kg)**				
13.6	**Height (0.1 cm)**				
13.7	**Edemas (Yes =Y No=N)**				
13.8	**MUAC (mm)**				
13.9	**Comments / Observations**				
14- ANTHROPOMETRIC MEASUREMENTS OF PLW					
14.1	**Woman in the household rooster**	|___|___|	|___|___|	|___|___|	|___|___|
14.2	**Name of the woman**				
14.3	**MUAC (mm)**				
14.4	**Comments / Observations**				

15 - INFANT AND YOUNG CHILD FEEDING					
15.1	**Please ask the following questions to the mother or primary guardian of the child. Has (${child_name}) ever been breastfeed?** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.2	**How long after birth was (${child_name}) put to the breast?**	|___|	|___|	|___|	|___|
15.3	**Is (${child_name}) still breastfeeding?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
Now I would like to ask you about all liquids (${child_name}) drank yesterday during the day and the night.					
15.4	**Did (${child_name}) drink plain water yesterday during the day and the night?** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.5	**Did (${child_name}) drink infant formula such as SMA, NAN, Lactogen or any other brand of powdered or liquid infant formula? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.6	**How many times yesterday during the day or at night did (${child_name}) consume infant formula?**	|___||___||___||___|			

15.7	**Did (${child_name}) have any other milk such as tinned, powdered, condensed, or fresh animal milk, yogurt, fermented milk or cocoa with milk? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.8	**How many times yesterday during the day or at night did (${child_name}) consume other milks?**	|___||___||___||___|			
15.9	**Did (${child_name}) have any fruit juice or bottled, canned or packaged drink? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.10	**Did (${child_name}) have any tea or coffee? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.11	**Did (${child_name}) have any other liquids such as sugar water or clear broth? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.12	**Did (${child_name}) eat any solid, semi-solid or soft foods yesterday during the day or night?** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.13	**How many times did (${child_name}) eat solid, semi-solid or soft foods yesterday during the day or night?**	|___||___||___||___|			
Now I would like to ask you about the food (name) ate yesterday during the day or the night either separately or combined with other foods					
15.14	**Did (${child_name}) eat: ANY GRAINS, ROOTS OR TUBERS? Any porridge, bread, savory biscuits, rice, millet, acha, wheat, cornmeal, cassava, yam, oats, tuwo, furrah, kunun zaki, kunun tsamiya, kamo, eddoes or potatoes? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.15	**Did (${child_name}) eat: ANY NUTS OR LEGUMES? Any food made from beans, ground peas, benee seed, lentils, soya bean or tofu / awara or other nuts or beans? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.15	**Did (${child_name}) eat: ANY MILK/DAIRY PRODUCTS any cheese, custard, ice cream or other milk products? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.17	**Did (${child_name}) eat: ANY FOOD FROM ANIMAL SOURCES? Meat such as beef, pork, lamb, goat, kilishi, danbun nama, chicken, duck, other bird, suya, fresh or dried fish, seafood, congealed blood, liver, heart or other organ meats (meat gut)? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.18	**Did (${child_name}) eat ANY EGGS? from chicken, duck or other bird (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.19	**Did (${child_name}) eat ANY VITAMIN A RICH FRUIT OR VEGETABLE: ripe mango, ripe pawpaw, carrot, pumpkin, orange fleshed sweet potato, orange fleshed squash or foods made with red palm oil/nut? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
15.20	**Did (${child_name}) eat DARK GREEN LEAFY VEGETABLES? Dark green leafy vegetables in sauce or other dish ? (yesterday during the day and the night) DO NOT INCLUDE FOODS MADE WITH DRIED LEAVES.** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|

15.21	**Did (${child_name}) eat ANY OTHER FRUITS OR VEGETABLES? Any other (fresh or dried) fruits and vegetables? (yesterday during the day and the night)** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
16 - WOMEN'S SECTION					
Now entering data for the woman: (${woman_name}) who is (${woman_age_years}) years old. *Please ensure you are in a quiet space to ask the following questions in privacy.*					
16.1	**Are you (${woman_name}) pregnant now?** ***0 = No 1 = Yes 9 = Don't know***	|___|	|___|	|___|	|___|
16.2	**Are you (${woman_name}) currently breastfeeding?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.3	**Did you receive iron folate during your current/last pregnancy?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
Now I'd like to ask you about everything that you ate or drank yesterday during the day or night, whether you ate it at home or anywhere else. Please include all foods and drinks, any snacks or small meals, as well as all main meals. Remember to include all foods you may have eaten while preparing meals or preparing food for others.					
16.4	**Did you eat? Porridge, bread, savory biscuits, couscous, noodles, rice, millet, acha, wheat, cornmeal, oats, tuwo, furrah, kunun zaki, kunun tsamiya, kamo, eddoes, dalayi, or brabisco?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.5	**Did you eat? White potatoes, white yams, manioc, cassava, yucca, cocoyam, taro or any other foods made from white-fleshed roots or tubers, or plantains?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.6	**Did you eat? Any beans or peas (fresh or dried), Awara (tofu), or lentils or bean/pea products, beans porridge, kosai, moimoi, or bambara groundnut?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.7	**Did you eat? Any groundnut/ peanut or eguzi seed (pumpkin or squash) or tree nut, nut/seed pastes, or beniseed?**	|___|	|___|	|___|	|___|
16.8	**Did you eat? Milk, cheese, yoghurt or other milk products but NOT including butter, ice cream, cream or sour cream?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.9	**Did you eat? Liver, kidney, heart or other organ meats or blood-based foods, including from wild game?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.10	**Did you eat? Beef, pork, lamb, goat, rabbit, wild game meat, chicken, duck or other bird?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.11	**Did you eat? Fresh or dried fish, shellfish or seafood?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.12	**Did you eat? Eggs from poultry or any other bird?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.13	**Did you eat? Baobab leaves, Moringa, Amaranth, Potato leaves or any medium-to-dark green leafy vegetables, including wild/foraged leaves?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.14	**Did you eat? Pumpkin, pumpkin leaves (kabewa), carrots, squash or sweet potatoes that are yellow or orange inside?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|

16.15	**Did you eat? Ripe mango, ripe papaya, cantaloupe (orange melon)?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.16	**Did you eat? Any other type of vegetables such as okro (dried or fresh), yakuwa, karkashi, lalo, or tomato?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.17	**Did you eat? Any other fruits such as apple, avocado, banana, honeydue (green melon), figs, oranges, guava, grapes, peach?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.18	**Did you eat? Ingredients used in small quantities for flavour, such as chilies, spices, herbs, fish powder, tomato paste, flavour cubes (maggi) or seeds?** ***0 = No 1 = Yes***	|___|	|___|	|___|	|___|
16.19	**Did you drink? Unsweetened tea or coffee, clear broth, beer or alcohol?**	|___|	|___|	|___|	|___|

17- ADDITONAL MODULE: MOBILE MONITORING FOLLOW-UP

NOTE FOR THE RESPONDENT: To monitor how conditions evolve over the next year, we would like to follow up with a phone survey every three months for one year. This information will help us understand the situation in your community. The phone survey will be a shorter version of the questions we just asked now and will take about 10 minutes each time. If you accept, we will try to find the best time to call you and if you are not available at that time we will try to find another time that fits your schedule. If you accept, your phone number will be kept secure, meaning we will never share or publish your phone number with any reason. Just as in this survey, we will also anonymize your responses so that it will not be possible to identify you in the survey report.

As compensation for your time, we will also offer you a small amount of phone credit after completing the call. The credit will start with 100 Niara which will increase by 100 Naira every round you participate. So if you completed all 4 survey rounds you will receive 400 Niara for your last round.

17.1	*1.* Are you interested in participating in this survey? -Yes (move to question 0.4) -No (Thank respondent for their time and participation and conclude interview)				
17.2	What is the mobile phone number we can best reach you at?	|||||||||||			
17.3	Please repeat the number so we can confirm that we entered it correctly	|||||||||||			
17.4	What time of the day can you best be reached at?	5 – 11 a.m. |__|	11 – 2 p.m. |__|	1 – 4 p.m. |__|	4 – 7 p.m. |__|
17.5	What language would you prefer we use if we call?	Hausa |__|	Kanuri |__|	English |__|	Other _____
17.6	We would like to use a way of identifying you but would not like to use your name. Do you have or could you propose a nickname we could use to identify you or ask for you on the phone? If no, leave blank and conclude the interview.				

Annex 3: UNICEF and WFP Nigeria Assessment Teams

UNICEF Nigeria
1. Simeon NANAMA, Head of Nutrition
2. Bulti ASSAYE, Nutrition Officer
3. Sanjay KUMAR DAS, Chief of Nutrition, Maiduguri
4. Adamu YERIMA, Information Management Officer
WFP Nigeria
5. Malick NDIAYE, VAM Officer
6. Carrie MORRISON, Head of Nutrition
7. Wuni DASORI, VAM Officer
8. Ahmashah SHAHI, VAM Officer
9. Bakri OSMAN, VAM Officer
10. Martin AHIMBISIBWE, Nutrition Officer
11. Niamkeezoua KODJO, Nutrition Officer
12. Olatunji SONOIKI, VAM Officer
13. Adeyinka TIMOTHY, VAM Officer
14. Henry OKOLI, VAM Officer
15. Ifeoma OMESIETE, VAM Associate
16. Beluolisa UZOWULU, VAM Associate
17. Mercy HARUNA, VAM Associate
18. Immaculata DURU, VAM Associate

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