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# Food Security Monitoring System Report

WFP Sierra Leone Country Office



September 2023

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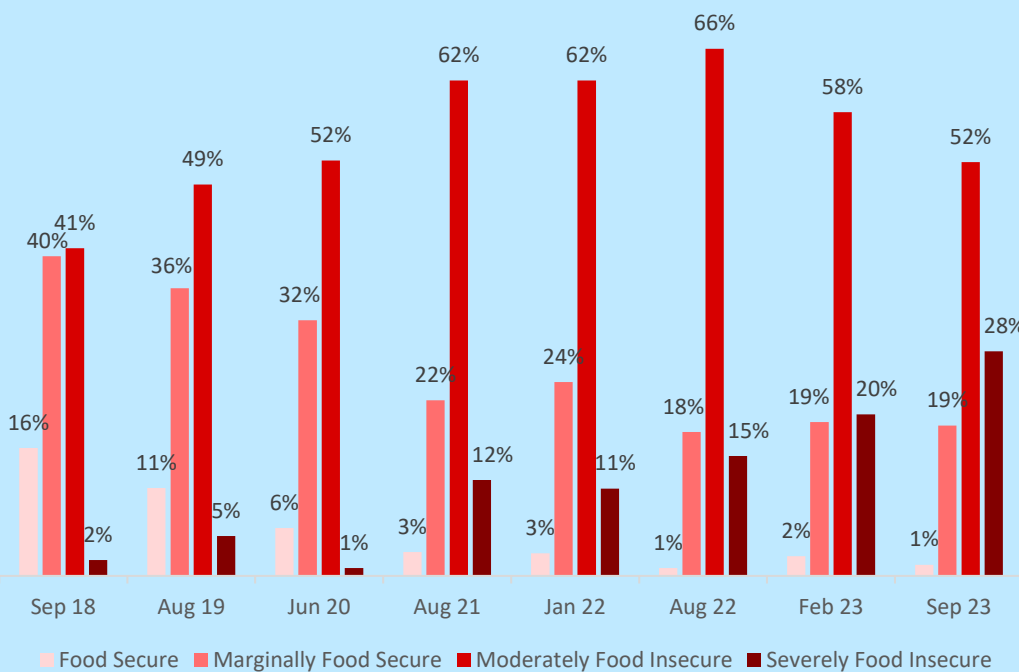
## List of Acronyms

CARI	Consolidated Approach for Reporting Indicators of Food Security
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CSI	Coping Strategy Index
ECMEN	Economic Capacity to Meet Essential Needs
FCS	Food Consumption Score
FSMS	Food Security Monitoring System
GAM	Global Acute Malnutrition
HDDS	Household Dietary Diversity Score
LCSI	Livelihood Coping Strategy Index
MAFS	Ministry of Agriculture and Forestry
MEB	Minimum Expenditure Basket
MoHS	Ministry of Health and Sanitation
MUAC	Mid Upper Arm Circumference
ODK	Open Data Kit
PEMSD	Planning Evaluation Monitoring and Statistics Division
rCSI	Reduced Coping Strategy Index
SMART	Standardized Monitoring and Assessment of Relief and Transitions
StatsSL	Statistics Sierra Leone
VAM	Vulnerability Analysis and Mapping

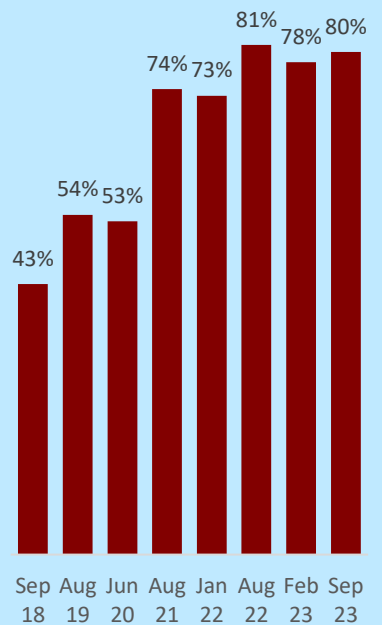
## Key Findings

- Close to one in three households, 2.2 million people (**28 percent**), are severely food insecure today, marking an 8% increase from the Feb 2023 FSMS results. Some **52 percent** are moderately food insecure.
- **71 percent** of the surveyed households reported spending more than **75 percent** of their total expenditure on food, making them extremely vulnerable to any change in prices, and with very limited funds for other essential goods and services.
- The proportion of households that adopted emergency coping strategies was **26 percent**, a **3 percentage points** increase from **23 percent** in August 2022.
- One in four Sierra Leonean households, **24 percent**, fell within the poor food consumption score category, which is a 12-percentage points increase from the **12 percent** reported during the last lean period in August 2022.
- **The profile of a food insecure rural household with agriculture as a source of income**, reflects how smallholder agriculture in Sierra Leone is an economically unviable livelihood.
- **Falaba, Moyamba, Karene** and **Tonkolili** districts have the highest levels of vulnerability across most indicators.

### Sierra Leone Food Security Trends (FSMS)



### Total Food Insecure



## Recommendations

Current levels of food insecurity are mostly due to a lack of access to nutritious food, driven by numerous economic vulnerabilities including high food prices, high food inflation and the continuous depreciation of the local currency, coupled with the root causes of low agricultural productivity among rural households. A further deterioration in the situation can be expected if the following recommendations are not actioned:

- Expand shock responsive social protection programmes, such as School Feeding, and revise transfer values to be in line with current costs of Minimum Essential Needs.
- Provide emergency assistance to the most vulnerable households to safeguard their food and nutritional intake.
- Increase investment in agriculture, targeting smallholders, by providing training in improved practices through agricultural extension workers, and affordable credit facilities in the form of improved seeds, chemical fertilisers and farming tools.
- Expand soil and water conservation farming techniques; soil testing; and link smallholder farmers to agribusinesses to improve access to improved seeds and organic fertilizer.
- Train and support smallholders to adopt climate - smart agriculture practices, particularly assisting smallholder farmers to work in perennial agricultural production systems for year round cultivation.

## Background & Context

The World Food Programme (WFP), in partnership with Ministry of Agriculture and Food Security (MAFS), conducts Food Security Monitoring System (FSMS) surveys. It is conducted bi-annually during the lean season (July-September) and post-harvest (January-March) to monitor the levels of food insecurity across the country. Over the past decade, household food insecurity and vulnerability have deteriorated<sup>1</sup>. Sierra Leone, like many other fragile economies worldwide, has seen a markedly steep decline in the past two years. This downturn is attributed to the adverse effects of the COVID-19 pandemic and the global food crisis ignited by the Russia-Ukraine conflict.

During the period leading up to the data collection, prices of staple food commodities surged in local markets, mirroring the trajectory of national macro-economic indicators. The price of both local and imported rice rose by 39 percent and 53 percent respectively from June 2022 to June 2023. These sharp hikes in commodity food prices were evident in the FSMS results. For many Sierra Leonean households, these potentially forewarn an intensifying and broader food security crisis in the near future. This is especially concerning as household incomes remain static amid rising expenses. In addition to increasing food commodity costs, recent macro-economic trends have also negatively impacted agricultural production. This is due to increasing costs of inputs such as fertilizer, seeds, and high transportation costs to markets. Given the national economic dependence on the agricultural sector —accounting for over half of its GDP— these stressors inevitably heighten food insecurity for most Sierra Leoneans, both in rural and urban areas. However the, lack of alternative economic opportunities in rural regions also add another challenge for households whose income rely on smallholder farming.

## Objectives

The main objective of the FSMS is to provide accurate information about household food security and vulnerability levels in the country twice a year, during post-harvest, and lean seasons. The data collected provides insights at both the national and district levels, to guide targeted short and long-term interventions. The main outcome is to support Sierra Leone's progress towards Sustainable Development Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

## Methodology of FSMS

A total of 6,384 households were surveyed nationwide using a two-tiered sampling method. In the initial phase, Enumeration Areas (EAs) were chosen from the 2015 sampling frame using Probability Proportional to Size (PPS), while the second-tier households were selected using systematic random Sampling. An exhaustive and mutually exclusive list of EAs spanned all 16 districts, detailing the estimated and cumulative number of households. This EA list was supplied by Statistics Sierra Leone based on the 2015 Census. The survey systematically selected 228 EAs proportional to population size, making up 6,384 households.

Twenty-eight households were selected of which fourteen Children aged 6-59 months were selected in every EA within each household, all eligible children, aged 6–59 months in the selected household were screened for Mid-Upper Arm Circumference (MUAC) to determine the Global Acute Malnutrition (GAM) rate including minimum acceptable diets, minimum meal frequency and minimum diet diversity for children between 6-24 months. The following food security & Nutrition indicators were examined and analyzed using the Consolidated Approach and Reporting Indicators to Food Security (CARI)

1. Household Food Consumption Score (FCS)
2. Household Dietary Diversity Score (HDDS)

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<sup>1</sup> Comprehensive Food Security and Vulnerability Assessment 2020.



3. Reduced Coping Strategy Index (r CSI)
4. Livelihood Coping Strategy Index
5. Share of Expenditure on Food
6. Mid-Upper Arm Circumference (MUAC)
7. Minimum Acceptable Diet (MAD)

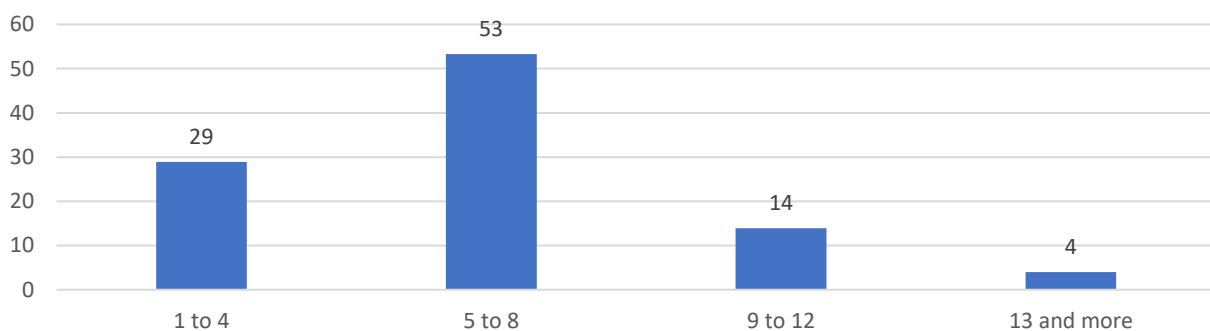
Data was collected digitally using tablets with access to the Open Data Kit (ODK) platform, which housed the digital survey form comprised of food security indicators to guide enumerators when conducting interviews. Data collection was conducted by 120 enumerators and 16 Supervisors who were trained prior to data collection and were supervised by WFP’s Research, Assessment and Monitoring (RAM) team, UNICEF Nutrition and national cooperating partner staff.

## Households’ Demographic Profile

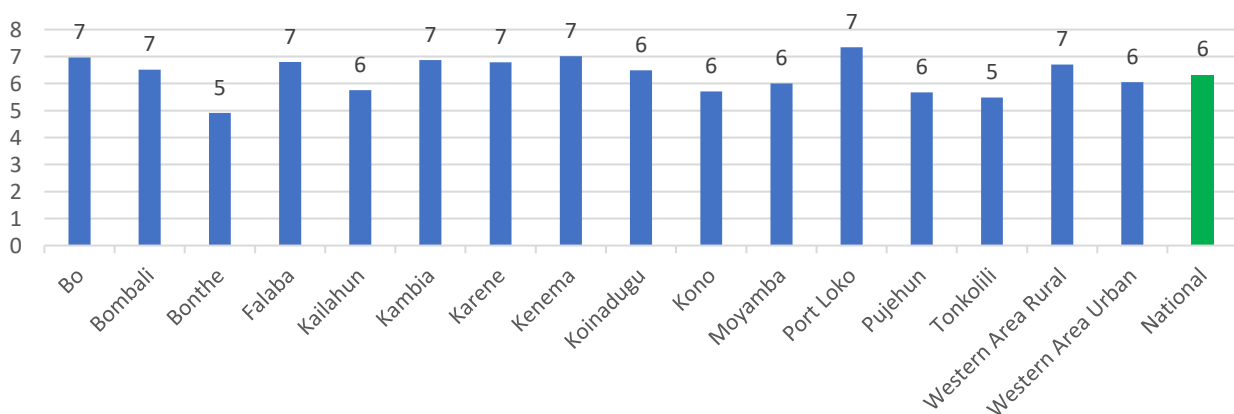
### Household Size

Amongst the 6,384 participant households, the mean household size was 6. When examining the mean household sizes by districts, households in Port Loko, Bo and, Kenema had mean household sizes of 7 and above. On the lower end Bonthe had a mean household size of 4.9.

Household Size Groups %



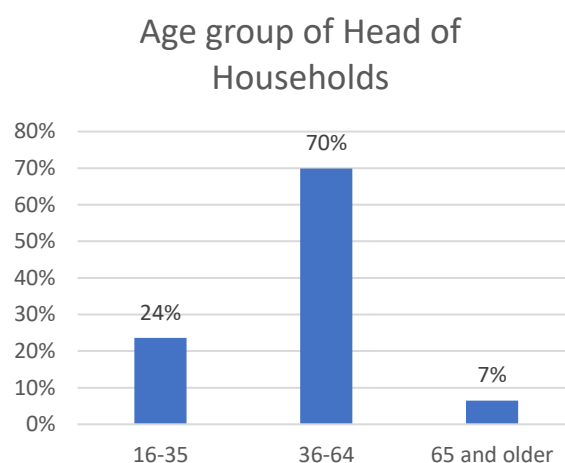
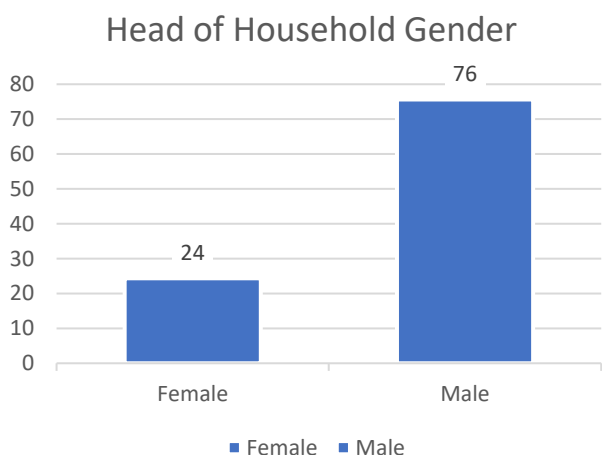
Mean Household Size by Districts



## Head of Household Demographics

Of the surveyed participant households, 76 percent were headed by men and 24 percent by women. A breakdown of heads of households disaggregated by gender and district showed Western Area Urban had the least discrepancy between male and female headed households with values at 65 percent and 35 percent respectively. Falaba had the highest discrepancy with 87 percent of the households headed by men and only 13 percent by women.

Distribution of head of households into age categories showed that 76 percent of the decision makers in the households were between the ages of 35 to 64. This was followed by 24 percent in the ages of 16 to 35, and 7 percent were 65 years and older. Bonthe district had the highest percentage of younger heads of households with 36 percent aged between the ages of 16 to 35. Kenema district had the highest percentage of household heads 65 and older at 10 percent.

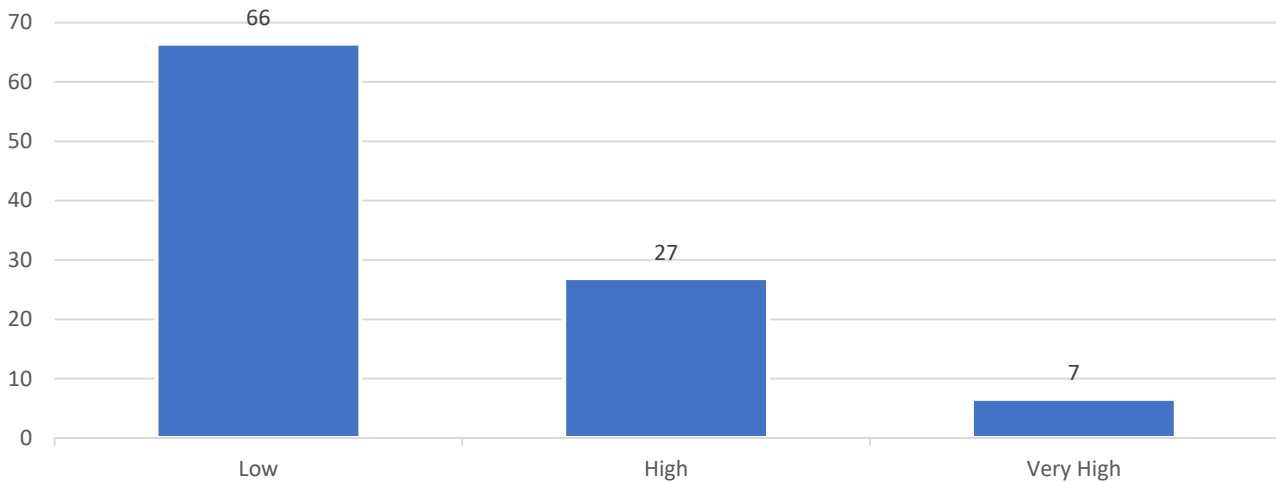


## Dependency Ratio

Dependency ratio is an important indicator often used in the beneficiary selection methodologies for humanitarian assistance. The indicator is calculated by dividing the number of dependents (children and elderly) by the number of able-bodied adults in targeted households. Analysis of the FSMS participant households revealed that 66.5 percent had a low dependency ratio of below 1.5. 27 percent had a high dependency ratio of between 1.5 to 3 and, 6.6 percent had a very high dependency ratio of 3 and above. Breaking this down by districts, Western Area Urban led with 79 percent of its households in the low ratio category. In contrast, Port Loko and Bombali had 10 percent and 9 percent of their households, respectively, in the very high dependency ratio bracket.



## Dependency Ratio of Households %



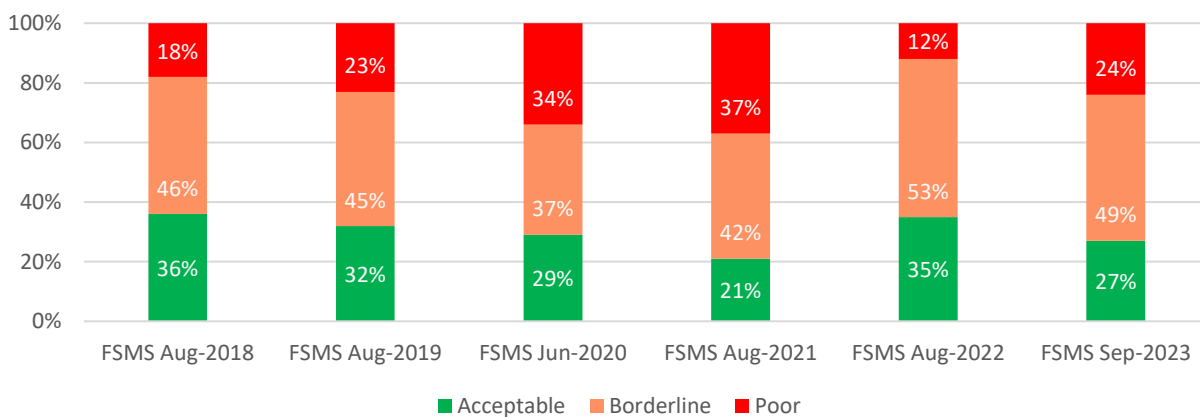
## Food Security Indicators

### Food Consumption Score

The Food Consumption Score (FCS) assesses the quantity and quality of diets consumed by the surveyed households. The indicator allows for measuring the dietary diversity, food consumption frequency and the relative nutritional value of the food items consumed<sup>2</sup>. The FCS is computed from a 7-day recall period and the number of times food items were consumed during these 7 days.

According to results, 24 percent of Sierra Leonean households fall within the poor food consumption score category, which is a 12-percentage points increase since August 2022 (12 percent).

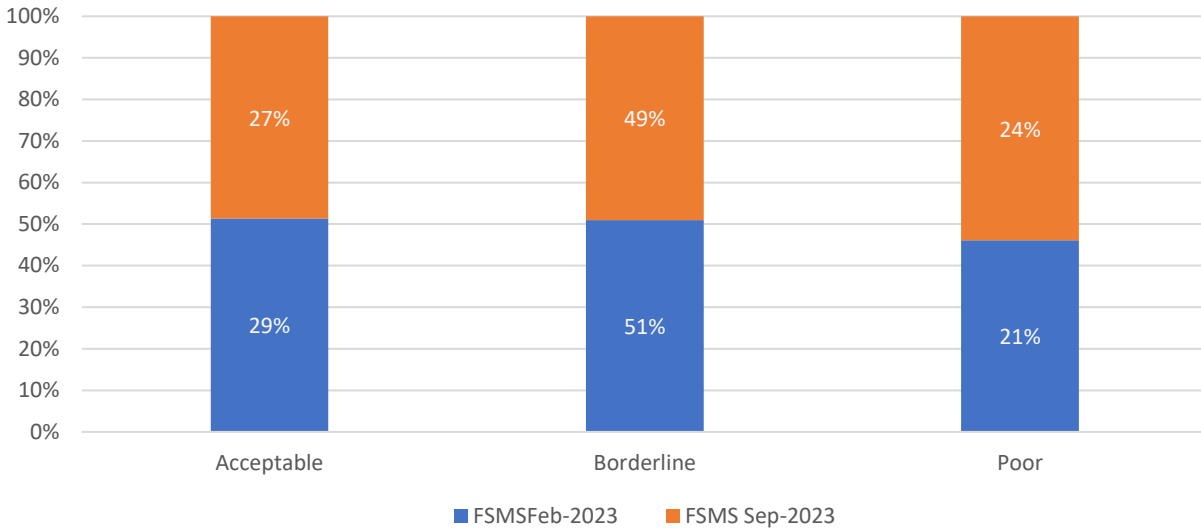
## FCS Lean Season trend



The August 2023 FCS data was compared to levels in January 2023, during the post-harvest season, when 21 percent of households were within the poor category.

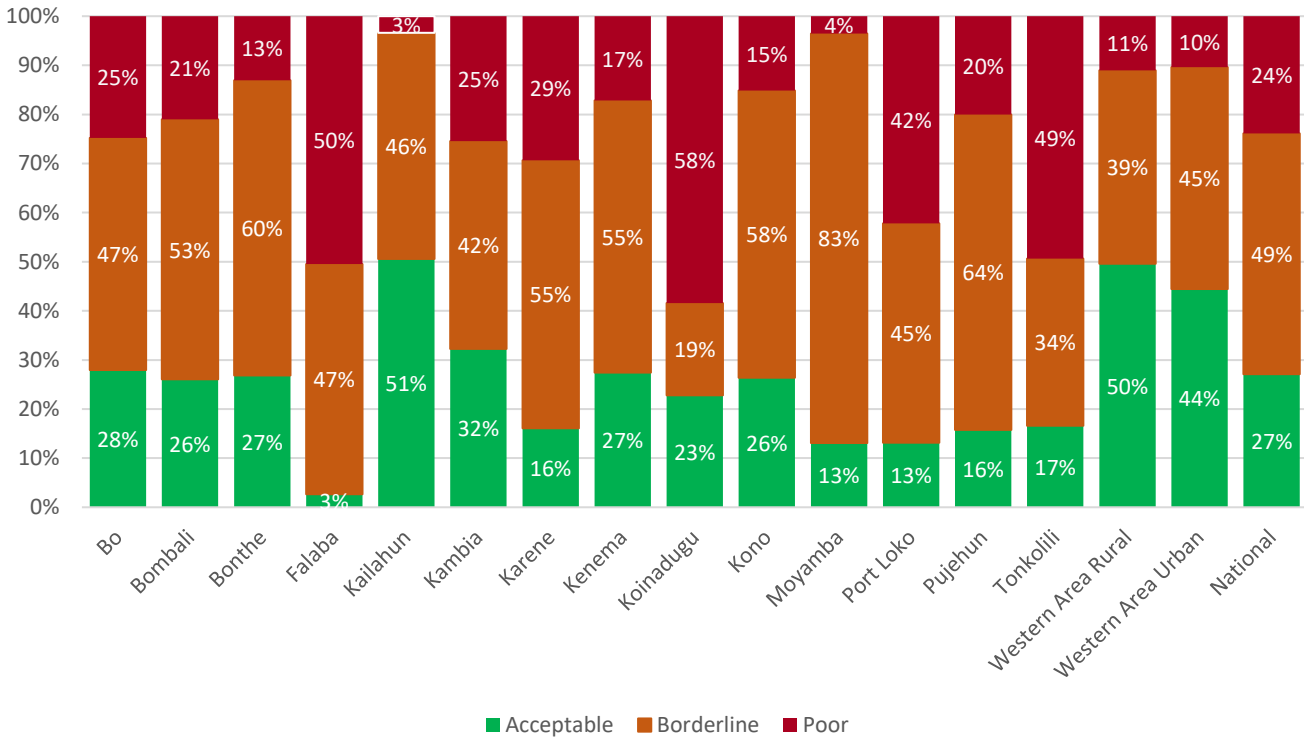
<sup>2</sup> Technical guidance for the Consolidated Approach for Reporting Indicators of Food Security.

### FCS Post Harvest Vs Lean Season



Disaggregating FCS result by districts shows an alarming situation in Koinadugu Falaba, and Tonkolili districts, where more than 50 percent of households fall within the poor food consumption bracket - 58 percent, 50 percent, and 49 percent respectively. Furthermore, Falaba districts also had the smallest proportion of households in the acceptable food consumption score group, at just 2.7 percent. To the contrary, Kailahun (3.5 percent) and Moyamba (3.4 percent) have the lowest proportion in the poor group.

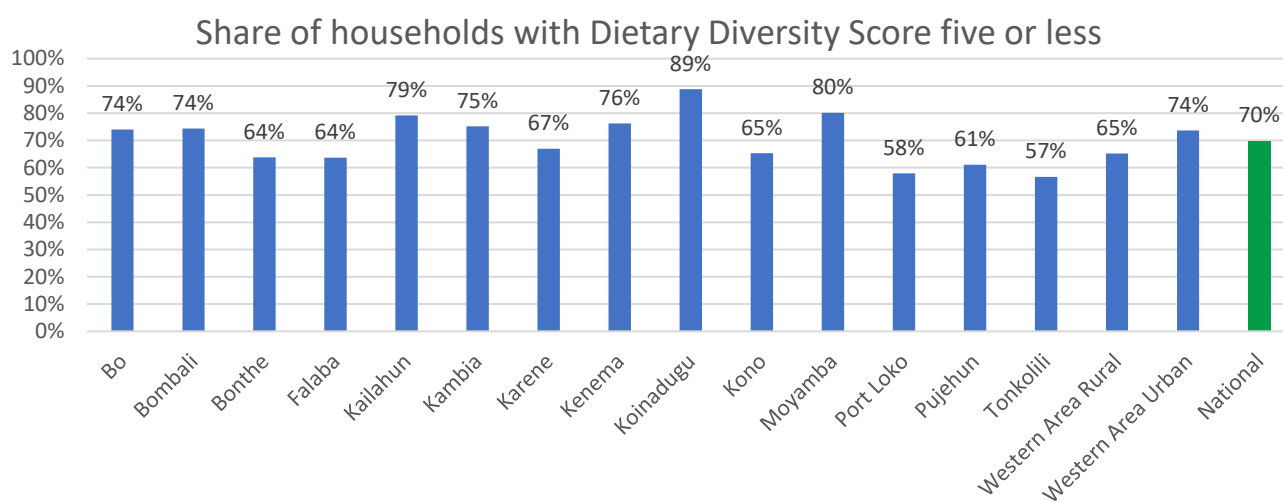
### Food Consumption Score Groups by Districts



## Household Dietary Diversity Score

Household Dietary Diversity Score (HDDS) assesses the number of unique foods consumed by household members during the 24 hours preceding the survey interviews. HDDS can be used as a proxy measurement of household food access and quality of diets consumed<sup>3</sup>.

As a result of the underdeveloped infrastructure, lack of machinery for application of modern agricultural techniques and widespread utilization of traditional smallholder agricultural practices, access to a diverse and nutritionally rich diet is out of reach for majority of Sierra Leoneans. The findings from the survey reflect this reality, with 70 percent of the households reported consuming 5 or less different food items, which is below the acceptable levels. Furthermore, 5 percent of the households reported consuming 3 or less types of food items.



## Reduced Coping Strategy Index

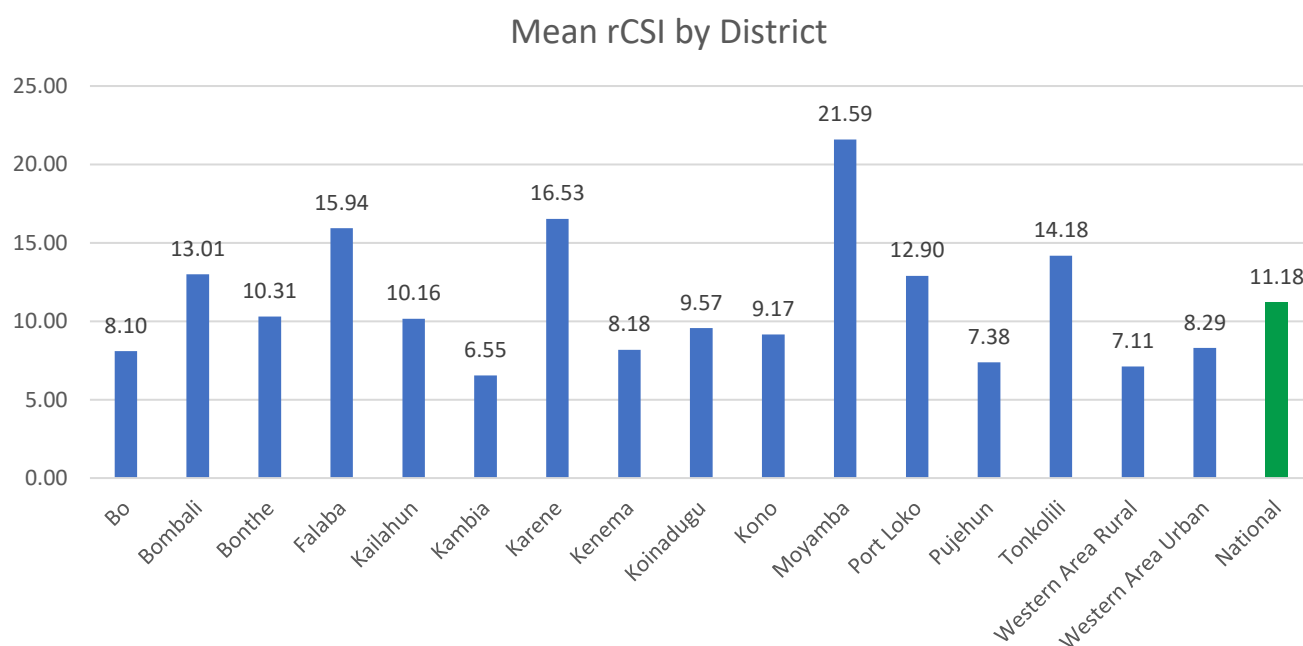
The Reduced Coping Strategy Index (rCSI) is an indicator used to measure the impacts of hardships faced by households on their food consumption habits. The index measures the frequency and severity of the food consumption related coping mechanisms the households engaged in the 7 days reference period prior to the survey<sup>4</sup>. The index is based on five coping strategies as follows:

- i. Rely on less preferred and less expensive food
- ii. Borrow food or rely on help from relative(s) or friend(s)
- iii. Limit portion size at meals
- iv. Restrict consumption by adults for small children to eat
- v. Reduce number of meals eaten in a day

<sup>3</sup> FANTA Project; Household Dietary Diversity Score (HDDS) for Measurement of Household Food Access: Indicator Guide.

<sup>4</sup> Technical guidance for the Consolidated Approach for Reporting Indicators of Food Security.

Higher rCSI scores indicates higher vulnerability levels for the households. In September 2023, the national average rCSI score stood at 11.19. When the results are disaggregated by geographic location, Moyamba, Karene and Falaba district reported the highest average rCSI score of 21.5, 16.5 and 15.9 respectively. Additionally, the districts of Tonkolili, with a score of 14.1, and Port Loko, with 13.0, also exceeded the national average rCSI score of 11.18.



## Livelihood Coping Strategies

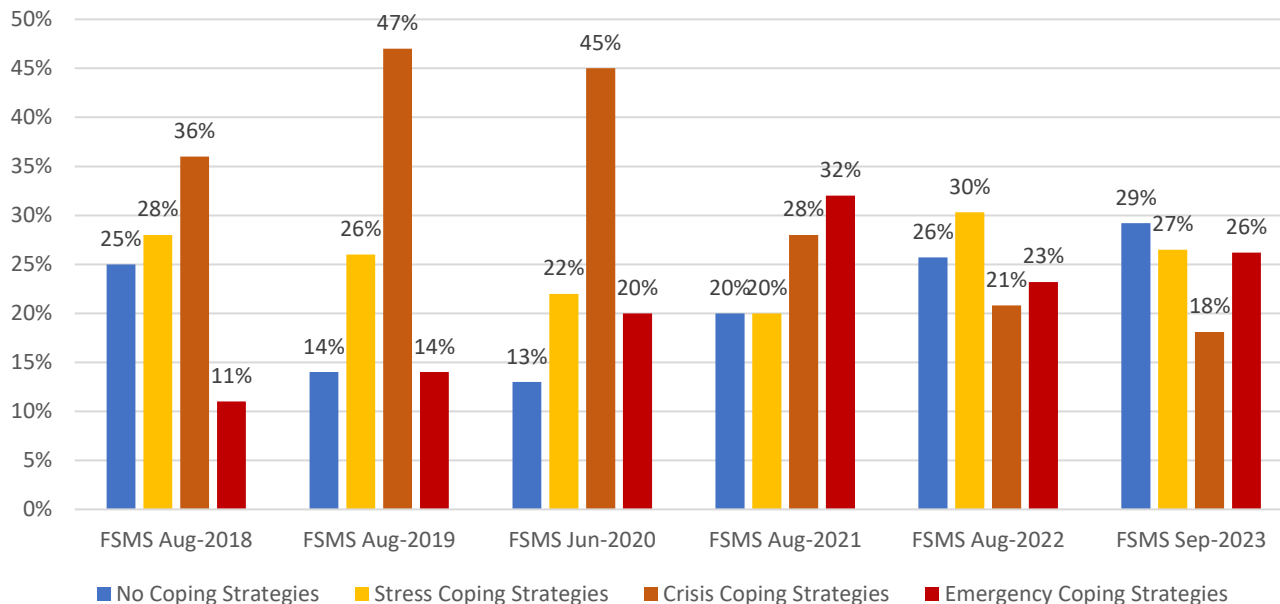
Livelihood coping strategies is an indicator used to understand medium and longer-term coping capacity of households in response to lack of food or lack of money to buy food (or essential needs) and their ability to overcome challenges in the future<sup>5</sup>. The indicator is derived from 10 questions regarding the households' experiences with livelihood stress and asset depletion to cope with food shortages. The questions consist of at least 4 stress coping strategies, 3 crisis coping strategies and 3 emergency coping strategies that are most relevant for the Sierra Leone context. Stress strategies indicate a reduced ability to deal with shocks because of a current reduction in resources or increase in debts. Crisis strategies are often associated with the direct reduction of future productivity. Emergency strategies also affect future productivity but are more difficult to reverse or more dramatic in nature than crisis strategies. The following 10 questions were asked for each category:

Stress	Crisis	Emergency
Sold household assets/goods	Sold productive assets or means of transport	Sold house or land
Purchased food on credit	Reduced health and educational expenditures	Begged
Spent savings	Withdrawn children from school	Sold last female breeding stock, eat seed stocks
Borrowed money		

<sup>5</sup> Technical guidance for the Consolidated Approach for Reporting Indicators of Food Security.

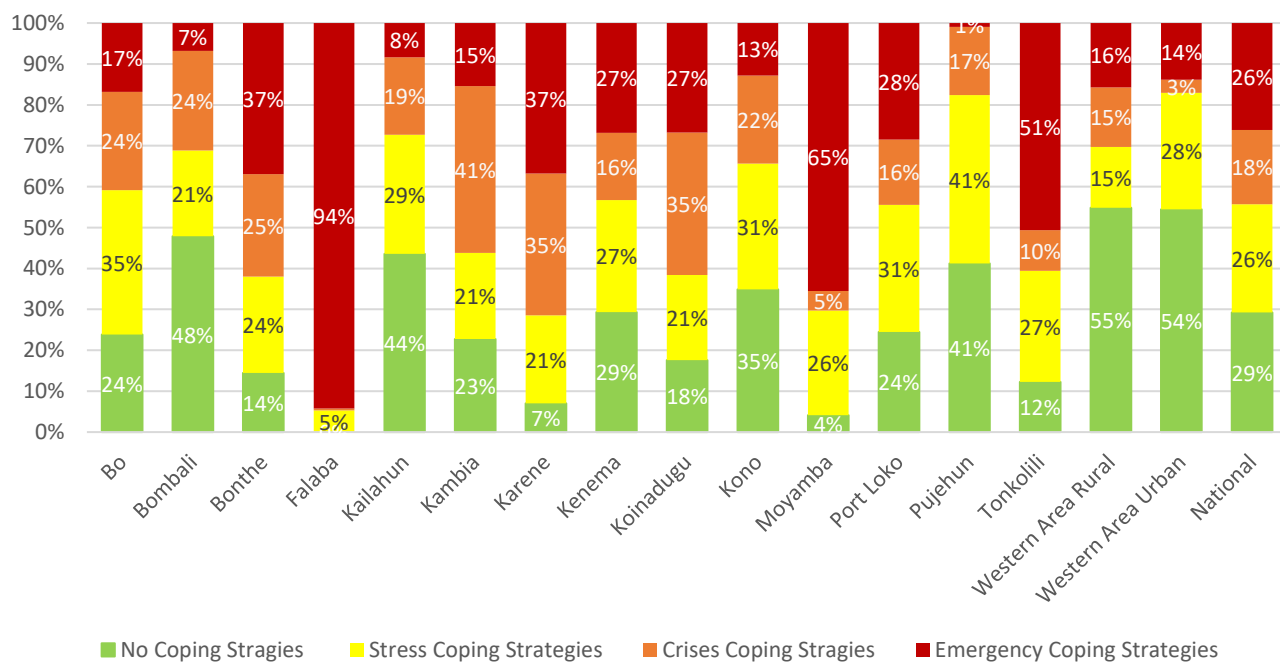
The proportion of households that adopted emergency coping strategies in the current period was 26 percent, higher than the same period last year at 23 percent. The adoption of emergency coping strategies is also higher than in February 2023 (post-harvest period), when it was also 23 percent.

Livelihood Coping Strategies Index, Lean season trend



The August 2023 FSMS found a reduction in the proportion of households adopting crisis coping strategies, reducing from 21 percent in August 2022 to 18 percent in August 2023. However, this may show a reduction in overall household resilience, necessitating the adoption of more extreme, emergency strategies just to survive. At district level, Falaba (94 percent), Moyamba (65percent), Tonkolili (51 percent) and Karene (37 percent) had the highest proportion of households adopting emergency coping strategies.

Livelihood Coping Strategies

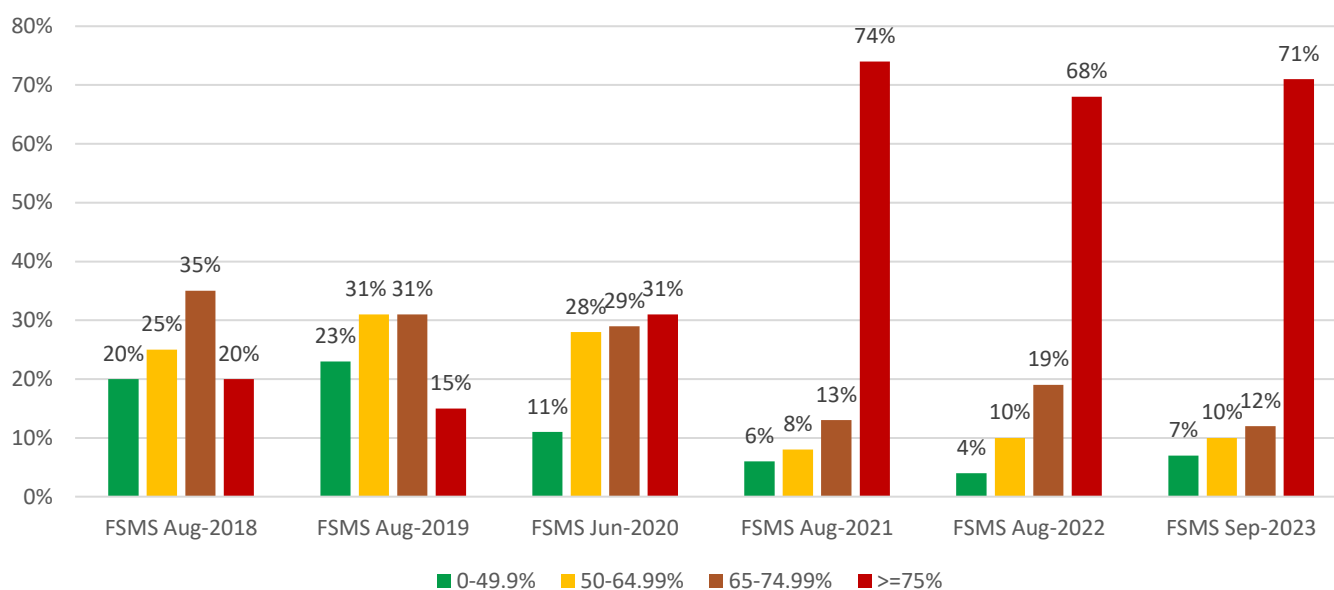


## Food Expenditure Share

The food expenditure share measures the economic vulnerability of households based on the premise that the greater the expenditure on food when compared to other essential needs, the more economically vulnerable the household is. When the level of income reduces or when prices increase, the share of food expenditure as a proportion of total expenditure also increases. For poor households this means reducing expenditure on other essential non-food items and services, such as education and health, eating less or eating less preferred foods that are cheaper.<sup>6</sup>

71 percent of surveyed households reported spending more than 75 percent of their total expenditure on food, and 25 percent on all other essential needs. When compared with the same time last year, 3 percent more households (71 percent) reported spending more than 75 percent of their income on food.

Share of Expenditure on Food Lean Season Trend

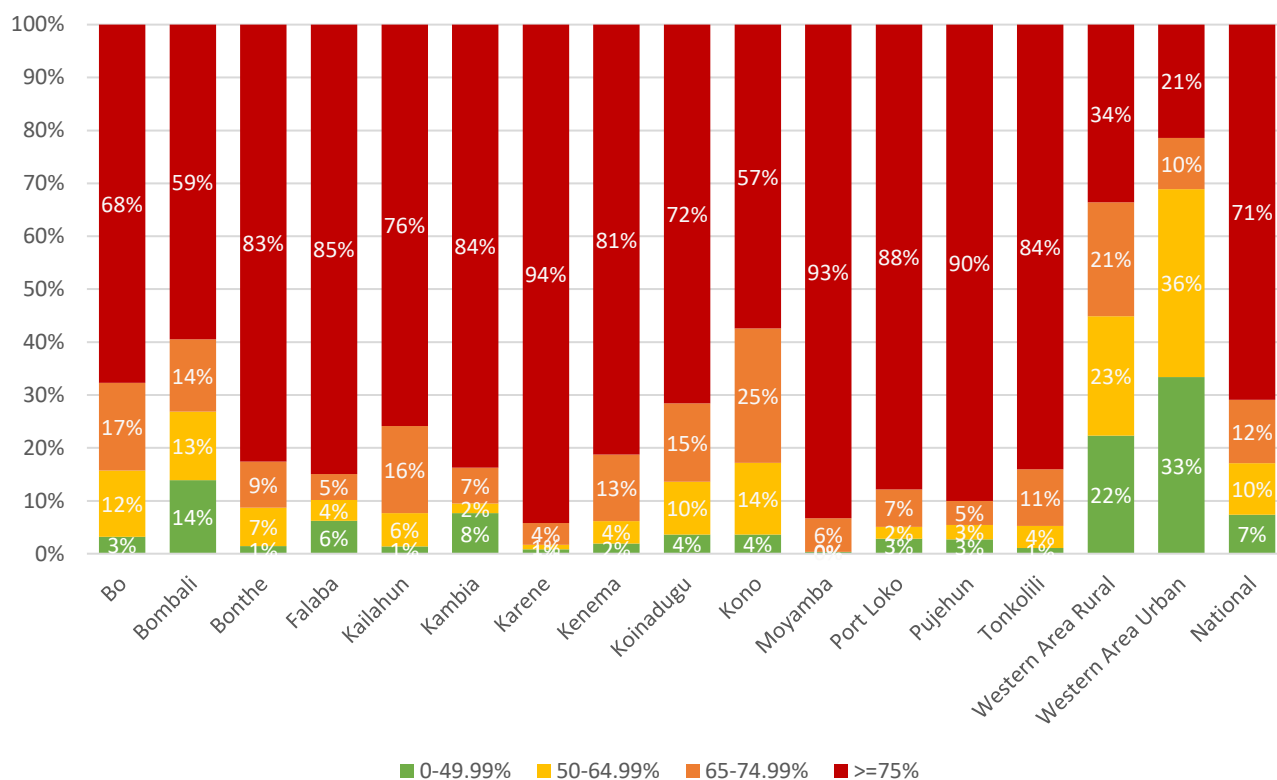


Districts that reported the highest proportion of households with food expenditure above 75 are Karene (94 percent), Moyamba (94 percent), Pujehun (90 percent) and Port Loko (88 percent). These are some of the poorest and most vulnerable districts in the country which relies more on crop production and are prone to climatic and economic shocks.

<sup>6</sup> Technical guidance for the Consolidated Approach for Reporting Indicators of Food Security.



## Share of Expenditure on Food, FSMS September 2023

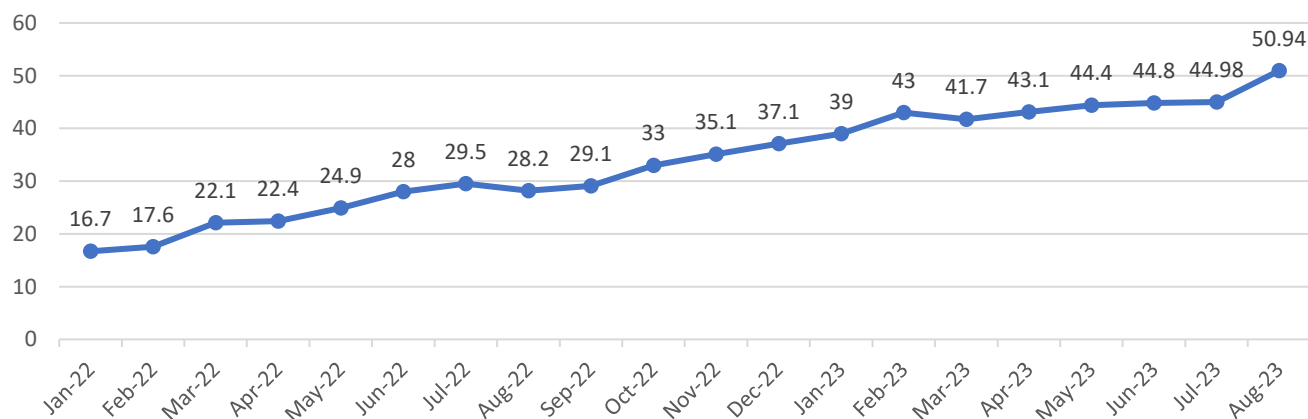


## Market Conditions

### Inflation

In August 2023, the national inflation rate for both food and non-food items was 50.94 percent, marking an increase of 5.96 percentage points from 44.98 percent in July 2023. Inflation rates for food and non-alcoholic beverages have been on a rising trajectory. Specifically, the national inflation rate for food and beverages in August 2023 reached 62.9 percent, which is an increase of 2.82 percentage points from 60 percent in July 2023<sup>7</sup>. Sierra Leone ranks among countries in the subregion with high inflation for both food and non-food items, largely due to surging commodity prices and a heavy reliance on imports. This inflationary pressure

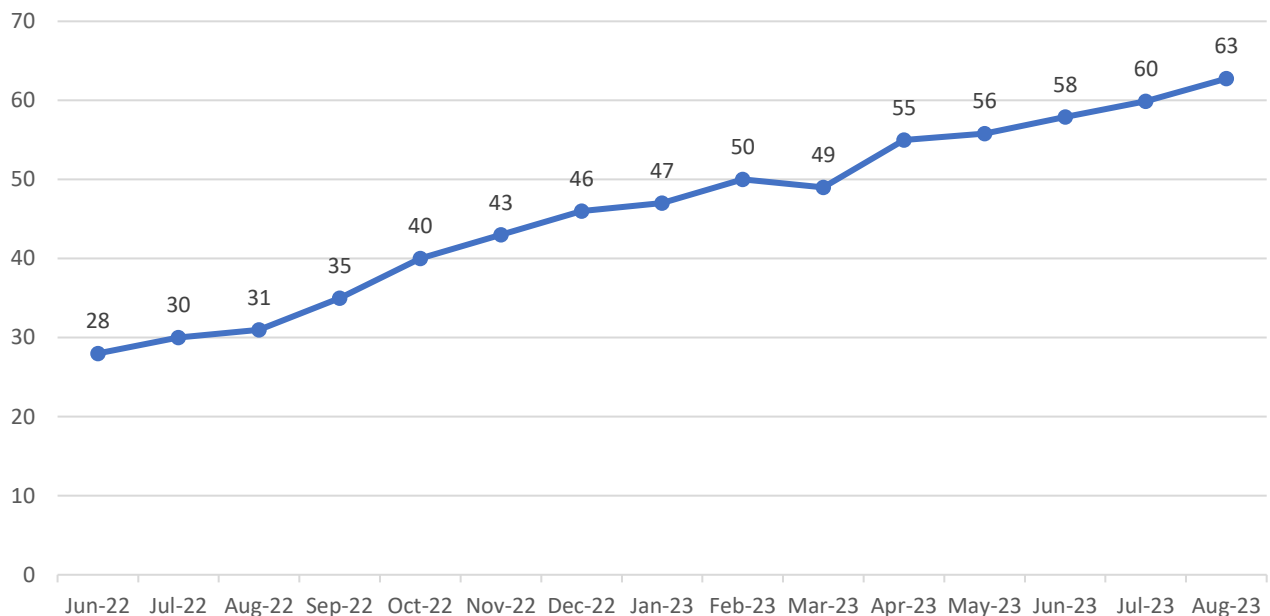
### Inflation rate for food and non-food items



<sup>7</sup> Statistics Sierra Leone - <https://www.statistics.sl/index.php/cpi.html>

has exacerbated the economic vulnerability of many Sierra Leoneans, further intensifying overall food insecurity.

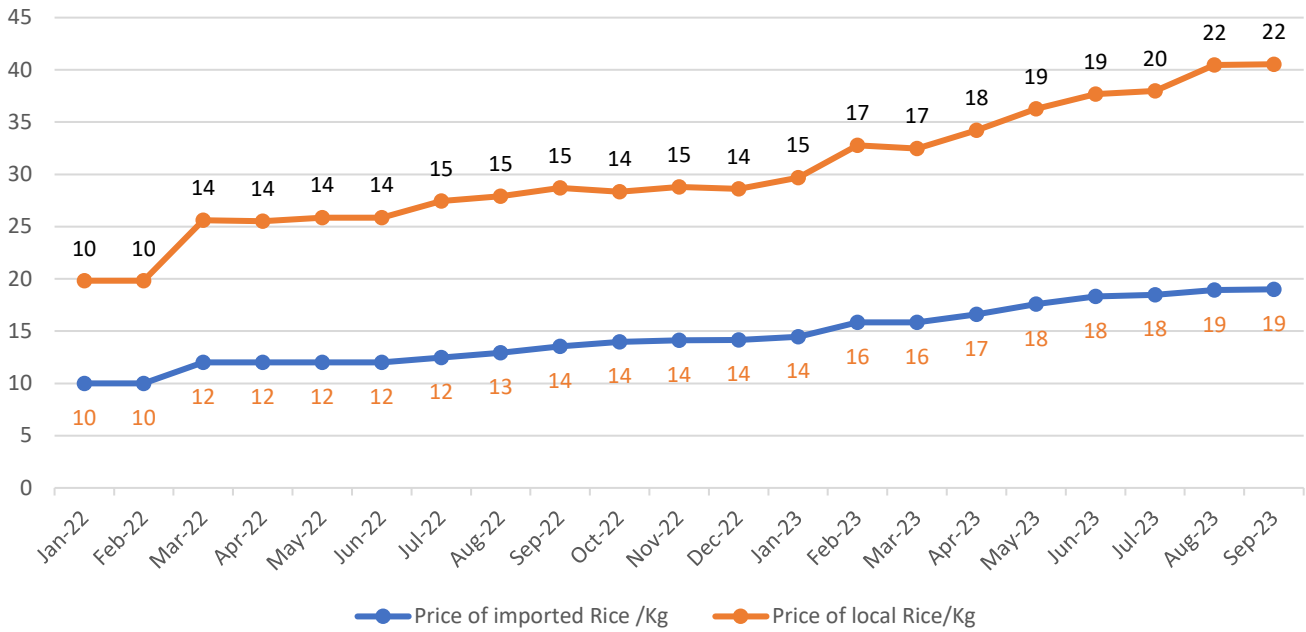
Year on Year Food and non-alcoholic beverages inflation rate



### Food Commodity Prices

From September 2022 to September 2023, the price of both local and imported rice saw a significant increase nationally — 42 percent for local rice and 41 percent for imported rice. When compared to the previous quarter, the prices of local and imported rice rose by 12 percent and 11 percent respectively. The surge in the price of imported rice can be attributed to higher freight costs and the depreciation of the national currency against the United States Dollar.

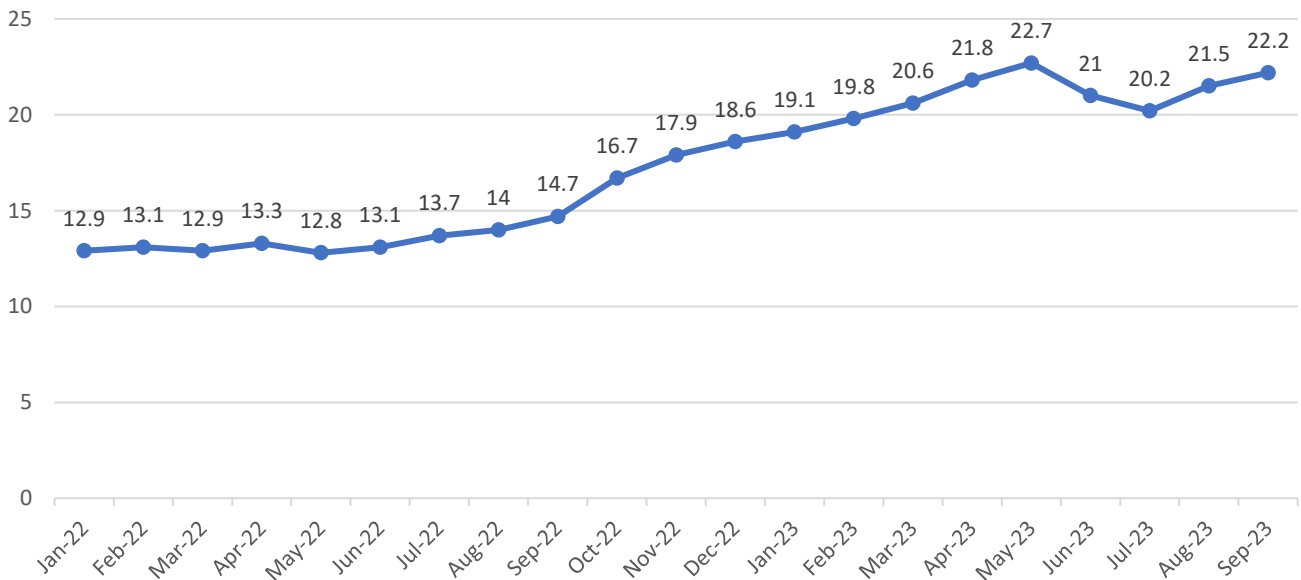
### Price of rice per kilogram in SLE



### Currency Exchange Rates

The Leone (SLe) experienced a year-on-year depreciation of 51 percent against the United States Dollar, as illustrated in figure 5<sup>8</sup>. This notable decline can be chiefly attributed to rising prices of imported goods, a repercussion of prevailing global inflationary pressures. Given Sierra Leone's pronounced reliance on imports to fulfill the essential needs of its populace, sustained depreciation of the Leone is poised to intensify the nation's pre-existing vulnerabilities and heighten food insecurity.

### Exchange rate of the SLe/USD



<sup>8</sup> Bank of Sierra Leone - [https://bsl.gov.sl/WAMZ\\_Exchange\\_Rates.html](https://bsl.gov.sl/WAMZ_Exchange_Rates.html)

## Consolidated Approach for Reporting Indicators of Food Security

The Consolidated Approach for Reporting Indicators of Food Security (CARI) is a methodology that is used to aggregate different food security indicators into one index to report on a population's overall food security status. The CARI assesses availability and access to food through measuring the status of household consumption, the ability of a household to stabilize consumption over time by measuring the Coping Capacity through economic vulnerability and livelihood coping strategies<sup>9</sup>. The approach culminates in a food security console which supports the reporting and combining of food security indicators in a systematic and transparent way, using information collected in the February FSMS survey.

The console classifies food insecurity into 4 categories i.e.

1) Food secure, 2) Marginally Food Secure, 3) Moderately Food Insecure, and 4) Severely Food Insecure as illustrated in table 2: For the CARI analysis the following indicators were collected and used:

- i. Food consumption score,
- ii. reduced Coping Strategy Index (rCSI)
- iii. Food expenditure share and
- iv. Livelihood coping

The food security analysis was done using the revised CARI guidelines and the most noticeable updates applied during this analysis are 1. Addition of reduced Coping Strategies Index (rCSI) to the Food Consumption Score in the Current Status domain in the CARI console; 2. Updated standard household expenditure module, to measure Food Expenditure Share (FES) and Economic Capacity to Meet Essential Needs (ECMEN); 3. Introduction of methodology to calculate Livelihood Coping Strategies.

Food Security (LCS-FS) from the Livelihood Coping Strategies module used for Essential Needs (LCS-EN). And lastly 4. Inclusion of updated livelihood coping strategies in the LCS-FS module and aligning the LCS-EN module accordingly. One major implication that has been noted is the increase of marginally food secure households compared to the old CARI methodology. This is due to the re-classification of households with acceptable food consumption and high level of reduced coping strategies into the marginally food secure category, instead of the food secure category.

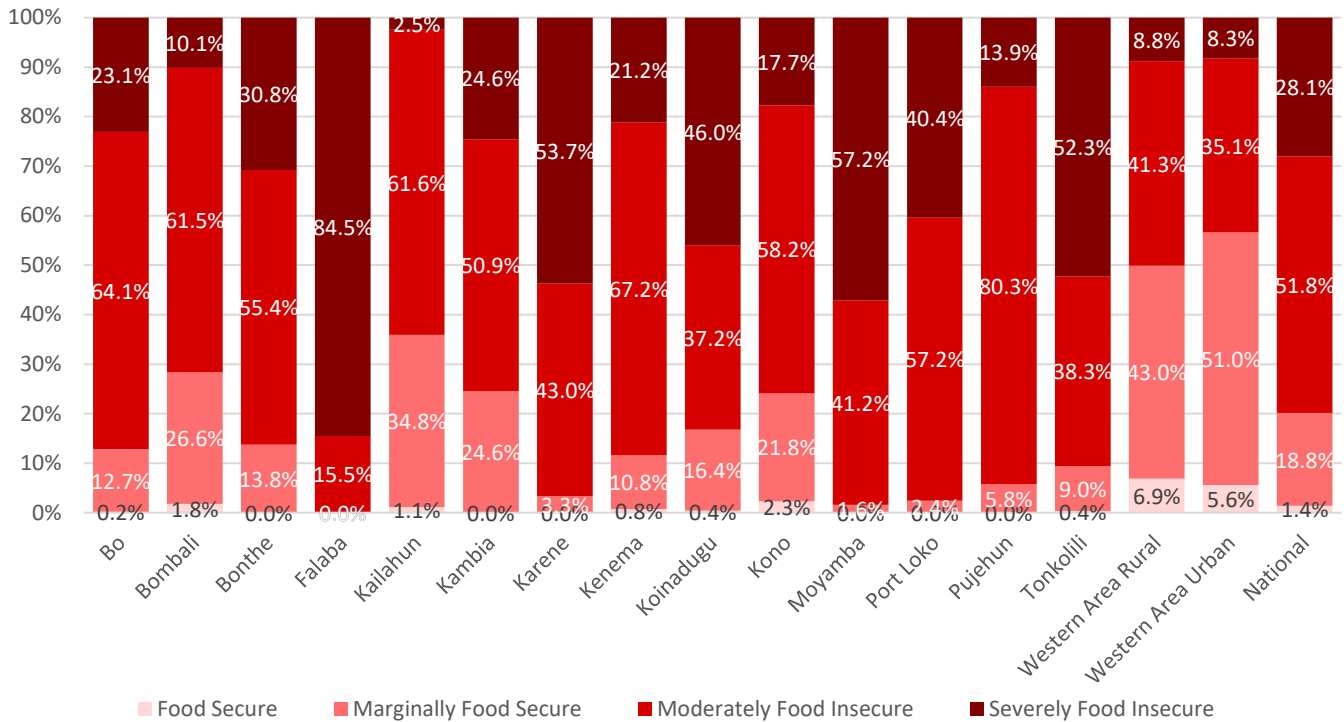
This current analysis will be used a reference point to the methodology used and according to the current results (FSMS September 2023), 80 percent of Sierra Leone's population is food insecure. Among the food insecure, 28 percent of households are severely food insecure, and 52 percent are moderately food insecure.

The findings of the survey shows that about three in five, 28 percent, of the households are severely food insecure with the highest proportion reported in Falaba with 84.5 percent, Moyamba with 57.2 percent and Karene with 53.7 percent. These are some of the areas that reported higher proportion of households consuming poor diets and resorting to emergency coping strategies. About 52 percent of the households were classified to be moderately food insecure and have difficulties to meet their minimum dietary requirements. All the districts reported a high proportion of households who were food insecure of above 50 percent except for Western Urban (43 percent).

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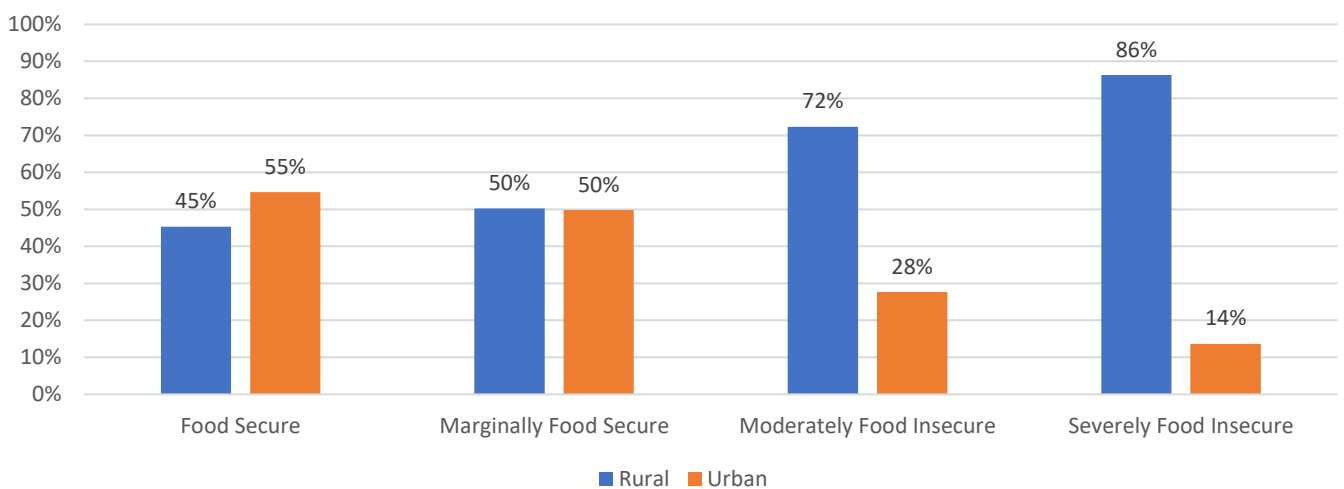
<sup>9</sup> Technical guidance for the Consolidated Approach for Reporting Indicators of Food Security.

## Food Security Classification by district, FSMS September 2023



The results also showed that households living in rural areas are prone to severe food insecurity. Out of the 28 percent of severely food insecure, households in rural areas account for 86 percent, whilst households in urban areas accounted for 14 percent. On the contrary, out of the 1.4 percent of households that are food secure, 54.7 percent of them are living in the urban areas whilst the remaining 45.3 percent are living in the rural areas.

## Food Security Classification by Location (Urban Vs Rural)



However, physical, and mental impairment within the household had a direct negative impact on the food security status of households. The result shows that households with a physically or mentally impaired person(s) accounted for more severely food insecure persons (35 percent), compared with households without (27 percent).

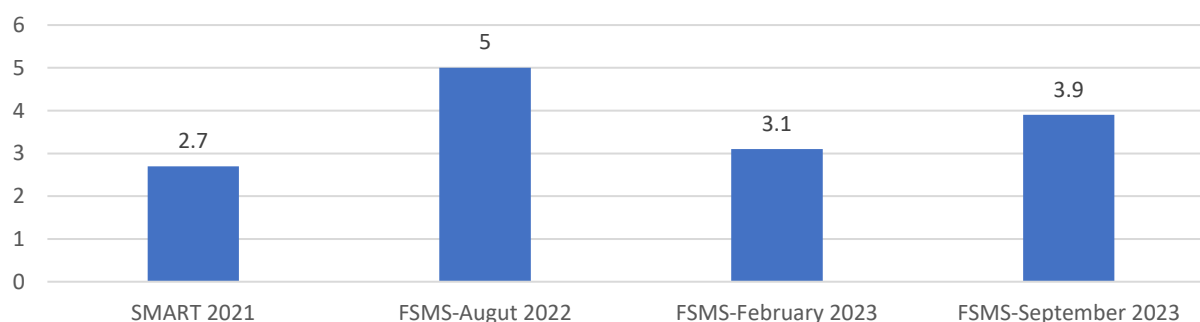
	Domain	Indicator	Food Secure	Marginally Food Secure	Moderately Food Insecure	Severely Food Insecure
Current Status	<b>Food Consumption</b>	<i>Food Consumption Groups and rCSI</i>	Acceptable <b>7.9%</b>	Acceptable and rCSI >=4 <b>19.2%</b>	Borderline <b>49%</b>	Poor <b>23.9%</b>
Coping Capacity	<b>Economic Vulnerability</b>	<i>Food Expenditure Share</i>	<50% <b>7.4%</b>	50% - <65% <b>9.8%</b>	65% - <75% <b>12%</b>	≥75% <b>70.9%</b>
	<b>Livelihood Coping Strategies</b>	<i>Livelihood Coping Strategies - Food Security</i>	None <b>29.2%</b>	Stress <b>26.5%</b>	Crisis <b>18.1%</b>	Emergency <b>26.2%</b>
<b>CARI</b>			<b>1.4%</b>	<b>18.8%</b>	<b>51.8%</b>	<b>28.1%</b>

## Global Acute Malnutrition

In addition to food security indicators, field teams collected Global Acute Malnutrition (GAM) data through Middle Upper Arm Circumference measurements (MUAC) from children aged between 6 months and 59 months<sup>10</sup>. The measurements were supervised by trained enumerators from the Ministry of Health and Sanitation's Food and Nutrition Directorate. These measurements are used to determine the impact of nutritional deficiencies in children's diets which hinders their physical development and growth.

The result of the analysis showed some improvement when compared with the data collected in the 2022 August FSMS, the GAM rates decreased from 5 percent to 3.9 percent in September 2023. However, the trend analysis from the previous SMART survey shows a deterioration of the GAM rate from 2.7 percent in July 2021 to 3.9 percent in September 2023.

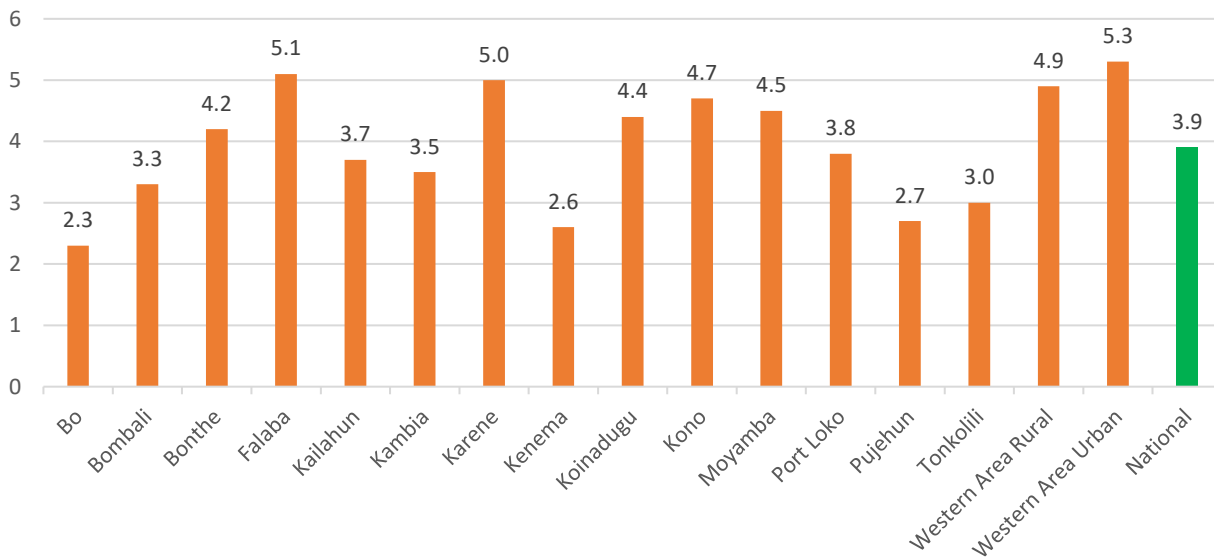
Prevalence of GAM rate trend



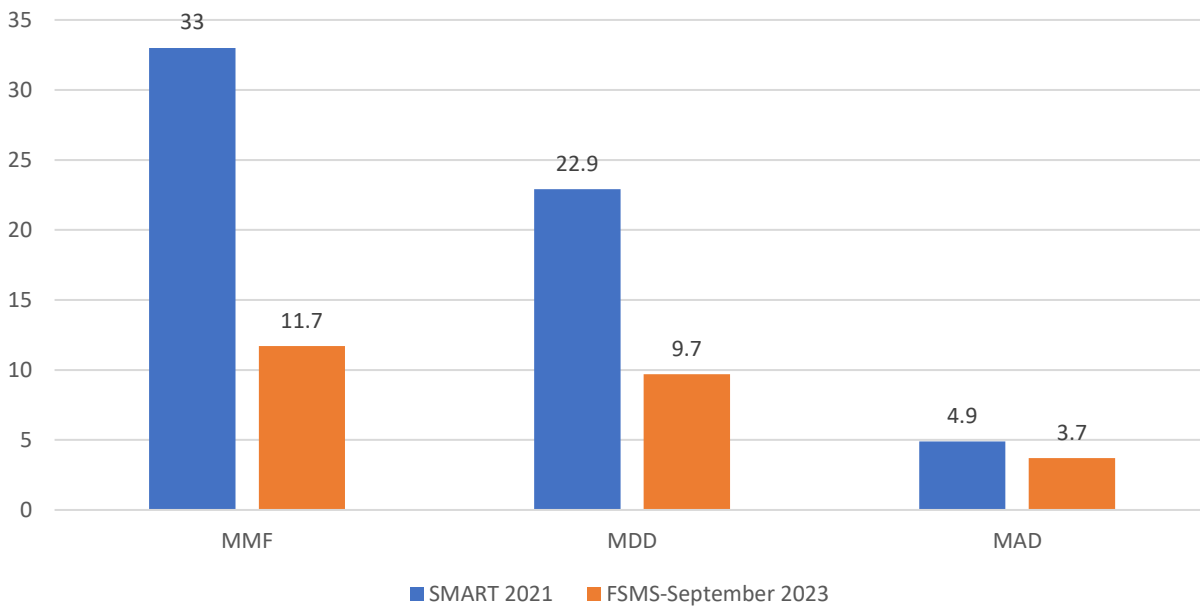
<sup>10</sup> UNHCR Emergency Handbook; Acute malnutrition threshold.



### GAM Rate, FSMS September 2023



### MMF, MDD and MAD for Children 6-23 months



The FSMS also captures the Minimum Meal Frequency (MMF), Minimum Dietary Diversity (MDD) and Minimum Acceptable Diet (MAD) of children 6-23 months, and when the result was compared to the last SMART survey the results show a deterioration for the MMF from 33 to 11.7, MDD from 22.9 to 9.7 and MAD from 4.9 to 3.7.

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