Figure 1: Line planting of rice in Palima, Makpele chiefdom, Pujehun district. Photo credit, Alfred Seiyah, Ministry of Agriculture and Forestry

SIERRA LEONE

FOOD SECURITY MONITORING SYSTEM REPORT

AUGUST 2021

Government of Sierra Leone

Contents

Context

According to the 2020 *Comprehensive Food Security and Vulnerability Analysis* (CFSVA), over 4.7 million people were food insecure of which some 963,000 were severely food insecure. Over half a million people were added to the count of food insecure people since 2015. The 2020 CFSVA showed that the COVID-19 pandemic and its economic fallout contributed to a further deterioration in living conditions and reduced access to basic amenities. It found that 3.3 million people of the food insecure live in rural areas compared to 1.4 million people in urban areas. Data for the 2020 CFSVA was collected during the harvest period when the situation is expected to be better.

To continue to monitor the precarious food security and vulnerability situation in Sierra Leone, WFP in partnership with Ministry of Agriculture and Forestry (MAF) conducted the regular Food Security Monitoring System (FSMS) in July 2021 to capture the trends during the lean season. The two studies provide insight into the levels of seasonal change in vulnerability and provide decision makers with key data to shape the targeting and design of programmes to best address seasonal food insecurity. The FSMS is also a key contributor of data to the Cadre Harmonise exercise commencing in October 2021.

Objectives and Expected Outcomes:

The main objective of the FSMS is to provide timely information about household food security and vulnerability. Data will provide invaluable snapshots at both national and district levels to enable targeted short and long-term programming. The main outcome is to support Sierra Leone's achievement of Sustainable Development Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Methodology of FSMS

A total of 216 households were randomly selected from each district covering **18 villages** (**1 enumeration area** for each village and **12 households** per village).

Each district is considered its own unit of analysis for the FSMS and results are statistically representative at district level. The first stage stratification is the random selection of EAs/villages within each district. At second stage households are randomly selected for interview within each selected EA/village. The EAs/villages are distributed based on probability proportional to size (PPS) technique.

A key element of the FSMS is the MAF and WFP *Market Price Early Warning System* - the monthly collection of prices for 29 essential commodities from markets across the country to track changes in price. Market price monitoring of food commodities is critical in Sierra Leone, as most low-income households spend a high proportion of their total earnings on food and thus their food security and wellbeing is very sensitive to price increases. Price monitoring data is analysed by MAF and WFP and compiled into monthly and quarterly reports shared online on the WFP Vulnerability Analysis and Mapping (VAM) platform[1] and locally with government counterparts and development partners to support decision making.

Sampling Approach

The Following formula has been used for the calculation of sample size at district level.

$$n = z^2 \times \frac{p(1-p)}{d^2} \times k$$

Where:

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[1] https://dataviz.vam.wfp.org/

N =	Required minimum sample size
Z =	Z-score corresponding to the degree of confidence
P =	Estimated prevalence of the outcome being measured (food insecurity)
K =	Design effect (required for two-stage cluster sampling)
d =	Minimum desired precision or maximum tolerance error

Assumptions:
- ✓ Z=1.96 (95% degree of confidence)
- ✓ Prevalence of food insecurity per last CFSVA=50%
- ✓ A design effect of 2 has been applied based on various studies
- ✓ The level of precision is 10% per common practice
- ✓ 10% added for refusal or absence.

Based on the above parameters a minimum sample size per district is calculated as 216 (adjusted). The number of districts in Sierra Leone is 16 after the de-amalgamation of districts in 2017 and the Western Area Urban Slums is taken as a separate cluster to better understand the food insecurity and vulnerability of slum dwellers.

District	Sample size
Bo	216
Bombali	216
Bonthe	216
Falaba	216
Kailahun	216
Kambia	216
Karene	216
Kenema	216
Koinadugu	216
Kono	216
Moyamba	216
Port Loko	216
Pujehun	216
Tonkolili	216
Western Rural	216
Western Urban	216
Western Area Urban Slums	216
Total	**3,672**

The FSMS uses the same sample frame that was used during the December 2020 CFSVA to target EAs in communities, Chiefdoms, and districts for data comparability purposes. Data was collected digitally using Personal Digital Assistants (PDAs) on the Open Data Kit (ODK) platform. Digital data collection boosts efficiency by eliminating the need for time consuming data entry whilst minimizing errors. Furthermore, application of geospatial technologies allowing for advanced analyses techniques, and graphic visualization of results using graphs, charts, and maps.

Data collected was uploaded by MAF district statisticians onto an online, central server. Overall, a total of 3,672 households were randomly selected nationwide. Population weight was used for result generalization. A checklist of food security indicators was used to guide enumerators when conducting interviews. These indicators are the same as those used during the 2020 *Comprehensive Food Security and Vulnerability Analysis*, including:
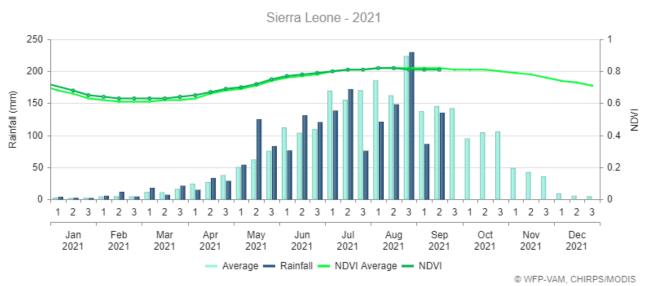
- Food consumption
- Household expenditure on food
- Coping strategies.

Collecting data for the same standard indicators as the 2020 CFSVA and five previous rounds of the FSMS enables data comparability to precisely track changes in district-level food security and vulnerability over time. All field personnel underwent a 2 days' refresher training in data collection prior to the FSMS.

Data collection was conducted by 100 enumerators, including MAF district statisticians in rural area, Stats SL staff and WFP trained enumerators who had supported previous rounds of the FSMS using digital data collection. Data collection was closely supervised by 22 supervisors and WFP VAM/M&E team. MAF Planning, Monitoring and Evaluation and Statistics Department (PEMSD) and WFP Vulnerability Analysis and Mapping (VAM) sub-unit conducted cleaning and analysis of data collected using the Statistical Packages for Social Scientists (SPSS) and Microsoft Excel, with the output being food security indicators at district and national level.

Climate and Weather Conditions

The below graph show that the rainy season had a normal start in -mid June with good conditions for the planting season and progressed normally until mid-July when it became erratic with less rain compared with the long-term average for the larger part of the continued season. Only in the third decade of August did it reach normal levels. Because Sierra Leone receive large amounts of rain, even when there is lower than average it has no or very little impacted in the level of greenery. The green line in the below graph shows that vegetation (NDVI) this year is normal compared to long term averages.
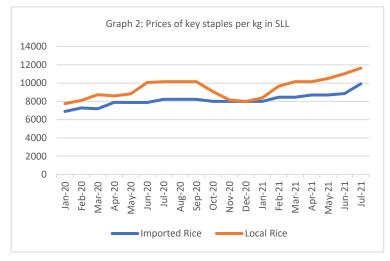
Graph 1. Rainfall and NDVI 2021

Sierra Leone - 2021

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Market Analysis and Price Inflation

Retail Price Trends

The prices of local and imported food products continue to increase across the country, mainly because of the depreciation of the local currency the *Leone* (SLL) against the USA Dollar, increased fuel costs in addition to a reduction in domestic production which has resulted in an increase in the price of local and imported foodstuffs across the country.
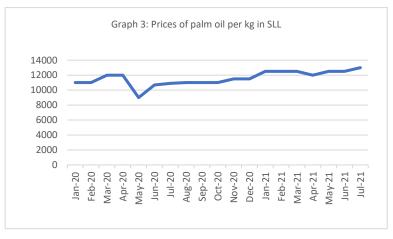
Retail price of local and imported rice

The price of local rice increased between July 2020 and July 2021. The price of a kilogram of local rice increased from SLL10,151 in July 2020 to SLL11,638 in July 2021, representing a hike of 15 percent. The high increment in the price of local rice may be due to lower than normal yields in the last farming season and because of the increased price of imported rice, which also sharply rose from SLL 8,230 in July 2020 to SLL 9,923 in July 2021, an increase of 21 percent.

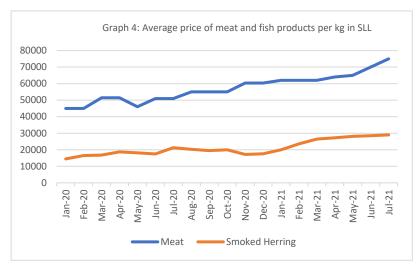Graph 2: Prices of key staples per kg in SLL

Palm Oil

Palm oil is cultivated across most of the districts in Sierra Leone and is consumed by most households regardless of their economic status. Sierra Leone has a comparative advantage in the production of palm oil when compared to neighbouring Guinea and Liberia and exports palm oil to these countries. The price of palm oil increased by 19 percent when compared from July 2020 to July 2021. This increase is likely due to increase fuel prices that impacted processing and transportation.

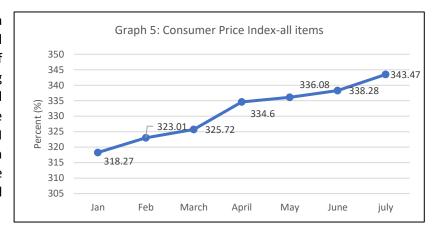Graph 3: Prices of palm oil per kg in SLL

Cow meat and fish

The price of cow meat continues to increase across the country, mainly because of the depreciation of the Leone as most cattle that are consumed in Sierra Leone are imported from neighbouring Guinea and Mali. The price of a kilogram of cow meat increased from SLL 51,000 to SLL 75,000 between July 2020 and July 2021, a price hike of 47 percent. Smoked herring is typical item in the food basket of Sierra Leoneans. Due to limited access to fish, 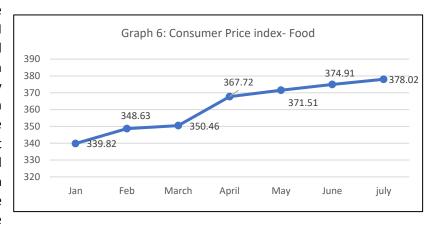it is used sparingly as a condiment. The average price of smoked herring increased by 36 percent when compared from July 2020 to July 2021.

Graph 4: Average price of meat and fish products per kg in SLL

The Consumer Price Index (CPI) is a measure that examines the weighted average of prices of a basket of consumer goods and services, including housing, transportation, food and beverages, medical care, etc. The graph to the right shows that the CPI increased by 7.4 percent between January and July 2021, reflecting the overall increase in prices of goods and services over the period.

Graph 5: Consumer Price Index-all items

Whilst the overall CPI measures a range of different goods and services, the CPI for food only tracks changes in the retail prices of food commodities. As shown in the graph, the CPI for food increased by approximately 10 percent between January and July 2021. It should be noted that the price of food increased at a faster rate than for other goods and services. The significant price increase in food in a short period of time can be expected to be accentuating the vulnerability of low-income households who were already spending a high proportion of their meagre income on food.

Graph 6: Consumer Price index- Food
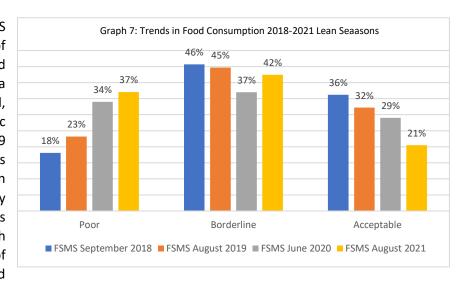

Food Consumption Score

The Food Consumption Score (FCS) is a composite score based on dietary diversity, food frequency, and relative nutritional importance of different food groups. Information is collected from a country specific list of food items and food groups, with surveyed households asked a series of questions to find out information

about the frequency and composition of consumption (in days) over a recall period of the past 7 days. Based on their responses, households are then categorised as the table shows below:

FCS Category	Definition
Poor	Household regularly **does not** consume a diet with requisite kilocalorie content and/or dietary diversity to live a healthy life
Borderline	Household occasionally supplements consumption of carbohydrates with other more nutritious food sources, however, below optimum or recommended requirements
Acceptable	Household regularly consumes a diet with appropriate kilocalorie content and/or dietary diversity to live a healthy life

The August 2021 showed a continued and steady deterioration in the Food Consumption Score when compared to previous rounds of the FSMS, as shown in the below figure. The proportion of households categorised as having "poor" FCS has increased in each round of the FSMS since September 2018, and most recently from 34 percent in June 2020 to 37 percent in August 2021. The proportion of households with "poor" FCS doubled between September 2018 and August 2021. Conversely, the share of households with "acceptable" FCS has declined, albeit more significantly from 29 percent in June 2020 to just 21 percent in August 2021. Similarly, those households with "borderline" FCS - who are vulnerable to fall into the "poor" category given further food price increases or a shock – also increased from 37 percent in June 2020 to 42 percent in August 2021.

Consistent deterioration in FCS most likely reflect the impact of continuously increasing food and fuel prices given that Sierra Leone is a net importer of food, in addition to macroeconomic decline during the COVID-19 outbreak. With most households in Sierra Leone engaged in farming, a worsening FCS may also indicate challenges in terms of agricultural production, such as declining yields due to a lack of access to improved seeds and inputs and an increasingly unpredictable climate which has negatively impacted farming activities.

Graph 7: Trends in Food Consumption 2018-2021 Lean Seaasons

Poor: FSMS September 2018 18%, FSMS August 2019 23%, FSMS June 2020 34%, FSMS August 2021 37%
Borderline: FSMS September 2018 46%, FSMS August 2019 45%, FSMS June 2020 37%, FSMS August 2021 42%
Acceptable: FSMS September 2018 36%, FSMS August 2019 32%, FSMS June 2020 29%, FSMS August 2021 21%