



# Sierra Leone

## Household Food Security Survey in Rural Areas

Data collected in  
May 2007





# Sierra Leone: Household Food Security Survey in Rural Areas

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## Foreword

Even though it is fully recognized that statistics is a fundamental tool for proper planning, coordination, monitoring, evaluation and reporting, it has not been accorded the due attention and support in the developing countries, especially in Africa; Sierra Leone being no exception. In Sierra Leone in particular, funding for the production and publication of agricultural and food security statistics has historically and notoriously been problematic. Under normal circumstances, Government and partners should support routine data and/or information production in a regular and systematic manner.

The Vulnerability Analysis and Mapping (VAM) Report 2007, has been jointly produced by the Ministry of Agriculture, Forestry and Food Security (MAFFS) and the World Food Programme (WFP) of the United Nations. An earlier Comprehensive Food Security and Vulnerability Analysis (CFSVA) was carried out in 2005 by the same institutions in conjunction with the Ministry of Health and Sanitation and other major development partners (UNICEF, FAO, UNDP and WHO). The 2007 VAM Report is based on the results of a nation-wide survey conducted in 2007. It focuses on three principal areas: (a) demographic and social analysis of households (their size and composition); (b) an assessment of the availability of food and markets; and (c) households' access to food. The last part of the report is a comparison of the results of the current study with those of the 2005 CFSVA.

The present leadership of MAFFS is very committed to improving agricultural and food security statistics in Sierra Leone. Every effort will be made in that direction. The situation is steadily improving and soon, it will remarkably change for the better. It is a fact that the key barometer to gauging the country's efforts at eradicating hunger and poverty are reliable, timely and useful statistics! The 2007 VAM Report does not only contribute to improving agricultural statistics in Sierra Leone but also makes a vital contribution to the ongoing policy debate on how far and best the country can achieve the Millennium Development Goal (MDG) of halving poverty and food insecurity by 2015. It will be used by the policy-makers including those in Government to make informed decisions and develop appropriate and well-targeted programmes that will improve the standard of living of the vulnerable populations.

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Minister of Agriculture, Forestry and Food Security

Sierra Leone

## **Acknowledgements**

A nationwide survey as this would not have been completed without the coordinated efforts of several individuals and organizations. The joint team comprising of WFP and MAFFS staff wishes to thank the European Union (EU), the Food and Agricultural Organization of the United Nations (FAO) and other organizations who supported the survey process.

This study was jointly funded by the Government of Sierra Leone and WFP. WFP's contribution was possible due to generous support from the French Trust Fund. The survey process was managed by Ms Heidi Haugen from the WFP Regional Bureau for West Africa. Technical assistance and advice were provided by Ms Marie Ndiaye, Mr Samir Wanmali, Mr Peter Horjus and Mr Andrea Berardo of WFP Rome. Mr Papa-Gormack Ndiaye of WFP's Regional Bureau for West Africa and Statistics Sierra Leone assisted in the development and management of the database for the survey.

This assessment could not have been possible were it not for the hard work and dedication of all the enumerators and supervisors who conducted focus group and household interviews in the thirteen districts of Sierra Leone. For this we are very grateful.

Finally, the team will be remiss in its acknowledgement if the respondents in the sampled communities, who so willingly participated in the interviews, providing valuable information on their families, lives, and activities, are not recognized.

Any comments or questions concerning the methodology or findings of this report can be directed to WFP Sierra Leone and the Planning, Evaluation, Monitoring and Statistics Division (PEMSD) in MAFFS.

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## List of Acronyms

ADB	African Development Bank
CFSVA	Comprehensive Food Security and Vulnerability Analysis
DHS	Demographic and Health Survey
FAO	Food and Agricultural Organization of the United Nations
FCG	Food Consumption Group
FCS	Food Consumption Score
FFW	Food For Work
GDP	Gross Domestic Product
ha	Hectare
HH	Household
IVS	Inland valley swamps
MAFFS	Ministry of Agriculture, Forestry and Food Security
MICS	Multiple Indicator Cluster Survey
Mt	Metric tonnes
NGOs	Non Governmental Organizations
OECD	Organization for Economic Cooperation and Development
PEMSD	Planning, Evaluation, Monitoring and Statistics Division
SLL	Sierra Leonean Leone (currency)
SPSS	Statistical Package for Social Sciences
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
USD	United States Dollars
VAM	Vulnerability Analysis and Mapping
WARDA	West Africa Rural Development Association
WFP	United Nations World Food Programme

1 USD is approximately equivalent to SLL 3,000 (in 2007)

## **Executive Summary**

Sierra Leone emerged from a decade of brutal civil war in 2002. The war had devastating effects on social structures, and a large part of the country's economic and physical infrastructure was destroyed. Political stability during the past years has allowed the country to embark on the path to recovery and the displaced people to return to their homes and rebuild their lives. Given the extent of destruction, however, the five years of peace have not been sufficient to restore the infrastructure and livelihoods to pre-war levels, let alone catch up with the years of lost development. Sierra Leone is thus among the least developed countries in the world, being second last on the 2006 United Nations Development Programme (UNDP) Human Development Index ranking.

A Food Security and Vulnerability Analysis is usually undertaken every few years in Sierra Leone to provide information to Government and other stakeholders on how many people are food insecure, where these people are located, why they are food insecure and how food or other forms of assistance can make a difference in reducing hunger and supporting livelihoods. In 2005, a full-fledged Comprehensive Food Security and Vulnerability Analysis (CFSVA) was undertaken, which included food security as well as nutrition information.

The 2007 survey used a two-stage cluster sampling. Within each district, villages were selected based on a probability equal to chiefdom size sampling (as village size was not available), and within each village 12 households were randomly selected and household questionnaires administered. The total sample size across the whole country was 7,060 households. In addition, village questionnaires and focus group discussions were held in 284 villages (only in the South and East).

The survey was carried out in May 2007.

### **Key findings:**

#### Household characteristics

- The national average household size was around 10 persons, with the districts in the Northern Province having larger average household sizes (>11.4 persons) than the rest of the country. 11 percent of the households were headed by women.

- Four out of five children in the sample attended school regularly with no difference between boys and girls (84 and 83 percent respectively). Schools that provided school meals had higher attendance than those which did not.

#### Availability

- In 2006/2007 the country produced almost two thirds of its rice requirement. The degree of self sufficiency varied between the districts, and only two districts, Kambia and Moyamba, produced surpluses of rice (31 percent and 8 percent, respectively).
- According to this survey rice production increased by 12 percent from 2004/2005 to 2006/2007. The overall area planted with rice increased by 28 percent in the same time period. The yields remained very low on average 0.6 Mt/ha in the uplands and 1.2 Mt/ha in the lowlands.
- Ninety-five percent of the households cultivated food crops. The most commonly cultivated crop was rice: 63 percent of households cultivated upland rice, 50 percent inland valley swamp rice and 7 percent other lowland rice varieties. Cassava was the second most widely cultivated crop (51 percent), followed by groundnut (20 percent) and sweet potatoes (11 percent).
- Half of the villages were located less than 7 miles from the nearest market, only 18 percent were 2 miles or less from the nearest market. A journey of 15 miles or more to the nearest market was required in 22 percent of the villages, and 6 percent had to travel more than 30 miles to reach a market.

#### Access

- On average the households spent around 50 percent of their money on food. With inclusion of self-production, monthly spending increased to 60%. This indicates wide-spread poverty.
- Eighty-three percent of the households reported that buying the food for the household would not be a problem at any time provided that they had enough money. This clearly suggests that economic access to food is a greater problem than availability of food.

- According to the survey, 29 percent of the households in rural Sierra Leone had inadequate (poor or borderline) food consumption and could be classified as food insecure. The people with poor or borderline consumption level were particularly concentrated in Bonthe, Western Rural and Port Loko (56, 42 and 38 percent respectively).

#### Utilization

- Out of the households with a child below five years, 29 percent reported that a child had diarrhoea during the last 14 days.
- Around 50 percent of the households got their drinking water from ponds/rivers/streams. The study found that there was a statistically significant difference in the prevalence of child diarrhoea between households that obtained their drinking water from an improved water source and those that used water from ponds/rivers/streams.

#### Shocks and coping strategies

- The two most common types of shocks mentioned were crop damage by insects, diseases and animals and lack of agricultural inputs such as seeds and fertilizers. Other shocks mentioned were lack of household labour, household members who fall sick, or drought.
- Borrowing food and money were the main coping mechanisms when experiencing shocks.

#### **Recommendations:**

- The Government of Sierra Leone has fully acknowledged that the key to development of rural areas is in agricultural production, processing and market access. Donors should assist the Government in giving a boost to agricultural production, processing and marketing, especially for smallholder farmers and rural youths.
- WFP's focus on food assisted safety nets through smallholder inland valley swamp rehabilitation, feeder road constructions, tree crop plantation rehabilitation as well as in agricultural skills training should be well-targeted to reach the smallholder famers and support their agricultural production and income generation, as well as improve rural food security.

- Local procurement of food crops should systematically focus on smallholder farmers to support their market involvement and income generating opportunities.
- The provision of school meals to as many primary school children as possible and the increasing collaboration with agencies that support the quality of education (e.g UNICEF) should be continued.
- WFP should pay equal attention to the provision of food assistance to pregnant and lactating women so that they give birth to and nourish a healthy child, and to the provision of food assistance to all those children below 5 years who are moderately malnourished so that they recover quickly.

**Areas for further research:**

- The role of snacks in the Sierra Leone diets.
- Food and condiments in the Sierra Leone context.
- Intra-household variations in expenditure patterns.
- Intra-household variations in shocks and coping strategies.
- Comparison between rural and urban populations with regard to food security.

## **Chapter One. Background**

Sierra Leone was second last on the 2006 United Nations Development Programme (UNDP) Human Development Index. At least 70 percent of the population lives in poverty and about 26 percent of the population is food poor<sup>1</sup>. Main poverty indicators are insufficient food, poor housing, poor health, high infant and maternal mortality, high illiteracy, limited access to clean water and lack of money. Three quarters of the poor are in the rural areas with women being the majority of the rural poor. Maternal mortality, infant mortality and fertility rates are among the highest in the world. The African Development Bank's (ADB) Gender Empowerment Measure indicates that women in Sierra Leone have significantly fewer opportunities than men. Women cannot inherit or own land in many rural areas according to customary laws, and partly for this reason, they lack access to financial services beyond those offered by family, relatives, friends, money lenders and diverse traditional financial intermediaries. These problems and many more make the attainment of the Millennium Development Goals a daunting challenge in Sierra Leone.

In 2002, the country emerged from a decade of brutal civil war. The war did not only bring untold suffering to the people but led to the collapse of the economy and its social infrastructure. The destruction was particularly heavy in the border districts of Kailahun, Pujehun and Kono. Restoring the farms after the long periods of abandonment during the war requires time as well as large amounts of labour and agricultural inputs. To maintain peace and improve the economic and social status of the economy, the Government of Sierra Leone invited development actors to return and invest in Sierra Leone with the ultimate goal of reducing poverty and attaining prosperity for both current and future generations. Political stability during the past years has allowed the country to embark on the path to recovery and the displaced people to return to their homes and rebuild their lives. Given the extent of destruction, however, the years of peace have not been sufficient to restore the infrastructure and livelihoods to pre-war conditions.

The Government of Sierra Leone in collaboration with WFP and FAO has pledged to fight and eradicate hunger as its top priority. More resources have been placed on food and livestock production, and rehabilitation of cash crops. While emergency food aid has declined steadily since 2002, there has been a parallel growth in project-related aid. The amount of food aid that reached the country in 2006 was less than half of what the country received in

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<sup>1</sup> Poverty Reduction Strategy Paper Sierra Leone (2005)

2002. In terms of food aid deliveries per capita Sierra Leone is only number 20 on the list of the 40 countries in Sub-Saharan Africa where food aid flows are monitored<sup>2</sup>.

A Food Security and Vulnerability Analysis is usually undertaken by WFP every few years in Sierra Leone to provide information to Government and other stakeholders on how many people are food insecure, where these people are located, why they are food insecure and how food or other forms of assistance can make a difference in reducing hunger and supporting livelihoods. In 2005, a full-fledged CFSVA was undertaken, which covered both food security and nutrition information.

### **1.1 Aim and objectives**

The main aim of the 2007 survey was to update information on food production, people's livelihoods and their access to food in the different districts of Sierra Leone so as to guide WFP and other actors focusing on food insecurity on how best to programme food assistance or food security support in general.

Specific objectives were to:

- Determine the proportion of households in rural Sierra Leone that are food insecure;
- Assess the levels of food insecurity across different demographic and socio-economic groups;
- Assess agricultural production, and analyse how food production combines with plantation farming, and other economic activities in household livelihood strategies;
- Get an overview of how well markets are functioning, their physical accessibility, and their role in maintaining and enhancing food security in rural areas;
- Provide recommendations for WFP programme orientation; and
- Provide a follow-up study of food security indicators which were used in the 2005 Sierra Leone CFSVA.

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<sup>2</sup> WFP INTERFAIS: International Food Aid Information System. <http://www.wfp.org/interfais/>



## **1.2 Methodology**

Research methodology is usually shaped by a number of factors including: the nature of the problem to be investigated, finance, personnel, would-be respondents, and the type of information to be generated. The methodology used in this VAM recognizes these factors. It comprises a number of steps and a combination of data collection techniques.

### **1.2.1 Survey design**

Both secondary and primary data were used to assess the vulnerability of the respondents in the districts. Quantitative data on poverty and food security available in Sierra Leone is scarce and of variable quality. Apart from the 2005 CFSVA, there is no systematic overview of the food security situation in the country. Sierra Leone was, however, one of the countries included in the third round of the UNICEF Multiple Indicator Cluster Survey (MICS) in 2005, and the results of that survey were used as reference points in the planning of the 2007 VAM survey.

The secondary data review for the survey was based on reports and analyses made by the Government of Sierra Leone, Non Governmental Organizations (NGOs), UN agencies, ADB, Organization for Economic Cooperation and Development (OECD), and researchers. A complete list of secondary literature reviewed for this survey can be found in the Bibliography at the end of this report. Primary data collection was carried out by means of questionnaires at household level and focus group discussions with key informants at village level.

### **1.2.2 Survey instruments**

Three questionnaires were used in the data collection process – a household questionnaire, a village questionnaire and a supplementary livestock questionnaire. The household and village questionnaires were administered in the same villages<sup>3</sup>, and the data from the two were considered during the analysis process.

The 2007 survey covered many of the same topics as the 2005 CFSVA. New questions were added to address recovery related-issues and meet the Government of Sierra Leone's need for more detailed data on agricultural production and assets. The questionnaire comprised closed- and open-ended questions. Respondents answered closed-ended questions by ticking one box

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<sup>3</sup>The village survey was only conducted in the East and South.

representing the views, which were the closest to their own. Open-ended questions were also incorporated to which respondents provided unstructured replies. The questionnaires are included at the end of this report.

### 1.2.3 Sampling

The sampling strategy was designed to obtain results that were representative at district level. The sample sizes were originally calculated based on the proportion of the population with poor or borderline food consumption in the 2005 CFSVA survey, but MAFFS requested that the sample size calculation be based on the proportion of households involved in upland and/or lowland rice production. In several districts, this involved a large increase in the number of households sampled, as the rice farmers often constituted around half of the population in several districts<sup>4</sup>. The total sample size across the whole country was 7,060 households.

The survey used a two-stage cluster sampling. Within each district, villages were selected using the procedure below. In every village, 12 households in which to administer the household questionnaires were randomly selected.

The sample frame was based on a list obtained from Statistics Sierra Leone with settlement names and household population by district, chiefdoms and sections. Large towns were excluded from the sample frame. Ideally, villages should have been sampled through a probability proportional to size method. However, the 2004 Sierra Leone Population and Housing Census had not yet been analysed to provide information on village sizes. As a proxy for village size, the villages were assigned an equal share of the chiefdom's rural population, and the sample was drawn with a probability equal to the chiefdom size. This sampling method implies a bias towards the smaller villages. According to this procedure a total of 588 villages<sup>5</sup> were included in the household survey<sup>5</sup>.

For the village survey, only data from the East and South was collected (areas where WFP implements its Protracted Relief and Recovery Operation); in total 284 villages were covered.

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<sup>4</sup> The formula to calculate sample size is  $n = D * \frac{1.96^2 * p * (1 - p)}{d^2}$ , where p=the estimated proportion of the key indicator. The closer p is to 0.5, the larger the sample size.

<sup>5</sup> In 2009, when this report was finalized for publication, the raw data set was available but the number of villages covered could not be ascertained. It had not been mentioned in the first draft of this report.

Village questionnaires (focus group discussions) were completed with groups of 5 to 10 key informants comprising chiefs, women leaders and youths.

The GPS coordinates for the sampled villages were recorded during the survey.

#### **1.2.4 Language**

As far as possible, interviewers who spoke the local languages were recruited for the survey. The language used in the interviews for 34 percent of the respondents was Mende, while Temne was used in 21 percent of the interviews. In half of the interviews, the language used was not the native language of the interviewee, and in the vast majority of cases these interviews were then carried out in Krio. An interpreter, usually another interviewer or a relative or neighbour of the respondent, was required in 9 percent of the interviews.

#### **1.2.5 Data analysis**

First two coding sheets were developed for purposes of coding the open-ended questions in the questionnaire. The replies were analysed by content and allocated by an independent coder to different categories. The responses were scale rated by adding responses to each item and dividing by the number of items in the scale. The data from the closed-ended questions was exported to a statistical analysis software, Statistical Package for Social Sciences (SPSS) version 12.0, for cleaning and eventual analysis. As part of the data cleaning process, consistency and validity checks were made and frequency runs on all variables were made to check for any existing inconsistencies and outliers. All the necessary data corrections were done accordingly. Then using SPSS12.0 software package, data analysis was carried out following an analysis plan drawn up by the research team. Data analysis basically involved univariate and bivariate analysis on selected variables of interest.

#### **1.2.6 Determining food security and vulnerability**

According to the 1996 World Food Summit, food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life. There is no single, direct measure of food security. The food security status of any household or individual is determined by the interaction of a broad range of social, economic, cultural and environmental factors. There are three key dimensions to food security: aggregate food availability at local/regional/national levels, household food access, and individual food utilization.

Achieving food security requires addressing all three of these separate dimensions, ensuring that:

- The aggregate *availability* of physical supplies of food from domestic production, commercial imports, food aid, and national stocks is sufficient;
- Household livelihoods provide adequate *access* for all members of the household to those food supplies through home production, market purchases, or transfers from other sources; and
- The *utilization* of food supplies is appropriate to meet the specific dietary and health needs of all individuals within the household, and the individuals have the ability to absorb the nutrients they eat.

Given the complexity and multi-dimensional nature of food security and vulnerability, no single indicator provides a comprehensive measure of either condition. Availability, access, and utilization are also difficult to capture by a single measure, as each of these aspects of food security are themselves complex and multi-dimensional. This report presents several measures that shed light on availability and access. For utilization, nutrition and anthropometric data would have been required but were not collected as part of this survey. Only access to drinking water and child health status were surveyed.

The Food Consumption Score (FCS), an index based on the frequency and variety of food eaten, was used as the main indicator of food security in this report<sup>6</sup>. The FCS methodology was validated through a two-step process. First, the FCS were compared with results of a Principal Components Analysis and Cluster Analysis of the consumption data. The analysis showed strong correlation. Secondly, the FCS were correlated with other indicators of food security such as expenditures, proportion of expenditures on food, number of months the harvest lasted, amount of land cultivated, dependency ratio, productive assets owned, agricultural input used, and debt. Again, the correlation was strong. The validity of using the FCS, and the Food Consumption Groups (FCG) based on this score, as the core indicator of food security in the current survey was thus confirmed. A drawback of the indicator is that it does not encompass the utilization aspect or the time dimension of food security.

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<sup>6</sup> FCS as a means of access to food is calculated based on a 7-day recall which captures the important food items and groups. The food items are then divided into 8 different groups, each with an assigned weight.

### **1.2.7 Limitations of the study**

The study does not have a nutrition component, nor does it include anthropometric measurements. It was undertaken in May 2007, two months further into the rainy season than the 2005 study, and variables are therefore not directly comparable between the two surveys. The data collection tools were adopted to respond to the Government's need for more detailed information about agricultural production figures.

## Chapter Two. Presentation and Discussion of Data

This chapter provides a detailed analysis of the data collected. It is divided into six sections, namely: demographic and socio-economic characteristics of households; food availability and market integration; food consumption, expenditures, debts and economic activities; health problems and food utilization related information; shocks and coping strategies; and comparisons between the CFSVA 2005 and the 2007 survey results.

### 2.1 Demographic and socio-economic characteristics of households

#### 2.1.1 Household size and composition

The definition used for a household in this survey is “a group of people who eat from the same pot and are responsible to the same head”. The average household size was around ten persons. The Eastern and Southern Provinces had smaller average household sizes than the rest of the country.

**Table 1: Average number of household members by age, sex and district**

<i>District</i>	<i>Females</i>				<i>Males</i>				<i>Total</i>
	<i>0-6</i>	<i>7- 14</i>	<i>15-59</i>	<i>60+</i>	<i>0-6</i>	<i>7- 14</i>	<i>15-59</i>	<i>60+</i>	
Bo	1.0	0.7	2.1	0.3	1.0	0.9	1.7	0.2	7.9
Bombali	1.4	1.4	2.7	0.3	1.5	1.6	2.1	0.4	11.4
Bonthe	1.2	0.8	2.1	0.3	1.2	0.9	1.6	0.2	8.3
Kailahun	1.0	0.7	1.6	0.3	1.0	0.8	1.2	0.2	6.8
Kambia	2.3	2.0	3.2	0.4	2.3	2.1	2.9	0.3	15.5
Kenema	1.0	0.7	1.8	0.3	1.0	0.8	1.6	0.3	7.5
Koinadugu	1.5	2.3	2.9	0.4	1.4	2.3	2.9	0.5	14.2
Kono	1.1	1.0	2.1	0.1	1.0	1.0	1.8	0.2	8.3
Moyamba	0.8	0.9	1.8	0.2	0.8	0.9	1.4	0.2	7.0
Port Loko	1.5	1.4	2.9	0.4	1.6	1.5	2.7	0.4	12.4
Pujehun	1.1	0.7	2.1	0.2	1.3	0.9	1.6	0.2	8.1
Tonkolili	1.9	1.9	2.7	0.6	2.3	2.1	2.5	0.6	14.6
Western Rural	0.8	1.0	1.9	0.2	0.8	1.1	1.8	0.2	7.8
Average	1.3	1.2	2.3	0.3	1.3	1.3	2.0	0.3	10.0

A high dependency ratio<sup>7</sup> implies a large number of children and elderlies in comparison to household members in their peak productive age. This is relevant for food security because it influences the household's ability to access food and cash. While the dependency ratio varies substantially between districts, there were no significant differences in dependency ratio between households in different FCG. Brutalities during the civil war led to a large number of amputees. Amputees and other handicapped household members increase the dependency ratio, which influences a household's access to food.

Eleven percent of the households were headed by women. On average, male headed households had a higher dependency ratio than households headed by women. There is no significant difference between the districts with regards to the mean age of the household heads, which was 48 years for the whole country. However, the Southern and Eastern Provinces have larger proportions of households headed by younger people.

**Table 2: Percentage of male and female headed households, average age of household head, handicapped household members, and dependency ratio by district**

<i>District</i>	<i>Male Headed HH (%)</i>	<i>Female Headed HH (%)</i>	<i>Mean age of HH head (Years)</i>	<i>Mean dependency ratio</i>	<i>Handicapped HH members (%)</i>
Bo	94	6	47	1.3	12
Bombali	91	8	50	1.7	9
Bonthe	82	18	47	1.5	11
Kailahun	86	14	46	1.8	7
Kambia	97	3	50	1.8	21
Kenema	90	10	47	1.4	9
Koinadugu	91	9	50	1.7	14
Kono	81	19	46	1.4	13
Moyamba	85	15	46	1.4	7
Port Loko	96	4	48	1.5	21
Pujehun	91	9	45	1.5	10
Tonkolili	90	9	52	2.1	23
Western Rural	86	14	47	1.3	8
Average	89	11	48	1.6	13

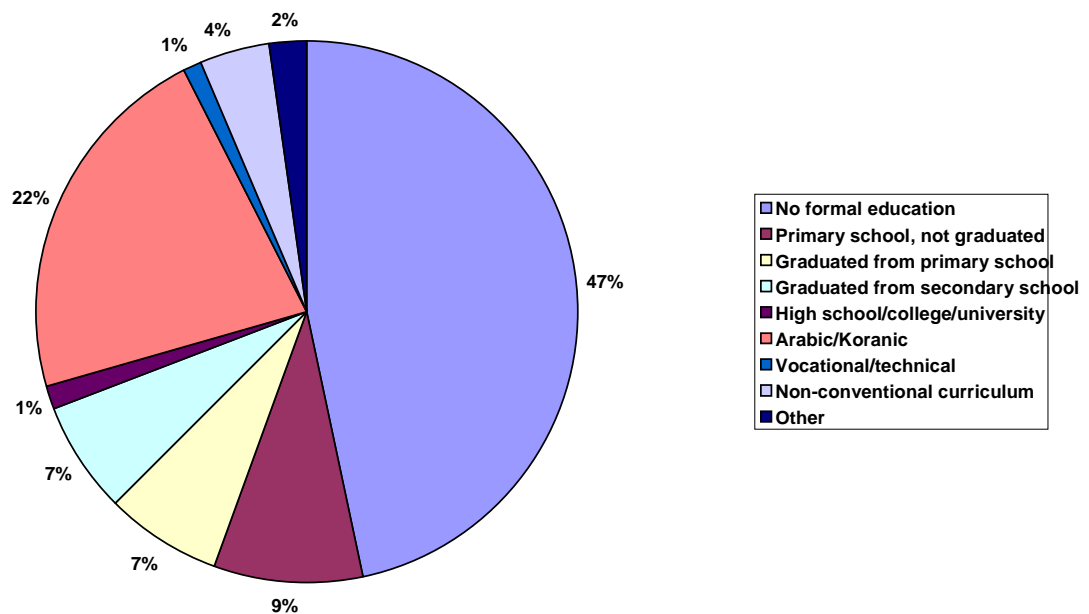
<sup>7</sup> Dependency ratios are calculated by adding up the children under age 15 years and household members above 60 years, and dividing the sum by the number of household members between 15 and 59 years old.

### 2.1.2 Educational attainment of household heads

Education is one of the most important means of empowering households with the knowledge, skills and self confidence necessary to participate fully in the development process of their communities and country at large.

The educational status of household heads in the survey is shown in Figure 1. Almost half of the heads of households have never received any formal education. Among those who have gone to school, the number attending Arabic/Koranic schools was approximately the same as those who attended the formal school system.

**Figure 1: Educational attainment of household heads**



### 2.1.3 School attendance among children in the household by sex

Overall, approximately four out of five households in the survey sent all of their children aged between 7 and 12 years to school. Pujehun, Bonthé and Bombali were the districts with the lowest school attendance rate. There were small differences in school attendance between boys and girls on a national basis, but on district level differences occurred, in some districts female attendance was higher, and in others male attendance.



**Table 3: School attendance among children in the households by sex**

<i>District</i>	<i>Girls 7-12 attending school (%)</i>			<i>Boys 7-12 attending school (%)</i>		
	<i>Attending</i>	<i>Some but not all</i>	<i>Not attending</i>	<i>Attending</i>	<i>Some but not all</i>	<i>Not attending</i>
Bo	88.5	1.0	10.4	86.3	2.1	11.7
Bombali	76.7	13.2	10.1	78.6	14.2	7.2
Bonthe	76.2	8.4	15.3	74.8	6.5	18.7
Kailahun	92.9	0.0	7.1	91.9	0.3	7.8
Kambia	84.2	6.7	9.1	87.8	5.6	6.7
Kenema	85.6	2.7	11.7	83.8	3.8	12.4
Koinadugu	86.4	1.5	12.1	86.9	3.5	9.6
Kono	84.0	1.9	14.2	88.4	2.5	9.1
Moyamba	82.8	1.7	15.5	85.4	1.3	13.3
Port Loko	74.7	9.1	16.2	82.8	7.2	10.0
Pujehun	73.0	2.4	24.6	65.2	6.1	28.7
Tonkolili	82.5	10.9	6.6	81.5	12.7	5.8
Western Rural	90.9	0.0	9.1	96.3	0.7	3.0
Average	83.0	4.6	12.5	83.8	5.1	11.1

The reasons provided for children not attending school were similar for girls and boys. While more than a quarter of the children stayed at home because they were not interested in schooling, others stayed at home because they had to work in the family or school expenses were too high, or the school was too far away.

**Table 4: Reasons for children not attending school by sex**

<i>Reason for non-attendance</i>	<i>Girls %</i>	<i>Boys %</i>	<i>Average %</i>
School too far	14.4	16.2	15.3
School fees too high	9.7	7.8	8.8
Other school expenses too high	18.5	15.3	16.9
Have to work in the family	16.3	18.6	17.5
Have to work for an income	4.6	7.8	6.2
Not interested in schooling	36.5	34.2	35.4
Total	100.0	100.0	100.0

#### 2.1.4 Households that send their children to school in other villages

About half of the households sent their children to schools located in other villages. The vast majority of them (93 percent) said they did so because their own village lacked a primary school. Of those who had to walk to school, 41 percent walked for less than 30 minutes, as many as 51 percent walked between half an hour and an hour, while 18 percent walked for more than an hour to get to school.

**Table 5: Percentage of households that send their children to school in other villages and villages without a functioning primary school**

<i>District</i>	<i>% of HH who send children to school in other villages</i>	<i>% of villages without a functioning primary school</i>
Bo	45	38
Bombali	50	-
Bonthe	62	70
Kailahun	72	88
Kambia	47	-
Kenema	51	57
Koinadugu	36	-
Kono	51	47
Moyamba	34	-
Port Loko	63	-
Pujehun	57	74
Tonkolili	55	-
Western Rural	45	-
Average	51	-

ND: No village level data available in districts with (-), as village survey only conducted in East and South.

The data shows that villages with the provision of school meals (by WFP or other agencies) had significantly higher school attendance for both boys and girls. This suggests that school feeding is an effective measure to increase attendance rates.

**Table 6: School attendance and provision of school meals at nearest school**

	<i>School meals (%)</i>	<i>No school meals (%)</i>	<i>Average (%)</i>	
Girls*	Attend	90	83	87
	Some but not all attend	1	3	2
	Don't attend	9	14	12
Boys**	Attend	90	80	85
	Some but not all attend	2	3	3
	Don't attend	9	16	13

\*Differences statistically significant at  $p < 0.001$  level.

\*\*Differences statistically significant at  $p < 0.01$  level.

### 2.1.5 Food Consumption Groups and provision of school meals

Households in villages where school meals were provided at the nearest school had higher average food consumption than households in villages without school meals. As meals that are consumed at school are not recorded as part of the household food consumption, the difference is not due to the school feeding programmes as such. Instead, communities with better average food consumption also seem more likely to be targeted for food for education programmes. There may be several reasons for this. For example, villages accessible by road have had a greater tendency to have school feeding programmes. As the objective of the school feeding programmes is improving the access to education rather than nutrition, providing school meals for children from households with adequate food consumption is not a problem in itself. However, the effects of school meals on attendance rates and children's ability to learn are greater if they are provided in villages with a high proportion of food insecure households.

**Table 7: Food Consumption Groups and provision of school meals at nearest school**

	<i>% of households</i>		
	<i>School meals</i>	<i>No school meals</i>	<i>Average</i>
Poor*	1	3	2
Borderline*	24	25	25
Adequate*	75	72	73

\* Difference statistically significant at  $p < 0.05$  level

Households in different FCG have various levels of school attendance. Children in households that have adequate food consumption are more likely to go to school than children from households with borderline or poor food consumption. The same pattern is observed when the

mean consumption scores of households with children inside and outside school are compared – households with children in school have higher average FCS than households with children outside school.

**Table 8: School attendance, total for boys and girls by Food Consumption Group**

<i>Food Consumption Group</i>	<i>% of households</i>		
	<i>Attending</i>	<i>Some but not all attend</i>	<i>Not attending</i>
Poor	60	8	32
Borderline	82	6	13
Adequate	83	6	11
Average	75	7	19

## **2.2 Food availability and market integration**

### **2.2.1 Food availability**

Food availability in Sierra Leone depends largely on domestic production and marketing. Agricultural production in the country however, is predominantly rain fed; both total and spatial distribution of rainfall is critical to production. There is one main production season (May to November) throughout the country, with a short second season in some areas. In general, cropping patterns are determined by five distinct agro-ecologies. At the risk of oversimplification, these can be considered as falling under two broad categories namely: uplands and lowlands. Rice farming, mostly on a subsistence scale, dominates agricultural production throughout the country. In addition to growing their staple food rice, the farmers cultivate a variety of other food crops, often in small amounts. Some livestock, cash crops, fishing, forest resources and off-farm income activities also characterize this sector to various degrees. Most farming communities, however, face considerable hurdles to sell their produce to generate income due to poorly developed road and market infrastructures, limited storage and processing facilities, and high transaction costs.

### **2.2.2 Food crop production in 2006/2007 season**

The survey asked respondents about the area cultivated and amount harvested of the main food crops including rice, maize, cassava, sweet potatoes, and groundnut. Rice is divided into upland, inland valley swamps (IVS), and others. IVS rice is the most commonly cultivated in the lowlands. Table 9 presents the percentage of households that reported having cultivated these crops in the past year, in any quantity. Overall, upland rice (63 percent) was the most commonly cultivated. More than 70 percent of the sampled households of Tonkolili, Port Loko, and Bo cultivated upland rice. Cassava (51 percent) was the second most widely cultivated crop, followed by IVS rice (50 percent), groundnut (20 percent), sweet potatoes (11 percent) and other rice crops such as mangrove, boliland<sup>8</sup> and riverain rice. Less than 4 percent of the sample households cultivated maize. Kambia and Bonthe districts had the highest percentage of households cultivating other rice.

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<sup>8</sup> Bolilands are areas flooded in the rainy season and dry and hard in the dry season.

**Table 9: Percentage of households who cultivated food crops in 2006/2007 season by district**

<i>District</i>	<i>% of households</i>						
	<i>Rice Upland</i>	<i>Rice IVS</i>	<i>Rice Others</i>	<i>Maize</i>	<i>Cassava</i>	<i>Sweet Potatoes</i>	<i>Groundnut</i>
Bo	75	33	1	13	66	5	10
Bombali	69	68	7	1	38	10	33
Bonthe	41	26	20	0	85	7	7
Kailahun	65	48	1	1	46	4	6
Kambia	53	57	34	3	53	18	22
Kenema	61	56	0	2	43	7	9
Koinadugu	61	67	1	12	32	21	38
Kono	60	49	0	8	30	17	13
Moyamba	69	31	10	1	70	7	18
Port Loko	78	76	3	2	65	17	32
Pujehun	67	51	5	1	72	13	23
Tonkolili	91	73	10	1	40	6	19
Western Rural	24	17	1	1	16	15	34
Average	63	50	7	4	51	11	20

### 2.2.3 Aggregate food production in 2006/2007

Production of main food crops was estimated at national, regional and district levels for the 2006/2007 cropping season using a model developed by the Planning, Evaluation, Monitoring and Statistics Division (PEMSD) of the MAFFS. This model estimates the total production of food crops by multiplying the area cultivated in hectare with the average yield per hectare. The area planted with food crops is derived by multiplying the number of cultivators (farm households) with the average farm size, using population projections based on the 2004 census. Crop yields were estimated using a combination of survey results, cross-checked by crop-cut data collected by the MAFFS during the 2006/2007 cropping season. The crops covered include rice, maize, cassava, sweet potatoes and groundnut.

## 2.2.4 Rice production in 2006/2007

Rice is the most important crop in Sierra Leone. Apart from being a part of the daily diet, it is grown widely across all districts. Upland, lowland and other varieties are cultivated in some quantity in nearly all districts.

As Table 10 illustrates, production of upland rice was highest in the districts of Kailahun and Port Loko (both 13 percent of national total), followed by Kenema (11 percent). The districts of Bo and Moyamba also had substantial production of upland rice, with each contributing above 10 percent of the national aggregate. At the lower end of the production scale for upland rice are the districts of Kambia, Bonthe, and Western Rural, where production was less than 5 percent of the national aggregate.

**Table 10: Production of upland rice in 2006/2007 season by district**

<i>District</i>	<i>Estimated number of cultivators</i>	<i>Average farm size (ha)</i>	<i>Average yield (mt/ha)</i>	<i>Estimated total prod.(mt/ha)</i>	<i>Portion of national total (%)</i>
Bo	30,917	1.41	0.59	25,625	11
Bombali	28,835	0.87	0.57	14,252	6
Bonthe	8,315	1.23	0.64	6,526	3
Kailahun	35,986	1.10	0.80	31,840	13
Kambia	16,911	0.99	0.58	9,719	4
Kenema	32,702	1.09	0.74	26,366	11
Koinadugu	18,194	1.53	0.64	17,929	8
Kono	22,402	1.07	0.70	16,716	7
Moyamba	26,219	1.18	0.80	24,816	10
Port Loko	41,524	1.22	0.59	30,190	13
Pujehun	16,057	1.25	0.79	15,839	7
Tonkolili	29,332	1.17	0.50	17,149	7
Western Rural	5,863	0.86	0.29	1,474	1
Total /Average	313,257	1.15	0.63	238,441	100

Table 11 illustrates that Kambia district was, however, the highest producer of lowland rice with 16 percent contribution to total national production. Other districts with high levels of lowland rice production included Bombali (15 percent), Port Loko (13 percent), and Tonkolili (12 percent). Significant regional disparities exist in terms of rice production, with lowland rice being concentrated in the Northern Province, while the upland rice is

mainly in the Eastern Province. In general, lowland rice production was lower in the Southern Province and Western Area as compared to Northern Province and Eastern Province.

**Table 11: Production of lowland rice in 2006/2007 season by district**

<i>District</i>	<i>Estimated number of cultivators</i>	<i>Average farm size (ha)</i>	<i>Average yield (mt/ha)</i>	<i>Total production (mt)</i>	<i>Portion of national total (%)</i>
Bo	13,696	0.58	1.20	9,571	3
Bombali	31,345	1.70	1.00	53,286	15
Bonthe	9,391	1.00	1.37	12,819	4
Kailahun	26,325	0.72	1.30	24,640	7
Kambia	28,722	1.17	1.65	55,393	16
Kenema	29,954	0.70	1.22	25,581	7
Koinadugu	20,126	1.15	1.21	28,076	8
Kono	18,108	0.82	1.35	20,045	6
Moyamba	15,476	0.83	1.40	17,986	5
Port Loko	42,276	1.11	0.95	44,448	13
Pujehun	13,489	0.64	1.42	12,321	4
Tonkolili	33,139	1.23	1.01	41,169	12
Western Rural	4,530	0.96	0.97	4,228	1
Total / Average	286,577	0.97	1.23	349,563	100

Table 12 provides estimates of rice production at the national and district levels by ecology. Total production of rice countrywide was estimated at 588,004 metric tonnes (milled rice) of which 59 percent were produced on the lowlands, while the uplands accounted for 41 percent. As shown in Table 12, overall, the rice production level in 2007 was highest in the district of Port Loko (with 13 percent share of national total), followed by Bombali (11 percent), Kambia (11 percent), Tonkolili (10 percent), Kailahun (10 percent) and Kenema (9 percent).



**Table 12: Levels of rice production in 2006/2007 season by district and ecology**

<i>District</i>	<i>Total lowland production (mt)</i>	<i>Total upland production (mt)</i>	<i>Total production (mt)</i>	<i>Portion of national total (%)</i>
Bo	9,571	25,625	35,196	6
Bombali	53,286	14,252	67,538	11
Bonthe	12,819	6,526	19,345	3
Kailahun	24,640	31,840	56,480	10
Kambia	55,393	9,719	65,112	11
Kenema	25,581	26,366	51,947	9
Koinadugu	28,076	17,929	46,005	8
Kono	20,045	16,716	36,761	6
Moyamba	17,986	24,816	42,802	7
Port Loko	44,448	30,190	74,638	13
Pujehun	12,321	15,839	28,160	5
Tonkolili	41,169	17,149	58,318	10
Western Rural	4,228	1,474	5,702	1
Total	349,563	238,441	588,004	100

### 2.2.5 Area cultivated with rice in 2006/2007 season

The total area planted with rice in the 2006/2007 cropping season was estimated at 659,487 hectares, which comprised of upland rice area (55 percent) and lowland rice area (45 percent). Table 13 shows the distribution of rice areas by district and ecology. On the uplands, Port Loko district cultivated the largest area (14 percent of national total), followed by Bo (12 percent) and Kailahun (11 percent). Other districts that accounted for a significant share of the upland rice area include Kenema, Tonkolili, Moyamba and Koinadugu. Bonthe and Kambia district along with Western Rural had the smallest area planted with upland rice.

For lowland rice, Bombali district cultivated the largest area (18 percent of national total), followed by Port Loko (16 percent), Tonkolili (14 percent) and Kambia (11 percent). As traditional lowland rice growing areas, these districts have higher levels of mechanization with larger farms and greater commercialization of rice. Other districts with significant share of the total area cultivated with lowland rice included Koinadugu (8 percent), Kenema (7 percent), and Kailahun (6 percent). Western Rural, Bonthe and Pujehun districts had less than 3 percent share each, of the total area cultivated with lowland rice nation-wide in 2006/2007.

**Table 13: Area under rice production in 2006/2007 by district and ecology**

<i>District</i>	<i>Upland rice</i>		<i>Lowland rice</i>		<i>All Rice</i>	
	<i>Total area cultivated (ha)</i>	<i>Portion of national total</i>	<i>Total area cultivated (ha)</i>	<i>Portion of national total</i>	<i>Total area cultivated (ha)</i>	<i>Portion of national total</i>
Bo	43,489	12	7,976	3	51,464	8
Bombali	25,025	7	53,286	18	78,311	12
Bonthe	10,259	3	9,357	3	19,616	3
Kailahun	39,585	11	18,954	6	58,539	9
Kambia	16,797	5	33,571	11	50,369	8
Kenema	35,718	10	20,968	7	56,685	9
Koinadugu	27,808	8	23,203	8	51,011	8
Kono	23,983	7	14,848	5	38,831	6
Moyamba	30,989	9	12,847	4	43,836	7
Port Loko	50,787	14	46,787	16	97,575	15
Pujehun	20,118	6	8,677	3	28,795	4
Tonkolili	34,274	9	40,761	14	75,035	11
Western Rural	5,062	1	4,358	2	9,421	1
<b>Total</b>	<b>363,894</b>	<b>100</b>	<b>295,593</b>	<b>100</b>	<b>659,487</b>	<b>100</b>

### 2.2.6 Rice production in 2006/2007 compared with 2004/2005

Table 14 shows paddy production figures for the 13 districts in both 2004/2005 and 2006/2007. In aggregate, rice production is estimated to be 12 percent higher in 2006/2007 compared to 2004/2005. Comparing the two periods at the district level, however, yields a very mixed result with seven districts showing positive changes in production, while the other six districts indicate a decline in the production level as compared to 2004/2005. In percentage terms, increase in paddy production was highest in the districts of Bonthe (274 percent), followed by Bombali (74 percent), Tonkolili (51 percent), Port Loko (39 percent), and Kambia (36 percent). The districts which showed a lower production in 2006/2007 compared with 2004/2005 were Pujehun (-30 percent), Kenema (-23 percent) and Kailahun (-17 percent).

Table 14 shows also that the overall area planted with rice increased by 28 percent in 2006/2007 in comparison to the 2004/2005 cropping season. Expansion in the area cultivated was particularly big in Bonthe and Bombali, where total area cultivated with rice increased by 321 and 112 percent respectively. The districts of Pujehun, Kenema and Kailahun showed reduction in cultivated area. In general, progress in terms of expansion in

the area cultivated may be partly attributed to an increase in the size of farms that cultivated rice in 2006/2007 compared to 2004/2005.

**Table 14: Paddy production and area cultivated in 2006/2007 compared to 2004/2005 by district**

<i>District</i>	<i>Paddy production (Mt.)</i>			<i>Area cultivated (ha)</i>		
	<i>2006/2007</i>	<i>2004/2005</i>	<i>% Change</i>	<i>2006/2007</i>	<i>2004/2005</i>	<i>% Change</i>
Bo	35,196	32,236	9	51,464	37,236	38
Bombali	67,538	38,891	74	78,311	37,000	112
Bonthe	19,345	5,177	274	19,616	4,657	321
Kailahun	56,481	67,631	-17	58,539	61,253	-4
Kambia	65,111	47,999	36	50,369	32,038	57
Kenema	51,947	67,538	-23	56,685	72,114	-21
Koinadugu	46,005	49,043	-6	51,011	38,578	32
Kono	36,761	36,001	2	38,831	29,686	31
Moyamba	42,802	42,960	0	43,836	42,948	2
Port Loko	74,638	53,827	39	97,575	66,929	46
Pujehun	28,160	40,423	-30	28,795	43,544	-34
Tonkolili	58,317	38,727	51	75,035	44,714	68
Western Rural	5,702	6,164	-8	9,421	6,481	45
Total	588,004	526,617	12	659,487	517,178	28

### **2.2.7 Rice self-sufficiency status at district level in 2006/2007**

The total net production of rice has continued to recover from the impact of the civil war with substantial marketable surpluses in a few districts, especially Kambia and Moyamba. From 2004/2005 to 2006/2007 aggregate production increased from 526,617 metric tonnes to about 588,004, an increase of 12 percent. Yields remained very low though, with an average 0.63 metric tonnes per hectare in upland cultivation and 1.23 metric tonnes per hectare in the lowlands. This means that the increase in production was due to an expansion of farm sizes rather than yield. Despite an increase in rice production, the total national production did not meet the total consumption requirements; national self sufficiency level in rice was estimated at 63 percent, which is equal to a deficit of 200,000 metric tonnes per year. Hence, the country's food availability continued to depend on domestic production of secondary staples such as tubers (cassava and sweet potatoes) and import of rice (especially for the Western Urban area) to meet food needs. Differences in the self sufficiency levels of rice existed between the districts. Out of the 13 districts in the

country, only two, Kambia and Moyamba, were self-sufficient in rice, and another four, Bombali, Koinadugu, Port Loko and Tonkolili were close to being so. The districts with rice deficit are generally those with large urban non agricultural population such as Bo, Kenema, Kono and Western Area.

**Table 15: Rice production and self sufficiency status by district in 2006/2007**

<i>District</i>	<i>Population estimate 2007</i>	<i>Estimate of consumption requirement* (mt)</i>	<i>Gross paddy production** (mt)</i>	<i>Milled rice equivalent*** (mt)</i>	<i>Self sufficiency level (%)</i>
Bo	557,605	57,991	35,196	21,118	36
Bombali	413,147	42,967	67,538	40,523	94
Bonthe	140,899	14,654	19,345	11,607	79
Kailahun	391,895	40,757	56,480	33,888	83
Kambia	286,953	29,843	65,112	39,067	131
Kenema	551,800	57,387	51,947	31,168	54
Koinadugu	281,701	29,297	46,005	27,603	94
Kono	263,902	27,446	36,761	22,057	80
Moyamba	228,588	23,773	42,802	25,681	108
Port Loko	467,000	48,568	74,638	44,783	92
Pujehun	287,200	29,869	28,160	16,896	57
Tonkolili	364,873	37,947	58,318	34,991	92
Western Rural	226,440	23,550	5,702	3,421	15
Western Urban	881,197	91,645	-	-	0
<b>Total</b>	<b>5,343,200</b>	<b>555,693</b>	<b>588,004</b>	<b>352,802</b>	<b>63</b>

\* Per capita rice requirement of 104 kg/year

\*\*Total seed, other uses & losses at 5%

\*\*\*Milling recovery rate of 60%

## 2.2.8 Production of secondary food crops in 2006/2007 season

Table 16 gives production estimates for the other major food crops, including cassava, sweet potatoes, maize and groundnut at national and regional levels for the 2006/2007 cropping season. As with rice, production estimates for these crops were derived using a combination of the field data collected by this survey and secondary data obtained by other field surveys including crop cuts and post-harvest studies, carried out by MAFFS, and the provisional figures of the 2004 population census.

<sup>9</sup> Milling recovering rate is the average milling gain (manual and mechanical) when milling paddy to rice.

**Table 16: Production of secondary food crops in 2006/2007**

<i>Region</i>	<i>Maize</i>		<i>Cassava</i>		<i>Sweet Potatoes</i>		<i>Groundnut</i>	
	<i>Production (mt)</i>	<i>Area (ha)</i>	<i>Production (mt)</i>	<i>Area (ha)</i>	<i>Production (mt)</i>	<i>Area (ha)</i>	<i>Production (mt)</i>	<i>Area (ha)</i>
Eastern	9,298	2,289	262,054	44,666	47,624	6,974	10,418	7,348
Northern	15,385	7,418	365,592	73,412	71,267	12,488	74,351	38,784
Southern	11,793	6,392	596,599	103,486	32,094	5,565	26,379	13,077
Western	569	270	12,607	2,322	7,234	1,268	7,701	5,688
Total	37,045	16,369	1,236,852	223,887	158,219	26,295	118,849	64,897

*Maize production:* Aggregate production of maize in 2006/2007 was 37,045 metric tonnes, as compared to 32,125 metric tonnes in 2004/2005, an increase of 13 percent. Across the regions, production was highest in the Northern Province, followed by the Southern Province, Eastern Province and Western Area in that order. Yields were highest in the Eastern Province with about 4 metric tonnes per hectare while the other regions had yields about half of this.

*Cassava production:* For the entire country, production of cassava in the 2006/2007 crop season was estimated at 1,236,852 metric tonnes, with yields ranging from 4.9 metric tonnes per hectare in the Northern Province to 5.8 metric tonnes per hectare in the Eastern and Southern Provinces. Regional contribution to the total national production was of the following order: Southern Province 48 percent, Northern Province 30 percent, Eastern Province 21 percent and Western Area 1 percent.

*Sweet potato production:* Total production of sweet potatoes at the national level was estimated at 158,219 metric tonnes as compared to 153,196 metric tonnes in the 2004/2005 cropping season, representing a marginal 3 percent increase in production. The average yield was 6 metric tonnes per hectare with the Eastern Province having the highest yield (6.8 metric tonnes per hectare). The regional distribution of the total production was of the following order: Northern Province 45 percent, Eastern Province 30 percent, Southern Province 20 percent and Western Area 5 percent.

*Groundnut production:* Production of groundnuts in 2006/2007 was estimated at 118,849 metric tonnes compared to 56,557 metric tonnes in 2004/2005, or an increase of 100 percent. Of the total national production of groundnuts in 2007, 63 percent was produced

in Northern Province, 22 percent in Southern Province, 9 percent in Eastern Province, and 6 percent in the Western Area.

### 2.2.9 Plantation ownership by type of tree crop

Households were asked if they had any tree crop plantations and how long ago the plantation was established. The tree crops that were found to have a major economic importance are cocoa, coffee and oil palm. Cocoa and coffee were the two major export crops before the civil war and a major source of cash income for many farmers in the Eastern and Southern Provinces of the country. These were grown under smallholder conditions in plantations of 0.5-2.0 hectares<sup>10</sup>.

**Table 17: Plantation ownership by type of tree crop and district**

<i>District</i>	<i>% of households owning</i>			
	<i>Cocoa</i>	<i>Coffee</i>	<i>Oil Palm</i>	<i>Cashew</i>
Bo	22.0	23.5	61.0	0.0
Bombali	0.0	0.0	30.3	0.5
Bonthe	0.4	1.2	31.5	0.0
Kailahun	82.3	66.2	45.4	0.3
Kambia	0.4	0.2	35.8	0.4
Kenema	54.0	54.4	39.9	0.3
Koinadugu	2.6	5.9	20.5	0.4
Kono	44.4	61.0	8.7	0.2
Moyamba	0.4	3.6	16.5	0.0
Port Loko	0.3	0.0	23.5	1.2
Pujehun	22.2	30.6	54.1	1.1
Tonkolili	0.3	1.0	55.0	0.3
Western Rural	0.0	0.0	1.9	0.0
Average	17.6	19.0	32.6	0.4

Table 17 above presents the proportion of sampled households that reported owning plantations of any crop. On the whole, oil palm plantation (33 percent) was the most common among sampled households, being cited by respondents in all the districts. More than one-fourth of the sampled households of Bonthe, Kailahun, and Tonkolili, reported having oil palm plantations. Coffee plantation was the second most widely cited by sampled households,

<sup>10</sup> Agricultural Sector Master Plan for Sierra Leone, 1992

reported by on average 19 percent of them, followed by cocoa (18 percent). Less than one percent of the sampled households reported having cashew plantations.

### **2.2.10 Level of tree crop rehabilitation**

Due to many years of abandonment because of the civil war, vast areas of plantations totally reverted to bush with over-grown weeds and epiphytes. Since the cessation of violence, farmers have returned to their communities and started to rehabilitate their plantations. In the survey, farmers were asked to indicate what proportion of their plantations they had been able to rehabilitate since the end of the war in 2002. Table 18 below presents the proportion of households that reported rehabilitation of various tree crops since then.

*Cocoa:* Over 90 percent of the cocoa plantations in the country were located in the Eastern districts of Kailahun, Kono and Kenema before the war but only around one third had been rehabilitated. On average farmers in Pujehun were found to have rehabilitated the highest proportion around 53 percent of their cocoa plantation, followed by those in Kenema (39 percent), Kailahun (36 percent), Koinadugu (35 percent), Bo (34 percent) and Kono (30 percent).

*Coffee:* Coffee plantations were found in all three Eastern districts and in Bo and Pujehun districts in the South and Koinadugu and Tonkolili districts in the North. For all of these districts, the survey showed that coffee growers had not been able to rehabilitate large portions of their plantation areas. On average, farmers had rehabilitated about one-fifth of their plantation areas. As with cocoa, the proportion of coffee plantations rehabilitated was higher in Pujehun district as compared to the main coffee growing districts of Kailahun, Kenema and Kono. There may also be a lack of interest among coffee growers to rehabilitate old plantations or even replant new ones possibly due to falling prices of coffee on the world market.

*Oil palm:* Palm products contribute to household nutrition as edible oil and provide a source of income for many rural households throughout the country. Unlike cocoa and coffee, oil palm plantations exist in all of the regions of the country. On average, farmers have rehabilitated more area of oil palm plantations as compared to coffee and cocoa. For the entire sample, the average area of farmers' oil palm plantation rehabilitated was about 60 percent of the whole oil palm area; in Kailahun and Kenema districts it was lowest at about 30 percent.

**Table 18: Status of plantation rehabilitation by district**

<i>District</i>	<i>Cocoa Plantation</i>		<i>Coffee Plantation</i>		<i>Oil Palm</i>	
	<i>Average Size (acre)</i>	<i>% rehabilitated</i>	<i>Average Size (acre)</i>	<i>% rehabilitated</i>	<i>Average Size (acre)</i>	<i>% rehabilitated</i>
Bo	2.5	30	3.9	30	5.9	67
Bombali	0.0	0	0.0	0	3.7	70
Bonthe	1.5	10	2.8	33	4.4	66
Kailahun	5.1	36	4.1	23	4.0	31
Kambia	0.0	0	0.0	0	4.0	79
Kenema	3.6	40	3.1	21	3.7	29
Koinadugu	3.2	35	2.9	31	2.9	58
Kono	3.3	29	4.3	31	2.6	50
Moyamba	5.5	10	3.3	37	3.3	74
Port Loko	0.0	0	0.0	0	3.9	52
Pujehun	3.6	53	3.7	45	4.3	61
Tonkolili	3.0	10	1.8	17	4.3	69
Western Rural	0.0	0	0.0	0	2.2	60
Average	2.4	19	2.3	21	3.8	59

### 2.2.11 Infrastructure

Car accessibility determines both how easy it is for villagers to sell their crops outside the village and their opportunities for buying food and other goods from elsewhere. Of all villages sampled, 78 percent were accessible by trucks or 4 wheel drives. Of these, 23 percent had roads that were passable throughout the year, while the rest of the villages were accessible only during parts of the year, typically cut off for a period of 2-3 months. Even when the roads are passable, most cannot be used by normal cars. This significantly increases transportation costs and makes many tree crop farmers dependent on particular buyers who arrive in the village with 4 wheel drives.

Poor transport means that farmers growing a small surplus are often unable to take it to the market. Because of this, they may be unable to earn money that could be re-invested in the production and lead to a gradual improvement of yields. A study by the West Africa Rural Development Association (WARDA) suggests that due to poor transportation infrastructure, surpluses from highly productive but remote areas do not reach the urban markets, where the prices are higher. The study also concluded that poor road conditions and low produce prices forced farmers to transport rice across the border to Liberia or Guinea from Kailahun, Kono



and Pujehun districts.<sup>11</sup> The Government of Sierra Leone estimated that the road conditions were the worst in the country in the Eastern Province after the war<sup>12</sup>.

### 2.2.12 Market integration

Only one of the 284 villages where the village questionnaire was administered had a permanent market where food was on sale. An additional five villages had a periodic market where food was sold. Half of the villages in the surveyed area were located less than 7 miles from the nearest market, and 18 percent were 2 miles or less from the nearest market. A journey of 15 miles or more to the nearest market was required in 22 percent of the villages, and six percent had to travel more than 30 miles to reach a market. The nearest market was in most cases open several days a week, and in 41 percent of the cases weekly. Only two villages replied that the nearest market was open only a few times a month.

**Table 19: Percentage of food availability in nearest market**

	<i>% of villages</i>		
	<i>Always or almost always available</i>	<i>Occasionally available</i>	<i>Never available</i>
Imported rice	83	15	2
Local rice	41	59	0
Cassava	65	33	2
Cultivated yams	31	64	5
Bananas/plantains	51	47	1
Vegetables/fruits	70	30	0
Beans	55	44	1
Fish	85	15	0
Meat	27	52	21
Palm oil	91	9	0
Groundnuts	72	27	0
Salt	99	1	0
Food aid items	43	31	24

<sup>11</sup> WARDA (2005) *Policies and strategies for promoting food security in Sierra Leone* <http://www.warda.org/workshop/RicePolicy/Alieu/Alieu.E.Sub%20Sierra%20Leone.Paper.pdf>

<sup>12</sup> Government of Sierra Leone (2004) *Agricultural sector background review for the PRSP* [http://www.daco-sl.org/encyclopedia/7\\_lib/7\\_2/sector/7\\_2a\\_agr/PRSP\\_final\\_agr.pdf](http://www.daco-sl.org/encyclopedia/7_lib/7_2/sector/7_2a_agr/PRSP_final_agr.pdf).

Imported rice, fish, palm oil and salt are goods that were available most of the time in almost all of the markets. Meat is the only product that was never available in a substantial number of cases. The availability of local rice may be subject to seasonal variations. However, it is worth noting that in all of the markets, local rice was on sale at least during parts of the year. This implies that households that decide to sell rice have the opportunity to do so. Increase in rice production may thus be stimulated by an increase in demand for local rice in the market. Almost half of the respondents said that food aid items were almost always available in the nearest market, implying that a portion of food aid does not reach the intended beneficiaries or is sold by them.

To assess to what degree availability is a problem, the village interview contained a question of whether a family with money would still have problems buying the desired food during particular periods. In 83 percent of the villages, people interviewed did not think that buying the food needed would be a problem at any time provided that the family had money. This suggests that *food access is a greater problem than food availability*.

**Table 20: Agreement with statement regarding market access**

	<i>% of villages</i>			
	<i>True</i>	<i>Partly true</i>	<i>False</i>	<i>Not applicable</i>
A family that has money will have no problems buying whatever food they need at the market at any time during the year	83	5	10	2

Many households invest surpluses from farming in small scale retailing enterprises. Goods traded can typically include cigarettes, candies, batteries, seasoning cubes, onions, and vegetable oil. Trading activity, especially going into town to buy the goods, is busier during the dry season when there is less farm work to be done. It is often a supplementary source of income for the women in the household, who can reinvest income gained through vegetable gardening or in other types of goods to sell. If a man has several wives, they may run their small businesses separately and each keeps the money she earns.

Many of the goods are imported from neighbouring Guinea. The effects of the political unrest in Guinea starting in January 2007 were still felt during the fieldwork period. Below are some

examples of wholesale prices that increased at the Kenema Fisheries market<sup>13</sup> between December 2006 (the pre-crisis period) and mid-May 2007 as a result of the crisis:

- Carton of local cigarettes: Rose from SLL 7,000 to SLL 7,500 (down from SLL 8,000 during the peak of the crisis).
- Packet of chewing gums: Rose from SLL 3,000 to SLL 4,000
- Box of seasoning cubes: Rose from SLL 7,500 to SLL 10,000.
- Bag of onions: Rose from SLL 45,500 to SLL 65,000 (source changing from Guinea to Holland)
- Red meat (one pound): Rose from SLL 5,000 to SLL 5,500.

The price hikes resulted in decreasing profit margins, as well as less predictability for small scale retailers. Some tried to compensate for lower sales due to the higher retail prices by walking to villages further away to sell their goods. The effect of the political crisis in Guinea is an evidence of the close connections between markets in Sierra Leone and its two neighbouring countries. It also exemplifies how political or economic unrest across the border directly impacts on the livelihoods of people in rural Sierra Leone.

### **2.2.13 Agricultural labour**

Most of the sampled households reported hiring labour for farm work. As shown in the tables below, the most common activity to hire labour is for brushing, followed by harvesting and weeding. The labour is often hired in teams that circulate between farms within a certain area. The team members are paid by the day, and many farmers are both employing work groups and participating in them. The work group system allows farmers to undertake work that requires a certain number of people working at the same time, such as brushing. The need for work groups is also determined by the lack of access to farm machines. In addition to providing farmers who sell their labour with an additional source of income, the groups constitute an economic safety net in rural Sierra Leone.

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<sup>13</sup> Kenema Fisheries market is the market where most rural traders in Kenema would purchase goods for retail.

**Table 21: Salary level for agricultural workers (SLL/day)**

		<i>Salary Groups (% of individuals)</i>					<i>Daily median salary (SSL)</i>
		<i>&lt;=2000</i>	<i>2001-4000</i>	<i>4001-6000</i>	<i>6001-8000</i>	<i>&gt;8000</i>	
Children	Clearing	46	22	17	6	9	4,000
	Planting	48	26	15	4	7	3,000
	Weeding	48	28	13	3	7	3,000
	Harvesting	27	46	18	3	6	3,000
Women	Clearing	38	36	20	3	3	5,000
	Planting	22	35	28	8	7	5,000
	Weeding	20	35	30	6	9	5,000
	Harvesting	19	35	33	6	7	5,000
Men	Clearing	10	34	37	8	11	3,000
	Planting	10	35	38	8	10	5,000
	Weeding	16	41	31	5	7	5,000
	Harvesting	1	35	11	36	17	5,000

## **2.3 Food consumption, expenditures, debts, and economic activities**

This section discusses the access dimension of food security. The main indicator used for access is the Food Consumption Score (FCS) which was classified into Food Consumption Groups (FCG) based on standard cutoff points.

### **2.3.1 The Food Consumption Score as a measure of access**

Ideally, food consumption should be analysed through a detailed food consumption survey measuring type and quantity of foods consumed by each individual. This type of method yields valuable data on both caloric and micro-nutrient intake. However, such data collection is very expensive, time-consuming and methodologically difficult. Dietary diversity and food frequency indicators in a household survey are considered a suitable alternative.

FCS has become the standard indicator in WFP food security and vulnerability surveys<sup>14</sup>. It is an approach that captures both dietary diversity and consumption frequency. The score is calculated based on a 7- day recall which captures the important food items and groups. The food items are then divided into 8 different groups, each group with an assigned weight. The weights are based on the food group's quality in terms of caloric density, macro and micro nutrient content, and quantities typically eaten.

- Cereals and tubers. Weight: 2.
- Beans, peas, and nuts. Weight: 3.
- Vegetables and leaves. Weight: 1.
- Fruits. Weight: 1.
- Meat, fish and eggs. Weight: 4.
- Milk, cheese, and other products made from milk. Weight: 4.
- Sugar and sugar products. Weight: 0.5.
- Oil and butter. Weight: 0.5.

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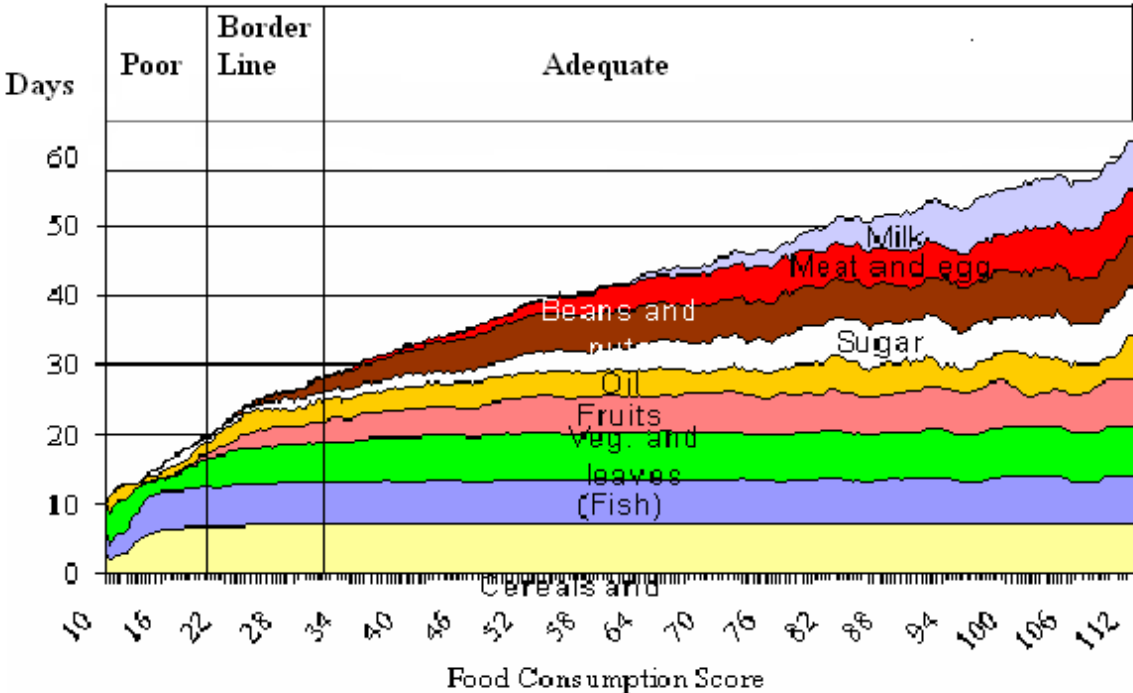
<sup>14</sup> A more detailed outline of the Food Consumption Score approach is provided in the VAM Technical Guidance Sheet *Food Consumption Analysis. Calculations and use of the Food Consumption Score in Food Consumption and Food Security Analysis*. The paper can be obtained through <http://vam.wfp.org>

The maximum number of days counted in one group is 7. For example, a household that ate chicken four days in the past week and eggs five days, still only gets the value “7” in this group, which multiplied by the weight carried by “Meat, fish and eggs” contributes 28 points to the FCS. The score has a range from 0 to a maximum obtainable 112 points.

**2.3.2 Composition of diet at different Food Consumption Scores**

The dietary composition at different FCS is illustrated by the graph below. Those with extremely low scores eat vegetables and cereals/tubers a few days a week only. Cereals and tubers as well as fish are eaten most days a week at all FCS levels but the very low ones. Households with scores between 21 and 35, which are classified as having “borderline” food consumption, also eat vegetables most days a week, for a large part leaves, but they supplement this with oil, fruits, beans and nuts. Among the households with a FCS above 35, classified as having “adequate” food consumption, households are on average eating cereals and tubers, fish, vegetables and leaves nearly on a daily basis, and oil, fruits, beans and nuts several days a week. Sugar, meat and egg, and milk are eaten to a progressive degree as the FCS augments.

**Figure 2: Composition of diet at different Food Consumption Scores**



### 2.3.3 Number of days per week various products are eaten

In order to determine the FCS the number of days in the past week various products were eaten were plotted by district, as reflected in Table 22.

The data collection was undertaken in May. This is the beginning of the lean season, but still five to six months ahead of the harvest. There are seasonal variations in both overall consumption levels and the dietary composition which must be taken into account when interpreting the results. As the table below shows, there was marked regional variation in the mean number of days different products were consumed. The relative importance of various food products within the “Cereals and tubers” group, for example, varied greatly between districts.

**Table 22: Number of days in the past week various products were eaten by district**

<i>District</i>	<i>Rice</i>	<i>Cassava, gari tubers</i>	<i>Bulgur and Corn Soya Blend</i>	<i>Bread</i>	<i>Fish</i>	<i>Chicken/ meat/egg</i>	<i>Beans</i>	<i>Vegetables</i>	<i>Leaves</i>	<i>Bush yams/ wild products</i>	<i>Nuts</i>	<i>Sugar</i>	<i>Milk</i>	<i>Oil</i>
Bo	6.1	4.4	0.6	0.6	6.4	1.1	2.3	2.7	5.9	1.1	1.3	0.1	1.1	5.8
Bombali	6.7	3.2	0.4	0.6	6.7	1.5	3.7	3.2	5.6	1.8	0.6	0.2	1.4	1.3
Bonthe	3.5	8.0	1.4	0.7	6.0	0.7	2.3	2.8	4.9	0.5	0.9	0.1	1.6	3.1
Kailahun	3.5	4.7	0.8	0.5	5.9	1.0	4.1	3.2	5.3	0.5	0.6	0.1	1.1	4.7
Kambia	6.7	3.9	0.8	2.3	6.7	1.5	3.2	2.9	5.0	0.7	1.5	0.1	3.0	0.8
Kenema	3.8	4.0	1.2	1.1	6.2	1.0	2.9	4.1	5.1	1.9	1.0	0.2	1.4	6.0
Koinadugu	6.8	3.6	0.3	1.8	5.8	3.0	3.5	2.3	5.1	2.1	1.0	1.0	3.6	4.0
Kono	5.5	4.4	1.1	2.1	5.5	1.2	4.6	4.2	6.4	2.6	1.0	0.5	3.0	2.0
Moyamba	5.7	6.0	0.3	1.6	6.6	1.6	2.1	3.6	5.7	0.9	1.3	0.5	2.3	4.5
Port Loko	6.9	5.1	0.6	1.7	6.6	1.7	1.9	2.4	5.1	0.4	0.9	0.3	2.1	1.6
Pujehun	5.9	7.4	2.8	0.8	6.4	0.9	2.0	3.8	5.7	0.3	2.4	0.4	1.9	4.9
Tonkolili	6.6	4.3	0.6	1.9	6.6	1.7	3.4	2.6	5.1	1.5	0.6	0.1	2.9	1.5
Western Rural	6.7	5.6	0.4	3.6	6.5	1.9	1.0	2.0	5.1	0.1	0.6	1.9	3.7	3.2
Average	5.7	5.0	0.9	1.5	6.3	1.4	2.8	3.1	5.4	1.1	1.1	0.4	2.2	3.3

### 2.3.4 Food Consumption Scores and Groups

The FCS in the 2007 survey were initially calculated using the method outlined above. This produced a mean FCS that was very high, and 98 percent of the population was categorized as

having “adequate” food consumption. This number was considered unrealistically high in light of the low mean number of meals eaten per day. Other studies, such as the preliminary results of the MICS survey of 2005, as well as WFP’s monitoring and evaluation activities indicate that 2 percent is a gross underestimation of the share of Sierra Leone’s rural population with inadequate food consumption. There is a strong cultural preference for eating rice daily in Sierra Leone, yet 28 percent of the households ate rice only four days per week or less. For the 2007 study, their inability to access the preferred type of staple was considered an indicator of food consumption constraints.

The variable that exerted the largest influence on the scores was fish, which on average was eaten more than six days a week. Dried fish is a common addition to sauce that accompanies rice or cassava, but in many cases the quantities are too small to make a significant contribution to the protein intake of individuals in the household. Because no information on quantities was collected to allow the differentiation between fish as a meal and fish as a condiment, the variable was taken out of the FCS calculation<sup>15</sup>. FCGs were created on the basis of these scores.

The survey was carried out in the peak season for mangoes, and children as well as adults often ate these and other fruits between meals. This consumption is not captured in the survey, which only records food that was prepared and eaten by the household collectively. This is also the case with other snacks or meals eaten by individual household members, such as food served at the work place or school meals. On the other hand, some food items may have been part of the family meal, but only consumed by some members of the family, such as a piece of meat or an egg. The FCS does not reflect such variations in quantities and differences in consumption between different household members.

The average household FCS were determined for each district and grouped into poor, borderline and adequate FCGs. Table 23 shows the results.

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<sup>15</sup> This approach may have led to communities which have a high fish intake (e.g. in Bonthe) being classified as food insecure although they may actually not be.



**Table 23: Mean number of meals for adults and children and percentage of households in each Food Consumption Group by district**

<i>District</i>	<i>Mean number of meals (adults)</i>	<i>Mean number of meals(children)</i>	<i>Food Consumption Group (% of Households)</i>			<i>Mean FCS</i>
			<i>Poor</i>	<i>Borderline</i>	<i>Adequate</i>	
Bo	1.9	2.0	2.5	23.7	73.8	56.7
Bombali	1.7	1.8	3.3	26.0	70.7	35.9
Bonthe	1.3	1.4	8.6	47.7	43.8	45.7
Kailahun	1.3	1.5	0.7	23.9	75.4	45.9
Kambia	1.6	1.6	0.7	21.5	77.8	43.9
Kenema	1.5	2.1	1.6	21.8	76.6	50.4
Koinadugu	1.7	1.7	1.4	11.5	87.2	45.8
Kono	1.8	2.0	1.1	14.9	84.0	42.6
Moyamba	1.8	2.0	0.7	30.0	69.3	45.4
Port Loko	1.6	1.7	2.4	35.6	62.0	41.7
Pujehun	1.9	2.1	1.6	30.0	68.4	44.3
Tonkolili	1.9	1.9	2.5	23.9	73.6	43.8
Western Rural	1.7	1.7	4.5	37.6	57.9	44.8
Average	1.7	1.8	2.4	26.8	70.8	45.1

Bombali district had the lowest mean FCS, 36, whereas Bo (57) and Kenema (50) had the highest. The proportion of households with poor and borderline food consumption was highest in Bonthe (56 percent) and Western Rural (42 percent), while Koinadugu and Kono had the lowest (13 and 16 percent, respectively). Across the country a total of 29 percent of the rural households were found to have poor or borderline food consumption.

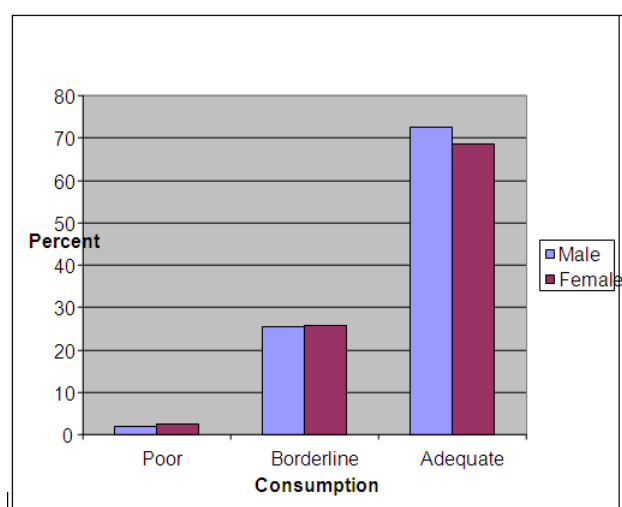
As indicated in Table 23, the mean number of meals eaten per day in the sampled households was 1.7 for adults and 1.8 for children. One third of households prepared only one meal per day for adults, while 22 percent only prepared one meal for children below five years old. Less than one percent of households prepared zero meals for adults or children the day before the questionnaire was administered.

There is a small, but statistically significant difference between the FCGs regarding the average number of meals consumed by adults and children. Households with poor and borderline consumption ate fewer meals than those with adequate food consumption.

### 2.3.5 Sex of household head and food consumption

Female headed households were only slightly more likely to have poor or borderline food consumption than households headed by men. The chart below shows 3 percent and 26 percent of the female households had poor and borderline food consumption respectively compared to their male counterparts with 2 percent and 25 percent respectively. A higher proportion of male headed households had adequate food consumption (73 percent) than female headed (69 percent).

**Figure 3: Food consumption by sex of household head**



### 2.3.6 Expenditure of households

Expenditure data was collected with a six-month recall period for long-term expenditures, and a one-month recall for expenditures on food and certain household goods. The expenditure data provide an indication of the amount of resources available to the household, and is therefore also a useful source of information on household food access. However, it is methodologically challenging to get accurate information on expenditures, as the recall period is long, purchases are made by different family members, and exact amounts are difficult to recall. Low educational attainment makes tracking expenditures more challenging. The interviewers were trained to first ask for goods purchased, then determine the approximate price of these goods together with the respondents, and complete the questionnaire accordingly.

### **2.3.7 Monthly expenditures on food and non-food items by district**

The proportion of total expenditures used for food provides an indication of the households' access to food. The demand for food is usually income inelastic, and poor households tend to reserve a greater proportion of their expenditures for food than wealthier households. The variable is distorted by households that produce food for their own consumption, and thereby need to buy less food. This distortion is especially important when urban and rural households are compared, and presents less of a problem in the current survey, which focused on rural areas where more than 97 percent of the households interviewed are engaged in farming activities.

On average about half of the cash expenditure was used for food. If own production for household consumption was added, the proportion would be above 60 percent, an indication of wide-spread poverty. The highest proportions of cash expenditures for food were found in Moyamba, Bonthe and Pujehun which identifies them as the poorest areas.

An objective of this survey was to identify how levels of food security vary between different socio-economic groups. The expenditure levels for households with different primary economic activities were compared. Households with animal husbandry as their primary economic activity showed higher average non-food and total expenditures than other households. Apart from this, there were no statistically significant differences in expenditures between groups with different main economic activities.

**Table 24: Average monthly expenditures on food and non-food items by district**

	<i>Monthly non-food expenditures (SLL)</i>	<i>Monthly food expenditures (SLL)</i>	<i>Total monthly expenditures (SLL)</i>	<i>% of expenditures on food</i>
Male head of HH	184,879	171,571	356,451	48
Female head of HH	147,902	152,571	300,473	51
Bo	126,877	134,497	262,144	51
Bombali	155,842	161,065	318,250	51
Bonthe	92,775	120,201	214,022	56
Kailahun	106,901	89,135	197,741	45
Kambia	183,847	192,461	377,624	51
Kenema	138,579	136,471	275,551	50
Koinadugu	292,610	177,224	486,892	36
Kono	238,493	183,102	423,826	43
Moyamba	162,361	214,264	378,630	57
Port Loko	231,108	195,010	429,382	45
Pujehun	128,692	148,261	276,953	54
Tonkolili	215,304	217,007	435,759	50
Western Rural	242,641	228,706	471,347	49
Overall average	181,194	169,706	350,899	48

Households with poor or borderline FCS were compared with those with adequate FCS. The proportion of cash expenditure spent on food was about one half in both groups, but there was a significant difference in mean food expenditures – increased cash availability is generally associated with improved diet.

**Table 25: Monthly expenditures on food and non-food items by Food Consumption Group**

<i>Food consumption group</i>	<i>Non-food (SLL)</i>	<i>Food (SLL)</i>	<i>Total (SLL)</i>	<i>% exp on food</i>
Poor or borderline	138,223	144,395	282,618	51
Adequate	198,106	179,420	377,526	48
Average	181,194	169,706	350,899	48

### 2.3.8 Debts by household

Two out of every three households in rural Sierra Leone have borrowed money or food that they have not yet repaid. The nature of these loans ranges from interest-free favours among family or friends to hard loans with high interests and strict conditions for repayment. Of those who paid interest on the money they borrowed, more than half paid an interest of 25

percent or higher between the time of borrowing and repayment, while one in eight households paid more than 50 percent interest.

**Table 26: Households that have borrowed money or food that still need to be paid back by district**

<i>District</i>	<i>in debt (% of households)</i>
Bo	72
Bombali	71
Bonthe	71
Kailahun	74
Kambia	83
Kenema	73
Koinadugu	45
Kono	71
Moyamba	57
Port Loko	71
Pujehun	55
Tonkolili	69
Western Rural	25
Total	66

Households with adequate food consumption had a greater tendency to borrow money than households with poor or borderline consumption. Several explanations are possible. It appears that households with a stronger economic position are both more likely to be granted a loan *and* have better food consumption. On the other hand, it may be that some of the households with adequate consumption are able to maintain these consumption levels only through taking up a loan.

**Table 27: Households that have borrowed money or food that still need to be paid back by Food Consumption Group**

<i>FCG</i>	<i>Borrowed * (% of households)</i>
Poor	62.9
Borderline	64.2
Adequate	67.5

\* Differences statistically significant at  $p < 0.05$  level

Table 28 shows that 52 percent of the households borrowed money in order to buy food. Borrowing money for consumption can easily lead into a debt trap, where households have to keep borrowing to service their loans while keeping a minimum consumption level. As can be seen from the table below, households with poor and borderline food consumption were also more likely to borrow money for food. That is, their food consumption levels stayed inadequate even though they borrowed for consumption, which indicates a high level of vulnerability. Households with adequate food consumption were more likely to borrow money to invest in areas that could further improve their economic status – education, farm labour and agricultural inputs. The mean interest rates were about the same regardless of the consumption level.

**Table 28: The purpose of borrowing money by Food Consumption Group**

<i>FCG</i>	<i>% of households</i>					
	<i>Food</i>	<i>Medical expenses</i>	<i>Education</i>	<i>Paying for labour</i>	<i>Agricultural inputs</i>	<i>Others</i>
Poor	58	12	8	6	12	4
Borderline	51	10	9	13	12	5
Adequate	47	9	9	10	19	6
Average	52	10	9	10	14	5

Only one in ten households had access to agricultural credit. In the East and South the access was especially low. While opportunities for private loans exist, the risks associated with taking up such loans are often exacerbated by high interest rates and short repayment periods. Among those with poor or borderline food consumption, the access to agricultural credit is lower than for households with adequate food consumption. This further hampers their opportunity to invest in their own production in order to increase food production or income, thereby improving their diets.

**Table 29: Access to agricultural credit by Food Consumption Group**

<i>FCG</i>	<i>Access (% of households)</i>
Poor	5
Borderline	9
Good	11

**Table 30: Access to agricultural credit by district**

<i>District</i>	<i>Access (% of households)</i>
Bo	20
Bombali	2
Bonthe	1
Kailahun	2
Kambia	20
Kenema	3
Koinadugu	22
Kono	2
Moyamba	12
Port Loko	2
Pujehun	3
Tonkolili	34
Western Rural	1
Average	10

### 2.3.9 Economic activities and productive assets

The most common economic activity was **food crop farming**. More than 90 percent of households grew food crops as one of the four most important economic activities in each district of Sierra Leone apart from Western Rural, and on average 95 percent of households grew food crops. Of these households, 15 percent had it as their only economic activity, the rest supplemented it with other sources of income.

The second most common activity was **tree crop farming**; on average, 35 percent of the households engaged in this activity. Tree crop farming showed much greater regional variations than food crop farming, and was most important in the Eastern districts of Kono, Kailahun and Kenema, as well as Pujehun and Bo in the South and parts of Tonkolili in the North. In most cases, tree crop farming was combined with food crop farming.

**Palm oil extraction** was the household's most important economic activity in only 2.5 percent of the cases, but many households did it in addition to other activities. This made palm oil extraction the third most frequently cited economic activity, with 31 percent of the farming households being engaged. Kailahun and Port Loko were the districts with most palm oil extraction, 52 and 50 percent respectively.

Similar patterns could be found with **trading**, which was the most important source of income for less than two percent of the households, mostly concentrated in the Western Rural area, but overall provided three out of ten households with a source of income. Of farming households, 38 percent had trading as an additional economic activity. Both trading and palm oil extraction were complementary economic activities to food or tree crop farming for 7 percent of households.

**Table 31: Percentage of households that have different economic activities by district**

<i>Economic activity</i>	<i>District (% of households)</i>													<i>TOTAL</i>
	<i>Bo</i>	<i>Bombali</i>	<i>Bonthe</i>	<i>Kailahun</i>	<i>Kambia</i>	<i>Kenema</i>	<i>Koinadugu</i>	<i>Kono</i>	<i>Moyamba</i>	<i>Port Loko</i>	<i>Pujehun</i>	<i>Tonkolili</i>	<i>Western Rural</i>	
Food crop farming	95	99	96	98	99	93	95	92	91	98	97	99	74	95
Tree crop farming	37	12	16	90	23	65	23	50	8	23	40	29	2	35
Palm oil extraction	36	18	22	52	31	36	18	18	18	50	26	30	6	31
Petty Trading	9	23	28	22	55	30	32	18	17	59	17	21	44	30
Local wage labour	18	25	4	19	20	22	22	29	7	18	19	10	8	18
Animal husbandry	1	14	2	1	11	0	32	5	3	31	7	17	9	11
Skilled labour	4	6	20	10	18	10	6	12	8	19	10	6	18	11
Other	24	15	2	5	11	6	4	6	12	6	9	5	31	10
Remittances	7	22	2	5	28	6	2	2	1	17	11	10	8	10
Wood cutting/coal	11	4	2	1	5	4	8	12	9	25	1	4	27	9
Fishing	5	5	24	2	8	3	3	7	5	9	16	3	11	7
Handicraft	1	2	5	2	1	6	20	2	1	6	7	2	1	4
Mining	8	1	1	1	1	19	3	9	0	0	5	3	1	4
Migrating labour	1	2	8	2	8	1	2	11	0	3	1	0	0	3
Aid	3	2	0	1	4	0	1	3	2	2	2	2	2	2
Mining	4	0	1	0	0	3	1	1	0	1	3	1	0	1

**Fishing** played a particularly important role in the coastal district of Bonthe, while **animal husbandry** was most common in Koinadugu, Port Loko and Tonkolili. Very few households engaged in animal husbandry in the Southern and Eastern Provinces, which can partly be explained by the large exodus from the area with only recent return, which has not allowed restocking of animals. **Migrant remittances** were a common source of income in Kambia and Bombali, and 10 percent of households overall reported remittances as one of their four most important income sources. Kenema, Kono and Bo were the most important **mineral mining** districts, and Kono was also the district with the most migrating labour. **Wood cutting and**



**charcoal production** were especially prominent economic activities in Port Loko and Western Rural, which may be explained by their closeness to the Freetown market.

The data collected through the village questionnaire confirms the results of the household survey. Rice crop farming was cited as the most important economic activity in 58 percent of the villages. Tree crop farming was the most commonly cited second most important economic activity. Palm oil extraction is another important second or third most important economic activity (46 percent of villages). In 50 percent of the villages, farming of food crops other than rice was among the three most important activities.

The fact that almost all households in rural Sierra Leone are farming is reflected in the very high ownership rates of basic agricultural tools such as hoes and cutlasses. In some areas it is common to use knives rather than sickles, and knives were not recorded. Only a small fraction of the households owned the more expensive productive assets of plough and oxen or farm machines.

**Table 32: Productive assets owned by households by district<sup>16</sup>**

<i>Productive Assets (% of households)</i>									
<i>District</i>	<i>Hoe</i>	<i>Cutlass</i>	<i>Axe</i>	<i>Sickle</i>	<i>Water can</i>	<i>Plough &amp; oxen</i>	<i>Boat/canoe</i>	<i>Fishing net</i>	<i>Farm machine</i>
Bo	99	99	90	64	11	16	7	2	2
Bombali	91	97	86	45	3	0	2	1	2
Bonthe	91	95	83	58	5	0	1	1	8
Kailahun	87	89	75	50	2	0	3	0	6
Kambia	98	98	94	37	11	2	7	14	8
Kenema	99	99	97	65	9	1	3	1	2
Koinadugu	95	97	86	53	5	0	5	1	17
Kono	98	98	82	34	1	1	5	15	14
Moyamba	86	92	75	76	4	0	7	4	6
Port Loko	91	95	84	57	3	0	3	8	6
Pujehun	97	97	89	45	19	1	12	6	6
Tonkolili	98	98	83	21	3	1	3	0	1
Western Rural	82	85	78	11	43	1	31	4	8
Average	93	95	85	47	9	2	7	4	7

<sup>16</sup> The high percentage of boats without nets in the Western Rural area and the high percentage of nets without boats in Kono could not be explained.

Access to chemical fertilizers, insecticides, herbicides, motorized farm equipment and agricultural credit, all of which are resources that could help enhance farm production, is low across all districts. The absence of agricultural inputs to enhance production limits the agricultural yields. In addition, gun ownership became prohibited after the war, resulting in larger animals such as monkeys and bush cows becoming an important cause of crop destruction. The rudimentary farming methods suggest that there is a large potential for productivity and income gains in the agricultural sector in Sierra Leone.

### **2.3.10 Migration for work**

In most of the villages, people leave the village temporarily to look for work elsewhere. Rural to rural migration is by far the most common type of migration. Half of those who left moved to villages outside the chiefdom from where they come from, another 29 percent moved to villages within the same chiefdom, and 15 percent to a town or city in Sierra Leone. Mining was the work most commonly undertaken by these migrants, followed by tree crop farming and food crop farming. While 85 percent of the villages had people leaving during certain times of the year to look for work elsewhere, almost as many (79 percent) experienced that people came to the village to look for work. Most of the people came to do agricultural work, either food crop farming or tree crop farming.

Most of those who left the village to find work were men between 25 and 35 years of age. In this age group there were also a sizable number of women and girls who left to find work. Younger and middle aged men were also often among those who left the village temporarily to look for work elsewhere.

### **2.3.11 Poverty, food consumption, and economic activities**

An objective of this survey was to identify differences in food security between livelihood groups. As mentioned above, the two most important economic activities in rural Sierra Leone are rice farming and tree crop farming. Most of those involved in tree crop farming also grow food crops.

*Economic activities:* The comparison is based on whether households reported food crop farming, tree crop farming, both, or neither of the two as one of their four most important economic activities;

*Land cultivated:* The comparison is based on whether households had land planted with rice and/or tree crops; and

*Farm production:* This variable is based on whether households reported that they produced rice and/or coffee/cocoa/palm oil.

The same results were obtained whether the analysis was based on economic activities, land cultivated or production reported: Households involved in tree crop farming (possibly combined with food crop farming or other activities) were more food secure than households not involved in tree crop farming.

**Table 33: Summary of differences between households with different farming activities**

	<i>% of HH with poor or borderline consumption</i>	
Economic activity: Food and tree crops vs. food crop only	23.2	30.1*
Farm production: Rice and coffee/cocoa/palm oil vs. rice only	23.0	27.7*

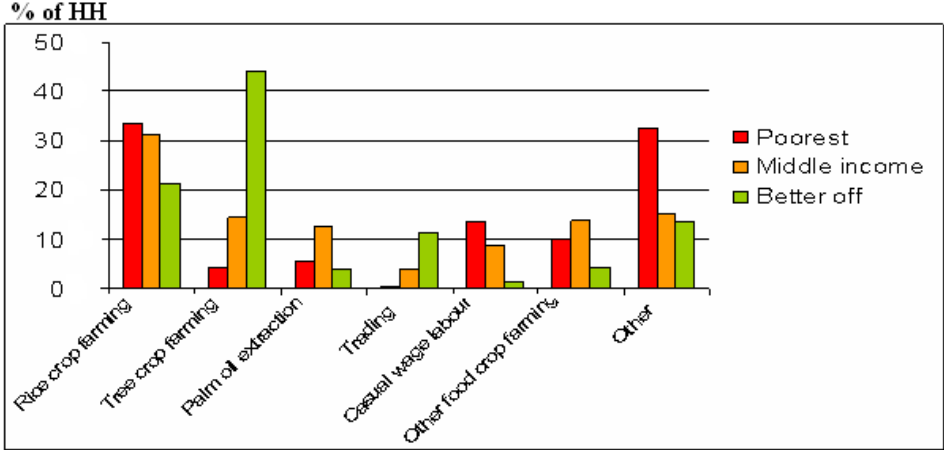
\* Differences statistically significant at  $p < 0,001$  level

The above analysis may provide some indication on the causal relationship between type of farming activities and food consumption. The lower proportion of households with poor and borderline consumption level among those engaged in food and tree/cash crop farming could be a direct result of the combination of the two activities – own production of food and income from cash crops to buy more food. However, adequate food consumption and active tree crop farming could also be joint effects of a common cause, such as having better access to labour or capital, or enjoying a more established position in the village.

Perceptions reported through the village surveys confirm these findings. People were asked to use proportional piling to describe how the village households were distributed between groups that were better off, middle income, and poor. On average, 20 percent of the households were classified as better off, 30 percent as middle income and 50 percent as poor. They were then asked which activities these households were involved in. Households undertaking rice crop farming were represented in all three wealth groups, but constituted a smaller share in the better-off group. Tree crop farming on the other hand, had a great concentration among the households that were better off. The same was the case for trading, however much fewer villages listed trading as the most important activity. Making money

from casual labour and food crop farming other than rice were more common among the poor and middle income than the relatively wealthy. The results are shown in the figure below.

**Figure 4: Villagers’ perception of main livelihood activities of different income groups**



The focus group participants were also asked to validate the statements related to which demographic groups the poor people belonged to. There was widespread agreement that households that had settled in the village after the civil war were more likely to be poor than indigenous households. The same was thought about households formed by refugees. In all but six villages, people said that households headed by females were more likely to be poor than other households. There was less consensus on how the age of the household heads influenced the wealth of the households. There was a tendency towards agreeing that households headed by an elderly was more likely to be poor, while more of the villagers interviewed disagreed that households headed by youth had a greater likelihood to be poor. Again, this conforms to the household survey, where female headed households were found to be more food insecure than male-headed households, but the age of the household head did not have a statistically significant influence on food consumption levels.

**Table 34: Agreement with statements on demography of the poorest group of villagers**

<i>Statements</i>	<i>% of respondents who said</i>			
	<i>True</i>	<i>Partly true</i>	<i>False</i>	<i>N/A</i>
A household that has settled in the village during or after the war is more likely to be in the poorest group than an indigenous household.	80	15	3	1
A household headed by a female is more likely to be in the poorest group than one headed by a male.	71	27	2	1
A household headed by a youth is more likely to be in the poorest group than other households.	13	33	53	2
A household headed by an elderly (over 65 years) is more likely to be in the poorest group than other households.	42	43	14	1
A household that has settled as refugees in this village is more likely to be in the poorest group than an indigenous household.	66	7	1	26

In the village interviews, people were asked to provide up to three causes of poverty for the poorest livelihoods in the village. The most frequently mentioned reason was crop damage by pest, as was also the most frequently mentioned shock by individual households. The second most frequently mentioned reason was plantations that were not yet rehabilitated, followed by sickness and lack of agricultural inputs and lack of farm labour. Plantations not rehabilitated were high on the list of causes of poverty, although households involved in tree crop farming generally were judged to be better off than those who were not. An explanation may be that there were poor people who had not yet been able to rehabilitate their tree crops, i.e. they were at the time not involved in tree crop farming. “Support the rehabilitation of tree crop plantations” and “Provide agricultural tools, seeds or fertilizer” were the two most frequently mentioned measures that could improve the livelihoods of the poorest people in the villages (responses were selected from a limited list).

In addition to the answers provided in the questionnaire, villagers could give their own reasons. Many suggested that the poverty of the poorest people was caused partly by their own laziness.

**Table 35: The main causes of poverty for the poorest group of people, as perceived by the villagers**

<i>Cause of poverty for the poorest in the village</i>	<i>% of respondents</i>
Crop damage by pest	24
Plantations not yet rehabilitated	21
Sickness	16
Lack of seeds, herbicides or fertilizer	10
Lack of labour for agriculture/plantation work	6
Poor road conditions	5
Lack of agricultural equipment	4
Low rice yields	3
High weed infestations	3
Increases in price of food items	2
Lack of wage labour opportunities	2
Infertility of upland soils	1
Difficulty in marketing produce	1
Insufficient land access	1
Poor burning of upland farms	1
Flooding	1

## 2.4 Health problems and food utilization related information

This section presents the most common diseases experienced in the villages, and discusses this in relation to access to clean drinking water.

### 2.4.1 Diseases reported among the three major health problems

The villagers provided information on the three major health problems in their community during the village interview. The responses correspond with the household data – malaria was the most commonly reported health problem in the communities, followed by diarrhoea and cholera. Illness in general affects food security by diminishing the sick and their caretakers' ability to work. Both diarrhoea and cholera pose a particularly great threat to people's nutritional well-being by strongly reducing the body's ability to absorb nutrients. Only 16 percent of the villages had a hospital, health clinic, pharmacy, trained doctor, nurse or midwife, or community health worker.

**Table 36: Diseases reported to be among the three major health problems**

<i>Disease</i>	<i>Villagers regarding it as a major problem (% of respondents)</i>
Malaria	30
Diarrhoea	16
Cholera	13
Other	12
Acute respiratory infection	6
Measles	5
Sexually transmitted infections	4
Pregnancy/birth complications	4
Hypertension	3
Hernia	3
Eye diseases	2
Lassa fever	2
Meningitis	1

### 2.4.2 Households with children under five years who have been sick in the past 14 days

Households with children under five years of age were asked if one or more of these children had been sick in the past 14 days. More than two thirds reported that at least one child had

been sick. The most common disease identified was malaria (56 percent), followed by diarrhoea (29 percent).

**Table 37: Households with children under five years that have been sick in the past 14 days by district**

<i>District</i>	<i>% of households</i>				
	<i>Diarrhoea</i>	<i>Acute respiratory disease</i>	<i>Malaria</i>	<i>Unidentified disease</i>	<i>No sick child in HH</i>
Bo	24	4	55	35	26
Bombali	12	4	45	13	42
Bonthe	43	7	84	47	7
Kailahun	29	33	52	7	20
Kambia	12	5	43	20	40
Kenema	37	14	66	9	19
Koinadugu	62	24	63	8	21
Kono	28	17	49	12	26
Moyamba	28	21	61	5	32
Port Loko	30	23	47	9	32
Pujehun	25	32	39	28	31
Tonkolili	37	15	70	13	17
Western Rural	12	1	48	10	45
Average	29	15	56	17	28

### 2.4.3 Diarrhoea and clean drinking water

Access to clean drinking water is important for the utilization aspect of food security. Impure drinking water can lead to illness and affects the individuals' ability to absorb nutrients. Less than half of the households had access to drinking water from any kind of protected source during the dry season. As mentioned above, 29 percent of the households with children below five years of age said that one of their children had suffered from diarrhoea in the past 14 days. The study found that there was a statistically significant difference in the prevalence of child diarrhoea between households that obtained their drinking water from an improved water source and those that used drinking water from ponds/rivers/streams. The lowest prevalence of child diarrhoea was found in households with water piped into their property and those with tube wells or boreholes with pumps. There was no statistically significant relationship between the FCS of the households and their access to drinking water from an improved source.



**Table 38: Main source of drinking water during the dry season by district**

<i>District</i>	<i>% of households</i>						
	<i>Piped into dwelling/yard/plot</i>	<i>Public tap</i>	<i>Tube well/borehole with pump</i>	<i>Protected dug well</i>	<i>Unprotected well</i>	<i>Pond/river/stream</i>	<i>Other/no response</i>
Bo	0	8	23	5	7	54	3
Bombali	1	1	14	5	24	53	2
Bonthe	0	0	16	6	14	60	4
Kailahun	0	4	15	9	33	39	1
Kambia	0	1	12	12	35	39	1
Kenema	0	19	24	6	12	36	2
Koinadugu	1	6	1	43	9	41	1
Kono	2	5	31	2	4	55	1
Moyamba	0	0	9	15	17	58	1
Port Loko	0	0	11	8	7	72	2
Pujehun	1	1	36	0	11	51	1
Tonkolili	2	2	4	9	7	76	1
Western Rural	9	18	11	21	11	27	5
Average	1	5	16	11	15	51	2

## 2.5 Shocks and coping strategies

The vast majority of the households (83 percent) had experienced serious problems to produce or purchase enough food in the past year. Many of these problems are not shocks in the traditional sense (sudden and unexpected events), but as it is difficult to distinguish between sudden and more slow-onset events, they are recorded and analysed together.

**Table 39: Percentage of households that have experienced serious problems to produce or purchase enough food in the past year by district**

<i>District</i>	<i>Problem (% of households)</i>
Bo	80
Bombali	85
Bonthe	94
Kailahun	95
Kambia	97
Kenema	97
Koinadugu	64
Kono	86
Moyamba	69
Port Loko	91
Pujehun	74
Tonkolili	86
Western Rural	58
Average	83

The two most common types of shock were both related to farming: crop damage by insects, diseases and animals (70 percent), and lack of agricultural inputs such as seeds and fertilizers (62 percent). The former could to a large extent have been prevented through better access to agricultural inputs, such as pesticides, insecticides and fencing material. Lack of household labour and household members falling sick or chronically ill were other commonly mentioned shocks.

**Table 40: Percentage of households that have experienced different types of shocks causing serious problems to purchase or produce enough food by district**

District	% of households												
	<i>Crops damaged by insects, disease, animals</i>	<i>Lack agro input inputs</i>	<i>Lack of HH labour</i>	<i>Drought/ no rains</i>	<i>HH member ill</i>	<i>Flood</i>	<i>Death of HH member</i>	<i>Price fluctuations</i>	<i>Theft of crops</i>	<i>Unemployment</i>	<i>Political problems</i>	<i>Security situation</i>	<i>Other</i>
Bo	69	28	40	15	54	3	13	25	2	5	1	1	46
Bombali	92	88	17	28	20	13	5	2	2	3	1	0	29
Bonthe	64	60	50	13	56	15	20	2	3	3	0	0	14
Kailahun	56	46	68	23	51	11	14	20	4	1	0	0	7
Kambia	80	74	31	22	11	28	1	0	24	2	0	0	28
Kenema	94	41	38	18	42	25	9	8	2	5	0	0	18
Koinadugu	63	67	15	78	14	27	14	6	3	2	3	0	9
Kono	31	64	60	47	52	6	17	1	2	5	5	0	10
Moyamba	70	60	62	16	42	6	10	0	0	2	0	0	32
Port Loko	82	82	25	47	23	8	5	3	10	1	1	0	13
Pujehun	70	53	48	22	39	19	15	17	2	3	0	1	14
Tonkolili	83	96	34	40	20	10	5	0	1	1	0	0	10
Western Rural	62	48	18	20	31	18	14	5	29	30	0	0	24
Average	70	62	39	30	35	15	11	7	6	5	1	0	20

Borrowing food and money were the most important coping mechanisms when experiencing shocks, undertaken by 31 and 29 percent of households respectively. If the borrowing is of temporary nature and the household manages to repay the loan after it recovers from the shock, this may not be a negative strategy. However, if a new shock occurs before the debt is repaid it can lead to progressively higher levels of debt and inability to invest in agriculture or other income generating activities, thus keeping the household in a poverty trap. Food-related strategies such as reducing the size of meals, eating less desirable food and eating fewer meals were also common. Around 10 percent of the households undertook additional wage labour and/or engaged in petty trade and hawking to cope with shocks, but few left for other parts of the country to search for work temporarily or permanently. Apart from the possible effects of the changes in food consumption, children were largely shielded – only exceptionally did the family send their children to work or remove them from school in order to cope with the shock.

**Table 41: Percentage of households that employ different types of coping mechanisms when experiencing shocks**

<i>Coping mechanism</i>	<i>% of households</i>
Borrow food	31
Borrow money	29
Reduce size of meals	18
Additional wage labour – local	10
Petty trade/hawking	9
Eat less desirable foods	9
Reduce number of meals	8
Sell livestock	3
Sell household items	3
Selling firewood	3
Wage labour in other areas (migration)	2
Send children to work	1
Seasonal migration	0
Remove children from school	0
Permanent migration	0
Other	11

## **2.6 Comparisons between the CFSVA 2005 and the present survey results**

The 2005 CFSVA used Principal Components Analysis and Cluster Analysis to create food consumption groups. Because this does not yield results that are comparable across data sets, the FCS approach was used to group the households in the 2005 survey into FCGs. Fish was taken out of the calculation to make the results comparable to the 2007 survey. Although there remain doubts about the comparability of the results they are presented here in absence of any better information.

The proportion of households with poor or borderline food consumption overall was 44 percent in the 2005 and 29 percent in the 2007 survey. It was lower in 2007 than in 2005 for all districts but Kailahun, Kono, Port Loko and Western Rural. The two latter districts had relatively good food consumption in 2005, but were placed second and third last in the ranking based on the 2007 survey. The determinants of such a change are not clear. Bonthe remained the district with the largest number of households with poor and borderline food consumption. Koinadugu, Kenema, Bombali and Moyamba had better rankings in 2007 than in 2005, while the rest generally retained their position relative to other districts. Bo, Bombali, Bonthe, Kenema, Koinadugu, Moyamba, and Pujehun all had a substantially smaller

percentage of household classified as poor or vulnerable in 2007 than in 2005. Another difference between the two surveys was that the disparities between districts were much smaller in the 2007 study.

**Table 42: Comparison between consumption figures from 2005 survey and 2007 survey using Food Consumption Group methodology by district**

	<i>2005 survey FCG</i>		<i>2007 survey FCG</i>	
	<i>% HH poor or borderline</i>	<i>Rank</i>	<i>% HH poor or borderline</i>	<i>Rank</i>
Bo	42	8	26	6
Bombali	71	11	29	8
Bonthe	95	13	56	13
Kailahun	20	3	25	5
Kambia	22	4	22	3
Kenema	57	9	23	4
Koinadugu	42	7	13	1
Kono	8	1	16	2
Moyamba	78	12	31	9
Port Loko	32	5	38	11
Pujehun	64	10	32	10
Tonkolili	35	6	26	7
Western Rural	9	2	42	12
Average	44		29	

## **Chapter Three. Key Findings, Conclusions and Recommendations**

### **3.1 Key findings**

The study led to the following findings:

#### **I. Household size and composition**

- i. The national average household size was around 10 persons, with the districts in the Northern Province having larger average household sizes (>11.4 persons) than the rest of the country.
- ii. Eleven percent of the households were headed by women. Male headed households had a higher dependency ratio than female headed.
- iii. There was no significant difference between the districts with regards to the mean age (between 47 to 52 years) of the household heads. However, the Southern and Eastern Provinces had larger proportions of households headed by younger people.

#### **II. School attendance**

- i. Forty seven percent of the household heads had never received any formal education.
- ii. Four out of five children in the sample attended school regularly with no difference between boys and girls (84 and 83 percent respectively). Schools that provided school meals had higher attendance than those which did not.
- iii. Children from households with poor food consumption had lower school attendance rate than children from households with borderline or adequate food consumption.

#### **III. Availability of food – agricultural production**

- i. In 2006/2007 the country produced almost two thirds (63 percent) of its rice requirement. The degree of self sufficiency varied between the districts, and only two districts, Kambia and Moyamba, produced surpluses of rice (31 percent and 8 percent, respectively).
- ii. According to this survey rice production increased by 12 percent from 2004/2005 to 2006/2007. The overall area planted with rice increased by 28 percent in the same time period.

- iii. Farmers in Sierra Leone continued to practice rudimentary farming that leads to very low yields of an average of 0.6 Mt/ha in the uplands and 1.2 Mt/ha in the lowlands.
- iv. Between 2004/2005 and 2006/2007 there was larger increase in the area used for rice cultivation than in the amount of rice produced, which suggests that the yields have gone down.
- v. Ninety-five percent of the households cultivated food crops. The most commonly cultivated crop was rice: 63 percent of households cultivated upland rice, 50 percent inland valley swamp rice and 7 percent other lowland rice varieties. In Tonkolili, Port Loko, and Bo more than 70 percent of the households cultivated upland rice. Cassava was the second most widely cultivated crop (51 percent), followed by groundnut (20 percent) and sweet potatoes (11 percent). Less than 4 percent of the households cultivated maize, but in Koinadugu and Bo more than 10 percent of the households were engaged in this.
- vi. Although almost everyone cultivated food crops, only 15 percent had this as their only livelihood source. In addition to cultivating food crops, 35 percent engaged in tree crop farming, 31 percent in palm oil extraction and 30 percent in petty trading. While food crop farming is common all over the country, tree crop farming, palm oil extraction, fishing, animal husbandry and charcoal making are much stronger geographically concentrated.

#### **IV. Access to food markets**

- i. Only one out of the 284 villages selected for the village survey had a permanent market where food was on sale. Another five villages had a periodic market where food was sold.
- ii. Half of the villages were located less than 7 miles from the nearest market, only 18 percent were 2 miles or less from the nearest market. A journey of 15 miles or more to the nearest market was required in 22 percent of the villages, and 6 percent had to travel more than 30 miles to reach a market.
- iii. Imported rice, fish, palm oil and salt were available most of the time in almost all of the markets. Meat was the only product that was never available in a substantial number of cases. In all the markets, local rice was on sale at least during parts of the year.

## **V. Access to food – household expenditure**

- i. On average the households spent around 50 percent of their money on food. With inclusion of self-production, monthly spending on food increased to 60%. This indicates wide-spread poverty. Households with adequate food intake had higher expenditure on food in absolute money value than households with poor or borderline food consumption.
- ii. Eighty-three percent of the households reported that buying the food for the household would not be a problem at any time provided that they had enough money. This clearly suggests that economic access to food is a greater problem than availability of food.

## **VI. Food consumption**

- i. According to the survey, 29 percent of the households in rural Sierra Leone had inadequate (poor or borderline) food consumption and could be classified as food insecure. The people with poor or borderline consumption levels are particularly concentrated in Bonthe (56 percent), and also in Western Rural and Port Loko (42 and 38 percent, respectively). In the districts of Koinadugu, Kono, Kambia and Kenema there were relatively few households with inadequate consumption.
- ii. Households in Bonthe, the district with highest percentage of households with poor or borderline food consumption, ate tubers every day but rice only every second day and meat, chicken and eggs only one day a week. Contrary, households in Koinadugu, the district with lowest percentage of households with poor or borderline food consumption, ate rice every day and meat, chicken and eggs three days a week, whereas they ate tubers only every second day.
- iii. The share of households in Sierra Leone with adequate food consumption (measured by the Food Consumption Score) was 56 percent in the 2005 CFSVA survey and 71 percent in the 2007 VAM survey. However, the results remain inconclusive with regards to the comparability of the two surveys and/or possible determinants of this change.

## **VII. Health problems and access to drinking water**

- i. The most common diseases reported to be experienced by the households in this survey were malaria, diarrhoea and cholera.



- ii. Out of the households with a child below five years, 56 percent reported that a child had malaria in the past 14 days, and 29 percent reported that a child had diarrhoea.
- iii. The quality of the drinking water varied: around 50 percent of the households got their drinking water from ponds/rivers/streams. The study found that there was a statistically significant difference in the prevalence of child diarrhoea between households that obtained their drinking water from an improved water source and those that used water from ponds/rivers/streams. There was no statistically significant relationship between the food consumption score and the access to drinking water from an improved source.

### **VIII. Shocks and coping strategies**

- i. The two most common types of shocks mentioned were crop damage by insects, diseases and animals and lack of agricultural inputs such as seeds and fertilizers. 70 percent of the households reported crop damage as a shock they had experienced in the past year. Other shocks mentioned were lack of household labour, household members who fall sick, or drought.
- ii. Borrowing food and money were the main coping mechanisms when experiencing shocks, undertaken by 31 and 29 percent respectively.
- iii. Food related coping strategies such as reduction in meal size, eating less desirable foods and eating fewer meals were also practiced (18, 9 and 8 percent respectively).

### **3.2 Conclusions**

The following conclusions are deduced from the key findings:

- i. The identified increase in total area of land used for food crops and the amount of food produced between 2004/2005 and 2006/2007 would suggest that rehabilitation of farms has successively taken place. However, the rudimentary farming methods still practiced indicate that there is an even larger potential for increased productivity and income in the agricultural sector in the country.
- ii. For those 29 percent of the rural households that have poor or borderline food consumption the problem is rather access than availability. They have low levels of agricultural production and income, are forced to sell their produce after harvest to repay debts and then buy food at a later stage when prices are high, depend on labour

opportunities which are not available all year round and find themselves in a vicious circle of low income, high in-debtness and low food consumption.

- iii. In order to overcome this situation the poorer sections of society and women would require sufficient access to land, agricultural production inputs and low interest loans; and more villages would need access to an appropriate road network and markets.
- iv. Food assisted safety net programmes such as food and cash for work activities in agriculture-related activities for inland valley swamp rehabilitation, plantation rehabilitation and feeder road construction can be an important first step in establishing a platform for the creation of long-term income generation for the poorer sections of the rural economy and thus improve their access to food. Similarly, school meals programmes improve access to food and lead to higher school enrolment and attendance and provide better capacities for the next generation of rural population.

### **3.3 Recommendations**

- i. The Government of Sierra Leone has fully acknowledged that the key to development of rural areas is in agricultural production, processing and market access. Donors should assist the Government in giving a boost to agricultural production, processing and marketing, especially for smallholder farmers and rural youths.
- ii. The same food security and vulnerability analysis methodology should be applied in subsequent surveys so that data from different surveys is comparable. As long as MICS and Demographic and Health Surveys (DHSs) are not representative at district levels all VAM studies should continue to include nutrition information in order to study possible links between food access and utilization. In-between bigger studies a food security monitoring system would provide information on seasonal variation or sudden changes.
- iii. WFP's focus on food assisted safety nets through inland valley swamp rehabilitation, feeder road constructions, tree crop plantation rehabilitation, as well as in agricultural skills training should be well-targeted to reach the smallholder farmers and support their agricultural production and income generation, as well as improve rural food security.
- iv. Local procurement of food crops should systematically focus on smallholder farmers to support their market involvement and income generating opportunities.

- v. The provision of school meals to as many primary school children as possible and the increasing collaboration with agencies that support the quality of education (e.g UNICEF) should be continued.
- vi. WFP should pay equal attention to the provision of food assistance to pregnant and lactating women so they give birth to and nourish a healthy child and to the provision of food assistance to all those children below 5 years who are moderately malnourished so that they recover quickly.

### **3.4 Areas for further research**

- i. **The role of snacks in the Sierra Leone diets.** Snacks, i.e. food eaten between main meals, were not recorded in the current survey. The interpretation of the survey data would have benefited from more information about the consumption of snacks and knowledge of the role of snacks in the diet in Sierra Leone, especially in times of hunger.
- ii. **Food and condiments in the Sierra Leonean context.** A basic assumption in the current analysis was that fish is commonly used as a condiment in Sierra Leone. It would be useful to test this assumption through a qualitative study in various livelihood settings before a new survey is conducted. Such a study can also inform the ongoing debate on the role of condiments in food security analysis.
- iii. **Intra-household variations in expenditure patterns.** Within the households, people of different sex, marital status, age, and parenthood status may not have the same preferences, responsibilities, and access to resources. For example, women and men prioritize differently; therefore food aid is often given to female household members. Likewise, individuals in a household do not necessarily have the same preferences or pooling of their resources when other types of income are gained. Qualitative research suggests that the income under the control of the male household head and income kept by his wife/wives are not used for the same types of expenses. More information on intra-household variations in expenditure patterns and how these influence food security should be further studied.
- iv. **Intra-household variations in shocks and coping strategies.** Related to the above, different types of shocks affect household members in various ways. The WFP desk

review of food aid and dependency<sup>17</sup> identified gender-disaggregated analysis of vulnerability to different kinds of shocks, coping strategies, and likelihood of negative dependency as areas where more knowledge is needed.

v. **Comparison between rural and urban populations with regard to food security.**

VAM studies such as the ones conducted in 2005 and 2007 usually focus on rural areas. However, in a context like Sierra Leone where one fourth of the population lives in urban and peri-urban areas and unemployment is widespread it is considered increasingly important to include urban populations in future studies of this kind.

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<sup>17</sup> *Desk Review: Food Aid and Dependency: Implications for Emergency Food Security Assessments.* Lentz, E.C. & C.B. Barrett, Rome, December 2005.

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