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vulnerability analysis and mapping

Republic of

Liberia

Comprehensive Food Security and Nutrition Survey (CFSNS)

Conducted March–April 2006

Strengthening Emergency Needs Assessment Capacity (SENAC)

Republic of Liberia: Comprehensive Food Security and Nutrition Survey (CFSNS)

Monrovia, October 2006

FOREWORD

This report will play a vital role in 'plugging the information gap', in Liberia, at a time when it is most needed. It presents the findings of the comprehensive countrywide Food Security and Nutrition Survey, which was implemented between February and June 2006. However, the report goes well beyond just the issues of food insecurity and nutrition. It also provides very rich and invaluable data on the social sectors, particularly health and education.

Liberia is a nation moving forward. Casting off a painful history of civil war and institutional meltdown, the country is recovering. One of the greatest challenges for the Government of Liberia, United Nations agencies and non-governmental organizations working together to put Liberia back on its feet is simply to understand accurately the scale and nature of the task ahead.

Years of conflict destroyed the infrastructure and undermined the ability of our people to provide for their own most basic and essential needs. Moreover, the country has been left with little knowledge-base on which to base policy and quality programming in the critical areas of food security and nutrition. The Government and all its partners realize the importance of data, not only for policy formulation and implementation, but also for monitoring progress and promoting accountability and transparency in decision-making processes.

The quest to improve food security and nutrition, which is closely associated with the fight against poverty, is not only a Liberian challenge but a global one. We have to know where we are and establish a vision as to where we want to be.

The report points out serious food insecurity and malnutrition problems, but also provides a framework for a coherent response to the basic needs of the people of Liberia. It provides the first reliable picture in many years of the food security situation across the country.

The report shows that food insecurity and malnutrition remain a significant cause of concern – around one half of the population is food insecure or highly vulnerable to food insecurity, and that an alarming proportion of Liberian children is not able to reach its full potential due to malnutrition. The report also identifies factors contributing to this situation – low agricultural productivity due to a lack of agricultural inputs and animal pests, income poverty, lack of access to basic services, etc.

Our vision today is to erase hunger and poverty in Liberia, a vision that is largely achievable given the potential of our rich and fertile lands and natural and human resources. With the continued support of the international community we must work for a future where no Liberian has to worry about where his /her next meal is coming from.

The report proposes a wide range of responses to address food insecurity in the immediate and longer term. Whilst food assistance remains a necessary element of any action plan in the short-term, the survey considers other interventions such as the rehabilitation of the agricultural sector, road infrastructure, market access, and the health, water, sanitation and child care services and the education system to be vital for the improvement of Liberia's post-war food security situation.

The eradication of food insecurity and malnutrition cannot be done overnight. Programmatic steps addressing both acute manifestations, as well as the chronic and structural dimensions, are needed. One aspect of particular importance is the need for an institutional framework that informs, guides, and coordinates the recovery and development activities to eradicate poverty, hunger and malnutrition. The report clearly recognizes that food security is multi-faceted and as such requires the intervention of many departments and agencies. The issue of human capacity to support such institutional framework cannot be over-emphasized.

On behalf of the Government of Liberia, I would like to congratulate and thank all agencies and organizations for their technical and financial support. In particular, I would like to thank the European Commission's Humanitarian Aid Office (ECHO), the Department for International Development (DFID) of the United Kingdom, the Food and Agriculture Organization (FAO), the Humanitarian Information Centre for Liberia (HIC), the United Nations Children's Fund (UNICEF), the United Nations Mission in Liberia (UNMIL), the World Food Programme (WFP), the World Health Organization (WHO), the Catholic Relief Services (CRS), World Vision Liberia (WVL), the German Technical Cooperation (GTZ), the Liberia Institute for Statistics and Geo-Information Services (LISGIS) and the Liberia NGOs Network (LINNK). I am also grateful to the 75 enumerators from various ministries and the University of Liberia, as well as to the individuals, households and communities who provided their time and efforts to participate in this survey.

The Government looks forward to an open dialogue on addressing food insecurity and malnutrition. This report provides a framework to map the way forward towards achieving food security and adequate nutrition for all Liberians.

Toga G. McIntosh (PhD)
Minister for Planning and Economic Affairs
Monrovia, September 2006

ACKNOWLEDGEMENTS

The Government of Liberia is deeply grateful to the individuals, households, and communities of rural and semi-urban Liberia for their time and hospitality. This survey report is the culmination of six-month worth of effort of many people and organisations.

The survey was truly an integrated food security and nutritional assessment and many organisations were involved in its design, the collection of data, and the production of this report.

The food security component of the survey was primarily supported by the Ministry of Agriculture (MOA), the Ministry of Planning and Economic Affairs (MPEA), United Nations Food and Agriculture Organization (FAO), United Nations Mission in Liberia (UNMIL), and the United Nations World Food Programme (WFP). The primary agencies for the health and nutrition section of the survey were the Ministry of Health and Social Welfare (MOHSW), the United Nations Children's Fund (UNICEF), WFP and the World Health Organization (WHO). The sample methodology was designed by the Liberia Institute of Statistics and Geo-Information Services (LISGIS), UNICEF, WFP and the Humanitarian Information Centre (HIC).

In the field, many agencies contributed staff, vehicles, flights and other logistical support to ensure the smooth implementation of the survey. In particular, we would like to thank the Ministry of Agriculture, Ministry of Education, Ministry of Health and Social Welfare, Ministry of Planning and Economic Affairs, Ministry of Internal Affairs, LISGIS, the University of Liberia, FAO, HIC, UNICEF, UNMIL, WFP, WHO, Catholic Relief Service (CRS), German Technical Cooperation (GTZ), World Vision Liberia, and the Liberia NGOs Network (LINNK).

We are deeply appreciative for the useful comments of various organisations on the design, implementation and compilation of survey report, particularly Action Contre la Faim (ACF), Africare, Concern, European Commission's Humanitarian Aid Department (ECHO), International Committee of the Red Cross and Red Crescent (ICRC), Liberia National Farmers Union (LINFU), MercyCorps, Save the Children United Kingdom (SC UK), United Nations Development Programme (UNDP), United Nations High Commissioner for Refugees (UNHCR), and United States Agency for International Development (USAID). The technical support provided by the Strengthening Emergency Assessment Capacity (SENAC)-project team (WFP Rome) on the survey methodology was also highly appreciated.

The survey was funded by DFID (Institutional Strengthening Trust Fund) and ECHO (SENAC Project) through WFP Liberia, UNICEF Regional Bureau and WHO Liberia. The Government of Liberia is grateful for these generous contributions.

We would also like to thank UNMIL, county authorities, WFP Sub-offices and the GTZ-office in Foya for supporting the logistics and helping to ensure safety of the data collection and monitoring teams in the field.

This report was compiled in collaboration by various stakeholders including FAO, UNICEF, WFP and WHO. National stakeholders including representatives from MOA, MOHSW, MPEA and LISGIS have reviewed the report and provided valuable comments which were incorporated in the final report. For any feedback, clarification or comments, please contact any of the following persons:

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TABLE OF CONTENTS

List of Annexes

List of Figures

List of Tables

List of Maps

List of Acronyms

ACF	Action Contre la Faim
AU	African Union
BMI	Body Mass Index
CCA	Common Country Assessment
CFSNS	Comprehensive Food Security and Nutrition Survey
CHT	County Health Team
CMR	Crude Mortality Rate
CPA	Comprehensive Peace Agreement
CRS	Catholic Relief Services
DFID	UK Department for International Development
DPT	Diphtheria, Pertussis and Tetanus
ECHO	European Commission's Humanitarian Aid department
ECOWAS	Economic Community of West African States
EPA	Environmental Protection Agency
ESF	Emergency School Feeding
EU	European Union
FAO	Food and Agriculture Organisation
FFE	Food-For-Education
FFT	Food-For-Training
FFW	Food-For-Work
FIVIMS	Food Insecurity and Vulnerability Information & Mapping System
GAM	Global Acute Malnutrition
GDP	Gross Domestic Product
GEMAP	Governance and Economic Management Assistance Programme
GoL	Government of Liberia
GTZ	German Technical Cooperation
HAZ	Height for Age Z-score
HH	Household
HIC	Humanitarian Information Centre
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
ICRC	International Committee of the Red Cross and Red Crescent
IDP	Internally Displaced Person
IMCIs	Integrated Management of Childhood Illnesses
IMF	International Monetary Fund
IPMP	Integrated Pest-Management Programme
LD	Liberian Dollars
LINFU	Liberia National Farmers Union
LINNK	Liberia NGOs Network
LISGIS	Liberia Institute of Statistics and Geo-Information Services
LURD	Liberians United for Reconciliation and Democracy
MOA	Ministry of Agriculture
MOCI	Ministry of Commerce and Industry
MODEL	Movement for Democracy in Liberia
MOE	Ministry of Education
MOF	Ministry of Finance
MOHSW	Ministry of Health and Social Welfare
MPEA	Ministry of Planning and Economic Affairs
MPW	Ministry of Public Works
MRD	Ministry of Rural Development
NCHS	National Centre for Health Statistics
NEC	National Election Commission
NGOs	Non-Governmental Organisations
NPFL	National Patriotic Front of Liberia
NPP	National Patriotic Party
NTGL	National Transitional Government of Liberia
PCA	Principal Component Analysis
RFTF	Result Focus Transitional Framework
RUF	Revolutionary United Front
SAM	Severe Acute Malnutrition
SC UK	Save the Children United Kingdom
SENAC	Strengthening Emergency Needs Assessment Capacity
SFP	Supplementary Feeding Programme
TFC	Therapeutic Feeding Centre

TFP	Therapeutic Feeding Programme
U5MR	Under-Five Mortality Rate
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNMIL	United Nations Mission in Liberia
USAID	United States Agency for International Development
VAM	Vulnerability Analysis and Mapping
WAZ	Weight for Age Z-score
WB	World Bank
WFP	World Food Programme
WFS	World Food Summit
WHO	World Health Organization
WHZ	Weight for Height Z-score
WVL	World Vision Liberia

Map 1: Liberia Overview Map

1. Scope and Methods

The Comprehensive Food Security and Nutrition Survey (CFSNS) was a joint effort led by the Government of Liberia, specifically the Ministries of Agriculture (MOA), Health and Social Welfare (MOHSW), Internal Affairs (MIA), Planning and Economic Affairs (MPEA), and the Liberia Institute for Statistics and Geo-Information Services (LISGIS) in collaboration with FAO, HIC, UNICEF, UNMIL WFP, WHO, CRS, GTZ and World Vision to create a knowledge base on food security and nutrition covering Liberia's fifteen counties.[1]

The primary aim of the CFSNS Liberia was to:

1. Assess levels of household food insecurity while focussing on the following key questions: Who are the food insecure people, where do they live, why are they food insecure, and what role can external assistance play in improving food security;
2. Identify rural and semi-urban livelihood patterns and assess the vulnerability levels of livelihood groups;
3. Identify agricultural constraints and analyse how crop production, livestock and fisheries activities can improve the food security situation;
4. Assess the prevalence and distribution of malnutrition among children and women and determine the root causes of malnutrition; and
5. Identify key-indicators that could be measured through a Food Security Monitoring System to assess changes and trends in food security and vulnerability over time.

The survey was implemented between February and June 2006. Data collection in all 15 counties took place from March to April 2006. In total, 375 randomly selected rural and semi-urban communities were visited, 5,409 households were interviewed and the nutritional status of 6,041 children under age five and their mothers was determined. Information was collected on demography, education, displacement status, labour migration, housing and facilities, agricultural production, fishing, livestock, agricultural constraints, sources of income, livelihoods, household expenditures, food consumption and diversity, shocks and coping mechanisms, external assistance, mortality, child morbidity, child feeding practices and child nutritional status.

2. Socio-economic Situation

The socio-economic analysis reveals that the Liberian population is still highly affected by the consequences of the 14 year civil war that left the country with a destroyed infrastructure, a devastated economy and an impoverished, conflict-stricken population.

The survey reveals that 86% of households across the country have been **displaced** at least once since 1989 due to the fighting and looting. Most households returned between 2003 and 2004. In some counties in the north-west, return migration is still ongoing. These areas have been highly affected during the last years of the civil strife; therefore families have to start from scratch to rebuild their livelihoods.

Physical **infrastructure**, heavily affected by the war, remains in ruins; the majority of communities have neither a functioning school nor a basic health facility within their boundaries. Likewise, 68% of households have no access to improved water sources and 76% have no access to sanitary facilities. Currently, no household in the sample has access to a steady source of electricity. The main lighting source at night is a simple oil or kerosene lamp. Physical access to urban centres, markets, health care and schools remains a challenge for households, particularly in the south-eastern counties and during the rainy season which lasts each year from May to October.

[1] Additional technical support during the survey design and implementation phase was provided by ACF, Africare, Concern, ECHO, ICRC, LINFU, MercyCorps, SC UK, UNDP, UNHCR and USAID.

The survey identified 13 **livelihood profiles** in rural/semi-urban Liberia based on the contribution of various income sources to the total household income. The majority of households have only one major income source. 15% of households rely mainly on food crop production, closely followed by households that depend on palm oil production (14%); petty trading (12%), and casual labour (10%). 8% of households are combining palm oil and food crop production. Other livelihood profiles include 'rubber tappers' (7%), 'charcoal producers' (7%), 'cash and food crop producers' (6%), 'hunters' (5%), 'employees' (5%), 'fisherfolks' (4%), 'skilled labourers' (3%), and 'others' (3%). In terms of cash availability based on food and non-food expenditures, households relying on petty trade, regular salaries or casual labour are relatively better off than the other groups. **Households that depend on palm oil production and hunting are the worst-off**. They are particularly vulnerable if they do not engage in crop production to access food.

Liberia is characterised by low formal **education** levels. The problem was perpetuated by the civil strife as students' access to school was often interrupted due to insecurity and displacements. In the adult population, 31% of men and 62% of women never attended school. Even if they did, most of them did not complete elementary school. Since 2003, children and young adults have been able to attend school on a regular basis. The survey shows that currently 69% of school-age children between 6 and 18 are enrolled. Gender disparities still exist but they are less apparent than in the parents' and grandparents' generation. While school enrolment is about 75% of both boys and girls in the age group 11-12, girls show much higher drop-out rates from age 13 upwards. Many school children attend grades below their actual age group as they are still catching up. The survey concludes that it is essential to support accelerated learning initiatives as well as reduce early drop-outs and encourage enrolment in secondary schools and advanced learning institutions.

During the transition from emergency to recovery, **external assistance** plays a fundamental role to sustain the livelihoods of many households in Liberia. It is estimated that about **36% of households have benefited from food assistance** programmes during the six months prior to the survey, mainly through food-for-education and resettlement programmes. 19% have benefited from agricultural interventions, mainly tools and seeds distribution. Additionally, 10% benefited from the provision of medical services and 8% from water and sanitation projects. Assessing the impact of these interventions, the survey concluded that school feeding had a positive impact on school enrolment; distribution of tools and particularly of seeds had a positive impact on agricultural production; and households that benefited from water and sanitation programmes were much more likely to access improved drinking water and sanitary facilities.

3. Household Food Security and Vulnerability

Availability of food

Agricultural production plays a vital role during the economic rehabilitation phase in post-conflict Liberia. The survey results indicate that 66% of all households surveyed reported having access to agricultural land; however, only 73% of these households cultivated crops in 2005. The survey identified the following main agricultural constraints for farming households:

- Lack of seeds and tools
- Lack of financial capital
- Animal pests that destroy the harvest
- Lack of household labour

In addition, households that recently returned home after years of displacement reported that they returned too late for the planting season which made them dependent on food purchases and food aid until the next agricultural cycle. Moreover, households are affected by post-harvest losses due to inadequate storage capacities.
The food crops most commonly cultivated were rice (71%), closely followed by cassava (69%). In most counties, the main rice production technique is shifting cultivation on the uplands. Other types of food crops included vegetables, sweet potatoes and *eddoes*[2]. However, these food crops were only produced by 10-20% of households, illustrating that

[2] Eddoe is an edible root crop related to the dasheen family; it is also known as taro or malanga.

crop diversification is limited in many counties. Over one-quarter (28%) of households indicated that they have cultivated a 'hunger farm'[3] that supports them during the yearly lean season, while 51% of households reported having a vegetable garden.

Households' access to food

Households can access food through purchases, own production or food aid to obtain sufficient and nutritious food to meet their dietary needs and food preferences. In order to assess household's access to food a three step approach was carried out. The first step was to assess food consumption frequency and dietary diversity. These are good proxy indicators of the access dimension of food security and nutrition intake. The second step was to assess households' potential to access sufficient food through purchasing power or own production. The third step was to combine the two approaches and develop household food security profiles.

Based on the analysis, **11% of the surveyed households are considered to be food insecure** and **40% highly vulnerable** to food insecurity. 41% are moderately vulnerable to food insecurity, while 9% can be considered to be food secure. River Gee, Grand Gedeh, Lofa and Grand Kru have the highest proportion of households with poor food consumption and dietary diversity. Households with the weakest access profiles were found in Lofa, Bomi, Grand Kru, River Gee and Bong.

Food utilisation

Food security can only be achieved if all household members have access to safe and nutritious food and if their health status allows them to absorb nutrients in an adequate way. The nutritional status of children and adults are direct outcome indicators to assess if households' food utilisation is adequate.

Stunting, a condition where children are too short for their age and an indicator of chronic malnutrition, was estimated at **39% among children aged less than five**. According to WHO, chronic malnutrition rates are 'critical' – over 40% - in nine of the 15 counties. The remaining six counties showed 'serious' chronic malnutrition levels – 30 to 40%. Stunting portrays long-term socio-economic problems including poor food consumption and access, poor sanitation, use of unimproved drinking water, poor feeding practices and low purchasing power.

Overall, acute malnutrition, a condition where children are too thin for their height (also called **wasting**), was estimated at **6.9% among children aged less than five**. However, the central and south-eastern counties of River Cess, Grand Bassa, River Gee, Grand Gedeh and Sinoe reported rates of over 10% ('serious' levels according to the WHO classification). Across counties, children aged 12-24 months showed highest rates of acute malnutrition (over 12%). Acute malnutrition was significantly associated with high prevalence of illnesses – mainly diarrhea, malaria and acute respiratory infections – and infant and child feeding malpractices. Malaria was the most frequent cause of death among children and fever, a potential indicator of malaria, was highly prevalent as well. High incidences of malaria are normally associated with high prevalence of iron deficiency anaemia.

The prevalence of underweight (a mixture of stunting and wasting) was estimated at 27% among under-fives while low Body Mass Index (BMI) for non-pregnant mothers in the reproductive ages was 14%. Malnutrition among women prior to and during pregnancy is usually associated with passage of nutritional problems from one generation to the next, making this high proportion a cause for concern. The survey also identified a number of factors that are highly associated with micronutrient deficiencies such as high disease caseload, low dietary diversity, etc.

Households have very limited access to basic services, including water and sanitary facilities and health care. Overall, only 32% of households have access to improved water sources, 24% to sanitary facilities – mainly communal latrines – and only 10% of the communities assessed reported having access to health care services within their proximity. Access to health and nutrition services such as de-worming, mosquito nets (12%); measles immunisation (80%) and Vitamin A supplementation (71%) was relatively

[3] When a household sets aside part of their land and devotes substantial extra labour to plant a short-term variety of rice or cassava to bridge the hunger season before the main crop is harvested.

low. For instance, for measles immunisation to be effective in terms of establishing immunity, the coverage needs to exceed 95%.

Almost all mothers breast-feed in Liberia. However, exclusive breast-feeding for the first four to six months is less prevalent, at only about 25%. Reasons for not exclusively breast-feeding need to be determined in order to identify practical methods to encourage behavioral change.

Vulnerability to shocks and coping strategies

Exposure to shocks and ability to cope or mitigate the impacts of these shocks will determine households' food security levels over time. Overall, 49% of households reported having experienced a shock over the past 12 months. The most frequently reported shock was **loss of harvest due to animal pests** with particularly high prevalence in south-eastern counties. This was followed by **idiosyncratic shocks** such as illness or death of household members. Households that suffered from animal pests, death of a working household member or sudden price fluctuations had negative impacts on households' food security status.

Common strategies applied to respond to shocks were: reducing the number and proportion of meals, relying on less-preferred food and increasing short-term access by purchasing food on credit, transfers, etc. Statistically significant relationships could be identified between food consumption levels and the type of strategies applied, e.g. households with poor food consumption were more likely to be forced to reduce the number or size of their meals and substitute less-preferred foods, while households with good food consumption were more likely to spend their savings or borrow money.

4. Conclusions and Recommendations

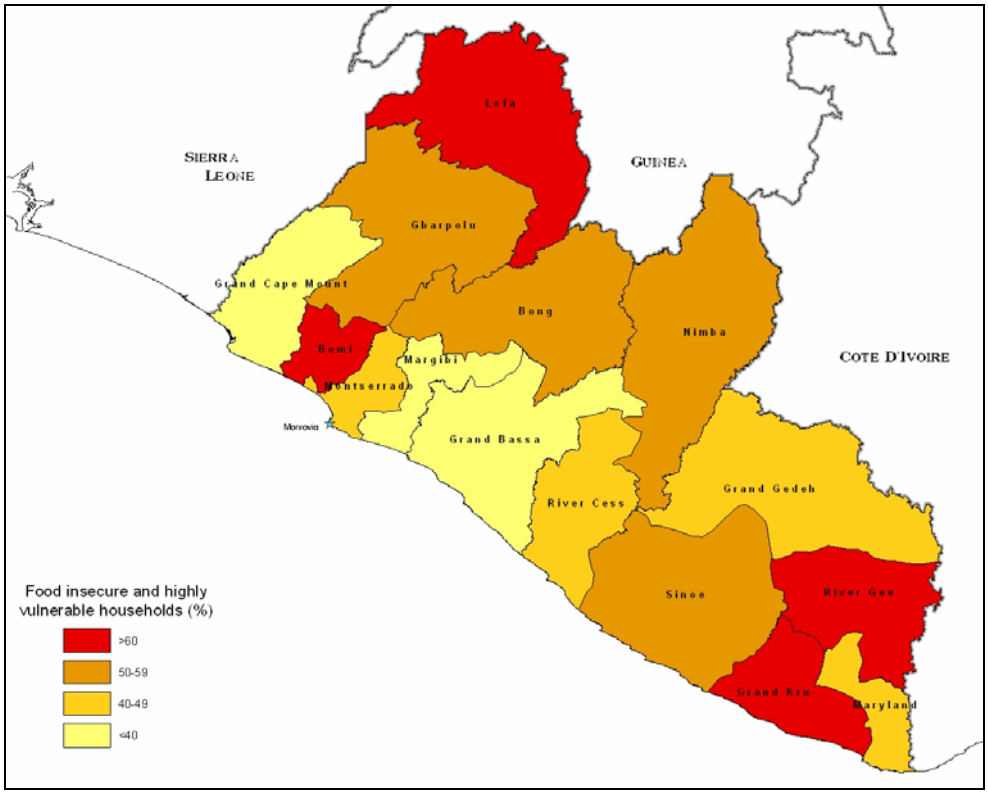
The survey aimed to provide answers to four key questions that are relevant to food security analysis:

Who are the food-insecure people and where do they live?

Households are more likely to be food insecure if they recently returned to their homes where they have to rebuild their livelihoods. Households that mainly rely on palm oil production, hunting and contract work are more likely to be food insecure. Households headed by women are more likely to have weak access to food. Households are more likely to be food secure if they had cultivated crops in 2005, own a vegetable garden and hunger farm. Household that rely on petty trade, charcoal production, fishing and regular salaries and those that receive remittances are more likely to be food secure.

Households that are food insecure or highly vulnerable to food insecurity are concentrated in Lofa, Grand Kru, River Gee, Bomi, Gbarpolu, Nimba and Sinoe counties, however, pockets of highly food-insecure areas may also exist in other counties as the survey is only representative at county level. In the north-west of Liberia, food insecurity can be characterised as **transitory or temporary** as food deficits are directly related to the consequences of the civil war. In the south-east, food insecurity is more **chronic** due to a longer-term inability to meet minimum food consumption requirements. Counties that are generally more food secure are Grand Cape Mount, Margibi and Grand Bassa.

Map 2: Food Security Overview Map



What are the underlying causes of food insecurity?

In the context of rural and semi-urban Liberia, the main causes of food insecurity are (1) **low agricultural production capacities** due to lack of inputs and knowledge of adequate pest control, storage and processing techniques; (2) **limited economic access** to food due to limited income generation opportunities in the agricultural and non-agricultural sector; (3) **limited biological absorption capacities** due to lack of access to improved drinking water and sanitation, high prevalence of disease and inadequate food preparation or child feeding practices. Overall households that have recently returned are particularly vulnerable to food insecurity as they have to restore their livelihoods in an environment that has been totally destroyed by the war.

What are the implications for programming?

In the transition phase from emergency to recovery and eventually to development, the Government of Liberia and the humanitarian community need to differentiate their response options to achieve food security for all Liberians.

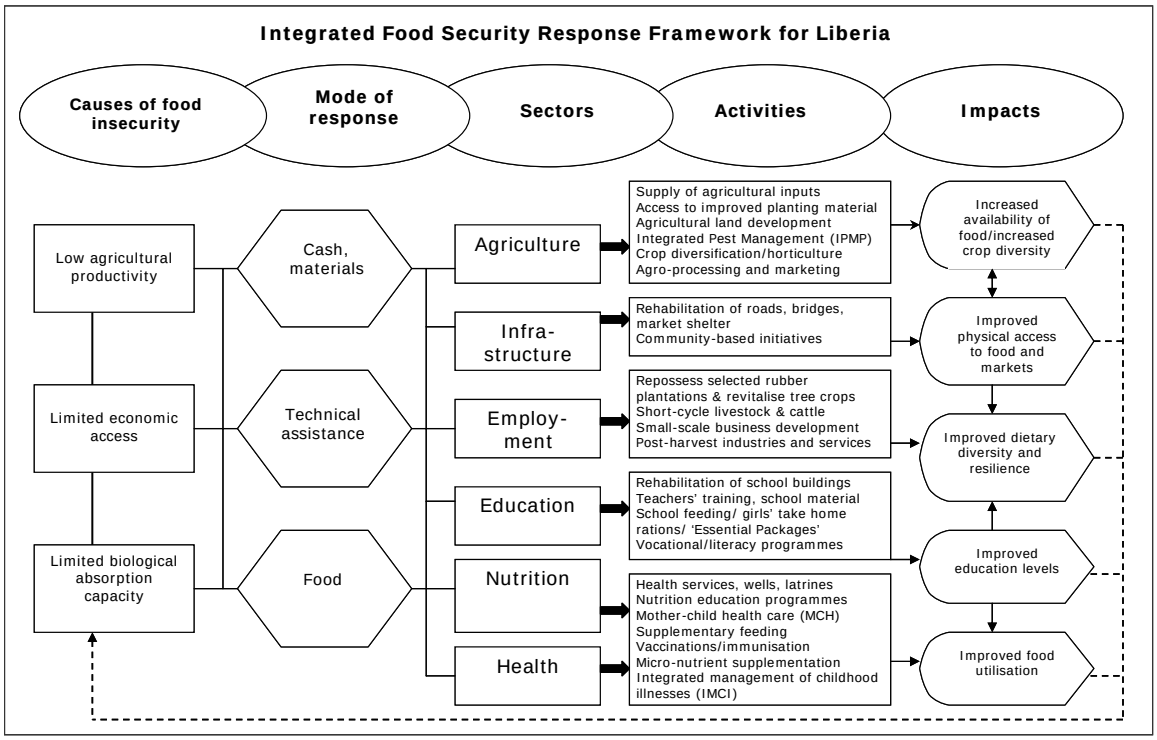
Short-term interventions such as emergency supply of agricultural inputs (seeds/tools/fertilizers) need to continue but should focus more specifically on households that are in the process of resettling or that have recently returned to their homes. In all counties, farmers' access to improved planting materials should be enhanced and the Integrated Pest-Management Programme (IPMP) implemented. Food-for-work activities should be prioritised in those counties with high concentration of food insecure or highly vulnerable households to food insecurity. In the short-term it will also be vital to rehabilitate fish ponds, repossess selected rubber plantations and revitalise other tree crops to improve access to food.

To revive **agricultural production** on the medium-to longer term, it will be essential to strengthen interventions in the area of crop diversification, horticulture, improved post-harvest technologies, and improved agro-processing and marketing. In line with this, it will be essential to improve the physical infrastructure to link up farmers to urban centres and markets. Other medium to longer term strategies to increase access to food will include the breeding and multiplication of short-cycle livestock and restocking of cattle, small-scale business development and the promotion of post-harvest industries and services.

Education plays an important role in increasing the human capital of the Liberian population. Improved education levels will increase households' income-earning opportunities and therefore will make them more resilient to food crisis in the future. Additionally, people with higher education levels are more knowledgeable on nutrition and health issues, which is essential to improve food utilisation. Interventions should comprise rehabilitation of school buildings, teacher training, provision of school material, school feeding, girls' take-home rations, and specific adult learning programmes. Food-for education in this context has two roles, first it improves children's short-term access to food while in school, and second it provides a strong incentive for children to attend school and, hence, increases enrolment and attendance rates. The implementation of 'Essential Packages' comprised of twelve interventions aiming at improving the health and nutrition of school age children is highly recommended.

In order to improve the **nutritional status** it will be crucial to improve access to basic health care services and access to clean water and sanitation combined with hygiene awareness campaigns. Nutrition and health programmes should be implemented that focus on infant and young child feeding practices, food preparation, dietary diversity, IMCIs, immunisation, micronutrients and HIV/AIDS. In the short-term, there is need for active case-finding and expansion of supplementary feeding programmes to cover areas with high acute malnutrition.

Other activities which will improve the health and nutrition status over the longer-term include: Vitamin A supplementation, an integrated anaemia control programme that includes iron supplementation, de-worming activities, provision of mosquito nets, initiating community support groups, formulating appropriate guidance on HIV and infant feeding in instances where a mother is HIV positive, strengthening the construction of the health systems and the Integrated Management of Childhood Illnesses (IMCI). Meanwhile the National Plan of Action on Nutrition should be finalised and the capacity of the Ministry of Health to effectively plan, implement and coordinate nutrition interventions strengthened.



Finally, there is am urgent need to enhance the **overall institutional capacity** to manage national and local development interventions and resources devoted to the improvement of food security and nutrition – including the development of an institutional policy framework and a food security monitoring system. The framework should comprise all sectors that are relevant to food security as depicted in the flowchart above.

INTRODUCTION

Battered by civil war from 1989 to 2003, Liberia is now on a long road to recovery. Since the 2005 elections, the country has embarked on a strengthened reconstruction effort to resolve its numerous developmental and societal challenges. Fighting and looting displaced nearly one million Liberians, destroyed the country's infrastructure and wiped out health and education systems. The agricultural system has been disrupted by the displacement of farming communities. The war was devastating for the economy and left the country with an enormous task ahead to address the challenges of recovery.

Since the onset of the war, hardly any information has been gathered on demographics and people's food security and health situation. In fact, the most recent census was conducted in 1984 and the only nationally representative health and nutrition survey was in 1999. To fill this information gap, it was decided to conduct a Comprehensive Food Security and Nutrition Survey (CFSNS) to assess the level and causes of food insecurity, vulnerability and malnutrition and identify livelihood patterns and agricultural constraints.

The survey covers rural and semi-rural groups representing 65 percent of the total population which is estimated to be roughly three million. It was implemented between February and June 2006 and is based on field surveys done at the household, individual and community levels. The data collection took place from March to April 2006 in all 15 counties. In total, 375 randomly selected rural and semi-urban communities were visited, 5,409 households were interviewed and the nutritional status of 6,041 children under five and their mothers was determined.

The survey is a joint effort led by the Government of Liberia, in particular the Ministries of Agriculture, Health and Social Welfare, Internal Affairs, Planning and Economic Affairs, the Institute of Statistics and Geo Information Services in collaboration with HIC, FAO, UNICEF, UNMIL, WFP, WHO, CRS, GTZ, WVL and LINNK.[1] The survey had the financial support of UNICEF, WHO, DFID, and ECHO through the WFP SENAC (Strengthening Emergency Needs Assessment Capacity) project.

[1] ACF, Africare, Concern, ECHO, ICRC, LINFU, MercyCorps, SC UK, UNDP, UNHCR and USAID provided additional technical support during the survey design and implementation phase.

The primary aim of the Comprehensive Food Security and Nutrition Survey (CFSNS) in Liberia was to assess the level of household food insecurity and to identify geographic areas and socio-economic groups that are food insecure and to identify causes of food insecurity and malnutrition. Importantly, this survey is intended to provide much needed baseline information on food security, health and nutrition at sub-national level that can be utilised for decision-making purposes by the newly inaugurated Government and the humanitarian community to enhance food security and livelihoods in post-conflict Liberia.

1.1 Objectives

Specifically, the CFSNS was intended:

1. To assess levels of household food insecurity while focussing on the following questions:
    - Who are the food insecure people?
    - Where do they live?
    - Why are they food insecure?
    - How can external assistance play a role in improving food security?
1. Identify rural and semi-urban livelihood patterns and assess the vulnerability levels of livelihood groups.
2. To analyse how crop production, livestock, and fisheries contribute to food security and to determine how constraints to food production and post-harvest crop losses impact on the food security situation;
3. To assess both the prevalence and distribution of malnutrition among children and mothers and to determine the health status (including feeding practices, morbidity, immunisation coverage, and both crude and under five mortality rates) with the aim of assessing the root causes of malnutrition and determining linkages between malnutrition and food access, consumption and utilisation;
4. To identify key-indicators that could be measured through a Food Security Monitoring System to assess changes and trends in food security and vulnerability over time.

1.2 Definitions, Terminology and Concepts

In this section, the basic concepts and definitions of food security and vulnerability used for the development of the survey methodology will be presented.
At the 1996 World Food Summit it was agreed that *food security* exists when*:*

> "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life."

Thus, food security status is determined by the interaction of a broad range of political, socio-economic, agricultural, and health-related factors. While there is no single, direct measure, food security has three distinct, but interrelated dimensions: food availability, household food access, and biological utilisation of food.

To achieve food security, each dimension must be addressed. Thus, food security exists only when:

- There is adequate availability of physical supplies of food either from domestic production, commercial imports, food aid, and/or national stocks;
- Households have the ability to regularly acquire adequate amounts of food through a combination of their own stocks, home production, purchases, or transfers from other sources; and

- Preparation of food is appropriate and the health status enables all household members to absorb nutrients in an adequate way.

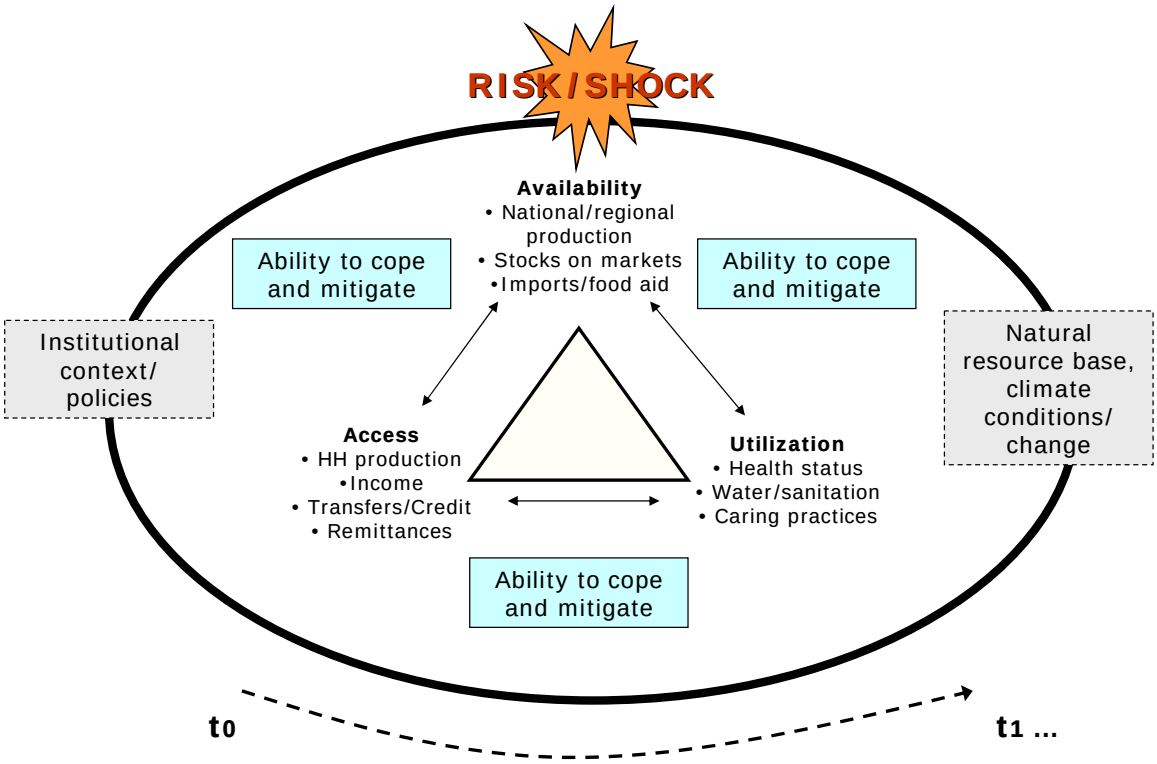
The term vulnerability is used to describe the level of risk for future food insecurity. According to FIVIMS[2] vulnerability is:

> "The presence of factors that place people at risk of becoming food insecure or malnourished, including those factors that affect their ability to cope."

Vulnerability = Exposure to Risk + Ability to Cope

Figure 1 illustrates the interrelations between all factors influencing food security and vulnerability. Household's exposure to shocks is determined both by the frequency and the severity of natural and man-made hazards, as well as the institutional or larger political context of the society. Coping capacity is determined by the ability of households to diversify their sources of both income and consumption. The vulnerability status of any household or individual is dynamic and may change over time as a series of factors, often out of the control of the affected households or individual, interact and fluctuate.

Figure 1: Food Security and Vulnerability Framework

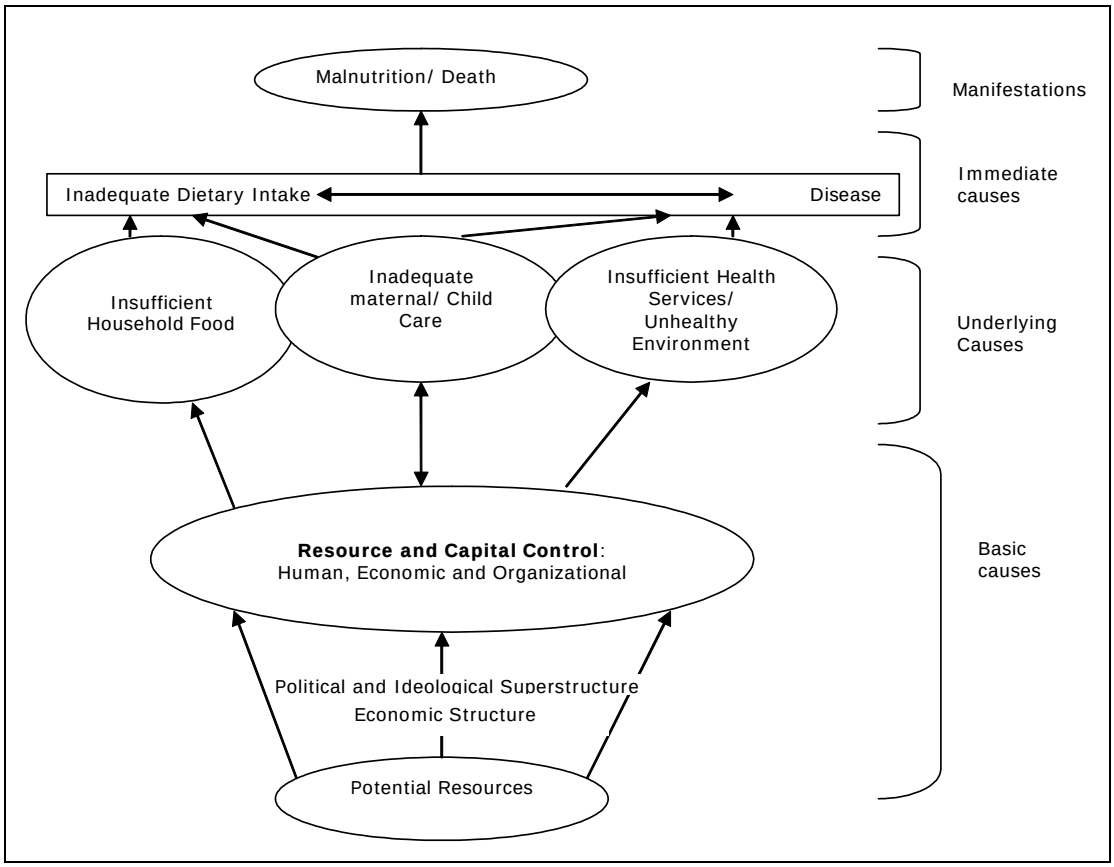


To complement the understanding of the three dimensions of food security, the survey also used the known UNICEF's conceptual framework (see figure 2) on the causes of malnutrition. The framework provides practical means for analysing malnutrition and causes in a holistic manner relevant to both development and emergency contexts. As presented in the framework, malnutrition is a complex; intergenerational condition that is caused by a variety of both micro and macro socio-political, economic, and health-related factors. Macro determinants of malnutrition are: generalized poverty, poor governance, and political, ideological and economic instability. Micro causes include inadequate infant and child feeding practices, inadequate hygiene, poor water and sanitation, disease, and

[2] Food Insecurity and Vulnerability Information and Mapping Systems: http://www.fivims.net/glossary.jspx?show_result=true?lang=en.

inadequate food intake and food insecurity. At the immediate level, malnutrition results from either infection or inadequate food intake.

Figure 2: Framework for Causal Analysis of Malnutrition



Source: UNICEF, 1987

In understanding malnutrition, the following definitions and indicators were used:

- Weight-for-height is a measure of acute malnutrition (or wasting), which is the result of reduced energy intake over a short period of time due to either food shortage or infections (in the immediate sense). Weight for Height Z-scores are obtained by examining a child's weight and height against the NCHS/CDC/WHO reference growth data and determining how many standard deviations (SD) that child is away from the median weight. Wasting is an indicator that is often used to assess the severity of emergency situations because it is highly related to mortality. It is the most reliable indicator for acute child malnutrition. All children with oedema are normally automatically considered severely malnourished. Although oedema was one the variables collected during this survey, and noted to be negligible (only few cases), its data proved unreliable as the few cases observed had other medical conditions. As a consequence, the acute malnutrition reported here does not include oedema.

Wasting:	<-2 z-score weight-for-height
Severe wasting:	<-3 z-score weight-for-height
Wasting:	<80% & >=70median weight-for-height
Severe wasting:	70% median weight-for-height

- Height-for-age is an indicator of chronic malnutrition (or stunting[3]), which reflects long term, rather than acute nutritional deficiencies. This is caused by an extended period or repeated episodes of inadequate diet, illness or both, which slows the rate of growth. Height for Age z-scores are computed by the height-for age of a child as compared to that of a reference population for well-nourished and healthy

[3] Stunting is more common in older children because there has been a longer period of slow height growth (FAO, 1990).

children, usually the NCHS/CDC/WHO reference data and determining how many standard deviations (SD) that child is away from the median height. Children falling below –2 z-scores are considered stunted while those falling below –3 z-scores are severely stunted.

- Weight for age is a composite measure of both chronic and acute malnutrition, and thus captures aspects of both stunting and wasting. Z-scores are obtained by examining a child's weight and age against the NCHS/CDC/WHO[4] reference growth data and determining how many standard deviations (SD) that child is away from the median. The weight for age index of a child is expressed as a z-score with children falling below –2 z-scores regarded as underweight and those below –3 z-scores as severely underweight.

- Interpretation of Malnutrition Rates: The Western African region has an estimated prevalence of global acute malnutrition of 10.3%[5]. In sub-Sahara Africa, rates of wasting or global acute malnutrition [6] (GAM) are usually within the range of 5-9 %. In the nationwide nutrition survey conducted in Liberia in 1999-2000, the prevalence of GAM for Monrovia was reported as 5.9%. In contrast, stunting or chronic malnutrition and underweight were high in Liberia, 39% and 26% respectively[7]. Chronic malnutrition is estimated at 32.9% and underweight at 27.1% for the West African region[8].

1.3 Stakeholders and Implementation Process

The design and implementation of the CFSNS was conducted by the Government of Liberia, specifically the Ministries of Agriculture (MOA), Education (MOE), Internal Affairs (MOIA), Health and Social Welfare (MOHSW), and Planning and Economic Affairs (MPEA)/ Liberia Institute of Statistics and Geo Information Services (LISGIS), in collaboration with FAO, HIC, UNICEF, UNMIL, WFP, WHO, CRS, GTZ and WVL. The survey was financed by DFID and ECHO funds channelled through WFP, plus funding received from UNICEF and WHO. Human resources and support to logistics were provided by all key stakeholders. Other agencies - ACF, Africare, SC UK, ICRC, UNDP, the local NGO Network and many others, provided technical support to the survey design and training. The responsibilities and contributions of all stakeholders and partners are outlined in the table below.

Table 1: CFSNS Stakeholders and their Roles

Activity	Agency
Overall coordination	MOA, MOHSW, MPEA, Ministry of Internal Affairs
Technical coordination	FAO, UNICEF, UNMIL, WFP, WHO
Instrument design	All stakeholders + other agencies
Sampling design	LISGIS, HIC, WFP, UNICEF
Nomination/provision of survey staff	Ministries, LISGIS, FAO, UNICEF, WFP, CRS, LINNK, universities
Training of data collection teams	MOA, LISGIS, FAO, HIC, UNICEF, UNMIL, WFP, WHO
Logistical support	FAO, UNICEF, UNMIL, WFP, WHO, CRS, GTZ
Data collection supervision	FAO, UNICEF, WFP
Data entry	WFP, WVL
Data analysis	WFP, all interested stakeholders
Mapping of results	HIC
Dissemination	Ministries supported by the technical coordination team
Financial contributions	UNICEF (Regional Bureau), WFP (DFID/ECHO funds), WHO

[4] Standard reference data developed by the US National Centre for Health Statistics together with WHO usually used to standardize measurements for comparison purposes.
[5] 5th Report on the World Nutrition Situation United Nations Steering Committee on Nutrition, March 2004 (Annex 4).
[6] GAM refers to Global Acute Malnutrition below -2 z-scores and/or oedema, a measure of acute malnutrition.
[7] Liberia: National Nutrition Survey, MOH/UNICEF 1999/2000.
[8] Ibid, 22.

Table 2: Timeline of Survey Implementation

2006	Feb				Mar				Apr				May				June			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preparation/survey design																				
Stakeholder workshop																				
Field-testing of instruments																				
Enumerators training																				
Data collection																				
Data entry training																				
Data entry																				
Data cleaning/analysis																				
Report-writing																				

Consultations with all stakeholders started in December 2005. The actual implementation of the survey from design to report-writing took 5 months from February to June 2006 as outlined in table 2. A specific emphasis was given to the training phase during which 90 participants from ministries, local NGOs and universities were trained. In total, 75 were chosen to participate in the data collection. Enumerators were divided into 15 teams that consisted of one team leader, two food security enumerators, one nutritional/anthropometric enumerator, and one mortality enumerator. In some cases, one team was assigned to one county, in other cases two teams worked together and covered two counties – depending on the logistical situation. The data collection process took place between 16 March 2006 and 20 April 2006. Field work was supervised by FAO, UNICEF and WFP staff. [9]

Upon completion of data collection in each selected community, questionnaires were screened by the team leader and, if possible, by data collection monitors, before being sent to Monrovia. After completion of the data collection process, a debriefing session was held to discuss problems or constraints that could potentially hamper quality or reliability of the data and to discuss any experiences that might help in the interpretation of the results.

1.4 Survey Instruments

The CFSNS survey was designed to collect quantitative information at household, individual, and community level. The household questionnaire which collected information at household, household member and child level included the following modules: demographics and education, household status, labour migration, housing and facilities, agriculture, income and access to credit, household expenditures, food sources and consumption, shocks and coping strategies, and external assistance, maternal and child health and nutritional status, and mortality. Key informant interviews at community level were carried to obtain information on terrain, natural/community assets, demographics, infrastructure and services, availability of external assistance, and major constraints to well-being of the inhabitants. To ensure both male and female perspectives were represented, three men and three women were interviewed in each community. All instruments were developed in English; however, with more than 14 indigenous or local languages spoken throughout the country, translation of the questionnaire into each language was not feasible. To address this constraint, Liberians were asked to review the questionnaire and translate it into Liberian English which the majority of respondents could understand. Additionally, wherever possible, data collection teams were composed of team members who had knowledge of the various languages and dialects spoken in their assigned counties.

1.5 Sampling Procedures

The main focus of this survey was to compare the food security and nutrition situation across counties. Each county was treated as a separate stratum. Lacking recent census data, the sampling frame was obtained from a database on populated places gathered during a village mapping exercise coordinated by the Humanitarian Information Center (HIC) in 2005. Communities within each county with fewer than 10 structures or more than 1,500 structures were excluded.

[9] The data collection coincided with the field preparation for the upcoming DHS. Therefore LISGIS was not able to participate in the data collection monitoring process as originally planned.

Next, a two-stage cluster sampling procedure was applied in each stratum. The first step was to randomly select 25 communities per county using probability proportional-to-size techniques. As the true population size was unknown, the number of structures was used as a proxy indicator. In total, 375 communities and 150 alternative communities were selected. The second stage was to select 12-15 households within each community using a systematic random sampling procedure. Nationwide 5,409 households were surveyed.

Table 3: Summary of Communities, Households, and Children Sampled Per County

	Estimated rural/semi-urban population[10]	*Communities planned/ achieved*	*Households planned*	*Households achieved*	*Children measured*
Bomi	79,398	25	300-375	367	470
Bong	180,703	25	300-375	341	389
Grand Bassa	123,317	25	300-375	371	400
Grand Cape Mount	76,000	25	300-375	372	348
Grand Gedeh	64,727	25	300-375	365	419
Grand Kru	41,117	25	300-375	347	508
Lofa	177,810	25	300-375	355	325
Margibi	119,881	25	300-375	374	391
Maryland	80,036	25	300-375	336	382
Montserrado	319,680	25	300-375	354	395
Nimba	238,360	25	300-375	372	498
River Cess	38,916	25	300-375	373	406
Sinoe	56,074	25	300-375	358	354
River Gee	45,320	25	300-375	359	416
Gbarpolu	46,608	25	300-375	365	340
TOTAL	**1,687,947**	**375**	**4,500-5,625**	**5,409**	**6,041**

1.6 Nutrition Status Assessment

The nutritional module of the household questionnaire was administered to the mother/caretaker of the child or in their absence, the head of the household. In each household *all children aged between 6 and 59 months or measuring 65-110cm,* as well as all women aged 15-49 years, were weighed and measured. If a child or woman was absent during the team's visit, arrangement was made to go back later and measure the child or woman meeting the criteria. If the team failed to trace the child, he/she was pronounced missing and replaced by other child. If the team identified more than one child aged 6 – 59 months or woman in the last household, all of them were measured. A total of **6,041 children and 4,038 women,** respectively, were included in the analysis of mother and child information from 5,049 households found with children meeting the criteria for the survey (see Table 3). To ensure that the required number of children to estimate the prevalence of acute malnutrition was met, a decision was made to prioritize on selection of households with under-five year-old children in case one household was to be selected from a structure that had several households.

Mothers/caretakers of under-fives were asked questions regarding breastfeeding practice, pregnancy, enrollment in selective feeding programmes (therapeutic and supplementary), Vitamin A supplementation and measles vaccination and recent illness etc. Vaccination records were reviewed where available. However, mothers' recalls were also taken as evidence of vaccination against measles and receipt of Vitamin A supplementation. To assist mothers and avoid confusion with polio vaccination, Vitamin A capsules were shown. Also for mothers with children 0 to 24 months of age, questions were asked regarding breastfeeding initiation and duration and infant and young child feeding practices.
Both children and women were weighed to the nearest 100 grams with a UNICEF uniscale. For children younger than two years of age or less than 85 cm, length was measured to the nearest millimeter in the recumbent position using a standard height board. Children 85 to 110 cm and women were measured in a standing position. Mothers' height was measured using a specially designed height board.

[10] In the absence of reliable population data, estimates are based on voter's registration figures of the 2005 election, which were adjusted based on urban/rural population estimates as well as population below 18 years.

Where facilities existed, malnourished children and women were referred to therapeutic feeding centers for treatment of severe malnutrition (<70% weight-for-height percent of median) or to supplementary feeding programmes for treatment of moderate malnutrition (>70% to <80% weight-for-height percent of median).

1.7 Mortality Assessment

To achieve a representative sample for mortality assessment, it was necessary to assess twice as many households as were sampled for the food security and nutritional modules of the survey (minimum sample size for mortality was estimated at 700 households per county). This resulted in 11,000 households surveyed and information on mortality gathered for close to 63,000 people.

Information on mortality of household members was gathered using a summary birth history questionnaire. This involved collecting information on the number of household members six months prior to the initiation of the survey and then collecting information on the number of members at the time of the survey. Losses of household members and the reason they were no longer in the household (death, migration, etc.) were documented. New additions from migration or new births were also documented.

Mortality rates were examined in the traditional sense by calculating the number of deaths/ 10,000 people/ per day. The recall period was revised to 6.5 months to ensure uniformity that was necessary after a delay in starting the data collection process. The formula that was used to calculate deaths is shown below:

$$CMR = \frac{10000}{D} \times \frac{d_c}{n_c}$$

$$U5MR = \frac{10000}{D} \times \frac{d_c}{n_c}$$

where, *CMR:* Crude mortality rate (total number of deaths /10,000 people/ day)

U5MR: Under five mortality rate (total number of child deaths/ 10,000/ day)

D: Number of recall days (6.5 months = 195 days)

d_c: Number of total deaths/ deaths of children under five during recall period

n_c: Number of current residents of the households

However, at the analysis stage, a problem was identified regarding the enumeration process with enumerators in two counties reporting deaths some of which did not occur within the 6-month recall period. Consequently, more deaths were recorded for this period than are believed to have actually occurred. In both cases, enumerators reported that 4.65 and 3.65 deaths per 10,000 people per day occurred respectively. One enumerator in both of these counties seemed to have consistently over-reported deaths when compared to the second enumerator (who also reported exaggerated numbers). To account for problems in these two counties, it was decided, with support from WHO, to report on data from only one enumerator (the one who over-reported deaths less frequently). Therefore, the results from both Sinoe and Grand Kru should not be considered as representative of those counties and should be interpreted with caution. To account for these changes, the weighting system has been adjusted accordingly. It should also be stated that there were similar concerns regarding the data from Grand Cape Mount but the evidence of enumerator-bias was less clear so the results were reported. The mortality rates for this county, however, appear high and should be interpreted with caution as well.[11]

[11] Mortality is a very sensitive indicator – meaning that the few deaths that were reported but did not fall into recall period could easily have an impact on the findings. During the training conducted by WHO, the importance of the recall period (15 September to 15 March) was stressed but in the rural context, respondents often find it difficult to refer to exact dates. Hence, for future survey it is recommended to use important days that people easily remember as reference (for example, Christmas, Independence Day, etc.).

1.8 Data Entry and Statistical Analysis

Questionnaires were sent to Monrovia on a rolling basis and were entered using Microsoft Access 2003 under the supervision of WVL staff. Data cleaning and analysis was carried by the Liberia WFP VAM and Nutrition unit using SPSS 11.5, ADATTI and Epi-Info version 6.04d software (2001). The calculation and analysis of anthropometric indices was conducted in EpiNut, a module within Epi Info™. Indicators of the precision of prevalence estimates, such as CI, for major health outcomes accounted for the cluster sampling used in selecting the 8 International Vitamin A Consultative Group 2002 sample for this survey. Tests of statistical significance for proportions were done using a chi-square test. A *p*-value <0.05 was considered to be statistically significant. Results were reported both at county and national level. To obtain results at national level, a weighting system was applied to reflect the population size of each county. The following formula was used:

W (Unstandardised weight) = total estimated population per county / number of people sampled in each county

W' (Standardised weight) = W * (Total number of counties / Sum of weights)

The quality of data was constantly controlled through data entry control checks and during the data cleaning phase. The analysis included descriptive analysis and multivariate techniques such as principal component, cluster and regression analysis.

1.9 Survey Limitations

There are several constraints and limitations that should be taken into account when considering the results of this survey. The first and perhaps most difficult limitation was the lack of a traditional sampling frame. With no census since 1984, there was limited information on the size and distribution of the population. The HIC village mapping database was the best proxy. However, the data which was collected through key informants was not verified on the ground, and hence lacks accuracy. As a response, a list of alternative communities were provided to the data collection teams which they were allowed to used in case the selected community could not be identified or was too small in size (below 12 households).

The survey only represents rural and semi-urban population groups roughly representing 65% of the total population. Some of the stakeholders involved are planning to conduct a similar survey in urban centres by the end of 2006 or in early 2007.

Some indicators that are relevant to food security such as market price data or food imports could not be assessed during this exercise as they cannot be collected at household or community level. Usually, secondary data resources are used to assess this type of information. For the time being, reliable and recent data is weak, hence could not be assessed in-depth. Efforts are planned to address these data limitations. For example, it is planned to set-up a systematic market price data collection system and to implement an in-depth agricultural sector survey.

2.1 Historical and Political Context

Liberia, sovereign for over 158 years, is Africa's oldest independent republic. Founded by freed slaves from the Americas in 1822, Liberia declared its independence in 1847 and was officially recognized, thereafter, as a state. In the years that followed, the initial settlers, Americo-Liberians, the so-called elite, came to dominate the political process and the government at the expense of various indigenous groups. This created tension between indigenous peoples and settlers which only increased with time. Finally, in 1980, the government of Liberia was overthrown by a group of indigenous military leaders led by Samuel Doe, who then established his own government. Over time, this regime became well known for rampant corruption, brutality, and human rights abuses. In response, the National Patriotic Front of Liberia (NPFL), led by Charles Taylor, revolted against President Doe, which eventually led to the overthrow of the government in 1990.

Instead of restoring order, the rebellion by NPFL in 1989 ignited a fourteen year civil war that did not cease until recently. Despite more than a dozen peace accords, the conflict in Liberia did not end. In 1990, the Economic Community of West African States (ECOWAS) decided intervention was necessary and sent a peace keeping force to re-establish order. However, hostilities continued intermittently and the conflict began to evolve with additional warring factions emerging. In 1996, there was a brief respite from the violence. The disarmament process paved the way for "special elections" that took place in July of 1997. These elections occurred on schedule and Charles Taylor and the National Patriotic Party (NPP) won the presidency. Before long, however, opposition arose in the government as political rivals began a violent struggle for power.

In 1999, the "Liberians United for Reconciliation and Democracy" (LURD) launched an insurgency in Lofa County which was aimed at overthrowing the government. In 2002, fighting broke out again, this time in the south-eastern region of the country, near the border of Cote d' Ivoire led by the Movement for Democracy in Liberia (MODEL). Thus from late 1989 to mid 2003, there were recurrent looting and destruction of physical infrastructure and total breakdown of law and order. The national economy was devastated and there were widespread shortages of food, water, sanitation, and health services. Throughout this period, an estimated 270,000 people lost their lives as a direct result of the conflict[12]; about one million people moved from their homes into Internally Displaced Person (IDP) camps or fled to neighbouring countries for refuge. By the end of 2002, the rebellion in the western region had spread across Lofa, Gbarpolu, Grand Cape Mount and Bomi counties. In July 2003 the LURD forces were engaging government forces on the outskirts of Monrovia. Until the conflict ended in 2003, the bulk of the population in Liberia depended on humanitarian assistance, although humanitarian efforts were constantly hampered by poor road infrastructure and insecurity. The humanitarian crisis in Liberia was further compounded by an outbreak of conflicts and insecurity in surrounding countries. Nearly 15,500[13] refugees sought asylum in Liberia from conflicts in neighbouring Sierra Leone and Guinea. In 2002 and early 2003 approximately 95,000 refugees – mainly Ivorian refugees, Liberian returnees and 'third country nationals' entered into Liberia from Western Côte d'Ivoire. Each influx imposed further strain on the scarce resources of the already impoverished host communities in Liberia.

The wars in 2003 culminated into humanitarian crisis in Monrovia and eventually led to international pressure for the warring parties to cease hostilities. Finally in August 2003, the international community brokered a comprehensive peace agreement (CPA) with the warring parties.

The CPA paved the way towards the establishment of the United Nations Mission in Liberia (UNMIL) and a two year National Transitional Government. Furthermore, to support good governance and to address the problems of corruption in Liberia, a strategy framework[14] known as the Governance and Economic Management Assistance Programme (GEMAP) was agreed upon by the NTGL and international partners. Subsequently, presidential and legislative elections held in October and November of 2005, were successful, and the new President, Ellen Johnson-Sirleaf, became Africa's first democratically elected female

[12] Liberia Human Development Report, UNDP 2006.
[13] UNHCR Liberia, October 2005.
[14] Agreement signed in September 2005 by including UN, US, EU, AU, ECOWAS, IMF and WB, in order to address the problems of widespread corruption in Liberia.

president. Currently, her government faces many key challenges; top on the agenda being to restore stability, revamp the economy, secure access to basic services, and ensure that human rights are respected.

2.2 Geography, Climate and Natural Resources

The Republic of Liberia is situated on the Atlantic Coast of West Africa. The country encompasses a coastline of 579 km and a land mass of approximately 111,370 sq. km. The capital is Monrovia (geographic coordinates: 6° 18' N, 10° 48' W). Liberia borders Côte d'Ivoire on the east, Sierra Leone on the west and Guinea on the north. The country has 15 administrative and political subdivisions known as counties, which are subdivided into districts.

The climate is tropical, hot and humid. Liberia is among the wettest countries in the world with an average annual rainfall of 4,650 mm per year in the coastal areas, and 2,240 mm in the interior.[15] Based on the prevailing precipitation, two seasons are differentiated – rainy and dry season. The rainy season lasts from late April to October. The months of heaviest rainfall are June, July and September. The dry season begins in November and ends in April. The temperatures are usually relatively high, on average, ranging annually from 24°C to 30°C (75°F to 85°F). The lower temperatures that are attributed to clouds and rain are mainly caused by the large amount of cloud cover, which is common over much of coastal West Africa.

Liberia's agro-ecology contains four zones: the coastal plains characterised by lagoons and mangroves, the hill zone, mountain and plateau regions, and the northern highland zone – the altitude ranges from 0m to 1,440m at Mount Wuteve in Lofa County.[16] Approximately 40% of West Africa's rain forest[17] belongs to Liberia which extends inland from the coastal plains. The most densely forested counties are Gbarpolu, River Cess, Sinoe, River Gee and Grand Gedeh. Though covering large areas, the tropical forest is endangered by deforestation and loss of biodiversity. The Forestry Reform Law has been reviewed and is currently being debated by the National legislature. Reforming the forestry sector is not only a requirement for lifting the sanctions on timber and logging trade, but will also ensure that this important sector is managed in a sustainable manner.

The country is rich in natural resources, including water, wildlife, forests (timber), and minerals. There are also possible crude oil deposits along the Atlantic Coast. Iron ore, gold, and diamonds are present in the plateaus and mountains of the northern region. Gold and diamonds were also discovered in Sinoe and Grand Kru Counties in south-eastern Liberia. During the civil war, forest and mineral resources were exploited by Charles Taylor, who used proceeds from both diamond and timber shipments for illicit purposes. In response, the United Nations imposed sanctions on the sale of these two commodities. In June 2006 the Security Council decided not to renew the sanctions on the Liberian timber industry though not all criteria set out in resolution 1521 (2003) were met. The Security Council decided to review the decision after 90 days and intends to reinstate the measure if appropriate forestry legislation is not passed within this period.[18]

2.3 Population and Ethnic Groups

The latest official census was carried out in 1984. Since then, it has become difficult to come up with reliable estimates. The Ministry of Planning and Economic Affairs continues to develop population projections. Taking 1997 estimates as a baseline, a growth rate of 2.4% was determined considering the war conditions. Other population estimates were carried out on the basis of different relevant exercises such as the UNICEF Polio Eradication National Immunization Days, the HIC Village Mapping Exercise of 2005, and the voters' registration list for the general election in October 2005. The comparison among these different estimates revealed a wide range of variations in population

[15] African Conservation: Profile on Liberia.
[16] Source: http://en.wikipedia.org/wiki/Mount_Wuteve
[17] USA Bureau of African Affairs June 2006.
[18] Source: http://www.globalwitness.org/press_releases/display2.php?id=367.

estimates at county and district level. The official population projection for 2005 is 3,023,203.[19]

Presently, Liberia consists of both the descendents of settlers from America and indigenous peoples. Descendants from the ex-slaves only make up about 1% of the total population. Currently, there are 16 indigenous ethnic groups. The largest ethnic group is Kpelle who are mostly settled in central and western Liberia. The Kruan (Kwa) ethnic group comprises the Bassa, Dei (Dey), Grebo, Kru, Belleh (Kuwaa), Krahn, and Gbee. A third ethnic group, the Mande, consists of Vai, Gbandi, Kpelle, Loma, Mende, Gio, Mandingo and Mano speaking groups.

2.4 Macro-economic Context

The impact of the civil war and poor governance has been devastating for Liberia's economic development. During the years of the crisis, poverty levels rose steadily reaching 76% and 52% in absolute and extreme poverty terms,[20] respectively. According to UNDP, public financial performance levels have fallen over the past years as a result of deteriorated governance systems and processes. The government presently operates at about one-third of its pre-war level, with a GDP of less than 500 million USD compared to over one billion in 1988. Key growth sectors have been impacted by the protracted crisis. The agricultural sector remains in ruins and is slowly starting to revive itself. The mining sector collapsed from a relative 12% share of GDP in 1988 to 0.01% in 2004. The tertiary sector dropped from 51% of GDP to 17%. Manufacturing stalled and exports were a mere 25 million USD, a sharp contrast to pre-conflict levels of 460 million USD. Unemployment in the formal sector has risen to as high as 85% and the fact that most Liberians are inaccessible to basic services and infrastructure illustrate the deteriorating living conditions and quality of life.

Historically, the exports of rubber, timber, gold, and iron-ore and diamond mining have been the main underpinnings of the Liberian economy. Additionally, Liberia, which adopted commerce-friendly maritime regulations, operates a ship registry programme that contributes to the national income.

Trade in these commodities, coupled with significant foreign support, helped the Liberian economy outperform many other economies in the region prior to the military coup in 1980. Following the coup, however, corruption and mismanagement became commonplace and the economy began to suffer. Doe's government exploited Liberia's natural resources, embezzling huge sums of money resulting in declining economic growth, bilateral aid flows from the international community, and private foreign investment. Consequently, people began to speak up about these problems and there was considerable uneasiness throughout the country. Exploiting this sense of dissatisfaction, Charles Taylor, who was head of the procurement department, formed the opposition that eventually led the country into war in 1989.

Throughout the civil war, competition over state resources continued. The educated classes feared for their lives and fled to other countries for safety. Meanwhile, warlords and their business counterparts established an intricate war economy in which timber and mining profits were used to finance other wars in the region. The warring factions constantly clashed over territories that they felt had diamonds and gold deposits or timber. Therefore, in May 2001, the United Nations imposed sanctions on Liberia to stop the illegal selling and transferring of money out of the country to support the Revolutionary United Front (RUF) in Sierra Leone.

While observing the devastation created by Liberia's conflict and the enormous challenges that remain for the economic recovery of the country, progress has been made since 2003 when the war ended. Since the successful election in 2005 and the inauguration of the new president, a number of initiatives have been launched towards reconstruction in the context of the RFTF. On this basis, the country has embarked on a series of national reconstruction efforts. Security, economic revitalisation, infrastructure and basic services, governance and the rule of law have been identified as areas of action by the new

[19] Statistics Division, Ministry of Planning and Economic Affairs.
[20] The population living on less than 1 US $ and 0.50 US $ per person per day), source: National Human Development Report, UNDP 2006.

government, which provides hope that economic and human development will prevail in the near future.

2.5 Agricultural Sector

Pre-war information indicates some 634,000 ha of arable land was used for cultivation (approximately 6.5% of the total land area). Liberia's agricultural sector was largely developed as a dual system consisting of a commercially oriented plantation sector and subsistence producers. The majority of rural Liberians have worked as labourers on commercial plantations or on small subsistence farms with a relatively small percentage of farmers involved in cash crop production.

The majority of Liberia's farming households use traditional production techniques with extremely limited use of modern inputs. The predominant characteristic of the traditional small farm is one of low productivity of land and labour. Shifting cultivation on the uplands is the main technique. The secondary forest is cleared and burned, followed by one-to-two years of cultivation after which the land is returned to bush fallow for eight-to-ten years. In general, land tenure arrangements are based on customary traditions.

Prior to the war, Liberia had achieved 55% food sufficiency, mainly through rice and cassava production. It also produced cash crops such as rubber, cacao and coffee. Poor governance, the civil strife, displacement of farming communities, erosion of marketing systems due to degradation of roads, transport and processing infrastructure, physical insecurity and lack of agricultural inputs led to low labour and land productivity and minimal economic returns. As a result, it is estimated that currently only 10% of the arable land is being cultivated and food sufficiency has declined (FAO/WFP 2006) [21].

The Government has recognized the key role of agriculture during the economic recovery phase as a provider of food, employment, raw materials, tax revenues, export earnings, and savings. The sector also provides a market for non-farm good and services. The policy intent statement prepared by the Ministry of Agriculture in cooperation with key actors emphasises the continued support to production in the resettled areas in order to reduce, and in the long term, eradicate food insecurity. Efforts will be directed at providing the target groups with the basic support needs, tools and other essential inputs for food and cash crop production, rehabilitation of artisanal fisheries, restocking of livestock, feeder roads, marketing facilities, land development and rehabilitation or construction of aquaculture infrastructures as well as post-harvest assistance.

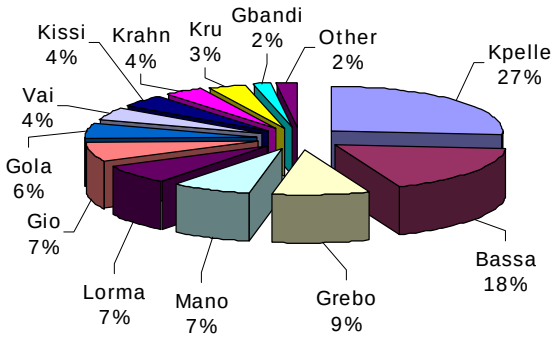
[21] See FAO/WFP Crop and Food Security Assessment, 2006.

This section presents key information on demography, displacement and resettlement, living conditions, livelihood activities, household expenditures, access to basic services and infrastructure, and external assistance. All tables and charts presented in this section are based on the findings of the household survey. Additionally, output tables with all key indicators disaggregated by county are provided in annex 2.

3.1 Demography

The major ethnic groups within the country include Kpelle, Bassa, Grebo, Mano, Lorma, Gio, and Gola. In Grand Bassa and River Cess, the Bassa group dominates. Bomi and Gbarpolu are dominated by Gola and Kpelle speakers. Kpelle is also spoken by most households in Bong. Lofa is characterised by Lorma followed by Kissi and Gbandi, while in Grand Cape Mount the majority of people speak Vai or Gola. Gio and Mano dominate in Nimba, while Grebo is spoken in the south-eastern counties, Maryland and River Gee and Grand Kru. Kru is spoken in Grand Kru and Sinoe. Most people in Grand Gedeh speak Krahn. Montserado and Margibi are more heterogeneous, however, Kpelle dominates.

Figure 3: Languages and Dialects



On average, one household consists of 5.6 members. When examined by county, this varied by 1 household member. Household size was largest in the two most populated counties, Montserrado (6.4) and Nimba (6.1) as well as in Grand Gedeh (6.1). Grand Cape Mount and Grand Bassa, both showed the lowest number of persons per household at 4.6 and 4.8, respectively.

Among the sample population, the ratio of males to females was 49.5% to 50.5%. In the total sample, 13% of households were headed by females ranging from 5% in Bomi to 21% in Lofa, the county that was most continuously and most heavily affected by incursions and looting by rebels and government troops during the 14 years of civil conflict.

The overall mean age of household heads for sampled households was 40 years old. The mean percentage of households headed by members 60-years-of-age or above was 8%. Overall, the dependency ratio[22] was 1.4 for all households raging from 1.2 in Gbarpolu to 1.6 in Grand Kru, where families in general have more children.

Across the country, 9% of respondents reported to have a chronically ill or disabled household member. In 26% of the cases this was the household head. Chronic illness and disability were most commonly reported by households in Nimba (14%), Montserrado (13%), and River Gee (13%), while Bomi reported the lowest prevalence of just 2%. In total, only, 2% of households cared for an orphan, which was surprising given the war. Orphanhood might have been underreported due to the fact that, culturally, orphans are not perceived as such and are treated as “regular” family members. Orphanhood was most common in River Gee (5.2%) and least common in Grand Bassa and Margibi.

[22] Dependency ratio is defined as the ratio of persons in the "dependent" ages (population under 15 years and above 59 years) to those in the "economically active."

3.2 Displacement and Resettlement

The mean number of times sampled households were displaced since the beginning of the civil war was twice. This however varied by county depending on proximity to hostilities. Generally speaking the counties in the south-east, namely Grand Kru, Sinoe and Maryland were less affected (0.9-1.5 times). The counties more directly affected by the war included the northern and central coastal counties of Bomi, Grand Cape Mount, and Grand Bassa, where households were displaced on average 2.4 to 2.7 times. Interestingly, households in Montserrado were displaced less often, only 1.5 times. This is probably due to the fact that many people were hiding in their homes during conflict rather than fleeing.

Table 4: Household Status

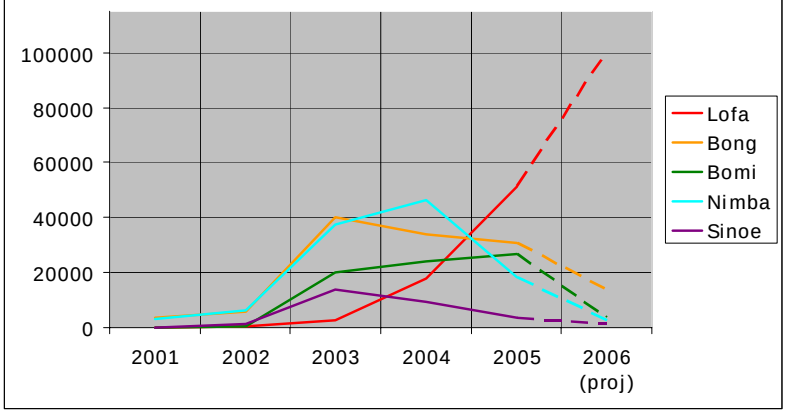
	Never displaced	Displaced/ refugee	Returned before 2005	Returned since 2005	Away from home but not displaced nor a refugee	Times of displace-ments
Bomi	0%	3%	59%	36%	2%	2.5
Bong	17%	5%	56%	20%	2%	2.3
Grand Bassa	2%	3%	87%	6%	2%	2.4
Grand Cape Mount	8%	5%	57%	29%	1%	2.7
Grand Gedeh	9%	5%	78%	6%	2%	1.7
Grand Kru	53%	0%	40%	4%	3%	0.9
Lofa	1%	1%	21%	75%	3%	2.0
Margibi	9%	30%	56%	3%	2%	2.0
Maryland	28%	1%	59%	11%	1%	1.3
Montserrado	23%	13%	57%	4%	4%	1.4
Nimba	18%	6%	66%	8%	1%	1.5
River Cess	8%	8%	70%	14%	1%	2.1
Sinoe	34%	8%	48%	7%	3%	1.5
River Gee	6%	3%	85%	5%	1%	2.0
Gbarpolu	7%	3%	35%	50%	4%	2.0
Total	**14%**	**7%**	**57%**	**20%**	**2%**	**1.9**

Countrywide, only 14% of households reported to have never been displaced. In Grand Kru, Sinoe, and Maryland, the highest percent of households were never forced to flee their homes. On the other hand, almost all households residing in Lofa, Bomi and Grand Bassa were displaced at least once in the past. Again the underlying reasons are the outrages of the war that forced almost everybody to flee. Fighting was concentrated in areas that have main roads leading to Monrovia or neighbouring countries.

The majority of the population across all counties have returned to their place of origin after the end of the war in 2003. In the overall sample, the return movements are highest in the years 2003-05. Margibi and Montserrado also show high return rates in 1996 and 1997. These years were characterised by relative political stability following a peace agreement and subsequent presidential elections. In Grand Bassa, Grand Gedeh, Grand Kru, Maryland, Nimba, River Cess, and Sinoe resettlement rates reached their peaks in 2003 and 2004, while in Bong, Grand Cape Mount, Bomi, Lofa and Gbarpolu, return migration continued through 2005. In Lofa, 26% of all households had only returned since the beginning of 2006. This has an impact on the current vulnerability status of households as they are still in the process of rebuilding their homes and livelihoods.

Figure 4 illustrates the trends in estimated return migration of rural/semi-urban population based on population projections for selected counties in north-west, central and south-east Liberia. Estimations for the year 2006 are based on the first quarter of 2006 and are, therefore, subject to change. The trend illustrates, however, that all counties show a downwards trend, while Lofa is the main county with continuous high return flows. Other counties, where return migration continues are Bong, Grand Cape Mount and Gbarpolu.[23]

Figure 4: Estimated Return Migration
(No of Persons Based on Rural-Semi-Urban Population Estimates)



In the majority of counties less than 8% of households remain displaced. This is true for all but two counties, Margibi and Montserrado, where 30% and 13%, respectively, of the sampled population reported being currently displaced. These two counties were the destination for internally displaced persons during the war outbreak where also most IDP camps were located. The most common reasons households provided for not returning to their place of origin were; "no money to return" (57%), "prefer to stay in current location" (51%), "no work in area of return" (30%) ", and "no transportation to return" (27%). Interestingly, the main reason for currently displaced households in Montserrado was the preference to stay in the current location, an indication that these households were able to establish themselves in an environment close to the country's capital which offers better access to education, services and more livelihood opportunities.

3.3 Housing and Living Conditions

Shelter is a basic need and its ownership plays a paramount role in stability and subsequent developments. Overall, the majority (66%) of the households declared ownership of their dwelling units. More than a quarter (28%) of the households reported neither ownership nor payment of rent for their current dwelling units—meaning that they are either housed by well wishers/friends/relatives or squatting. Counties that experienced more destruction during the recent civil wars such as Lofa and Gbarpolu reported the least proportion of households owning their current dwelling units while counties that were relatively less affected by war, especially in south-eastern Liberia, owned most of their dwelling units.

Overall, dwelling units occupied by households had 1.9 rooms[24] which translate to about 3.4 people per room. From the number of people per room, it was possible to calculate the rate of overcrowding within households. For purposes of this survey, households were considered overcrowded when there were more than 5 people per room. Using this definition, the overall overcrowding rate was 21%. While rates did not vary much across the counties, overcrowding tended to be more prevalent in Montserrado, Margibi, Grand Cape Mount, Gbarpolu, and Lofa counties where the rates ranged from 21 to 27% while southern counties reported overcrowding rates less than 20%.

Around 6% of the households are currently renting their dwelling units. As expected, Montserrado reported a relatively higher proportion of those currently renting their dwelling units. The average monthly rent per households was about USD 5 (286 LD), with the highest costs to be found in Montserrado and Bong. High rents in Bong are mainly explained by the forces of demand and supply in a post-war environment.

[23] Though not fully compatible, the IDP & Refugee repatriation and reintegration update as of August 2006, illustrates a similar trend. Lofa, Gbarpolu, Grand Cape Mount, Bomi and Bong have the highest caseload of returning IDPs and refugees receiving assistance.
[24] Excludes kitchen.

The survey collected data on construction/building materials used by households. Overall, a significant majority (91%) of households used mud/earth or bamboo for walling. As expected, use of cement or concrete for walling was mainly reported in Montserrado and Maryland (about 30 and 18%, respectively, in these two counties). An overwhelming majority (83%) of the households also indicated the use of mud, stones or wood for flooring. Once again, Maryland and Montserrado reported a relatively higher usage of cement for flooring (38.7% and 23.3% respectively). Roofing materials, however, varied across counties. Overall, about 49% live under thatch/straw roofs with an equal proportion living under zinc/iron roofs. Use of plastic sheets for roofing was rare and mainly reported in Montserrado, Margibi, Nimba and Bong (mainly in areas initially settled by IDPs or refugees). The use of building materials is typical of what would be expected in a weak economy like that of Liberia. It typically reflects the level of poverty in the society.

The survey also collected information on sources of cooking and lighting fuel. Overwhelming majority (91%) reported use of firewood while charcoal was being used by 8%. There were no variations in the sources of cooking fuel with exception of Montserrado where about four in ten households reported use of charcoal. Likewise, oil or kerosene was the main fuel for lighting in rural and semi-urban Liberia, reported by 91% of the households. However, some families in Montserrado and Margibi reported use of candles.

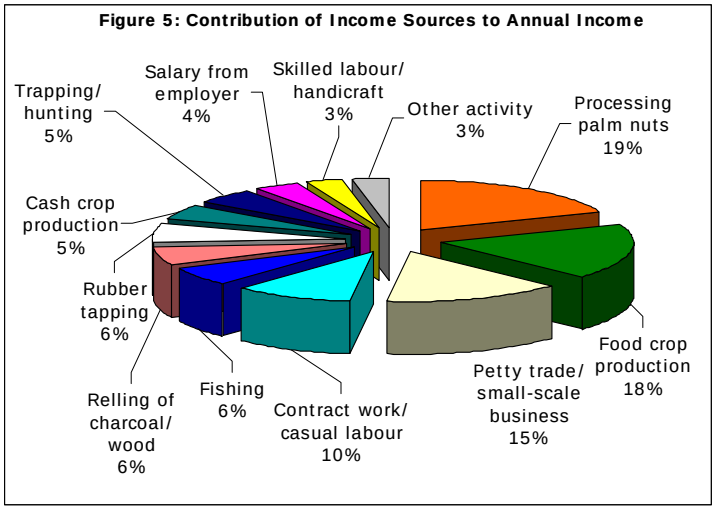
3.4 Livelihood Activities and Sources of Income

Households were asked to name their four main sources of income and estimate the contribution of each source to the total annual income. As a second step livelihood profiles were created using multivariate techniques based on the main activities households are involved in and their respective shares to the total household income.

3.4.1 Income Sources

In the overall sample, 41% of households engage in “food crop production”, 31% in “processing or sale of palm nuts/oil”, 28% in “petty trade/ small scale business”, and 18% in “contract/ casual work”.

Figure 5: Contribution of Income Sources to Annual Income



In terms of share of the total annual household income, food crop production and selling/processing of palm nuts have the highest contributions followed by petty trade and contract work/casual labour (see figure 5).

The contribution of food crop production is particularly high in the south-east: Sinoe (35%), Maryland (29%) and River Gee (26%). Processing/selling of palm nuts is a key income generating source and also serves as a coping strategy across Liberia but is particularly high in Lofa (37%), River Cess (33%) and Bomi (27%). Cash-crop production is predominant in Nimba (15%) and Grand Bassa (10%). Income from fishing contributes to 22% of the household income in Grand Kru, and 14% in Grand Cape Mount. Trapping and hunting dominates in Grand Gedeh (25%), River Cess (25%), Gbarpolu (17%), and Sinoe (15%). All four counties have densely forested areas. Contract work is one of the major income sources in Lofa (19%) and Grand Cape Mount (15%). Montserrado shows the highest contributions from petty trade/small-scale business (23%) and salary from employer (11%). Selling of charcoal and firewood dominates Margibi (19%), Bomi (18%), and Montserrado, which is not surprising as here are the main markets for urban dwellers who purchase fuel for cooking. Finally rubber tapping dominates in Margibi (22%), Bomi (15%) and Maryland (13%), counties that encompass large rubber plantations.

3.4.2 Livelihood Profiles using Multivariate Techniques

Using principal component (PCA) and cluster analysis, 13 relatively homogeneous livelihood profiles were created on how much each individual activity contributed to the annual household income. This methodology also captures if households depend only on one or several income activities.

Of the total sample, 15% of all households can be described as 'food crop farmers', 14% as 'palm oil seller/producer', 12% as 'petty traders', 10% as 'contract labourers', 7% as 'rubber tappers', 7% as 'charcoal producers', 5% as 'hunters', 5% as 'employees', 4% as 'fisherfolks" and 3% as skilled labourers. 14% rely on a combination of two income sources: 8% of household are described as 'palm oil and food crop producers', and 6% as 'cash and food crop producers'. Table 5 illustrates that most households depend mainly on one single income activity. Typical income activities that contribute additionally with around 5% are food crop production, petty trade and contract work.

Table 5: Livelihood Profiles

		Contribution to Annual Income		
Livelihood profile	**%**	Main income	Second income	Third income
Food crop farmers	15%	Food crop production (74%)	Petty trade (6%)	Fishing (4%)
Palm oil seller/producer	14%	Processing palm oil (84%)	Contract work (5%)	Petty trade (3%)
Petty traders	12%	Petty trade (81%)	Food crop production (5%)	Contract work (4%)
Contract labourers	10%	Contract work (79%)	Petty trade (6%)	Food crop production (5%)
Palm oil and food crop producers	8%	Processing palm oil (49%)	Food crop production (26%)	Cash crop production (5%)
Rubber tappers	7%	Rubber tapping (75%)	Petty trade (6%)	Food crop production (5%)
Charcoal producers	7%	Charcoal/firewood production (72%)	Food crop production (8%)	Petty trade (5%)
Cash and food crop producers	6%	Cash crop production (62%)	Food crop production (22%)	Processing palm oil (5%)
Hunters	5%	Hunting/trapping (73%)	Food crop production (8%)	Processing palm oil (8%)
Employees	5%	Salary from employer (75%)	Petty trade (12%)	Food crop production (4%)
Fisherfolks	4%	Fishing (79%)	Petty trade (6%)	Food crop production (8%)
Skilled labourers	3%	Skilled labour (74%)	Petty trade (8%)	Food crop production (7%)
Others	3%	Other activity (82%)	Petty trade (6%)	Food crop production (2%)

The geographic distribution of profiles follows similar trends as the one described above in the income sources section (see also table in annex 2.5). Section 3.5.2 and 4.2.6 will provide more insight into the vulnerability status of these profiles.

3.4.3 Income Activities Differentiated by Sex and Age

Respondents were asked which household members were involved in the four main income activities. Based on the contribution of each income activity to the total income, the percentage of each group contributing to the household income could be estimated. On average, 33% of the household income was jointly generated by men and women, 33% by men only, 16% by women only (additional 5% were generated by women with the support of children), and 10% jointly by all household members.

As expected, there is a specific labour division trend between women and men when it comes to food and cash crop production. 6% of food crops are produced by men compared to 8% by women, while 22% cash crops are produced by men and only 5% by women. Also, fishing shows gender differences, women dominate in inland fishing, while ocean fishing is mainly carried out by men. Men were much more likely than women to engage in rubber tapping, pit-sawing, mining, salaried work, skilled labour, handicraft work, contract or casual work, and raising livestock for others. Women more commonly engaged in petty trade/ small scale business, begging, and sales of prepared food. As mentioned above, children alone were not commonly reported to contribute to the household income, however, boys contribute to 4% of the income generated by selling of firewood and

mining, while girls contribute to 3% of the income generated through begging and assistance from relatives/ remittances.

In terms of sex of household, female-headed households are significantly more likely than male-headed to rely on petty trade, contract work/casual labour, inland fishing and processing/selling of fish, sales of prepared food, begging and assistance by relatives. Male-headed households depend more on processing and selling of palm nuts, rubber tapping, trapping/hunting, selling of charcoal, cash crop production, salary from employer, and ocean fishing. Households headed by elderly only differ significantly in 6 activities. They depend slightly more on food production, selling of firewood, pit-sawing and assistance provided by relatives. Households with household heads below 60 years of age depend more on processing/selling of palm nuts and contract labour.

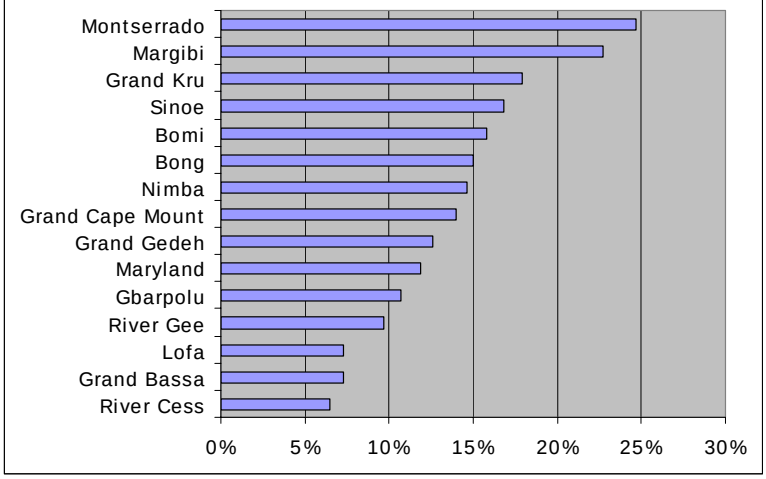
Table 6: Livelihood Profiles by Sex and Age of Household Head

	Sex HH head		*Sig. level*	Household head below 60	Household head 60 plus	*Sig. level*
	Male	Female				
Food crop production	18.3%	16.9%	*n/a*	17.9%	**21.3%**	*<0.05*
Processing/sale of palm oil/palm nuts	**17.4%**	11.5%	*<0.001*	**17.1%**	9.8%	*<0.001*
Petty trade	11.1%	**24.3%**	*<0.001*	12.9%	12.6%	*n/a*
Contract work/casual labour	9.5%	**13.5%**	*<0.001*	**10.2%**	7.7%	*<0.05*
Rubber tapping	**7.0%**	1.7%	*<0.001*	6.5%	4.5%	*n/a*
Trapping/hunting	**6.1%**	1.4%	*<0.001*	5.5%	4.9%	*n/a*
Processing and selling of charcoal	**5.4%**	2.3%	*<0.001*	5.1%	4.5%	*n/a*
Cash crop production	**5.2%**	3.1%	*<0.01*	4.9%	5.9%	*n/a*
Salary from employer	**4.4%**	2.2%	*<0.001*	4.2%	4.3%	*n/a*
Inland fishing	3.5%	**4.9%**	*<0.01*	3.6%	3.7%	*n/a*
Skilled labour	**2.0%**	0.9%	*<0.05*	1.8%	1.4%	*n/a*
Sale of sugarcane juice/palm wine	2.0%	1.6%	*n/a*	1.9%	2.2%	*n/a*
Sales of prepared food	1.2%	**3.5%**	*<0.001*	1.4%	1.5%	*n/a*
Ocean fishing	**1.2%**	0.2%	*<0.01*	1.1%	1.1%	*n/a*
Mining	**1.0%**	0.3%	*<0.05*	0.9%	0.6%	*n/a*
Selling of firewood	0.8%	1.1%	*n/a*	0.7%	**2.5%**	*<0.001*
Processing/selling of fish/snails	0.8%	**2.5%**	*<0.001*	1.1%	1.1%	*n/a*
Handicraft	0.7%	1.0%	*n/a*	0.7%	1.1%	*n/a*
Raising/selling of own livestock	0.5%	0.5%	*n/a*	0.5%	0.8%	*n/a*
Shopkeeper	0.4%	0.1%	*n/a*	0.3%	0.4%	*n/a*
Pit sawing	0.4%	0.4%	*n/a*	0.4%	**1.0%**	*<0.05*
Assistance by relatives/remittances	0.4%	**3.3%**	*<0.001*	0.4%	**4.9%**	*<0.001*
Begging	0.3%	**1.9%**	*<0.001*	0.5%	1.1%	*n/a*
Raising livestock for others	0.0%	0.1%	*n/a*	0.0%	0.1%	*n/a*
Other	0.4%	**0.9%**	*<0.05*	0.4%	**1.2%**	*<0.01*

3.4.4 Labour Migration

Overall, 15% of households reported having at least one household member that had migrated. The prevalence, however, varied by county. For instance, Montserrado and Margibi reported the highest levels of labour migration with 23% to 25% of households having at least one labour migrant. Conversely, River Cess and Grand Bassa reported the lowest levels of labour migration with only 6% to 7% of household reportedly engaging in this activity.

Figure 6: Households with Labour Migrants



In terms of destination, 38% of households with labour migrants reported that at least one migrant remained within the same district, 40% have migrants within the same county, 33% are associated with migrants who left for another county, and 6% who reported to have migrant workers across the borders of Liberia. These patterns, however, varied by county and appeared dependent on the employment opportunities available within each county. In Montserrado and Sinoe, the majority of labour migrants stayed within the county. This is not a surprising result as the capital Monrovia is located in Montserrado, while Sinoe offers employment opportunities in diamond and gold fields. Conversely, in River Cess, Bomi, and Gbarpolu, the majority left their county in search of work – illustrating that these counties offer less employment opportunities. While Gbarpolu and River Cess are lowly populated and remote, Bomi used to have vast iron ore mining and timber logging industries, which came practically to a halt due to the continuous fighting and looting during the war. Overall, most migrants who crossed county borders migrated to Montserrado for employment. Migration to surrounding countries was rare except in Grand Kru and River Gee. In these counties, approximately one third of the labour migrants left Liberia – primarily to Côte d'Ivoire - in search of employment.

Countrywide, labour migrants were more commonly men than women, and adults rather than children. Among households with labour migrants, approximately 93% reported the labour migrants to be male and above the age of 14 while only 14% reported the migrants to be female and above age of 14. The data indicated that women were only likely to be labour migrants when men in the same household also reported labour migration. This pattern was seen across counties. The highest percentage of female labour migration was reported in Lofa. In total, 39% of households (with labour migrants) reported a female labour migrant. Very few households reported that children below the age of 14 were involved in labour migration, regardless of the sex of the child. Overall, less than 1% of households, who were reporting labour migration, reported children below the age of 14 engaging in this behaviour.

Labour migrants most commonly engaged in professional salaried work followed by casual labour, skilled work and work on plantation. Less common are petty trade/commerce, mining and pit-sawing. However, 25% of respondents indicated that they have at least one migrant in the family who is currently in search of work, an indication that not all labour migrants are successful in finding employment immediately.

54% of households with at least one labour migrant received cash and/or in-kind remittances over the past 12 months. The most common types of remittances received were cash, food, clothing/ shoes and medicines. In total, 49% of households with migrants received cash (on average 1,680 LD per year), while 24% reported receiving food. Fewer households, 15% and 9% respectively, reported receiving clothing and medicine. Approximately 44% of households reported receiving no remittances.

3.4.5 Access to Credit

Households were asked whether they had access to formal and informal credit and if they bought food on credit over the last two weeks. In response, 53% of households reported access to credit, however the most common way to access credit was to borrow cash from friends or relatives, 38% of all households reported doing so. The second most common way is through susu-clubs, which are informal saving clubs to generate start-up capital. They are most widely used in Nimba, where 56% of households reported to borrow money from susu-clubs, followed by Bong (20%), Montserrado (19%) and Margibi (12%). These counties have more small and medium scale-business and trade. Very few households reported to access credit though formal channels such as NGOs, banks or cooperatives. In order to encourage small-scale businesses in rural and semi-urban areas, it is recommended to improve access to credit through micro-credit schemes which could be based on the traditional susu-club structures. In areas where susu-clubs are less common, particularly in south-eastern counties as well as Lofa and Gbarpolu, the establishment of formal or informal saving clubs for small-scale business development should be promoted.

Figure 7: Access to Credit

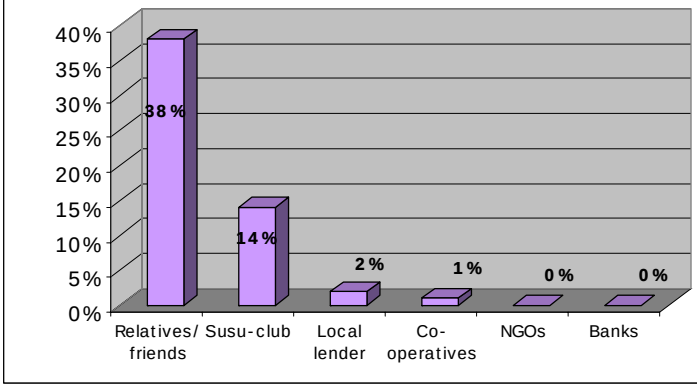
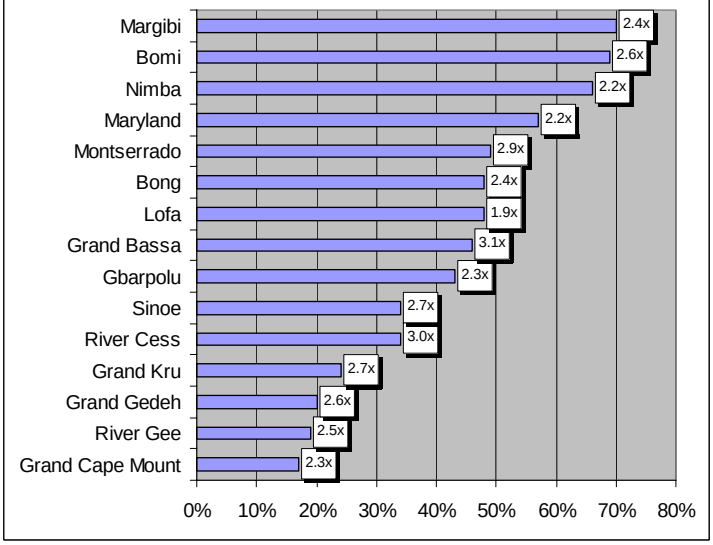
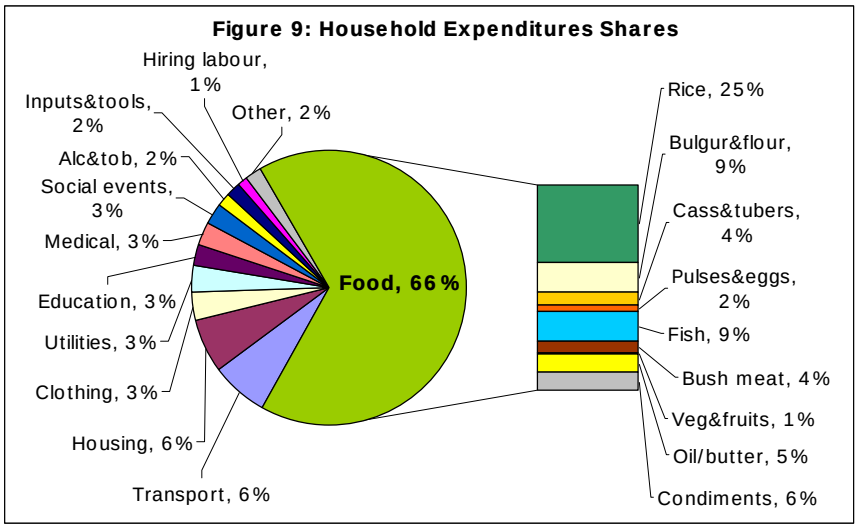


Figure 8: Households Buying Food on Credit during the Past Two Weeks



A common strategy is to purchase food on credit or borrow money to purchase food. Overall, 55% of households reported that they sometimes buy food on credit, 49% do so on a regular basis, at least once during the two weeks prior to the survey – ranging from 17% of households in Grand Cape Mount to 70% of households in Margibi. Results should be interpreted with care as purchasing food on credit is a day-to-day strategy for households to manage their budget. If Grand Cape Mount, for example, shows a low figure, it could mean that few households are forced to buy food on credit as they have enough cash reserves available (see section 3.5). On the other hand, households in Grand Kru or River Gee may not even have the option to purchase food on credit as their purchasing power is so limited that they would be unable to repay what they owe.

3.5 Household Expenditures



Data on expenditure for food and non-food items, such as education, health, transport, etc. are collected to understand how household decision-makers prioritize expenditure, especially when funds are limited. Monthly food and non-food expenditures can also serve as proxy indicators of household food access (see section 4.2). During the interviews, respondents were asked to provide estimates of recent expenditures for 16 food categories and 14 itemized non-food categories. Estimations were based on a 1-month recall for short-term expenditures such as food, alcohol, transport, which were differentiated by purchases made in cash or on credit. A 6-month recall period was applied for medium to longer term expenditure, such as medical care, school fees, etc. For the following analysis, the total estimated monthly expenditure was calculated. As household expenditures are often over- or under-reported, all absolute values provided in this section are only indicative and should be treated with care, while the analysis will focus on relative measures such as quintiles.

3.5.1 Per-capita Expenditures, Food and Non-Food Expenditure Shares

Examining total per-capita expenditures, sampled households reported a total per-capita expenditure of 749 Liberties (LD) per month. The amount spent on food items per month was 492 LD while 257 LD was spent on non-food items. Thus, households allocated 66% of their monthly expenditure on food as opposed to non-food items. The main bulk of expenditure was spent on rice (25%), the main staple food. Household's also spent highly on bulgur, fish and condiments which include salt, pepper and *maggi cubes* (bouillon cubes). In most cases dried fish and bush meat[25] is sold in markets. Very small proportions are spent on fresh products such as vegetables, fruits and eggs. The highest share of non-food expenditures went for housing and transport (both 6%), relatively small proportions went to education and medical care, in fact just as much as was spent on utilities and social events.

Table 7: Per-capita Expenditures by County

	Per-capita food expenditures (LD)	Per-capita non-food expenditures (LD)	Per-capita total expenditures (LD)
Grand Cape Mount	771	498	1269
Montserrado	567	375	942
Grand Gedeh	605	314	919
Margibi	665	226	891
Gbarpolu	556	300	855
Maryland	488	331	819
Grand Bassa	522	246	768
River Cess	535	231	765
Bong	464	238	700
Sinoe	442	220	661
River Gee	439	209	648
Nimba	363	155	519
Lofa	316	161	477
Bomi	338	86	424
Grand Kru	270	117	387
Total	**492**	**257**	**749**

Absolute expenditures provide an indication of household cash availability. As mentioned above, households often over - or underestimate expenditures when a recall-period is used, the values presented in table 7, therefore, only present trends, rather then exact values.

[25] Meat from hunted wildlife.

By county, per-capita food expenditure ranged from 270 LD in Grand Kru to 771 LD in Grand Cape Mount. Non food expenditures ranged from 86 LD in Bomi to 498 LD in Grand Cape Mount. In both cases, Grand Cape Mount reported the highest expenditures. When the share of food expenditures (as a percentage of total expenditures) was examined, households in Montserrado had the lowest and households in Bomi had the highest share in food (60% and 79%, respectively). Across all counties – with the exception of Lofa – the highest proportion of total expenditure was spent on rice, ranging from 21% in Grand Cape Mount to 38% in Bomi. Lofa, however, has higher relative expenditures on bulgur wheat (20%), which is cheaper and less preferred. Households only spent 12% of their budget on rice. Overall, one can conclude that households in Lofa, Grand Kru and Bomi have the lowest purchasing power. Care must be taken in interpreting food expenditure in isolation due to the fact that some households may have low share food expenditures only because they rely heavily on their own production or vice versa. Thus, the next section will analyse household expenditure by livelihood profile.

3.5.2 Expenditures by Sex and Age of Household Head and Livelihood Group

Examined by sex and age of household head, female-headed households were found to have significantly higher per-capita food expenditures than male-headed households (522 LD vs. 487 LD at $p<0.05$) and a larger share of expenditures spent on food (69% versus 66% at $p<0.001$). This can be explained by the fact that they rely more on purchases than their male counterparts. There are no significant differences between elderly-headed households and households with heads below 60 years old.

- **Female headed household** spent statistically significant higher shares on bulgur wheat, oil/butter, condiments and education
- **Male headed household** spent statistically significant higher shares on bush meat, alcohol & tobacco, transport, agricultural and fishing tools, social events and fines

- **Elderly headed household** spent statistically significant higher shares on cassava, tea/coffee, and education
- **Households with heads below 60** spent statistically significant higher shares on firewood/charcoal, tools and seeds, and repayment of debts

Table 8: Per-capita Expenditures by Livelihood Profile

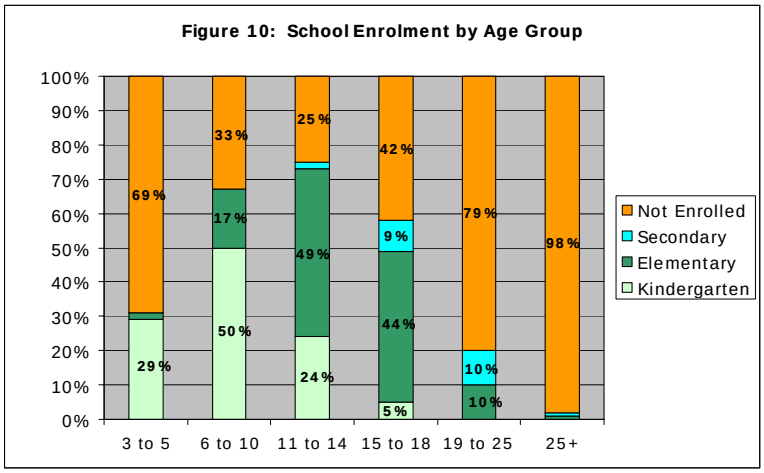
	Per-capita food expenditure (LD)	Per-capita non-food expenditure (LD)	Per-capita total expenditure (LD)	Share of food expenditure in %
Petty traders	**632**	**344**	**975**	66%
Employees	**590**	**373**	**962**	**62%**
Contract labourers	**547**	259	806	**68%**
Charcoal producers	**548**	257	805	**68%**
Fisherfolks	503	**289**	792	64%
Rubber tappers	512	243	755	**69%**
Skilled labourers	502	247	749	**68%**
Hunters	471	250	720	65%
Food crop farmers	**428**	222	650	66%
Cash & food crop producers	**415**	232	648	**63%**
Palm oil seller/producer	**418**	**197**	**615**	**69%**
Palm oil/food crop producers	**378**	226	**604**	**62%**

Table 8 presents expenditures differentiated by livelihood profile. 'Petty traders' and 'employees' have significantly higher cash expenditures than most other livelihood groups. They have the highest food, non-food and total expenditures. Not surprisingly, all livelihood groups that engage in food crop production have lower food expenditures. Overall the worst-off group are households that mainly depend on palm oil production – followed by hunting. They have both low food and non-food expenditures, combined with low agricultural production levels. 'Contract labourers', 'charcoal producers', 'rubber tappers' and 'skilled labourers' are, overall, in the medium to higher end, however, they spent nearly 70% of their budget on food. These groups have little or none own production.

3.6 Education

Because of the war, both adults and children had restricted access to education for over a decade. Due to security restrictions, the majority did not attend school regularly or were forced to leave school, as their families were often displaced. Since the conflict ended, both children and young adults are able to attend school on a regular basis. However, due to the length of the war, many teenagers and young adults had to re-enrol in pre- or elementary schools. As illustrated in figure 10, currently 50% of children in the primary school age are attending kindergarten. In the age group 11 to 14, 24% are still attending kindergarten. As further evidence, the mean age of children in kindergarten, elementary, and high school was 7, 14, and 22 respectively. Less than one percent of the total population was enrolled in university or vocational schools. These findings show how important it is to strengthen accelerated learning initiatives as well as reduce early drop-outs and encourage enrolment in secondary schools and advanced learning institutions.

Figure 10: School Enrolment by Age Group



3.6.1 Enrolment of School Age Children

In the sampled households, 69% of school age children (6-18 years of age) were enrolled in some formal level of schooling. This percentage, however, varied by county, ranging from a low 40% in Grand Bassa to a relatively high 81% in Grand Gedeh. Interestingly, enrolment rates are better in all counties in the south-east as compared to counties in central and north-west Liberia. This could be related to the fact that the schooling system in these areas was less interrupted by the war. Across all counties, girls are disadvantaged compared to boys. In the overall sample, 73% of the boys and only 64% of the girls aged 6-18 were enrolled. Largest gender gaps can be found in Bomi, River Cess, River Gee and Montserrado, and counties with the relatively lowest gender disparities are Maryland, Grand Gedeh and Gbarpolu.

Figure 11: School Enrolment by County

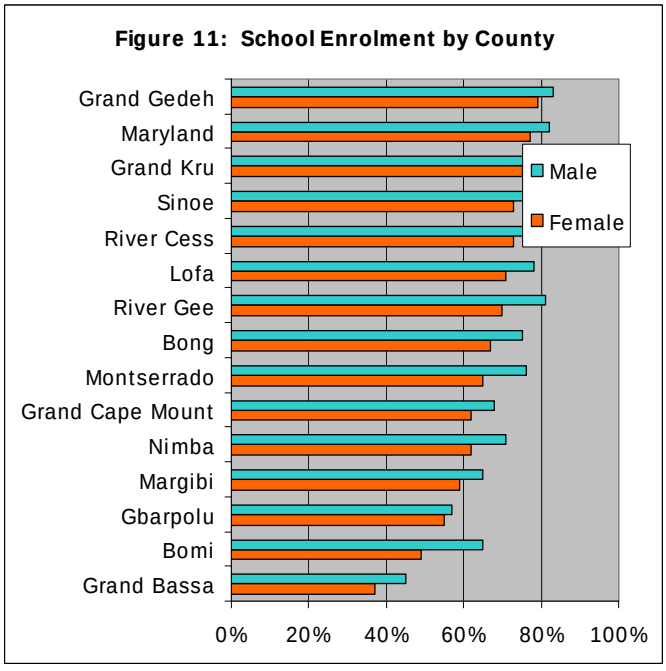
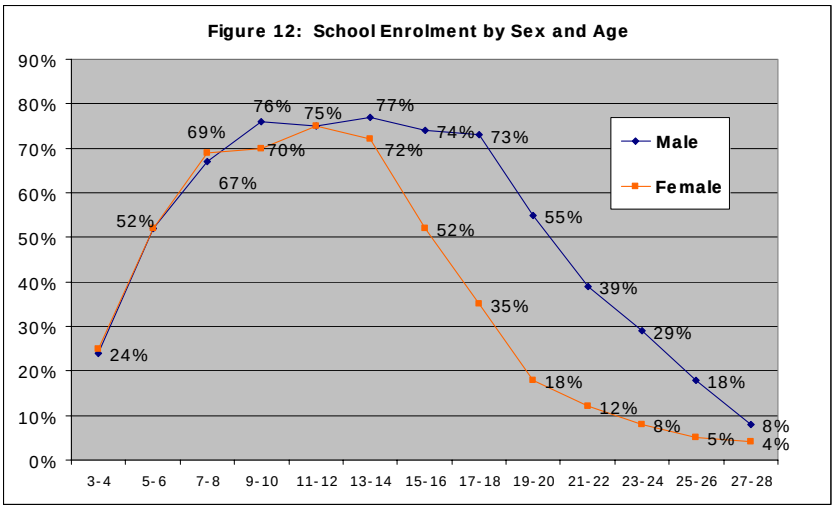


Figure 12 illustrates that females are enrolled at similar rates as males until they reach approximately 14 years of age. Then, female enrolment begins to lag behind male enrolment, with differences increasing with age. As this illustrates, at the age of 12, 75% of both boys and girls are enrolled in school but by the age of 14, a gap emerges with 72% of girls enrolled in school versus 77% of boys. By age 16, however, only 52% of girls (versus 74% of boys) are enrolled and by the time girls reach 19 years of age, only 18% remain enrolled in school. Thus, girls above the age of 14 should be targeted with special programme such as take-home-rations, sponsorships to pay for school fees, and awareness campaigns to reverse this trend.



3.6.2 Reasons for Not Being Enrolled

In total 31% of school-aged children were not enrolled at all. The three main reasons provided by respondents for not sending their children to school were related to limited economical and physical access to schools. No household reported insecurity as a constraint for their children to attend school:

1.	Not enough money to pay for school fee (57%)
2.	No school in the community (26%)
3.	Long distance to school (12%)
4.	Child needs to help with house or farm work (8%)
5.	Child got married or pregnant (6%)
6.	Child needs to work to earn money (3%)

Reasons provided only differ slightly between sex and age groups. The fact that children need to work to earn money becomes more apparent with higher age, within the age group 15 to 18 it was reported by 7% of the households compared to 1% in the age group 6 to 10. For girls from 14 years and above, one of the main reasons provided for not being enrolled in school is that they got married or pregnant. This reason only becomes relevant for males from the age 19 plus.

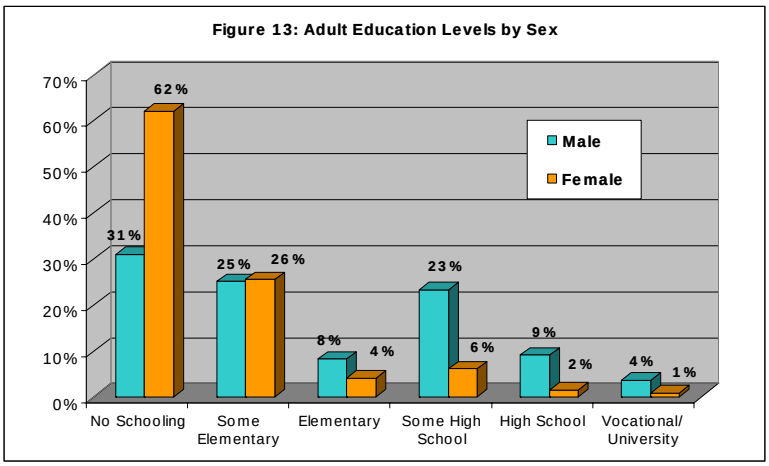
3.6.3 Absenteeism

Overall, absenteeism, defined as missing at least one week of school in the last month, was reported for 19% of children. It was most commonly reported in Grand Bassa and Margibi, where around 30% of children were absent from school. In most counties, there are no significant gender differences, however in Grand Bassa and Sinoe more boys tended to miss school, while in Grand Cape Mount and Montserrado girls were more likely to be absent.

The main reason provided for not attending school were “school fee not paid” (32%), followed by “sickness” (28%), “no teacher at school” (9%), and “student needed to work to earn money” (9%). “School fees not paid” was the main reason for about every second student in Grand Gedeh, Grand Kru, Montserrado and Sinoe. Sickness was provided as the reason for every second student who missed school in Bomi, Maryland and Nimba. “No teacher” was highly reported in Grand Cape Mount, Margibi and Gbarpolu, while the “need to work to earn money” was most frequently mentioned in Bong and Maryland. No major differences were observed between sex and age groups.

3.6.4 Adult Educational Levels

Over 48% of adults, 19 plus, who were not currently enrolled in school reported having no formal schooling. Over one-quarter reported having attended some elementary level schooling, but, not completing primary school. 6% of respondents reported having completed primary school, while 14% reported having completed elementary and attending at least one year in high school. Only 5% of respondents reported having completed high school while less than 1% reported having attended university.



More than 55% of the respondents in Bomi, Bong, Grand Bassa, Grand Cape Mount, Lofa, and Gbarpolu never received any formal training, while adult respondents residing in Margibi, Montserrado, Grand Gedeh and Sinoe had better chances of being formally educated.

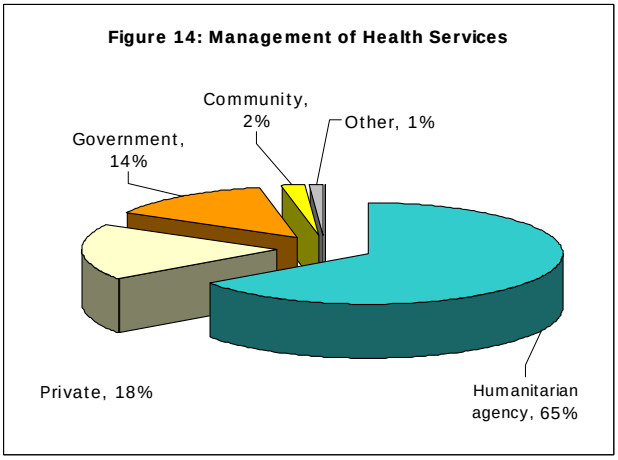
The differences in education levels were highly associated with gender (see figure 13). Males 19-years-old and above, were twice as likely as females to have received some schooling. In cases where females did receive formal schooling, they were likely to reach basic education levels only. The overall percentage of females having completed elementary school was half of males and the percentage completing high school was only one-quarter to that of males. A positive sign is that current enrolment rates among school-age children show smaller gender disparities in comparison to the parents and grandparents generation.

3.7 Access to Health, Water and Sanitary Services

3.7.1 Health Services

Communities have limited access to health services. Overall, 90% of communities reported not having a health facility. In all counties, less than 20% of the assessed communities reported presence of a functional health facility. Grand Bassa, Sinoe, Grand Kru, River Cess, Margibi and Cape Mount had the least (less than 5%) proportion of communities having an available functional health facility.

In communities that did not have a health facility, respondents were asked how long it took to reach the nearest facility. On average, communities without a health facility reported to walk for nearly three hours. Communities in Sinoe reported the longest walking distance of seven hours to reach the closest facility while communities in Lofa reported the shortest distance (about two hours).



The health facilities are mainly (65%) funded and managed by NGOs although owned by the government, 18% are run by private institutions or individuals and only 14% are run or funded by the government. The results are not surprising considering that the previous civil conflicts had greatly impacted on the government's ability to provide

basic health care services. Development of the healthcare system would need a lot of commitment from the government and its partners as well as the participation of communities to ensure sustainability and greater ownership. The role of private institutions in filling the gap in healthcare provision is also clearly outlined.

3.7.2 Water

Using the classification of improved water source (piped water/ standpipe, borehole with hand-pump, protected wells/ springs) as defined by Spheres Guidelines (Spheres Handbook, 2004). Overall, only 32% have access to improved drinking water (draw water from safe sources). The rest of the households draw their water from unsafe sources (unprotected wells, rivers, ponds, swamps or creeks). Minimal variations existed across seasons in terms of the sources of drinking water. While 34% of the households draw water from safe sources during the rainy season, slightly less (32%) draw water from such sources during the dry seasons, an expected observation. As expected, counties with relatively poorer infrastructural systems especially the south-east coastal counties, Grand Bassa and Gbarpolu with the exception of Maryland, had least access to safe sources of drinking water (see table 9). Less than one-fifth of the households reported using water from safe sources in these counties. The survey reveals that Maryland has better access to improved water sources, an observation that is not surprising considering that the county experienced only limited destruction during the civil wars; and that Maryland had generally more physical infrastructural development even before the wars.

Table 9: Access to Drinking Water

	Water sources in the rainy season		Water sources in the dry season	
	Improved	**Unsafe**	**Improved**	**Unsafe**
Bomi	35%	65%	24%	76%
Bong	45%	55%	41%	59%
Grand Bassa	**10%**	**90%**	**10%**	**90%**
Cape Mount	42%	58%	43%	57%
Grand Gedeh	43%	57%	41%	59%
Grand Kru	**18%**	**82%**	**7%**	**93%**
Lofa	33%	67%	25%	75%
Margibi	25%	75%	25%	75%
Maryland	65%	35%	66%	34%
Montserrado	47%	53%	45%	55%
Nimba	33%	67%	34%	66%
River Cess	26%	74%	22%	78%
Sinoe	**9%**	**91%**	**7%**	**93%**
River Gee	**16%**	**84%**	**15%**	**85%**
Gbarpolu	**16%**	**84%**	**15%**	**85%**
Total	**34%**	**66%**	**32%**	**68%**

The survey indicates that water availability is never an issue with the majority of the households walking only for a few minutes (less than 10 minutes) to reach nearest water point, irrespective of the season. Liberia is endowed with a vast amount of water resources—(rivers, sea, wells etc). The quality of improved drinking water is, therefore, the problem.

3.7.3 Sanitary Facilities

Overall, less than a quarter of the households reported having access to a sanitary facility – toilets/latrines or safe disposal facility. The sanitary facilities commonly reported were communal latrines (11%) and traditional pit latrines (9%). Maryland and Montserrado counties reported relatively more access to sanitary facilities while Grand Bassa, Grand Gedeh, Margibi, Sinoe, Grand Kru and River Gee reported more than 80% of the households having no access to sanitary facilities. The results are not surprising considering that Maryland and Montserrado counties had better infrastructural services even before the civil war while the majority of central and south-eastern Liberia – with the exception of Maryland – experienced the least infrastructural development.

Counties with low access to water and sanitation services also reported high child morbidity in the two weeks prior to the survey as well as high levels of malnutrition rates. These results emphasise the need for improved water and sanitation services as a major component in addressing childhood illnesses, malnutrition and mortality.

3.8 External Assistance

Respondents were asked whether the household or any of its members were recipients of any food, agricultural or other type of assistance during the past 12 months. Respondents may have underreported some of the assistance they have received due to the fact they were hoping to receive more. The survey focussed on food and agricultural assistance, but also tried to capture interventions that addressed other factors related to food security and malnutrition. Table 10 presents the percentage of households benefiting from various types of assistance. Households in Lofa and in Maryland are the most likely to be targeted by a number of interventions.

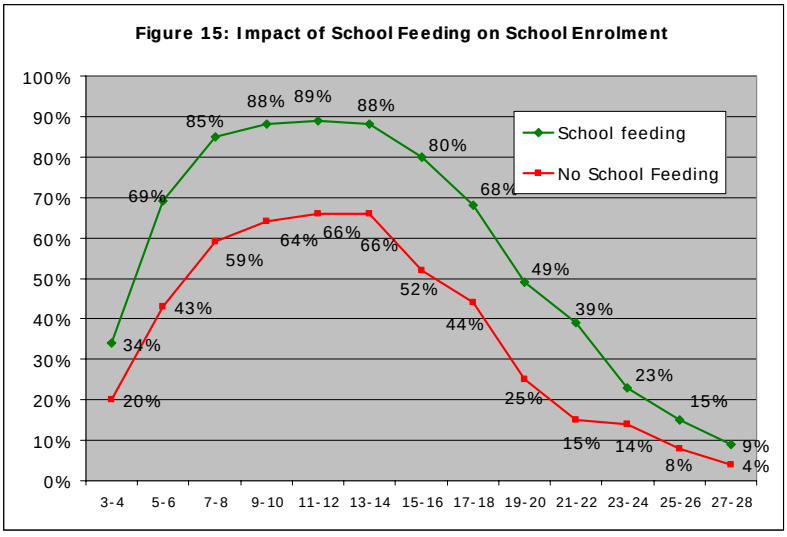
Table 10: Selected External Assistance Programmes Received by Households

	Food for education	Food for returning HHs	Tools for agriculture	Seeds for agriculture	Educational support	Medical services	Re-construction	WATSAN
Bomi	31%	0%	**38%**	17%	1%	1%	0%	0%
Bong	**45%**	1%	18%	15%	7%	9%	1%	**11%**
Gr. Bassa	17%	0%	1%	0%	2%	1%	0%	2%
Cape Mount	25%	0%	3%	1%	0%	1%	1%	0%
Gr. Gedeh	**41%**	1%	30%	18%	5%	6%	1%	4%
Grand Kru	0%	0%	16%	6%	0%	0%	0%	0%
Lofa	32%	**52%**	25%	24%	7%	**55%**	**8%**	**40%**
Margibi	11%	1%	0%	0%	0%	1%	0%	6%
Maryland	**54%**	1%	**43%**	**32%**	**26%**	**21%**	1%	**26%**
Montserrado	21%	0%	10%	5%	4%	0%	0%	2%
Nimba	38%	0%	10%	10%	6%	4%	0%	0%
River Cess	21%	0%	4%	1%	8%	2%	1%	1%
Sinoe	23%	0%	9%	6%	1%	0%	0%	0%
River Gee	35%	0%	**55%**	**44%**	**10%**	1%	1%	0%
Gbarpolu	4%	**14%**	**42%**	**34%**	4%	**20%**	**11%**	3%
Total	**29%**	**7%**	**17%**	**12%**	**5%**	**10%**	**2%**	**8%**

Overall, 36% of households sampled reported that their household or some of their household members were benefiting from food assistance – including food-for-education, food-for-work and/or resettlement packages. The main one is the provision of school meals, which was listed by 29%. The highest numbers of households benefiting from school-feeding programmes were found in Bong, Maryland and Grand Gedeh with more than 40% of the households benefiting from this activity. None, or very few school children, received a school meal in Grand Kru and Gbarpolu. WFP as the main provider of school feeding has only recently expanded its programme to Grand Kru, while Gbarpolu has many logistical constraints making it difficult or impossible to reach the schools in areas that are not accessible by road.

The impact of school feeding on school enrolment was assessed. 83% of children in between the ages of 6 and 18 in households that reported to be benefiting from school feeding are enrolled in schools. In the remaining households the enrolment is only 58%. The difference is statistically significant ($p<0.001$) and is valid for both boys and girls. Figure 15 illustrates the differences of enrolment rates by age groups from 3-4 to 27-28. From the lowest to the highest age group, households that are benefiting from school feeding are more likely to send their children to school. The gap remains constant at around 25% from the age of 5 up to the age of 22.

Figure 15: Impact of School Feeding on School Enrolment

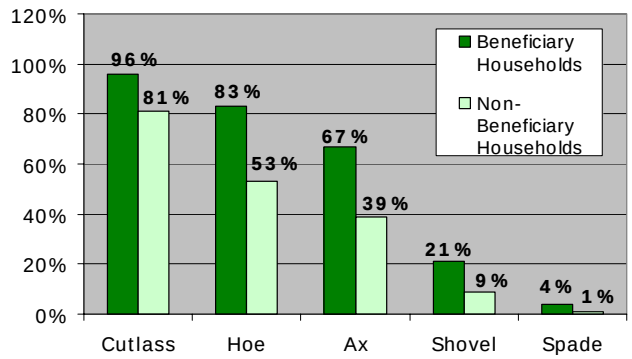


Food assistance in the context of resettlement programmes was received by 52% of all households in Lofa and 14% in Gbarpolu. This is not surprising, as here, the number of

recently returned households is the highest. Food to assist community projects was only reported by 2% of the overall sample, with the highest prevalence in Bong and River Gee with 7%.

Overall, 19% of households benefited from agricultural assistance programmes; however the distribution varied from county to county. The highest percent of households benefiting from agricultural assistance were found in River Gee, Gbarpolu, Maryland and Bomi, the lowest in Grand Cape Mount, Margibi, Grand Bassa and River Cess. In total, 17% of households have received tools and 12% seeds. Other support such as extension or agricultural loans were reported by only very few households.

Figure 16: Tools Distributions and Households' Ownership of Agricultural Tools

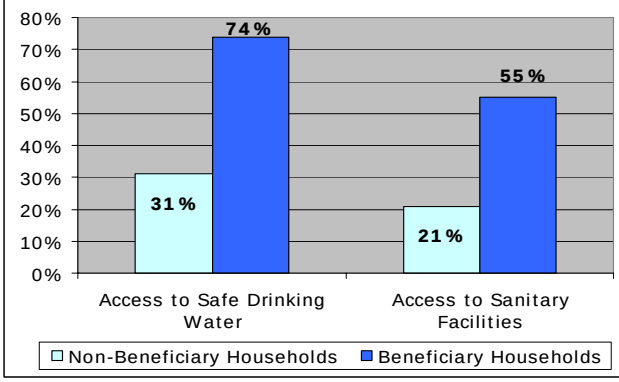


As illustrated in figure 16, households that received tools in the form of external assistance, are more likely to own agricultural tools such as cutlasses, hoes and axes, compared to households that did not benefit from this assistance during the past 6 months. The differences are significant at $p<0.001$. The general high level of tools ownership can possibly be attributed to tools distributions prior to the 6-month recall period.

Seed distributions also had an impact on the ability of households to produce crops. Households that received seeds in the form of external assistance were significantly ($p<0.001$) more likely to have produced crops in 2005 than those who did not (82% versus 71%). Households that recently returned after displacement had a higher chance to be targeted by agricultural assistance. The difference, however, was not statistically significant. In the future, efforts should be made to specifically target recently resettled households with seeds and tools, while other households would benefit more from other types of agricultural assistance such as extension programmes and agricultural loans to increase their productivity. The establishment of National Seed Centres in all counties would guarantee the access of all farmers to improved planting materials. While this service should be free for recently resettled households, other households should be requested to pay.

Other interventions to improve access to basic services were also assessed. 10% of all households reported to have received medical assistance during the past 12 months, which was most predominant in Lofa with 55%, Maryland with 21% and Gbarpolu with 20%. Water and sanitation programmes were received by 8% of the total sample, again the highest prevalence was found in Lofa and Maryland with 40% and 21% respectively. Households that benefited from this type of assistance were more likely to have access to improved drinking water during the dry and rainy season and sanitary services, as also depicted on the figure 17. The relationships are statistically significant at $p<0.001$. Educational support – including the construction of school building as well as provision of school materials and teachers – was most frequently reported by households in Maryland (26%) and River Gee (10%), and the support for the reconstruction of shelter or other community buildings was most frequently mentioned by households in Lofa and Gbarpolu.

Figure 17: Impact of Water & Sanitation Projects



4.1 Availability of Food/Agricultural Production

Agricultural production plays a vital role in the food security status of rural and semi-urban Liberians. The agriculture module collected detailed information on land use, food and cash crop production, and agricultural constraints that limited agricultural productivity. Some of the figures provided in this section are based on estimates or perceptions and should be treated with care.

4.1.1 Access to Agricultural Land and Tenure

Respondents were asked about their current access to land. Overall, 66% reported to have access to land at the time of the survey. Households tended to report that their current farms were smaller than the farms owned before the war. Nationally, 41% of households reported that farms were smaller, while 31% reported that the farms were larger. A little over one-quarter (28%) of households reported that their land after the war was about the same size as their land before the war. Households were also asked about the size in acres or number *tins*, which were then recalculated into acres.[26] On average, households reported 3.3 acres (1.3 ha) per household.

The findings vary heavily from county to county. Best current access to land is found in River Gee, Lofa and Grand Gedeh, not surprisingly, fewer households in Margibi and Montserrado have access to agricultural land. In terms of estimated size, households in Lofa have the largest plots – followed by River Cess and Grand Bassa, while households in Bomi, Grand Kru and River Gee have the smallest plots.

Table 11: Access to Agricultural Land

	Access to land	% of HHs that cultivated in 2005	Estimated size of land in acres
Bomi	68%	64%	**1.8**
Bong	66%	**89%**	3.5
Grand Bassa	81%	83%	**3.8**
Gr. Cape Mount	**52%**	**41%**	2.8
Grand Gedeh	**88%**	81%	2.8
Grand Kru	76%	87%	**1.9**
Lofa	**88%**	**37%**	**5.4**
Margibi	**46%**	81%	3.0
Maryland	70%	**94%**	2.8
Montserrado	**39%**	67%	3.8
Nimba	72%	**94%**	2.6
River Cess	76%	74%	**4.2**
Sinoe	83%	80%	2.7
River Gee	**90%**	87%	**1.9**
Gbarpolu	67%	**47%**	2.3
Total	**66%**	**73%**	**3.3**

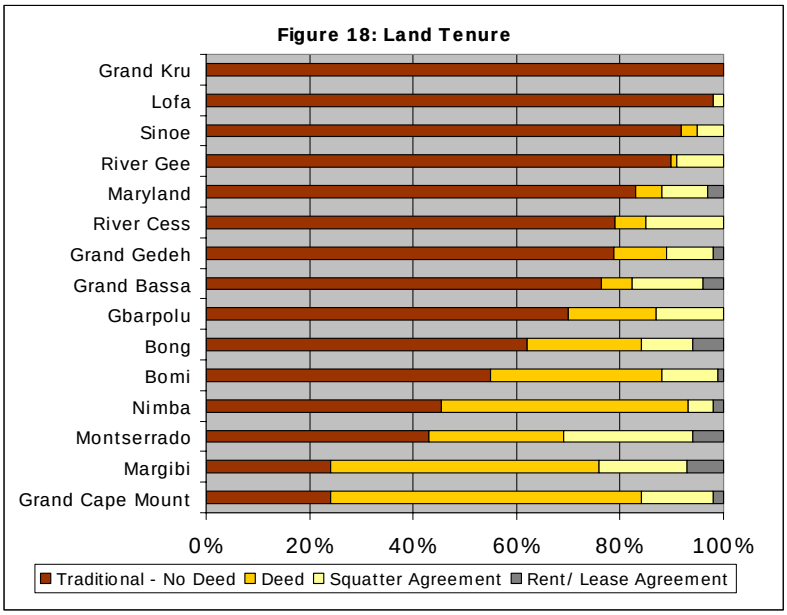
Though households in Lofa have the best access, they were the least likely to have produced crops in 2005. This indicates that they suffer from transitory food insecurity; however, they have good chances to improve their levels of food security in the future once households are able to re-establish their livelihoods.

In terms of demographic factors, female-headed households have statistically significantly ($p<0.001$) less access to land than their male counterparts (56% versus 68%) and they were also less likely to have cultivated crops in 2005 (65% versus 74%). Elderly-headed households do not show any difference in terms of access to land and cultivation, however, their plots are significantly ($p<0.01$) larger compared to the plots of younger household heads (4.7 versus 3.2 acres).

The survey shows that the majority of households (67%) reported not having deeds for the land that they currently have access to. The remaining households reported having some type of agreement for the land they possessed, 20% reported having a deed to their plot of land, 10% reported having a squatter agreement with the government and only about 2% are leasing or renting the land. Most common, households in Grand Cape Mount, Margibi and Nimba reported to have a deed, while almost all households in Lofa, Grand Kru and Sinoe access their land through traditional land rights without a formal deed.

[26] Two and a half acres equals one hectare. Tins are a proxy-indicator for assessing the size of a piece of land which is quite commonly used in Liberia. Tins refer to the number of tins of rice (equals 12.5 kg) that are or could be planted on a plot. According to FAO, one tin makes up 0.5 acre. As these figures are based on proxy-indicators, they should be treated as rough estimates.

Tenure in the context of access to land is becoming a more and more critical issue in post-conflict Liberia – which is characterised by high number of returning refugees and IDPs. Recent events in Nimba illustrate that access to land has a high conflict potential too as it creates tensions between returning population groups and new groups that moved here during the course of the civil war. If peace prevails, socio-economic development will bring along new industries and businesses that will induce more pressure on land, particularly close to the urban and semi-urban centres of the country. As the issue is complex and multifaceted it calls for further in-depth studies.



4.1.2 Food Crop Production and Use of Harvest

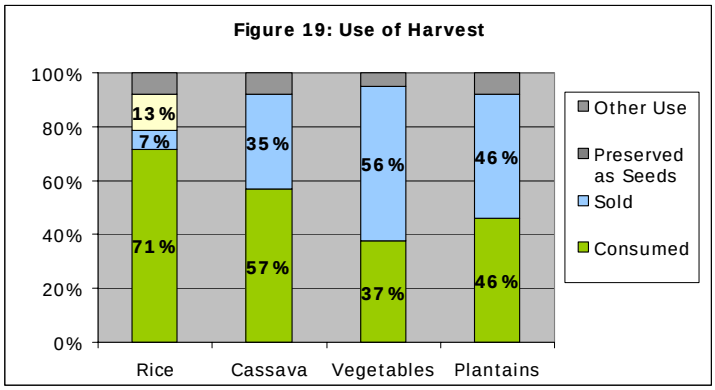
In the past year, only 49% of households in the sample produced crops. As in 2006, 66% of households reported to have access to land; this number of crop-producing households is expected to increase.

Households who produced crops in 2005 were asked to report on the four most important food crops cultivated. The majority planted rice (71%), closely followed by cassava (67%). All other crops were much less frequently mentioned: vegetables (20%), plantains (12%), sweet potatoes/eddoes (10%), corn (9%). Groundnuts and pulses were hardly reported at all with the exception of Lofa where 11% cultivated pulses in 2005.

In all counties more households have grown rice, with the exception of Bomi and Grand Bassa, where more households reported growing cassava than rice. Most frequently, rice was mentioned by households in River Gee, Lofa and Grand Gedeh with more than 90%. Montserrado and Margibi have the lowest rice production with less 16% and 33%, respectively, of all households producing rice. Across the country, with the exception of Lofa, River Gee, and Gbarpolu, cassava production is widely spread. Over 30% of households in Maryland, Nimba and Grand Cape Mount grew vegetables. Plantains were more common in Nimba and Grand Kru, while sweet potatoes and eddoes were most commonly planted in Nimba and Bong.

Farmers in Margibi, Montserrado, River Gee and Grand Cape Mount show the lowest crop diversification in terms of number of crops cultivated, followed by Lofa and Grand Bassa. On the contrary, Nimba, Bong and Maryland have the highest crop diversification. These counties, traditionally, have been involved in crop production and commercialization. Nimba and Bong have good road connections to Monrovia and farmers either sell their products directly at one of the main markets in the capital or have it transported by middlemen.

Using participatory rural appraisal tools respondents were requested to divide the total 2005 harvest of the reported crops into sub-groups based on how crops were utilised by the household in order to obtain estimates of how much of the total harvest was consumed, sold, gifted, used as payment, preserved as seeds or spoilt. Across food crop type, about 5% were given as gifts to other community members or relatives, around 2% for use as payments and only 1% spoilt due to wrong preservation and storage techniques. Based on qualitative research the latter was expected to be higher and it can not be excluded that it was underreported.



Across all counties the rice harvest of 2005 was mainly consumed, on average 71%. Only 7% was sold nationally, however, reaching peaks of 17% in Nimba, 14% in Grand Cape Mount and 11% in Montserrado. Overall, the second main use was preservation as rice seeds with 13%. Cassava was also mainly consumed (57%). Overall, households were more likely to market cassava than rice (35% versus 7%). 70% or more of cassava was consumed in River Cess, Grand Kru, Grand Bassa and Sinoe. It was mainly sold in Grand Cape Mount, Montserrado and River Gee (50% or more). The selling or consumption of vegetables varies greatly between counties while, overall, it is more common to sell vegetables than to consume them. Proportions used for consumption are over 60% in Lofa, Sinoe and Gbarpolu, while the selling of vegetables dominates in Nimba (72%), Grand Bassa (67%) and Montserrado (66%). Plantains have a similar pattern, with equal shares for consumption and selling. As a conclusion, it can be stated that rice production should be promoted in order to ensure that households become more self-sufficient – particularly since 81% of households depend on purchases for their rice consumption (see section 4.2.1). On the other hand, vegetable production should be encouraged as it provides very good opportunities for cash-generation besides its value to contribute to dietary diversity at household level. However, this has to go along with the strengthening of marketing structures and promotion of preservation and storage techniques.

4.1.3 'Hunger Farms' and Vegetable Gardens

Liberian farmers grow crops on so-called 'hunger farms'. The harvest of these crops – usually cassava or rice – takes place one or two months earlier than the regular harvest to sustain households during the lean season. 28% of households across the country reported to have a hunger farm, though there was substantial variation between counties. 86% of these households cultivated cassava on these plots, 16% had rice plots and 25% mentioned other types of food crops which included yams, sweet potatoes, eddoes, etc. Hunger farms are more common in south-eastern and central Liberia as more than 40% of the households in River Gee, Grand Kru, Sinoe, Maryland, Bong and Nimba reported to have engaged in this practice. Least likely to have hunger farms are Grand Cape Mount (7%), Lofa (13%) and Montserrado (19%). Reasons for this may vary. Households in Grand Cape Mount and Montserrado may not have the need to engage in this coping strategy, while households in Lofa may not have the means yet to carry out this practice. The practice of hunger farms could be incorporated into general technical assistance programmes on agricultural practices – in particular in those counties where it is less common while being highly vulnerable to food insecurity, e.g. Lofa, Gbarpolu and Bomi.

Overall 51% of all households had backyard gardens. Vegetable gardens are common across the country, in most counties every second household reported to have one, however in Grand Cape Mount and River Cess it was only every third household. As vegetable production is important for both – dietary diversity as well as a source for cash generation – it should be promoted in all counties.

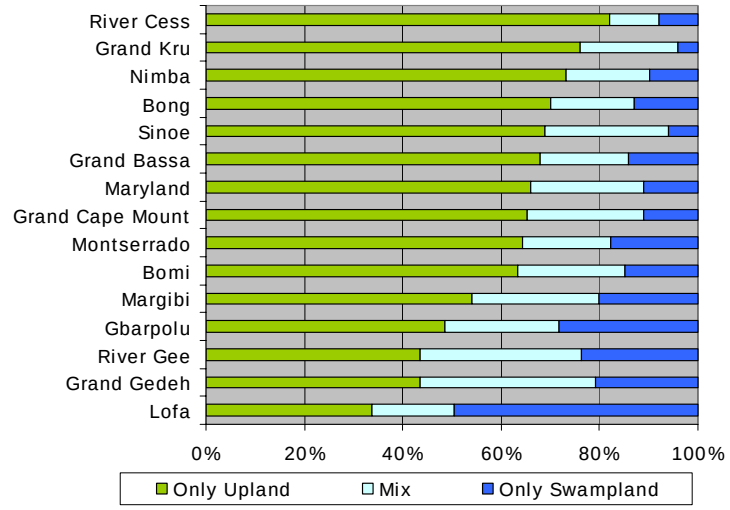
4.1.4 Rice Production

Rice is the main staple food in Liberia. It is very typical that a Liberian would state that he or she has not eaten, if the meal did not include rice. Only during the course of the war and displacements were people forced to rely on other food items such as sweet plantain, breadfruits, yams, sweet potatoes, etc. But up to today, rice remains predominant.

52% of the total sample household reported that they had grown rice in 2005. Compared to levels previous to the war, 72% of the households reported producing less in terms of quantity. Percent of households that produced rice in 2005 ranged from a low in Montserrado (12%), Margibi (27%), and Lofa (36%) to a high in River Gee (85%), Bong (80%) and Nimba (75%).

The majority of households cultivated rice upland. 63% fully relied on this technique – which is the traditional way of planting rice in Liberia, while 17% opted for swampland (lowland), 21% used a mixture of both – however most of the latter group reported they did more upland than lowland rice.

Figure 20: Rice Production Techniques



Households in River Cess, Grand Kru and Nimba were the most likely to report growing rice in upland areas (more than 70%). The majority of households in Lofa, on the contrary, were more likely to grow swampland rice only (50%). This might be explained by the fact that the majority of households only recently returned and thus missed the agricultural cycle for upland rice production in 2005. While less preferred, swampland rice production is less labour intensive and can be done year round but it also involves more risks due to the existence of *schistosomiasis* (fluke-worm).[27] Respondents were also asked to estimate when rice was last harvested and how long that harvest lasted. In the south-eastern counties, rice harvest took place in July/August or latest in September, while in central and north-western Liberia it took place mainly in October/November. When asked how long the rice harvest lasted to feed members of the household, respondents reported that the harvest lasted on average 4.9 months. This varied slightly by county, from 3.7 months in Margibi to 5.4 months in Lofa. This has to be interpreted in the context that only 37% of households in Lofa had cultivated rice in 2005. The higher figure shows, however, that Lofa has high productivity potentials.

4.1.5 Sources of Rice Seed

Households were asked how they obtained rice seeds for the 2006 planting season. Respondents were able to provide multiple responses. 55% of households reported that they relied on purchases, 22% used their own stock from the previous harvest, 22% reported that they received seeds as gifts from their relatives or friends and 19% received seeds as external assistance. Finally, 10% reported that they borrowed or exchanged seeds for other goods.

Examined by county, households in Margibi and Grand Cape Mount were most likely to report purchasing seed rice. River Gee, Grand Kru and Maryland were the only counties where there was a roughly equal or higher percentage of seed rice obtained from own stock than from purchase. More than every fourth household in Bomi (39%), Grand Gedeh (34%), Lofa (34%), River Gee (29%) and Maryland (24%) reported to have received seeds from NGOs or other humanitarian agencies. The lowest percentage of assistance was reported in Grand Bassa, River Cess and Grand Cape Mount.

4.1.6 Access to Agricultural Tools

Access to productive assets was common among the households sampled. Countrywide, over 84% of households reported owning a cutlass, close to 58% owned a hoe, and over 44% owned an axe. Shovels were less common with just 11% of households reporting owning one. Ownership did vary by county with households in more agriculturally oriented counties being more likely to own these tools. For example, in Montserrado 61% owned a cutlass, in Grand Cape Mount only 26% owned a hoe, in Margibi only 8% reported to have an axe. Also, households in Lofa show values slightly below the national average; however 19% own a shovel which may be used for the reconstruction of houses and other buildings. Overall, one can conclude that lack of agricultural tools is not a major constraint for agricultural production – it is however relevant for households that have recently resettled.

[27] See also FAO/WFP Crop and Food Security Assessment for Liberia, 2006.

4.1.7 Agricultural Production Constraints

Constraints to agricultural production varied depending on whether the household was currently farming or not and whether the household had access to land. Across all groups, lack of seeds and tools were most frequently mentioned – it was actually reported by every second household in the overall sample. The third reason was lack of financial capital to purchase agricultural inputs.

Table 12: Agricultural Constraints

	Farming HHs (49%)	HHs with land but not farming (18%)	HHs without land (34%)	TOTAL
Lack of seeds	50%	56%	46%	50%
Lack of tools	47%	52%	54%	50%
Lack of financial capital	29%	39%	30%	31%
Lack of household labour	27%	37%	23%	28%
Groundhog attack	30%	10%	7%	19%
Bird attacks	17%	5%	5%	19%
HH engaged in other activity	10%	12%	18%	13%
Lack of arable land	3%	3%	34%	13%
Returned late for planting season	2%	25%	3%	6%

This is followed by lack of household labour to carry out the labour intensive work of brushing and clearing, which contributes to the fact that farms in Liberia are relatively small. This reason is more frequently given by households that have land but did not cultivate in 2005, particularly in Lofa and Bomi.

Animal pests are a major constraint: 'groundhog attacks' –referring to various types of bush animals who eat up crops standing on the field – was reported by every third farming household. More than 55% of households in Sinoe, Grand Kru, and River Gee reported suffering from this constraint. Bird attacks were reported by 17% of all farming households. These attacks were more frequently mentioned by households in Margibi (28%) and Gbarpolu (20%).

In total, 13% of households indicated that their household was engaged in activities other than farming and another 13% mentioned the lack of land both in terms of quality and quantity. The latter was most frequently reported in Montserrado and Margibi with 42% and 29% respectively. 6% of all households reported that they returned too late for the planting season – for obvious reasons this was most commonly reported by households that have land but did not farm in 2005. 24% of households in Lofa reported this constraint, followed by Bomi with 18%.

All other constraints were only mentioned by around 1% of the surveyed households – however with regional variations: Plant disease and insect attacks were most common in Grand Bassa (12%) and Margibi (13%), and more than 25% of households in Bong and Margibi wish to have better access to pesticides. Loss of harvest due to heavy or early rains was only reported by households in Grand Kru (12%).

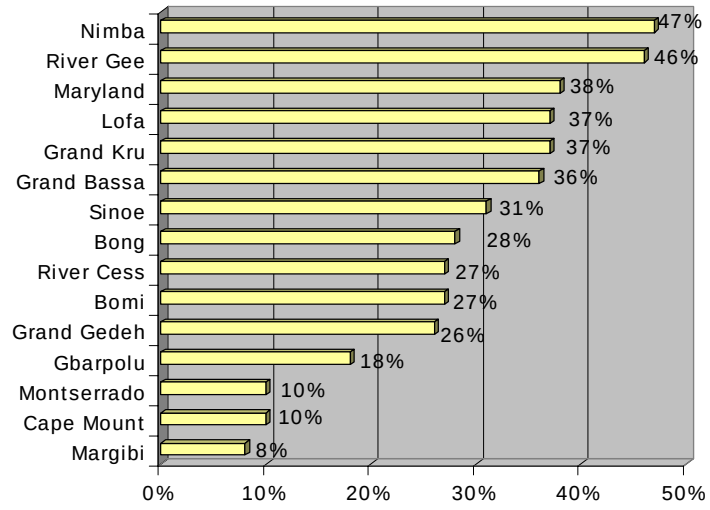
Across all counties lack of training and marketing opportunities was only mentioned by very few households – which could result from the fact that other issues are more pressing for the time being. The focus is still on shorter-term issues. Improved training and marketing systems will only bring benefits to the households in the medium to longer-term.

4.1.8 Production of Cash Crops

Cash crops were produced by 28% of households throughout the country ranging from 47% in Nimba to only 8% in Margibi as illustrated in figure 21. Overall, the most common cash crops produced included plantains (40%) which also serve as a food crop, cacao (32%), rubber (26%), coffee (26%) and sugarcane (19%). The type of cash crops grown varied significantly from one county to another.

Cacao was the most commonly grown in the interior counties with slightly higher altitudes: Grand Gedeh, River Gee, Lofa and Gbarpolu. As expected, rubber was the most frequent cash crop produced in Margibi and Bong which encompass not only the country's largest rubber plantations but also private farms. Coffee dominated in the central and northern counties, households in Lofa were unique from all other households in reporting coffee as the most frequent cash crop (more than 80% of those households that grow cash crop). Sugarcane is frequently reported by the cash-crop producing households in the coastal south and central counties (Maryland, Grand Kru, Grand Bassa) as well as Nimba. Overall, Nimba is characterised by having the largest number of households and growing the largest array of different types of cash crops. Vast areas of former plantations – particularly in the south-east - have not yet been rehabilitated. They provide enormous economic opportunities, particularly for rural households during Liberia's transition from recovery to sustainable development.

Figure 21: Cash Crop Production



4.1.9 Livestock and Fisheries

The Liberia livestock sector was heavily affected by the 14 years of civil strife and is only slowly starting to re-establish itself. The only main livestock owned by rural and semi-urban Liberians today is poultry. In the overall sample, 47% of households own chickens and 8% ducks. Least numbers of chickens were found in Sinoe, Margibi and Grand Cape Mount, highest in Bomi, Grand Gedeh, Maryland and River Gee. Overall, 5% of households own pigs but the majority of these can be found in Nimba where 20% of households reported owning them. Also, goats were owned by 5% in the overall sample. They are mainly to be found in Maryland, Nimba, Grand Gedeh and River Gee. Sheep and cattle hardly exist at all. Before the war, Maryland, Grand Kru and Sinoe had large cattle farms. Today they are only slowly being rehabilitated – mainly in Maryland. These three counties are characterised by vast areas of grassland which are less suitable for agricultural production but are ideal for raising livestock.

In total 62% of households reported engaging in fishing, however out of these only 2% are fishing in the ocean which is restricted to some highly specified groups along the coastline. Most households fish in small creeks (77%), while 31% reported fishing in rivers and 8% in swamplands. Ocean fishing was most highly reported by households in Grand Kru (22%), Grand Cape Mount (11%) and Maryland (9%). In terms of ethnic background it is mainly the Kru, Grebo, Bassa, Vai and Fanti people who engage in ocean fishing. River fishing is more regularly carried out by households in Bong, Margibi, Maryland and Nimba. Fish is part of a typical diet for Liberians, who mainly consume dried fish as part of their 'sauce'. Technical assistance and extension would improve people's knowledge on storing and preserving fish. Cold storage facilities and improved marketing structures would improve people's income earning opportunities as well as access to fresh fish which could contribute to a more healthy and diversified diet.

4.1.10 Access to Markets

Access to markets is crucial for households to purchase food as well as to exchange and sell food products. In the overall sample, 81% of households have access to weekly markets – however in most cases they have to walk long distances to reach them. On average, households in Bong and Montserrado only have to walk for 1 ½ hour, while households in Gbarpolu have to walk for nearly 6 hours, in Grand Gedeh even up to 9

hours. The average for all households is 2 ½ hours. 29% reported to have access to daily markets, with a maximum of 54% in Montserrado. Very few households in Bomi, Grand Bassa, Grand Kru, Lofa and Gbarpolu reported to have access to daily markets.

Respondents were also asked if they are selling food stuff in Monrovia or in other urban centres in their counties or across the borders. In total 8% reported selling directly in Monrovia, the majority of them residing in Margibi or Montserrado, where 13% and 22%, respectively, reported to have come to Monrovia during the past 6 months to sell food. In most other counties it is only 5 to 8% of households who reported to have done so. Not surprisingly very few of the households in Lofa, and in the south-eastern counties were able to make it to Monrovia. The main reason for this is the high transportation costs. While households in Margibi, for example, pay less than LD 150 to reach Monrovia (one way), households in Grand Kru pay around LD 2,200 on average.[28] In the surveyed households, 32% reported to have sold food stuff in one of the urban centres in their county or across the border. Cross-border trade in both directions was particularly observed in Maryland and Lofa with communities in Côte d'Ivore and Guinea respectively. In those two counties more than 75% of households reported to have sold food stuff. High prevalence were also found in Bong, Grand Kru and Sinoe, where households sold food stuffs on the markets in Gbarnga, Barclayville and Greenville.

4.2 Households' Access to Food

Households can access food through purchases, own production or food aid to obtain sufficient and nutritious food to meet their dietary needs and food preferences. In order to assess household's access to food a three step approach was employed based on the methodology developed by the SENAC project team and Vulnerability Analysis and Mapping Branch (ODAV), WFP Rome. The first step was to assess food consumption frequency and dietary diversity. These are good proxy indicators of the access dimension of food security and nutrition intake. The second step was to assess households' potential to access sufficient food through purchasing power or own production. The third step was to combine the two approaches and develop household food security profiles.

4.2.1 Household Food Consumption Profiling

The Household Food Consumption Profiling uses groups based on information collected at the household level on dietary diversity and the consumption frequency of staples and non-staple food. Diet diversity, measured by the number of different foods from different food groups consumed in a household, and frequency of consumption are good proxy indicators of the access dimension of food security and nutrition intake. Research has demonstrated that dietary diversity is highly correlated with caloric and protein adequacy, percentage of protein from animal sources (high quality protein) and household income. Households were asked information on the frequency of consumption (0 to 7 days) for 18 food items or food groups over the last 7 days prior to data collection. Those 18 items were:

• Rice	• Fish	• Pulses	• Oil/butter
• Cassava	• Chicken	• Ground nuts	• Sugar
• Other tubers	• Bush meat	• Fruits	• Condiments
• Bulgur wheat	• Other meat	• Vegetables	
• Bread/flour	• Eggs	• Green leaves	

Using principal component analysis (PCA) and cluster analysis[29], households were clustered into food consumption profiles. The aim of the analysis is to identify households that share a particular consumption pattern. The advantage of running a cluster analysis on principal components and not on the original variables is that clusters are based on the relationships among variables. A cluster analysis was run on the basis of 11 principal components obtained by the PCA, which accounted for more than 90% of the variance of the original dataset.

[28] 2,200 LD equal 37.3 US$ (August 2006 exchange rate).
[29] The software used for multivariate analyses is ADDATI 5.2c, developed by Silvio Griguolo, IUAV Venice, Italy, freely available at http://cidoc.iuav.it/~silvio/addati_en.html.

Table 14: Frequency of Consumption by Food Consumption Group

Food consumption	Rice	Cassava Tuber	Bulgur	Bread/ flour	Fish	Bush meat	Chicken or other meat	Eggs	Pulses/ groundnuts	Vegetables & fruits	Oil	Sugar
Poor	3.2	2.9	3.0	0.1	2.8	1.2	0.1	0.0	0.9	2.9	3.8	0.2
Borderline	5.0	3.6	2.6	0.2	5.0	1.4	0.2	0.1	1.2	4.1	5.5	0.4
Fairly good	6.0	4.6	3.1	0.7	6.3	1.8	0.3	0.3	1.8	5.2	6.5	0.8
Good	6.5	5.1	3.2	2.9	6.6	2.0	1.2	1.3	3.3	5.7	6.8	3.1
Total	**5.3**	**4.1**	**2.9**	**0.8**	**5.4**	**1.6**	**0.3**	**0.3**	**1.7**	**4.5**	**5.8**	**0.9**

Based on the explorative methodology just described, 12 distinct profiles of households characterised by their different food consumption patterns were identified. These resulting profiles were scored from "worst" to "best" on a continuous scale and this scale was iteratively revisited and adjusted through a regression analysis. Using the parameters obtained from the regression analysis it was possible to consistently evaluate each sampled household.

The formula obtained was the following:

> **Predictor of Food Consumption** = -1.601 + 0.130*(rice) + 0.103*(cassava/other tubers) + 0.039*(bulgur wheat) + 0.109*(bread/flour) + 0.118*(fish) + 0.068*(bush meat) + 0.186*(chicken/other meat) + 0.106 (egg) + 0.096*(pulses/groundnuts) + 0.090*(vegetables/greens/fruits) + 0.140*(oil) + 0.105*(sugar)

A predicted ranking value was calculated for each household. Ranking values were between 0.1 and 4.0.

In order to clearly define main food consumption groups, precise cut-off points were used to separate households. The rationale is that households within a certain range of score are very likely to belong to determinate consumption profiles because of the high intra-homogeneity within each sub-group.

Labels of main food consumption groups, short description of different dietary profiles and their defining cut-off points are reported in table 13. Cut-off points were decided after qualitative judgment of the different food consumption profiles.

Table 13: Description of Household Food Consumption Groups

Household Food Consumption group	% of HH (weighted)	Ranking cut-off point	Description
Poor	13.5%	Below/ equal 0.99	Households in group are characterised by poor diversification in their diet which is mainly based on consumption of staple – many households substitute rice with less preferred tuber or bulgur. Fish is only consumed three days per week on average. Other protein sources are low. Consumption of fresh vegetables and fruits as well as oil/fat is low.
Borderline	36.0%	Between 1.00 and 1.99	Households in this group have a regular food intake of rice and tubers. They eat fish on a regular basis; however other protein sources remain low. Fresh vegetables, fruits and oil are consumed on a regular basis.
Fairly Good	35.5%	Between 2.00 and 2.99	Frequency of consumption of eaten food is regular and also the diversity in each food group is good. Households consume rice and tubers in high frequency and fish every day. They gain additional protein sources from bush meat and pulses.
Good	15.0%	Above 3.00	Households in this group present good diversity and frequency of consumed food. Along with high rice, tuber, fish, vegetable and oil consumption, households obtain proteins from chicken/other meat, eggs and pulses. This is the only group that frequently consumes bread/flour and sugar.

4.2.2 Food Sources of Food Consumption Groups

Households were then requested to mention the two main food sources for each food item to assess the household's ability at the time of the survey to obtain food from their own production, purchase (cash/credit), hunting/fishing/gathering, gift or borrowing, food aid and begging. The sources of the main staple foods are listed in table 15, while a list of all food items can be found in annex 2.9.

At the time of the survey, 81% of households relied on purchases for their rice consumption and only 14% of households consumed rice from their own production. For tubers, including cassava, 49% of households were relying on purchase; however, 37% reported that they consumed their own products. Bulgur is mainly purchased or provided as gift or food aid. One in three households reported fishing as one of the sources of fish, but two in three households consumed fish that was bought; a similar picture is obtained for bush meat. Other meat is mainly purchased, however the lower food consumption group rely more on their own production than the higher consumption groups, the results for eggs are similar. Fresh vegetables and fruits are mainly home produced with the exception of households with good food consumption who would rather purchase these goods. A similar picture exists for the distribution for oil and palm butter. Sugar, bread/flour and pulses/groundnuts are mainly purchased across all four consumption groups, with the exception of the poor and borderline food consumption groups, who have a high reliance on transfers.

Table 15: Food Source by Food Item and Food Consumption Group

Food source	**Food consumption group**	Own production	Hunting/ fishing/ gathering	Bought using cash	Bought on credit	Gifted	Food aid	Begging	Other
Rice	Poor	11%		67%	14%	5%		1%	1%
	Borderline	14%		67%	13%	4%		0%	2%
	Fairly good	15%		70%	10%	3%		0%	1%
	Good	11%		75%	11%	2%		0%	0%
	Total	**14%**		**69%**	**12%**	**4%**		**0%**	**1%**
Cassava and other tubers	Poor	31%	1%	45%	5%	14%		2%	2%
	Borderline	37%	0%	43%	4%	12%		1%	2%
	Fairly good	39%	0%	42%	3%	13%		1%	2%
	Good	35%	0%	53%	3%	7%		0%	1%
	Total	**37%**	**0%**	**45%**	**4%**	**12%**		**1%**	**2%**
Bulgur	Poor			79%	8%	4%	7%	1%	1%
	Borderline			81%	9%	5%	3%	1%	1%
	Fairly good			86%	7%	4%	1%	1%	1%
	Good			87%	8%	3%	1%	1%	1%
	Total			**83%**	**8%**	**4%**	**2%**	**1%**	**1%**
Fish	Poor		33%	55%	7%	3%		0%	1%
	Borderline		30%	59%	7%	3%		0%	1%
	Fairly good		31%	62%	4%	2%		0%	1%
	Good		26%	67%	4%	2%		0%	1%
	Total		**30%**	**61%**	**6%**	**3%**		**0%**	**1%**
Bush meat	Poor		33%	52%	4%	9%		1%	0%
	Borderline		28%	55%	4%	10%		1%	2%
	Fairly good		23%	62%	3%	10%		1%	1%
	Good		17%	68%	5%	8%		1%	1%
	Total		**25%**	**59%**	**4%**	**9%**		**1%**	**1%**
Fresh vegetables/ fruits	Poor	42%	2%	28%	1%	27%		0%	1%
	Borderline	45%	2%	24%	1%	27%		0%	1%
	Fairly good	47%	1%	29%	0%	21%		0%	1%
	Good	40%	1%	45%	1%	12%		0%	1%
	Total	**45%**	**2%**	**30%**	**1%**	**22%**		**0%**	**1%**
Oil/palm butter	Poor	31%	1%	53%	5%	6%	1%	1%	1%
	Borderline	30%	2%	55%	6%	5%	0%	1%	1%
	Fairly good	28%	0%	62%	4%	5%	0%	1%	1%
	Good	21%	1%	69%	5%	4%	0%	0%	1%
	Total	**28%**	**1%**	**59%**	**5%**	**5%**	**0%**	**1%**	**1%**

Households with poor and good consumption generally rely more on purchases, while the medium groups rely more on own production, relatively speaking. Generally households with poor or borderline food consumption have a higher reliance on food aid and gifts for rice, tuber, bulgur, pulses and fresh vegetables/fruits. They also rely more heavily on purchases on credit, in particular rice, tuber and fish and hunting/fishing for their protein

sources. Across groups, very few households reported “gathering” as one of their sources to obtain food.

4.2.3 Household Food Access Profiling

Using a methodology similar to that described for the consumption profiling, the household access profiles are based on information collected at the household level, to assess the ability of the household to produce or to purchase food. All variables were dichotomous:

- Production of rice
- Production of cassava
- Production of other crops
- Cash crop production
- Fishing
- Household food expenditures (quintiles)

These parameters are considered to be good proxies for the access as well as availability dimension of food security and therefore complement well the consumption profiles.

With the same exploratory approach used for food consumption profiling, PCA was run on those indicators and led to 6 principal components that explained more than 90% of the variance. Cluster analysis was run on the base of those 6 principal components. 12 classifications were created. The analyst scored the obtained clusters from “worst” to “best”. Since some clusters in the same category are slightly better and some are worse, a more refined, decimal score was attributed to each cluster to take these small differences into account. Again, a regression model, able to predict the scoring of the analyst very well (adjusted $R^2=0.95$), was built to predict the score per each household.

The regression formula to calculate the score for each household in the sample was as follows:

> **Predictor of HH Access =** 0.290 + 0.470*(rice production) + 0.435*(cassava production) + 0.765*(other crop production) + 0.370*(cash crop production) + 0.334*(fishing) - 0.212*(1st quintile) + 0.980*(2nd quintile) + 1.738*(4th quintile) + 2.046*(5th quintile)

According to their predicted score, households were then grouped into 4 main categories labelled from “Very Weak Access” to “Good Access”. The same cut-off points used for food consumption were applied to differentiate households with different levels of accessibility to food.

Table 16: Household Production and Purchasing Power by Food Access Group

Household access group	Rice production	Cassava production	Other crop production	Cash crop	Fishing	1st Quintile	2nd Quintile	3rd Quintile	4th Quintile	5th Quintile
Very weak access	15%	8%	0%	15%	59%	48%	52%	0%	0%	0%
Weak access	42%	36%	15%	30%	61%	23%	31%	46%	0%	0%
Medium access	31%	31%	22%	26%	60%	7%	12%	15%	34%	32%
Good access	65%	72%	50%	50%	75%	0%	0%	10%	41%	49%
Total	**35%**	**33%**	**19%**	**28%**	**62%**	**19%**	**24%**	**19%**	**19%**	**19%**

Table 17: Description of Household Food Access Groups

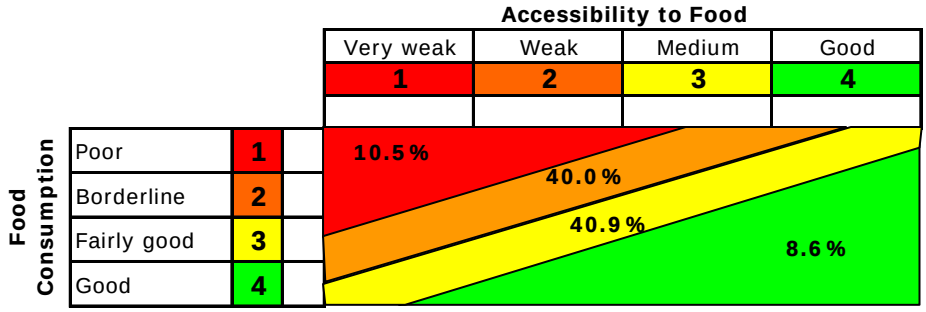
Household access group	% of HH (weighted)	Ranking cut-off points	Description
Very weak access – the way these HHs obtain food is very unreliable and insufficient	21.0 %	Below/equal 1.00	Households with low purchasing power and low production levels
Weak access – the way these HHs acquire food is difficult and unreliable	25.9 %	Between 1.00 and 1.99	Access is characterised by medium production levels combined with low household expenditures
Medium access - HHs have less difficulties obtaining food	41.0 %	Between 2.00 and 2.99	Access is characterised by high expenditures combined with relatively low production rates
Good access - HHs who can easily obtain sufficient food	12.1 %	Above 3.00	Households have a very high availability of cash combined with high production levels

4.2.4 Household Food Security Profiling

The household consumption and the household food access groupings are based on proxies of the food access dimension of food security. As such they can be used as indicators of food security and vulnerability status.

Every combination of food consumption and food access levels in a certain food security category is defined as “food insecure”, “highly vulnerable to food insecurity”, “moderately vulnerable to food insecurity” or “food secure”.

Figure 22: Food Security Profiling



To define the food security level, the mean of consumption and access score was calculated for each household obtaining a **food security score**. Cut-off points were used to divide the sampled households into 4 groups. These cut-off points were derived by linear combination of the 2 scores and are reported in table 18.

Table 18: Description of Household Food Security Groups

Food Security Group	% HH	Ranking cut-off points	Category Characteristics
Food insecure	10.5%	Below/equal 1.00	Households with generally poor or borderline food consumption and very weak food access; or households with weak or very weak access and poor consumption.
Highly vulnerable	40.0%	Between 1.00 and 1.99	Food-access and/or food-consumption are so insufficient that these households are close to being food insecure.
Moderately vulnerable	40.9%	Between 2.00 and 2.99	Food-access and/ or consumption are not good enough to categorise them as food–secure.
Food secure	8.6%	Above 3.00	Generally: fairly good to good food consumption and medium to good food access.

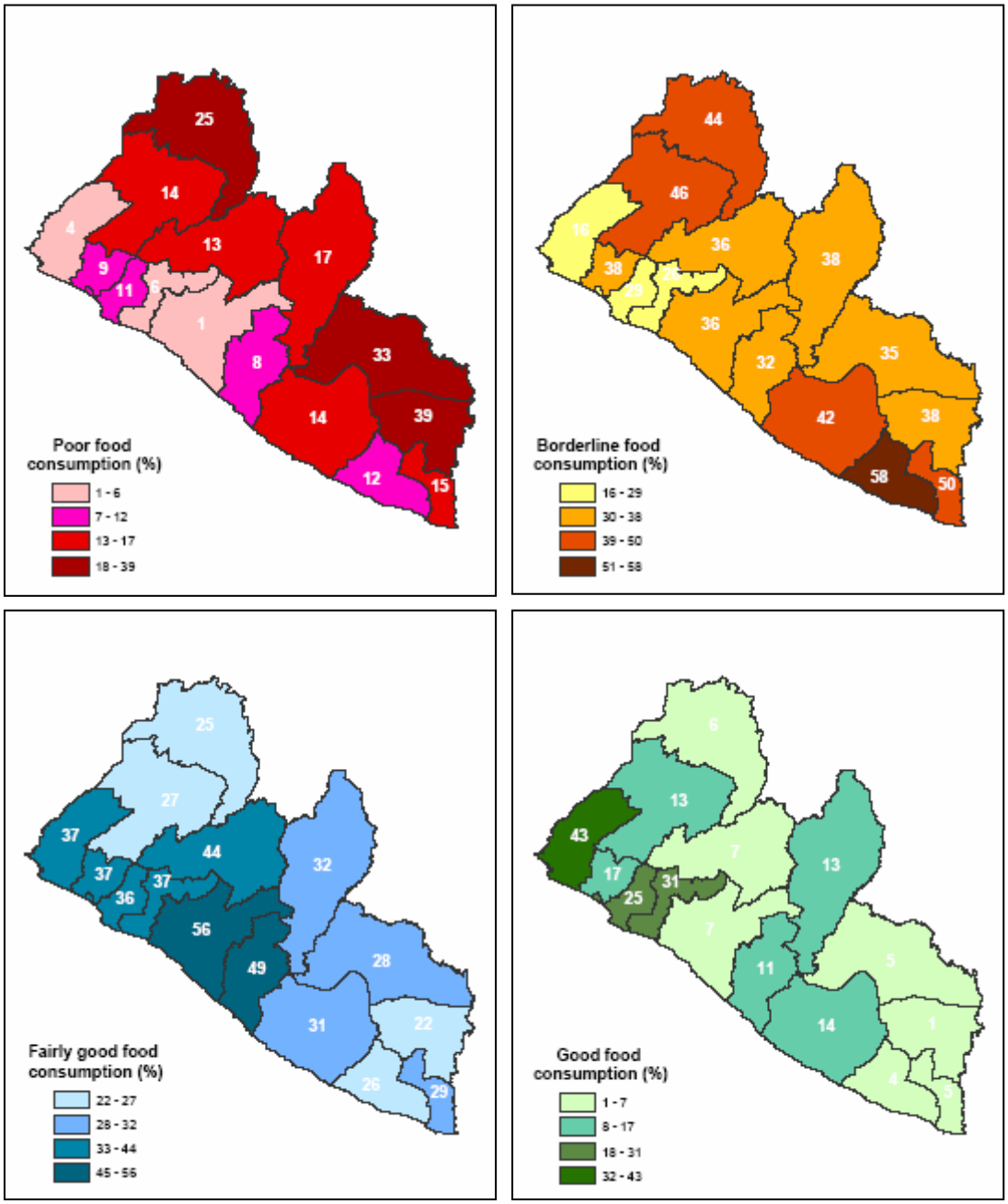
4.2.5 Geographic Patterns of Vulnerable Groups

Based on the findings from the food security and nutrition analysis, this section describes the geographic distribution of food insecure population across the 15 counties. This information should lead to improved targeting of food security related interventions.

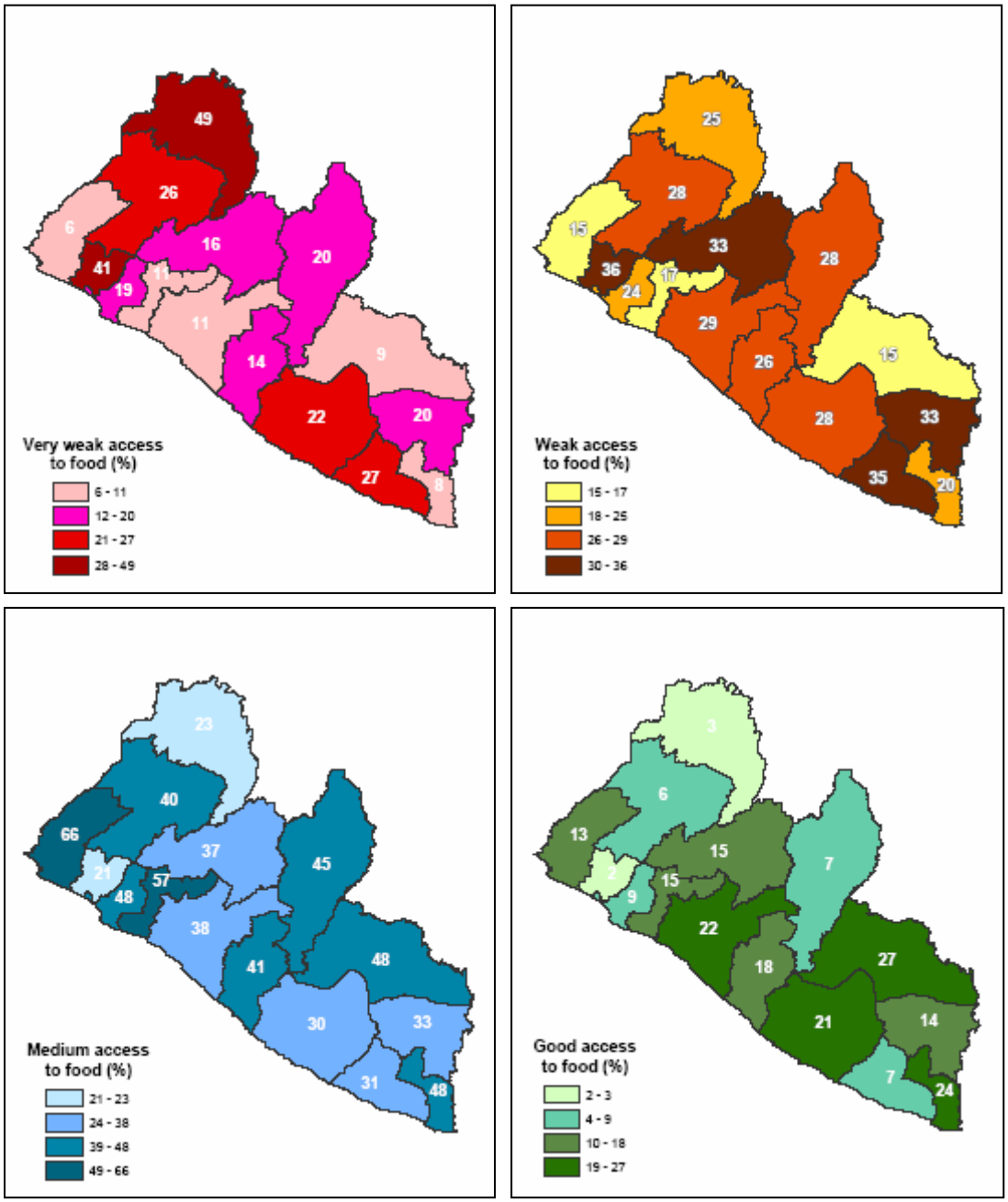
Based on data on food frequency and diversity, four household food consumption groups were created. In the overall sample, 14% of households were classified as having poor food consumption, 36% borderline consumption, 36% fairly good consumption and 15% having good food consumption. The geographic distribution of each group is illustrated in maps 3 to 6. The highest proportion of households with poor food consumption can be found in River Gee, Grand Gedeh and Lofa. Best-off are households in Montserrado, Margibi and Grand Cape Mount.

As a second step, households' ability to access food either through production or purchasing power was assessed. The following groups were identified: very weak access to food characterised by low production and purchasing power (21% of the total sample), weak access characterised by medium production levels combined with low purchasing power (26%), medium access characterised by high expenditures combined with low to medium production rates (41%), and good access which is composed of households with very high cash availability and high production levels (12%). As presented in maps 7 to 10, households in Lofa, Bomi and Grand Kru have the worst food access profiles, while the highest number of households with good access can be found in Grand Gedeh, Maryland and Grand Bassa.

Maps 3 to 6: Geographic Distribution of Household Food Consumption Groups



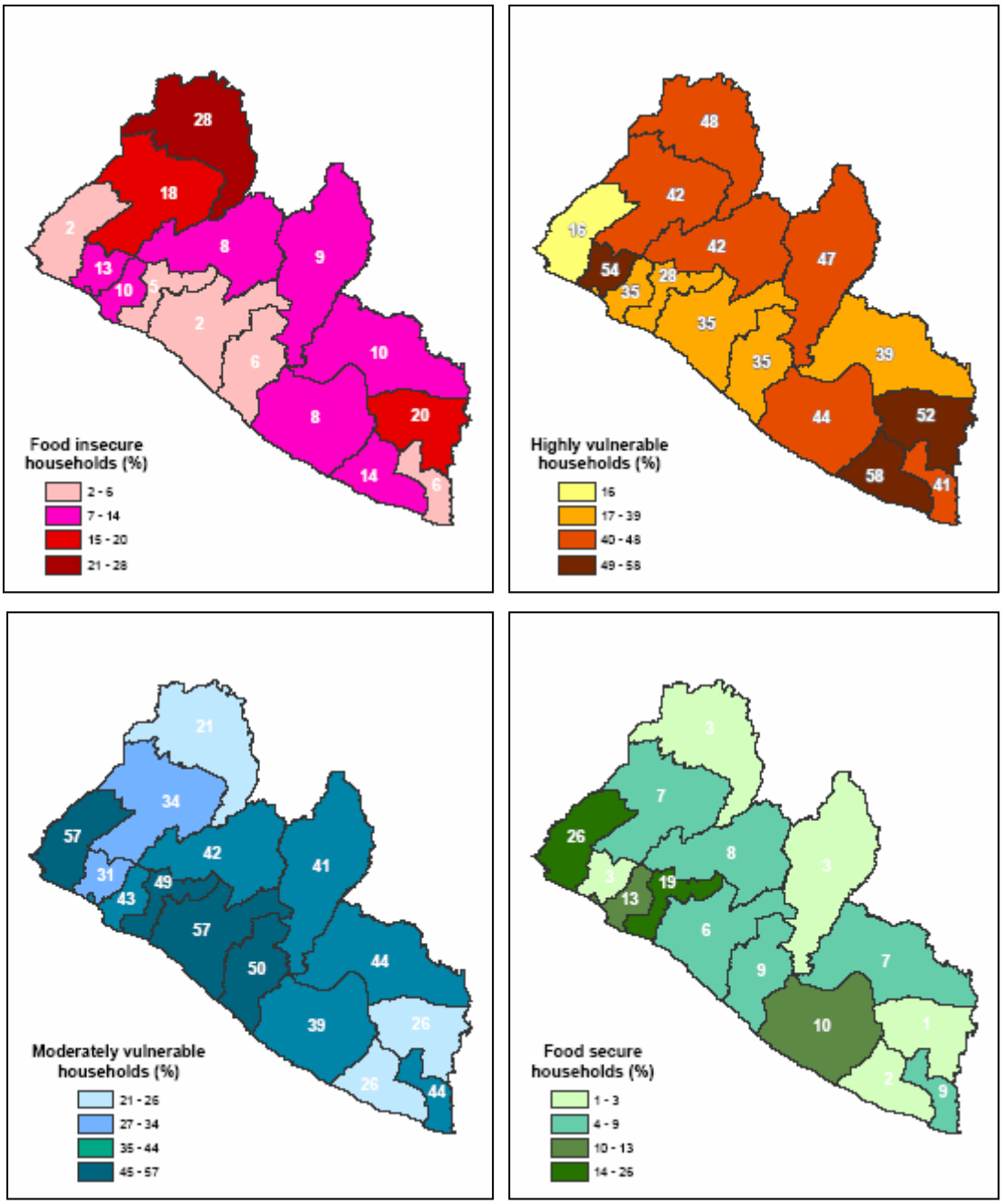
Maps 7 to 10: Geographic Distribution of Household Food Access Groups



Finally, the two types of analyses were combined. The household consumption and the food access are proxies of the food access dimension of food security. In combination, they can be used as indicators of the food security and vulnerability status of households.

The counties with the highest number of food insecure households are Lofa, River Gee, Gbarpolu, Grand Kru and Bomi. These are also the counties with the highest number of households that are highly vulnerable to food insecurity together with Nimba and Sinoe. The majority of households in Montserrado, Grand Gedeh, Nimba, Bong, River Cess, Maryland, Grand Cape Mount and Grand Bassa mainly belong to the group that is moderately vulnerable to food insecurity, while households that are considered to be food secure are most likely to reside in Montserrado, Margibi and Grand Cape Mount. Taking these and other relevant food security indicators into account, recommendations for the targeting of specific programme interventions across all key sectors are provided in Part V.

Maps 11 to 14: Geographic Distribution of Household Food Security Groups



4.2.6 Socio-economic Classifications of Vulnerable Groups

In order to assess the socio-economic characteristics of food insecure groups, statistically significant relationships were identified with key demographic and socio-economic indicators. The following relationships could be established:

Food Consumption Scores

Households with the following characteristics are more likely to have poor or borderline food consumption and dietary diversity:

- Households that returned since 2005 ($p<0.001$)
- Households receiving resettlement packages ($p< 0.001$)
- Households with the following livelihood profiles: 'palm oil producers', 'hunters', and 'contract labourers' ($p<0.001$)

Households with the following characteristics are more likely to have fairly good or good food consumption and dietary diversity:

- Households receiving remittances ($p<0.001$)
- Households that cultivated land ($p<0.01$)
- Households that own a hunger farm ($p<0.01$)
- Households with a vegetable garden ($p<0.001$)
- Households engaged in ocean fishing ($p<0.001$)
- Households selling food stuff in Monrovia ($p<0.001$)
- Households that own chicken ($p<0.05$)
- Households with the following livelihood profiles: 'petty traders' ($p<0.001$), 'charcoal producers' ($p<0.01$), 'fisherfolks' ($p<0.001$) and 'employees' ($p<0.001$)

There is a strong statistically significant correlation between household food, non-food and total expenditures and food consumption scores (see also figure 24). As expected, households with poor food consumption spent a higher share on food compared to those with fairly good and good food consumption. There is also a positive correlation between food consumption score and frequency of meals consumed by children and adults (see figure 23).

Figure 23: Number of Meals per Day (Adults)

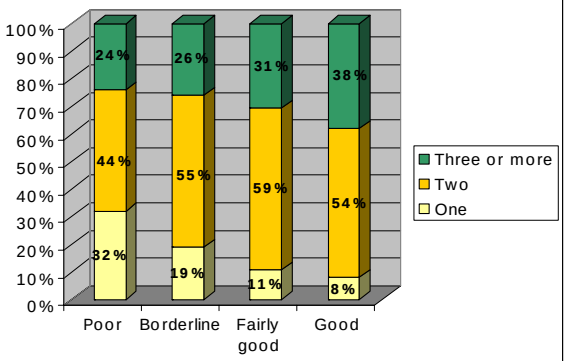
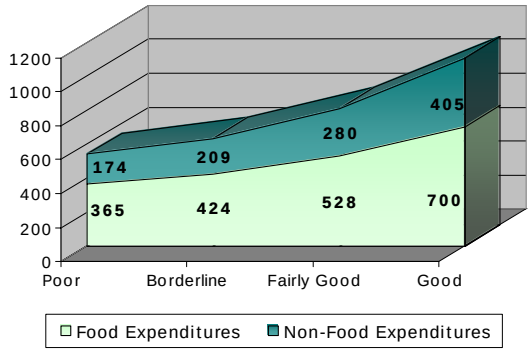


Figure 24: Per Capita Household Expenditures by Food Consumption Group (LD)



Food Access Scores

Households with the following characteristics are more likely to have very weak or weak access to food. They have difficulties in accessing sufficient food through purchases or own production:

- Female headed households ($p<0.001$)
- Households with chronically ill or disabled household members ($p<0.001$)
- Households of larger size and overcrowded households ($p< 0.001$)
- Households that returned since the beginning of 2005 ($p<0.001$)
- Households receiving resettlement packages ($p< 0.001$)
- Households with the following livelihood profiles: 'palm oil producers' and 'contract labourers' ($p<0.001$)

Households with the following characteristics are more likely to have medium or good access to food based on food consumption scores:

- Households receiving remittances ($p< 0.05$)
- Households with access to land ($p<0.001$)
- Households that cultivated land in 2005 ($p< 0.001$)
- Households with hunger farm ($p< 0.001$)
- Households with vegetable gardens ($p< 0.001$)
- Households that are selling food stuffs in Monrovia ($p<0.001$)
- Households that own chicken ($p< 0.01$), pigs ($p<0.01$) and goats ($p< 0.001$)
- Households that benefited from FFE ($p<0.05$), seeds ($p<0.01$) and tools ($p<0.001$) distributions
- Households with the following livelihood profiles: 'food crop farmers', 'farmers', and 'palm oil and food crop producers' ($p<0.001$)

Households access score also positively correlated with meal frequencies for both children and adults ($p<0.01$).

Food Security Scores

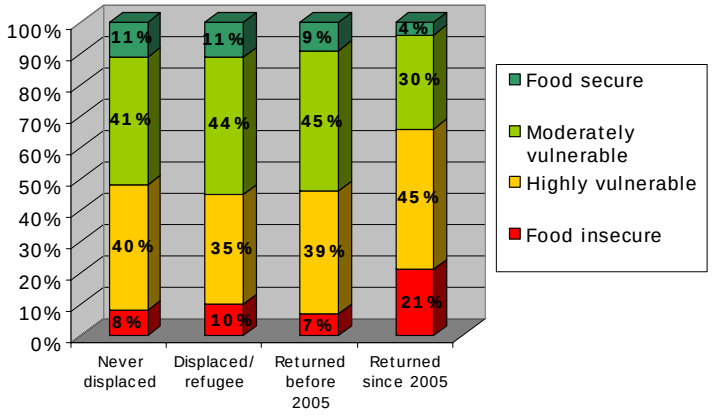
As food security scores are based on a combination of food consumption and food access scores, the pattern is similar as stated above. In summary:

- Around 16% of female headed households belong to the food insecure group compared to only 10% of households headed by men. While there is no indication that elderly headed households are more vulnerable, those headed by widow/er are much more likely to be vulnerable to food insecurity. Around 20% of these households belong to the food insecure group compared to only 9% that are married.

- Households of bigger size tend to be more vulnerable to food insecurity. The household size of the food insecure or highly vulnerable group is 6 compared to only 5 in the better-off groups. Food insecure households are also more likely to be overcrowded (more than 5 people per room) than households that are food secure. In line with this result is the dependence ratio which ranges from 1.5 in the worst group to 1.2 in the best-off group. Households with chronically ill or disabled household members are also more likely to fall into the food insecure group than household without (14% versus 10%).

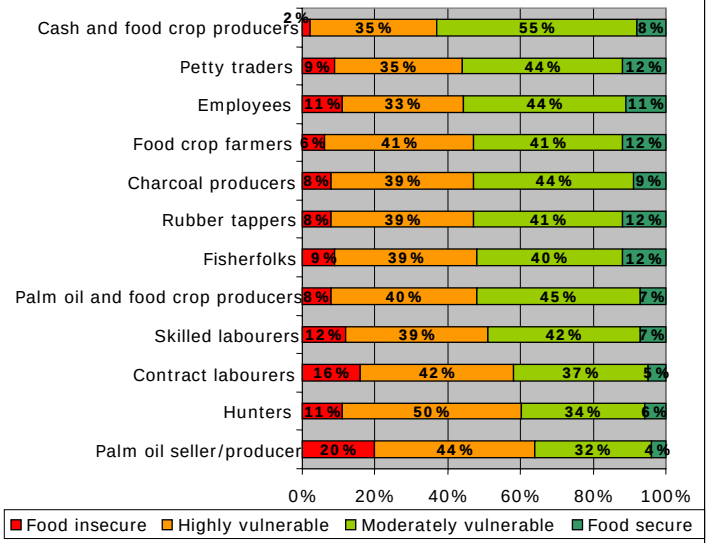
- One very decisive factor is the resettlement status. Households that recently returned are much more likely to be food insecure (21%) or highly vulnerable to food insecurity (45% compared to all other groups. Recently returned households have both food consumption (59% have poor or borderline food consumption) combined with poor access (64% have very weak or weak access to food). Interestingly, households that have never been displaced, households that returned earlier than 2005 to their place of origin and households that are currently still displaced share a similar pattern. This indicates that currently displaced and longer-term resettled households have adjusted to their environment.

Figure 25: Food Security by Displacement and Resettlement Status



- Livelihood activities play a role in the ability of a household to access food. Food insecure households mainly depend on processing of palm oil and casual labour. Households that are food secure depend much more than other groups on food crop production, cash crop production, petty trade and regular employment (see figure 26).

Figure 26: Food Security by Livelihood Profile



4.3 Food Utilisation: Mother and Child Health and Nutrition

This section includes findings on maternal and child health information, infant and child feeding patterns, and maternal and child nutritional status. 6,082 children were surveyed. However, due to elimination of some cases as a result of incomplete records or some cases having extreme measurements/ outside the criteria for inclusion, only 6,041 children aged 6-59 months or measuring 65-110 cm were analysed. Of these, 50.3% were boys and 49.7% girls. The overall ratio of boys to girls was 1.01 which is within the recommended range of 0.9-1.1. There was no gender bias in the selection of children neither was there a statistically significant difference in the distribution of study child by sex and age group across counties. However, both Grand Kru and Gbarpolu showed slightly higher proportion (about 53%) of girls while Monsterrado showed slightly higher proportion (also about 53%) of male children. The age distribution of the surveyed children was normal for children aged 6-59 months in developing countries See Table 19).

Table 19: Distribution of Children Aged 6-59 Months by Age Group

	Age groups				
	0-11months	12-23months	24-35months	36-47months	48-59months
Bomi	21%	25%	17%	20%	18%
Bong	18%	24%	22%	22%	15%
Grand Bassa	25%	18%	19%	20%	18%
Cape Mount	25%	24%	20%	18%	13%
Grand Gedeh	23%	22%	22%	19%	15%
Grand Kru	22%	20%	22%	22%	14%
Lofa	25%	28%	17%	19%	12%
Margibi	20%	26%	22%	19%	15%
Maryland	18%	20%	20%	23%	18%
Montserrado	26%	22%	22%	18%	13%
Nimba	21%	20%	20%	22%	17%
River Cess	19%	20%	22%	25%	15%
Sinoe	21%	27%	22%	19%	11%
River Gee	23%	20%	18%	22%	17%
Gbarpolu	22%	23%	21%	20%	15%
Total	**22%**	**22%**	**20%**	**20%**	**15%**

4.3.1 Child Morbidity

Respondents were asked about the occurrences of common childhood illnesses in the two weeks prior to the survey. Childhood morbidity was reported to be high, especially in southern Liberia. Overall, more than two-thirds (70.3%) had suffered at least one of the illnesses (fever, diarrhea or cough) in the two weeks prior to the survey. At least one in six (16.3%) had suffered from all the three illnesses and about 30% had suffered from two illnesses in the two weeks prior to the survey. Only 30% of the children did not report any of the illnesses in the same period. The South-East counties of Sinoe and Grand Kru reported the highest morbidity burden (88% and 83% respectively) while Bong, Maryland and River Cess reported the lowest morbidity burden at less than 60%.

Countrywide, fever was the commonest illness (55%) followed by cough with difficulty or shallowness in breathing reported by approximately 29% of the children in the 2 weeks prior to the survey. About 28% of children had at least one episode of diarrhea. Fever was most commonly reported in Sinoe (79%). The county least affected by fever was Maryland where only 22% of children reported suffering from the ailment in the two weeks preceding the survey. As with the other ailments, diarrhea was most commonly reported in Grand Kru and Sinoe (43% and 52% respectively). Diarrhea was least common among children in Grand Bassa. In total, only 7% of children in Grand Bassa reported diarrhea. The survey underlines the disease burden in the community (see table 20 for geographical distribution of morbidity) which correlates to mortality findings that indicate malaria and diarrhea as the leading causes of death in the country.

Table 20: Child Morbidity

	Fever	Rapid, short cough	Diarrhea	If child had diarrhea, whether given ORS or other liquids?		
				No liquid	ORS	Other liquids
Bomi	52%	**10%**	16%	10%	**58%**	33%
Bong	39%	24%	25%	10%	**54%**	36%
Grand Bassa	58%	20%	**7%**	14%	28%	58%
Cape Mount	**74%**	**68%**	28%	1%	49%	50%
Grand Gedeh	48%	29%	35%	**46%**	35%	19%
Grand Kru	**65%**	27%	**52%**	-	20%	80%
Lofa	61%	37%	42%	30%	**70%**	1%
Margibi	**70%**	27%	35%	1%	32%	67%
Maryland	**22%**	21%	19%	7%	28%	65%
Montserrado	65%	39%	31%	6%	39%	55%
Nimba	47%	17%	27%	19%	38%	43%
River Cess	46%	24%	22%	7%	42%	52%
Sinoe	**79%**	**50%**	**43%**	5%	**56%**	39%
River Gee	58%	41%	36%	**58%**	31%	11%
Gbarpolu	52%	33%	**12%**	17%	33%	50%
TOTAL	**55%**	**30%**	**28%**	**15%**	**44%**	**41%**

In the 1999/2000 National Nutrition Survey, about 50% of the children reported fever in the two weeks prior to the survey. Diarrhea prevalence was similar to that reported above and was likewise found to be more common in south eastern counties.

When sick, the amount of liquids given to children increased, while the amount of solid foods and breast milk either decreased or remained the same. Overall, 80% of mothers reported increasing the amount of liquids (mainly plain water) when their children were sick. Conversely, 84% of mothers decreased the amount of solid foods. Likewise, breast milk was given more often in 44% of the cases but decreased in 46% of the cases.

Overall, about 85% of the children received treatment in the form of ORS or glucose water during their last episode of diarrhea. Children in Montserrado, Margibi, and Grand Cape Mount were most likely to receive liquids. In total, less than 2% of children did not receive treatment. Conversely, children in River Gee and Grand Gedeh were least likely to receive liquids. Approximately 58% and 47% of children in River Gee and Grand Gedeh reported not receiving any type of treatment during an episode of diarrhea.

4.3.2 Measles Immunisation and Vitamin A Supplementation

Information on vaccination coverage was collected in two ways. First, interviewers were asked for children's health cards and vaccination information copied. Second, in cases where no health cards existed, vaccination information was gathered from mother's recall. Countrywide, 80% and 71% of children had received measles vaccinations and Vitamin A supplementation respectively (see table 21). Measles vaccination coverage was highest in Bong and Lofa, two counties heavily affected by wars. These counties reported measles vaccination rates over 90%. The southern and central counties of Grand Kru and Grand Bassa reported the lowest rates. In these two counties, just about half of the children were reported vaccinated. Following concerted campaigns by UNICEF and the former National Transitional Government of Liberia, measles vaccination was regularised in certain health facilities. This, in addition to rounds of national vaccination campaigns in 2004 and 2005, explains the relatively high vaccination coverage. With access to health services limited in south-eastern counties—with the exception of Grand Gedeh and River Gee, it is not surprising that the coverage in these areas was relatively low. As for the high coverage in Lofa County, this was explained by the active involvement of medical NGOs and the County Health Team (CHT) in measles vaccination campaigns in 2005. Furthermore, significant proportion of the respondents in Lofa County had recently returned from camps where such services were more accessible. For measles immunisation to be effective in terms of establishing herd immunity, the coverage needs to exceed 95% – current coverage according to this survey is only approximately 80%.

Table 21: Measles Immunisation and Vitamin A Supplementation by County

	Vitamin A in the past 6 months	Measles vaccination in the past 6 months
Bomi	**82%**	84%
Bong	52%	**91%**
Grand Bassa	67%	**52%**
Cape Mount	80%	**89%**
Grand Gedeh	**85%**	84%
Grand Kru	**38%**	**50%**
Lofa	**90%**	**94%**
Margibi	77%	**71%**
Maryland	**51%**	75%
Montserrado	64%	81%
Nimba	80%	87%
River Cess	76%	87%
Sinoe	**47%**	**72%**
River Gee	**89%**	**74%**
Gbarpolu	71%	78%
TOTAL	**71%**	**80%**

The percentage of children that were reported to have received Vitamin A supplementation was highest in Lofa (90%) but lowest in Grand Kru (38%). River Gee and Grand Gedeh reported the second and third highest rates with 89% and 85% of children receiving supplementation respectively (see table 21). Conversely, Sinoe and Maryland had the second and third lowest supplementation rates (47 and 51% respectively). Once again, Lofa showed relatively better coverage by Vitamin A supplementation, an observation explained by the fact that most of them have recently come from camps where services were more accessible. On the other hand, south-eastern counties, where few humanitarian agencies have been operating, had the lowest Vitamin A supplementation coverage. The early stages of Vitamin A deficiency are characterised by impaired dark adaptation that will progress, if uncorrected, to night blindness and xerophthalmia. Other effects of Vitamin A deficiency include impaired wound healing, abnormal skeletal development in children, and increased risk of infection, particularly of respiratory origin. The assessment revealed gaps in both measles and Vitamin A supplementation with substantial variation between counties. The south-eastern and central counties of Grand Kru, Sinoe, Maryland and Grand Bassa recorded the lowest levels of both interventions which are crucial to child survival.

4.3.3 De-worming and Mosquito Nets

Countrywide, coverage by de-worming, an important health service provision for young children especially those prone to unhygienic conditions, was low. Less than a half (45%) of study children have been de-wormed in the six months preceding the survey (see Table 22). Children in Bong, River Cess, and Maryland were the least likely to report having been de-wormed (<30%). Surprisingly, River Gee reported the highest prevalence of de-worming among study children, an observation that can not be explained within the current survey framework. De-worming is mainly done in schools.

Table 22: Coverage by De-worming and Mosquito Nets

	De-wormed	Child used mosquito net previous night
Bomi	61%	11%
Bong	**24%**	9%
Grand Bassa	36%	**7%**
Cape Mount	61%	**6%**
Grand Gedeh	59%	13%
Grand Kru	37%	9%
Lofa	35%	21%
Margibi	47%	**3%**
Maryland	**29%**	9%
Montserrado	58%	11%
Nimba	49%	23%
River Cess	47%	**7%**
Sinoe	**27%**	**2%**
River Gee	71%	**7%**
Gbarpolu	45%	9%
TOTAL	**45%**	**12%**

The usage (sleeping under nets) of mosquito nets by children in the night preceding the survey was reported by slightly more than one-tenth (12%) of the households assessed. Ownership of mosquito nets was also low at just 14%. It is notable that at least eight in ten households that had mosquito nets reported that they were utilised by children the night preceding the survey. Mosquito nets were most commonly reported in Lofa and Nimba where over 24% of households reported ownership. They were least common in Sinoe where only 2% of households had ownership. Malaria is a leading cause of death in Liberia. While usage of treated bed nets are widely acknowledged as a cost effective malaria prevention strategy, impact can only be realised if mothers and young children universally use them. Thus, the paltry percentage of mosquito nets in a malaria prone country is a real concern.

4.3.4 Child Feeding Practices

Infant feeding practices affect the health of both mothers and children. Breastfeeding has been shown to have beneficial effects on the nutritional status, morbidity, and mortality of younger children. The survey obtained information on early feeding practices among children aged less than 26 months. Studies reveal that infant and young child feeding practices profoundly impacts general well-being especially in the first two years of life. Whereas breastfeeding is important, especially up to the second year of life, complementary feeding and introduction of other solid foods greatly influence health and nutritional status of a child especially in the ages 12 -24 months. The United Nations' World Health Organization recommends the following as ideal child feeding practices:

- Initiation of breastfeeding within the first hour of life
- Exclusive breastfeeding – that is, the infant only receives breast milk without any additional food or drink, not even water for the first 4-6 months of life
- Breastfeeding on demand – that is, as often as the child wants, day and night
- No use of bottles, teats or pacifiers
- Complementary foods should be introduced to majority of infants during transitional period lasting two months. Thus, nearly all infants should be receiving complementary foods in addition to breast milk at ages 6-9 months
- All children should be breastfed for at least one year and preferably for up to 2 years of age or beyond
- Complementary feeding should be *timely*, meaning that all infants should start receiving foods in addition to breast milk from 6 months onwards. It should be *adequate*, meaning that the nutritional value of complementary foods should parallel at least that of breast milk.

The Government of Liberia ratified these WHO recommendations in 1997 (MOHSW, 1997). However, as presented on Table 23 and subsequent findings, infant and child feeding practices are sub-optimal in Liberia. Thus, promotion of appropriate feeding practices (behaviour change to ensure introduction of complementary foods at appropriate times, in right amounts and qualities, while also maintaining breastfeeding until a child is two years of age) is regarded as paramount. It would benefit children by controlling common childhood illnesses like diarrhea while also ensuring appropriate dietary needs for the child.

Table 23 provides a summary of key breastfeeding and complementary feeding indicators as recommended by WHO.

Table 23: Prevalence of Recommended Feeding Practices

Timely first-suckling rate	39.9%
Exclusive breastfeeding rate at < 4 months)	**43.3%**
Exclusive breastfeeding rate at 6 months	**21.7%**
Pre-dominant breastfeeding rate	92.6%
Timely complementary feeding rate	**45.6%**
Continued breastfeeding rate (1 year)	64.4%
Continued breastfeeding rate (2 years)	**24.7%**
Ever breastfed rate	99.6%
% of children <24 months currently breastfeeding	77.4%
Mean duration of breastfeeding	15.2 (SD 3.9)
Average age of introducing solid foods	8.0 (SD 3.5)

Timely First-Suckling Rate

Only about four in ten infants were suckled within the recommended one hour after birth (timely first-sucking rate[30] on Table 23). Suckling, regardless of county, was most likely to begin in the first 24 hours of a child's life. In total, 78% of the children aged less than one year were breastfed on the first day of their lives. However, a significant proportion (22%) reported waiting beyond the first day to initiate suckling. This varied significantly by county. Significantly, more women (over 50%) in northern and western counties (Bomi, Lofa, Margibi and Gbarpolu) reported that they had initiated suckling (began breastfeeding) their newborns within the first hour of life compared to other counties that reported timely first-suckling rates less than 50% with Grand Bassa and River Cess reporting the lowest rate (only 10 and 11% respectively). Infants in south-eastern and central counties of Grand Bassa, Grand Gedeh, Grand Kru, Maryland River Cess and Sinoe were more likely to begin suckling their newborns later than 24 hours (proportions initiated on breast milk after first day is over 30%) as compared to infants from other counties with proportions of infants initiated on breast milk after first day being less than 20%.

Exclusive Breastfeeding

Breast milk contains the right amount of nutrients, in the right proportions, for the first few months of a growing baby's life and also, provides immunity to common childhood illnesses. One of the best-kept secrets about breastfeeding is that it's as healthy for mothers as for babies. Not only does lactation continue the natural physiological process begun with conception and pregnancy, but it provides many short and long-term health benefits. These include optimal metabolic profiles, reduced risk of various cancers, improved natural child-spacing, emotional, physical recovery, psychological and many other benefits. Early supplementation or provision of other food items (including water), particularly under unhygienic conditions, often result in infections and lower child's immunity to diseases.

Examination of child feeding patterns reveals that approximately 43% of children aged 0 to 4 months were exclusively breastfed in the 24 hours prior to survey (Table 23 for Exclusive Breastfeeding Rate[31]). This declines to about 22% by the time a child is about 4-6 months. Exclusive breastfeeding as recommended by UNICEF/WHO is uncommon, an observation that clearly undermines its role in the first few months of a child's life. The National Nutrition survey (MOHSW/UNICEF 1999/2000) estimated exclusive breastfeeding among children aged less than 4 months at 41% and a decline to about 24% by the time a child is 5 months. In this study, the prevalence of exclusive breastfeeding steadily declines until about 9 months of age when it levels out around 2% (see figure 28). Although exclusive breastfeeding was relatively low, predominant breastfeeding rate[32] remained with 9 in 10 infants below the age of 4 months were reported having been predominantly breastfed in the 24 hours preceding the survey.

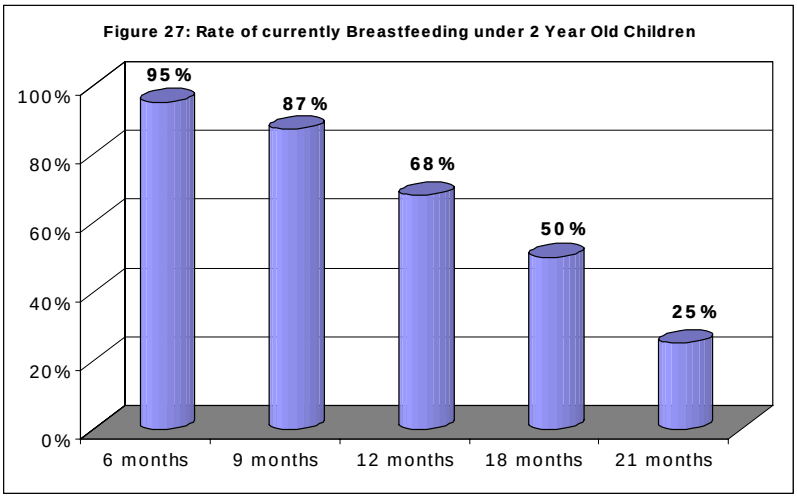
Continued Breastfeeding

Breastfeeding is likely to continue beyond one year. Continued breastfeeding rate until 1 year (proportion of children aged 12-15 months who were breastfed in the 24 hours preceding the survey) was reported at 67% while continued breastfeeding rate at 2 years (proportion of children aged 20-23 months breastfed in the 24 hours preceding the survey) was estimated at 25%. The mean duration of breastfeeding was, however, estimated at about 15 months (Table 23). No major variations were detected on the mean ages at which different counties stop breastfeeding their children. Previous studies in Liberia had also indicated that, on average, mothers stop breastfeeding when their children are aged between 15-17 months (WFP 2005 surveys in different counties). There were no gender variations in the breastfeeding patterns of the infant and young children. The commonly cited reasons for early stoppage of breastfeeding include wrongly believing that the child has reached the age of breast feeding stoppage (34%) and alleged refusal of the child to breastfeed or alleged lack of breast milk (31%). Occurrence of another pregnancy as a reason for not continuing to breastfeed is cited by about one in four (22%) of the mothers.

The survey findings show that across counties, over three quarters (77%) of the children less than 2 years of age breastfed in the 24 hours preceding the survey. Proportions of

[30] Proportion of infants (<12 months of age) who first suckled within one hour of birth)
[31] Proportion infants <4 months of age who were exclusively breastfed in the 24 hours preceding the survey.
[32] Proportion of infants <4 months who were predominantly breastfed in the 24 hours.

children aged less than two years who were breastfed in the 24 hours preceding the survey did not vary much across counties. More than a half of the children aged less than one year reported breastfed in the 24 hours preceding the survey. However, children aged 21 months and above were more unlikely to be breastfed in the 24 hours prior to the survey than their counterparts in the younger age groups. Prevalence of children aged 21 months who had been breastfed in the 24 hours prior to survey was only about 27% (See figure 27). The child's sex and mother's ages did not influence nor had any significant correlation on whether a child was breastfed in the 24 hours preceding the survey.



Complementary Feeding

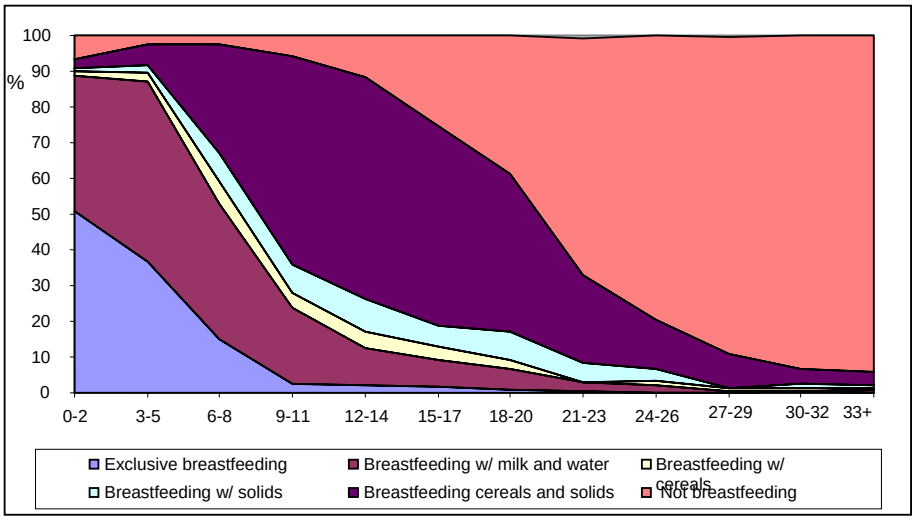
The survey estimated the timely complementary feeding rate[33] at about 46% within the mean age of introducing solid foods to the diet of infant at 8 months (Table 23). Introduction of solid food varied, with a significant proportion (35%) of the mothers commencing complementary feeding prematurely, before four months, while others (26%) started after 6 months. Although specific questions were not included about the quality or quantity of the complementary food, poor young child feeding practices were associated with acute malnutrition which peaked among children aged 12 to 23 months (See section 4.3.12). Mean age of introducing solid foods did not vary much across counties. However, central and south-eastern counties tend to provide solid foods earlier than other counties (6.5 months against 9 months).

While breastfeeding practice was predominant in the early months of a child's life, mixed feeding was an all common feature throughout the country. A mixture of breastfeeding and provision of water and water-based liquids (including other milks) is common as early as 1-2 months of age. As depicted in figure 28, about 90% of the children are either exclusively breastfed or provided breast milk with, either other milks or water, in the first 1-2 months of life. The remaining (about 10%) is either fed with solids or not breastfed at all. The prevalence of breastfeeding combined with cereals and solids increases gradually but experiences a steep rise at 6-9 months of age as the prevalence of complementary feeding increases while exclusive breastfeeding and breastfeeding with other milks/ water declines. The common solid foods children are fed on are rice, oil/fats, roots and tubers (mainly potatoes) and fish. Meanwhile, the prevalence of children not being breastfed eventually steadily increases and becomes significant as children reach 12-14 months of age. The steady increase in the prevalence of not breastfeeding continues until a child is about 18 months and rises sharply beyond 19 months. It was more common in southern counties to give food other than breast milk (other foods or vitamins), to children in their first three days of life. In River Gee, Grand Gedeh, Grand Kru and Sinoe counties, 72%, 60%, 42% and 39% of women, respectively, introduced their children to foods other than breast milk within the first three days of a child's life. Nimba and Lofa reported providing foods other than breast milk least often with 2% or fewer of the women reporting the practice. In all counties, the first non-breast milk liquid food a child was likely to be introduced to, was plain water. Only minimal variations were witnessed across counties. Other liquids given to children in the first three days of life were supplements, sweetened water, ORS and glucose water.

[33] Proportion of infants 6-9 months of age who received complementary foods in addition to breast milk.

In general, the survey reveals that under 6-months-old children were more likely to be provided with milk and other milk products, juices such as rice water as the first complementary foods. However, as the child reaches one year, the commonest complementary foods provided to a child are rice (about 50%), oil/fats (42%), fish (34%) and mashed potatoes (22%). Vegetables (13%), meat and meat products (11%), fruits (6%) and legumes (5.5%) were less common in a child's diet during the weaning period as revealed by the 24 hour recall for children aged <36 months.

Figure 28: Breastfeeding and Complementary Feeding Practices



4.3.5 Nutritional Status of Children

The nutritional status of children was measured for anthropometric indicators (age, height, and weight were measured or determined). Anthropometric measurements of 6,041 children aged 6-59 months (50.3% males and 49.7% females) were analysed. Thus, the measurements assessed linear growth and/ or thinness. Different types of indicators were used to assess nutritional status of children. These were weight-for-height, height-for-age, and weight-for-age. Each measurement is described in more depth in the methodology section.

Wasting

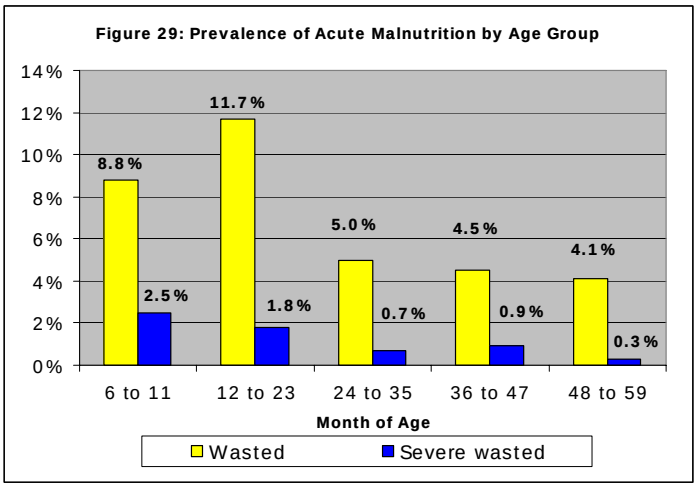
The prevalence of malnutrition is presented using z-scores. However, percent of median is usually used for screening and admission to feeding programmes. Therefore to estimate expected number of beneficiaries for feeding programmes, the prevalence of acute malnutrition is also presented as percent of median.

Countrywide, 6.9% of children were wasted while 1.7% were severely wasted. Acute malnutrition of 5-9% is categorised as alert or medium while levels 10-14% are described as high, according to WHO cut-offs for classifying prevalence of wasting (WHO, 1997). The wasting levels revealed in the 1999 MOHSW/UNICEF Survey among children aged 6-59 months in Liberia was 5.9%. Thus, prevalence of acute malnutrition remains within the alert ranges. However, some counties indicate high malnutrition levels. Wasting, was more prevalent in both central (Grand Bassa and River Cess) and southern eastern counties (Grand Gedeh followed by Sinoe and River Gee). Apart from Sinoe and River Gee (about 9%, respectively), all the other three counties reported wasting prevalence of more than 10% (highest being River Cess with a wasting rate of 11%). North western counties showed a relatively low acute malnutrition, with Garpolu and Lofa recording wasting prevalence of 3% and 4.6%, respectively (see table 24 and map 15). As explained in the causal analysis, low wasting in Lofa and Gbarpolu could be attributed to the fact that their populations had recently returned from camps where access to basic social services was better. The survey indicates that significantly more boys than girls were wasted (8% versus 6%, respectively, and statistically significant at P-Value <0.05).

Table 24: Child and Adult Nutritional Status

	Children < 5 wasted	Confidence Interval	Children < 5 stunted	Confidence Interval	Children < 5 underweight	Women with low BMI
Bomi	5.3%	(CI 3.3-7.3)	**43.9%**	(CI 39.4 -48.5)	25.7%	11.5%
Bong	7.7%	(CI 5.1 -10.4)	**42.9%**	(CI 37.9- 48.0)	24.3%	7.7%
Grand Bassa	**10.3%**	(CI 7.3 -13.2)	**43.8%**	(CI 38.7 -48.9)	**32.6%**	17.5%
Cape Mount	5.5%	(CI 3.3 – 8.2)	32.4%	(CI 27.4 -37.4)	21.2%	7.7%
Grand Gedeh	**10.5%**	(CI 7.8-13.7)	38.7%	(CI 34.0 -43.4)	**30.7%**	8.9%
Grand Kru	5.3%	(CI 3.4-7.3)	**47.3%**	(CI 42.8 -51.7)	28.2%	**15.7%**
Lofa	4.6%	(CI 2.3 -6.9)	31.3%	(CI 26.2 -36.5)	22.1%	7.5%
Margibi	6.9%	(CI 4.4-9.4)	36.6%	(CI 31.8 -41.4)	25.5%	10.4%
Maryland	5.8%	(CI 3.4- 8.1)	**41.3%**	(CI 36.3 -46.3)	25.9%	9.5%
Montserrado	6.6%	(CI 4.1 -9.0)	31.9%	(CI 27.2 -36.6)	25.3%	**28.5%**
Nimba	6.6%	(CI 4.4 -8.8)	**45.4%**	(CI 40.9 -49.8)	**31.4%**	11.6%
River Cess	**11.3%**	(CI 8.2 -14.4)	**41.2%**	(CI 36.3 -46.1)	**33.9%**	**18.5%**
Sinoe	8.8%	(CI 6.2 -12.3)	**42.1%**	(CI 36.8 -47.4)	24.0%	10.5%
River Gee	8.7%	(CI 5.9 -11.4)	**45.8%**	(CI 40.9 -50.7)	**32.6%**	7.1%
Gbarpolu	2.9%	(CI 1.1 -4.7)	29.6%	(24.7 -34.6)	21.5%	12.6%
Total	**6.9%**	**(CI 6.2 -7.5)**	**39.2%**	**(CI 37.9 -40.4)**	**26.8%**	**13.5%**

Prevalence of wasting was highest at 12-23 months of age followed by a noticeable improvement, indicative of catch up growth (this does not adequately compensate for the loss in height as explained in the next paragraph) in the age group 24 to 59 months of age (see Figure 29). Severe acute malnutrition was however, highest at ages 6-11 months, probably reflecting malnutrition at birth (manifested by low birth weight) that was found to be statistically significant and positively correlated to wasting.

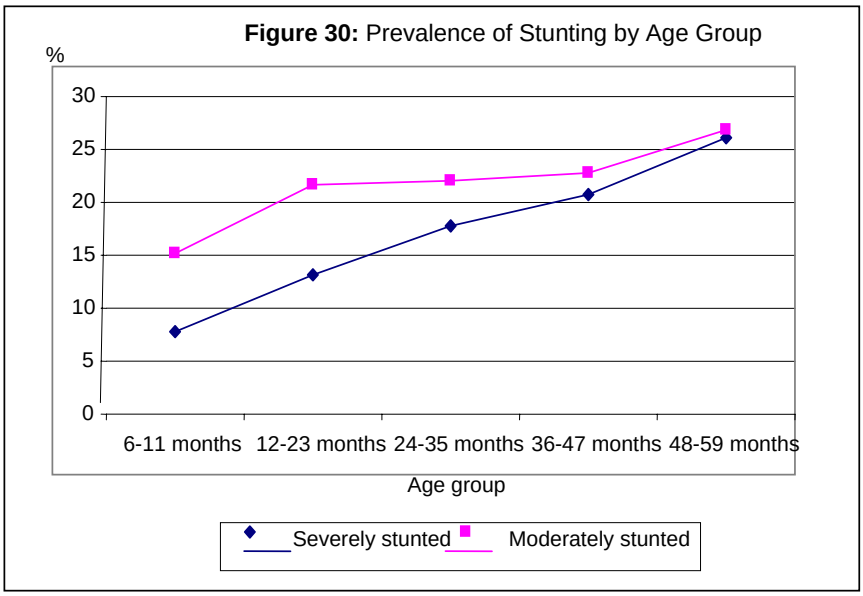


Stunting

Overall stunting or chronic malnutrition levels were estimated at 39.2% (Table 24). Across the country, stunting levels ranges from high to extremely high according to WHO cut-offs (WHO 1997) while showing no difference when compared to findings from 1999 National Nutrition Survey that employed similar sampling frame and procedure. Generally, southern and central counties appeared to have the highest stunting rates. Grand Kru noted the highest prevalence of stunting (47%), followed by River Gee (46%), Nimba (45%), Grand Bassa (44%) and Sinoe (42%), respectively (see map 16 for geographic distribution of stunting).

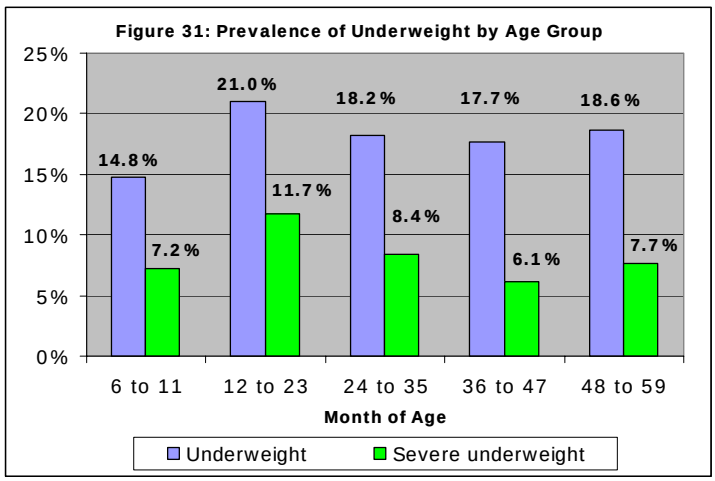
Examined by sex, male children were more malnourished than female children (41% males were stunted against 37% females).

Examining stunting levels across age groups shows different pattern when compared to wasting. Stunting prevalence worsens in every age category between 6 and 59 months of age. Finally between 48 and 59 months of age, at least one in every two (53%) children is stunted (Figure 30). A closer examination of stunting revealed a steady increase in the prevalence of severe stunting and a levelling off in the prevalence of moderate stunting. This indicates a steady shift of moderately stunted children into the severely stunted category as children get older. By the time children reach 36-47 months of age, the prevalence of severely stunted is almost equal to that of the moderately stunted. It means as the child grows older, stunting becomes more pronounced than when a child is young. This could mean an insignificant (not adequate to compensate for the loss in height) catch up growth, if any, for children wasted at age below two years. Unfortunately, the negative effects of stunting (too short for age) are permanent and irreparable, a fact that is reinforced by these findings. Numerous researches reveal that stunting has profound negative effect on physical growth, productivity, survival (children more prone to illnesses and eventual death), and educability (impairs brain development, diminishes retention and attention spans, affects attendance etc) (Ross JS 1997: Profiles Guidelines: Calculating the effects of malnutrition.). The high stunting reported in Liberia, therefore, portends a bleak picture that would undermine poverty reduction for many years. Although some damage is already done once a child is stunted, measures to prevent further deterioration are not only imperative but urgent.



Underweight

Nationwide, underweight (a combination of wasting and stunting) was estimated at 26.8% (Table 24). According to WHO 1997, underweight levels 20- 29% are categorised as high while levels greater or equal to 30% are alarmingly high. Five of the 15 counties in Liberia have extremely high underweight levels according to WHO classifications while the rest have high levels. Prevalence of underweight is highest in River Cess, River Gee, Grand Bassa, Nimba and Grand Gedeh (see map 17 on geographical distribution of underweight). All these counties showed underweight prevalence greater than 30 percent with the highest being River Cess (34%). As with wasting and stunting, underweight was highest among boys than it was among girls (29% and 25%, respectively).

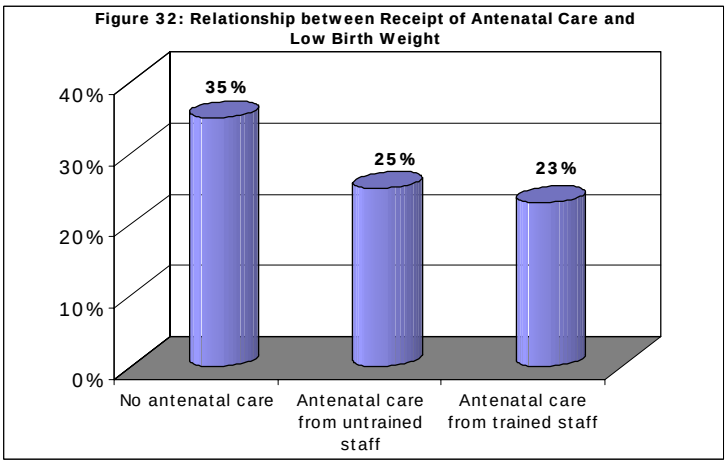


Both severe underweight and overall underweight were highest at ages 12-23 months and remains a higher level beyond two years (Figure 31). Being a combination of wasting and stunting, underweight is initially determined by similar factors affecting wasting but

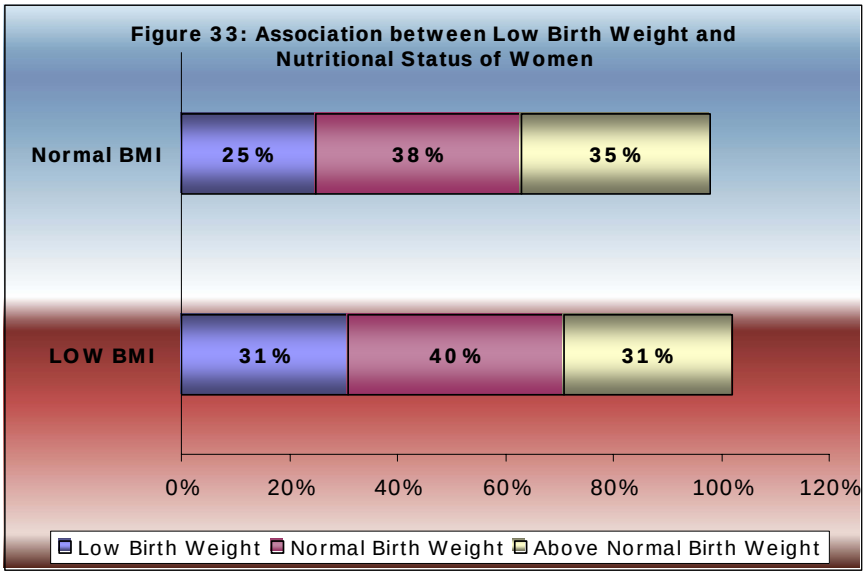
eventually becomes more related to factors explaining stunting as a child grows older. Underweight children have a high likelihood of becoming stunted.

4.3.6 Low Birth Weight

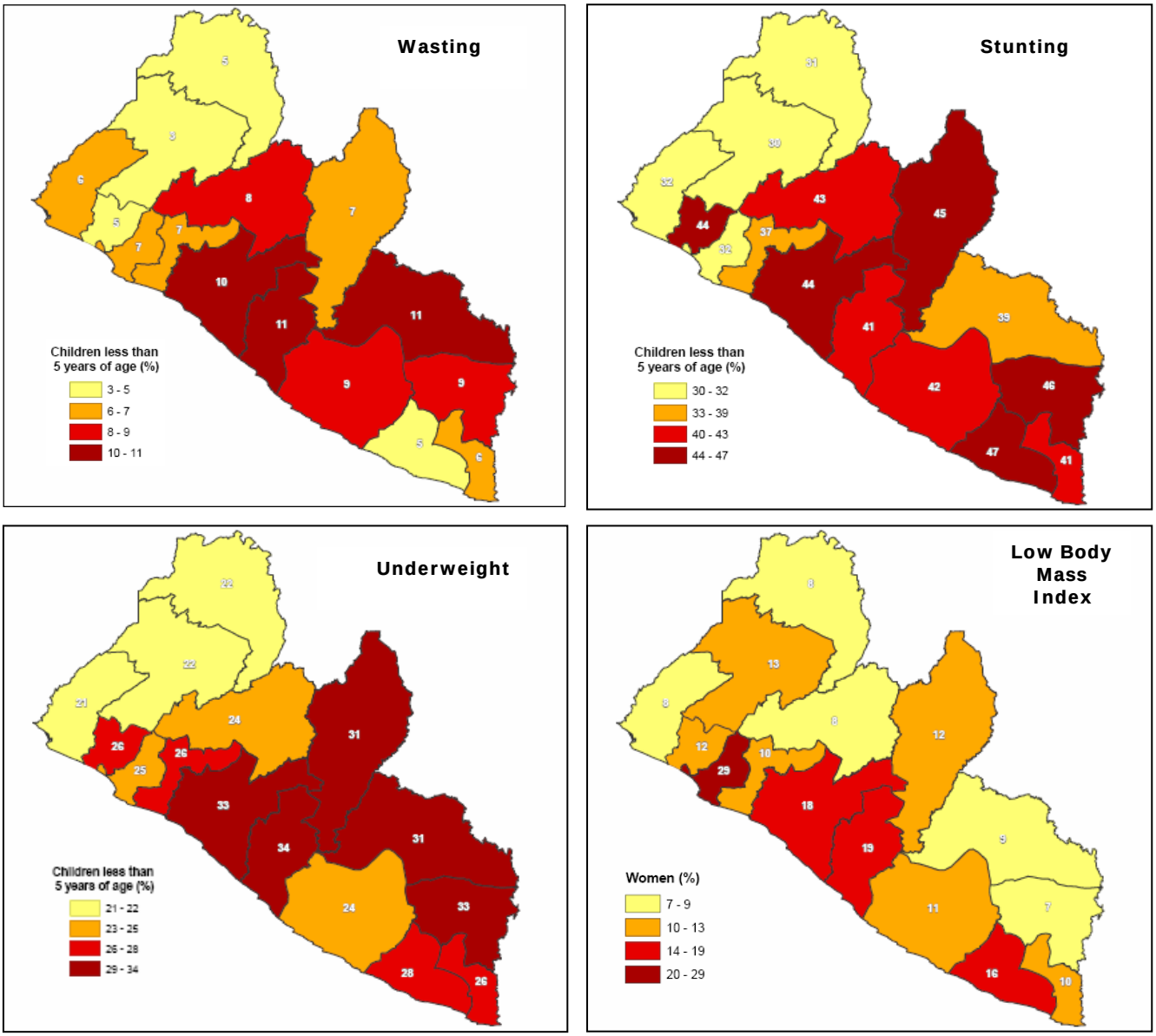
Birth weight of children were assessed by asking mothers about the perceived size of their children at the time of birth and categorising them into small sized births, normal sized births and over sized births. This indicator relies on perception and is only treated as a proxy indicator. Thus, examining low birth weight using perceived child size at birth as a proxy indicator, the majority (40%) of children reported normal birth weight, 34% were reportedly above normal birth weight or over-sized while just over one-quarter (26%) reportedly had low birth weight or undersized. When examined by county, Bong, the county where the largest percentage of women reported accessing ante-natal care, had the lowest percentage of low birth weight children (16%) while, Grand Cape Mount, the county which reported the least access to antenatal care, showed a relatively high percentage of low birth weight children, at 33%. Two southern counties, Sinoe and Grand Kru, reported the highest percentage of perceived low birth weight children (42% and 35% respectively). In general, there was a positive association between antenatal care and perceived low birth size as depicted in Figure 32, with children whose mothers received antenatal care (whether from trained or untrained staff) reporting a relatively low proportion perceived to be small at birth.



As depicted in Figure 33, low birth weight was also associated with nutritional status of women. Malnourished mothers were more (31%) likely to have low birth weight babies as compared to non-malnourished women (25%). Likewise, malnourished women were less likely to have babies of above normal birth weight (31%) as compared to normal women (35%).



15 to 18: Geographic Distribution of Nutritional Indicators: Wasting, Stunting, Underweight and adult BMI



4.3.7 Supplementary and Therapeutic Feeding

Countrywide coverage by Therapeutic Feeding Programmes was estimated at 78%, i.e., some 83 children were registered in TFCs countrywide compared to the 106 severely malnourished (<70% according to % of the median reference) children nationwide according to this survey. Coverage by supplementary feeding programme was, however, low being estimated at 46% (104 children were registered in SFPs compared to the 226 moderately malnourished (children measuring 70% and <80% using percentage of the median reference values) found in this survey. The relatively low registration in SFPs was not surprising considering that at the time of the assessment, only few of Supplementary Feeding Centres were operational in the country. Counties that had these centres were Margibi, Montserrado, Grand Gedeh, Grand Bassa, Nimba and River Cess. SFP and TFC coverage varied by county. Both Margibi and River Cess had indicated extremely good SFP coverage rates of over 100% while Nimba had coverage of only 15%. As for TFP coverage, all counties had rates higher than 60%. However, Grand Gedeh, Margibi and Montserrado showed significantly high coverage rates of over 100% followed by River Cess with a coverage rate of about 92%. It is, however, important to note that this survey was not designed to estimate coverage of selective feeding programmes. That said, the findings signal that the coverage by SFP is low in counties where such programmes exist.

4.3.8 Mothers' Access to Antenatal Care

Questions on ante-natal care were asked to all women with children under-five years of age in each household visited. Close to three quarters (73%) of women reported receiving antenatal care (at least once) by *trained medical staff*[34] during pregnancy. The 1999/2000 MOH/UNICEF national survey found that 85% of the women (73% in the CFSNS) had visited trained medical personnel for prenatal care at least once (MOH/UNICEF 1999/2000). Slightly more women in Bong reported receiving ante natal care more often (90%) than those in any other county while women in Grand Cape Mount reported receiving such care, least often (45%). Generally, women in counties with better access to health services (as defined by children receiving treatment for illnesses) were more likely to receive ante natal care than women in counties with less access to health services. However, Grand Cape Mount, Bomi, Gbarpolu, and Lofa did not report high proportions of women who had received ante-natal care despite reporting higher percentages of children that sought treatment while sick. Reasons for this are unclear, though findings in Lofa can be explained by noting that majority of women respondents had recently resided in IDP/refugee camps where services might have been better than those available for residing outside the camps. Considering that the health care system is still under rehabilitation, this is a positive sign, in that, a large percentage of women remain able to access care when necessary.

4.3.9 Nutritional Status of Women

Nutritional status of adults was assessed by using the Body Mass Index (BMI). The analysis indicated that 13.5% of women had low BMI. The 1999/2000 National Nutrition Survey reported prevalence of low BMI at 13%. The current findings indicate no significant change. There was no noticeable geographical difference in the prevalence of low BMI (Table 24). Montserrado had the highest percentage of malnourished women at 28.4%. However, the prevalence in Montserrado ought to be interpreted with caution as there was an observed large variation in prevalence of low BMI in the communities assessed in the county. Such high variations could either mean that low BMI was concentrated in some few clusters, an observation that requires keen understanding, or that non-random bias were witnessed. Other counties that reported above average high prevalence of low BMI included River Cess (18.5%), Grand Bassa (17.4%), and Grand Kru (15.7%). It is significant that with the exception of Montserrado, counties that reported high prevalence of low BMI also showed high levels of child malnutrition.

Although Iron Deficiency anaemia was not specifically assessed, there were indicators and observations by survey teams that implied high prevalence amongst mothers and even children. Health workers conducting the survey received numerous reports of tiredness among women as well as paleness of the eyes. A follow up focus group discussion with survey team confirmed these observations. Iron deficiency anaemia has previously been confirmed as a public health issue in Liberia. The 1999 survey had also indicated that substantial deficiencies existed. About 86% of the children aged 12-23 months and 62% of pregnant women were estimated to be anaemic[35]. Malnutrition among women prior to and during pregnancy limits the ability of the foetus to grow and is highly associated with low birth weight in many developing nations. Malnourished women are likely to give birth to low birth weight children who are also likely to be stunted and later develop to be stunted adults thus reinforcing the intergenerational passage of malnutrition. Low birth weight babies are four times more likely to die in the first weeks of life from illnesses such as diarrhea, malaria and respiratory infections (WFP 2006, World Hunger Series 2006). Thus, hunger passed from mother to child is a ruinous inheritance as it definitely gives a child a poor start in life. Good nutrition for pregnant and lactating women and their children can thus, break the intergenerational cycle of malnutrition. Malnutrition increases the risk of diseases and impairs productivity at all stages of the life cycle. Anaemia among pregnant women, in particular, also affects birth outcome including increased chances of undersized children. In this study, malnourished mothers were shown to have a higher likelihood of having low birth weight children than well nourished mothers (see section 4.3.7).

[34] These included midwives, nurses, TBAs (in most cases, untrained) and rarely doctors.
[35] 1999 National Micronutrient Survey MOHSW/UNICEF.

4.3.10 Mortality

Overall, with data from Sinoe and Grand Kru excluded, the results showed that 1.1 persons per 10,000 per day had died in Liberia's rural and semi urban areas. In total, four counties reported crude mortality rates and 95% Confidence Intervals (CI) in excess of 1 per 10,000 per day, which is generally accepted to be the cut-off between emergency and non emergency levels. These counties included: Bomi, Grand Cape Mount, Lofa, and Margibi. Nine counties, however, reported crude mortality rates either below this threshold or having the lower boundary of the 95% CI below the threshold. These included: Bong, Grand Bassa, Grand Gedeh, Maryland, Montserrado, Nimba, River Cess, River Gee, and Gbarpolu.

Under-5 mortality rates were reported to be 0.92 (0.81 – 1.03) per 10,000 children per day across counties (again excluding Sinoe and Grand Kru). Three counties reported mortality rates (and C.I.) above the emergency threshold of one per 10,000 per day (Sinoe and Grand Kru excluded) for alert levels (WHO, 1997), while the remaining 10 counties reported mortality rates below one (or with at least the lowest bound of the C.I. below one). The counties that reported rates above the emergency threshold were Grand Cape Mount, Lofa, and Margibi.

4.3.11 Causes of Malnutrition

Given the fact that Liberia has one of the highest rates of chronic malnutrition in West Africa, an important objective of this survey was to assess potential causes of malnutrition. To do so, potential causal factors were decided upon, with guidance from the well established UNICEF conceptual framework in Part 1, and regression models developed to assess how strongly these variables were associated with stunting, wasting, and underweight. Table 25 displays the list of variables that were examined in the regression analyses.

Table 25: Indicators Used in the Development of Linear Regression Models

Health indicators	Care indicators	Utilisation	Food intake	Other variables
Received Vitamin A supplementation	Child was ever breastfed (yes/ no)	Water source (protected vs. unprotected)	Composite household food consumption score	Age (in months) of child
Received measles vaccination	Antenatal care received during last pregnancy by trained health worker	Type of toilet (pit/ open latrine vs. no facilities)	Composite household food access score	Sex of child
De-wormed Use of Mosquito nets	Age (in months) when children were given solid food for first time	Overcrowding variable	Number of meals and food items eaten by child	Relative expenditures
Fever within preceding 2 weeks	Other Infant and child feeding indicators in table 23	Returned after 2005 or not	–	Perceived Birth weight (low, normal, or above normal)
Cough with rapid short breaths within preceding 2 weeks	Household size	Number of times displaced etc	–	Socio-Economic groups
Diarrhea in the preceding 2 weeks	–	–	–	–

It should be noted that mother's education, typically one of the strongest determinants of child nutritional status, is not included in this analysis. This is due to data constraints. Mother's education, while collected could not be matched to individual children, because unique identifiers were not collected on mothers. Although a drawback, this was not a significant constraint to this analysis.

Stunting

The causes of stunting were assessed using the basic framework discussed above.

Stunting or chronic malnutrition portrays long-term socio-economic problems, usually poor feeding practices, long-term and frequent or recurrent food shortages, and long-term consumption of unimproved water, unsanitary environment and recurrent childhood illnesses. Chronic malnutrition levels correlate highly with poverty levels. On the other hand, malnutrition is known to perpetuate poverty with its adverse effects. The vicious cycle of poverty is fuelled, by among other factors, chronic malnutrition, just as poverty fuels malnutrition. The stunting rate from this survey also confirms results from previous nutrition survey in Liberia that have consistently shown similarly high levels of stunting with the national average reported at 39% (Liberia National Nutrition Survey 1999/2000).

Stunting commonly begins in the first two years of life and becomes more pronounced as a child advances in age because of its cumulative effects. Once stunted, the extent of control to further damage (growth retardation, risks on survival etc) largely depends on how severe and prolonged the instances of initial under nutrition were. Thus, stunting is often found to be highly associated with poverty and water/ sanitation variables. Conceptually at least, stunting is also related to the indicators in table 25. The strength of these associations is examined in both bivariate and multivariate analysis below.
In this survey, examining the bivariate relationships revealed some counter intuitive results. Household food consumption and child food consumption variables as relates to the 24-hour dietary intake recall were not associated with malnutrition, which was also counter to the theoretical framework laid out by UNICEF. Children reporting good food consumption were less (or more) malnourished than children reporting poor food consumption. While these findings are in the unexpected direction, they are explainable. First, these results are confounded by multiple factors. Take, for instance, the finding that children who had received Vitamin A interventions were found to have a lower mean HAZ than children who had not. This is probably because children that were more likely to have received these interventions are located in more vulnerable locations that have been targeted specifically due to their vulnerability. This may include children in remote, and highly war affected villages or children that have recently returned from refugee camps. Findings by county from previous analysis back this hypothesis (Lofa having high measles coverage rates; Lofa, Grand Gedeh, and River Gee having the highest Vitamin A supplementation rates, etc). Secondly, as stunting is a measure of chronic malnutrition, it is not likely to be affected by short term episodes of illness or by short term problems with food consumption or access. Instead, stunting is likely to occur only if illnesses are repeatedly experienced by the child or if there is inadequate consumption (defined by dietary diversity and food frequency) or access (defined by expenditures on food, and crop production proxy indicators) over a sustained period of time. This survey, being cross sectional in nature, is only able to capture episodes of illness or problems with consumption or access that have occurred in the weeks preceding the survey, and is unable to establish disease burdens or food shortages over a longer period.

Importantly, however, is the fact that household's food access score was highly associated with chronic malnutrition. Children from households with a relatively good access score were more likely to be less stunted than children from households with weak access score. The access score was a combination of expenditure patterns and production variables, which, in effect, reflects the poverty status of the households. Children from households that returned in or after 2005 were also found to be less stunted than children from households that had returned earlier or not displaced at all. This confirms the hypothesis that households returning now have had long time to access relatively better services in camps than those who remained or returned earlier. As explained in the background chapters, there was massive destruction of both productive and social assets during the war, thus those who remained or returned earlier had no access to basic services. Overall, children from food insecure households were also likely to have stunted children than food secure households. This is an expected observation.

Utilisation factors also showed the expected associations; children with no access to toilet facilities and children with no access to improved water sources were more malnourished than children with access to latrines and with access to improved water. As discussed above, this link between water and sanitation and nutritional status is well established. Child age in months, child sex, and perceived child size at birth had the expected associations as well, with older children more malnourished than younger children, males

more malnourished than females, and perceived low birth weight children more malnourished.

Given these findings, a series of regression models were developed that tested whether observed trends remained after controlling for other variables and whether the differences seen were significant. Table 26 shows the two different models. Model 1 includes all variables. Model 2 includes only variables that significantly impacted HAZ or are necessary to take account of (water and sanitation variable, etc).

Table 26: Regression Models Examining Associations between HAZ and Causal Factors

	Model 1	**Model 2**
	Coefficient (p-value)	**Coefficient (p-value)**
Constant	0835	-0.834
Age of child	-0.232 (0.000)	-0.272 (0.000)
Child is female	0.088 (0.055)	0.033 (0.040)
Child small at birth	-0.303 (0.001)	-0.031 (0.005)
Child normal size at birth	0.440 (0.211)	-0.037 (0.291)
Child was ever breastfed	-0.025 (0.603)	-
Antenatal care	0.005 (0.923)	-
Age when children were given solid food	-0.022 (0.713)	-
Received Vitamin A supplementation	-0.008 (0.833)	-
Received measles vaccination	0.012 (0.813)	-
Received de-worming	0.052 (0.294)	-
Slept under mosquito net in previous night	0.057 (0.235)	
Did not have fever	0.048 (0.318)	-
Did not have cough with shallow breaths	0.081 (0.093)	-
Did not have diarrhea	-0.076 (0.310)	-
HH's food consumption score	-0.091 (0.066)	-
HH's food access score	0.088 (0.376)	0.016 (0.180)
Food Insecure Households	-	-024 (0.089)
Improved water source (dry season)	0.017 (0.727)	-
Access to toilets	0.710 (0.028)	-0.021 (0.043)
Access to land before the war	0.029 (0.569)	-
Mothers and children received food assistance	0.056 (0.256)	-
Overcrowding in the household (Yes)	-0.017 (0.720)	-
Household size	-0.038 (0.481)	-
Never displaced	-0.008 (0.872)	-
Households that had been displaced	0.009 (0.847)	-
Returned in or after 2005	0.020 (0.694)	0.050 (0.041)
Timely first-suckling	0.059 (0.234)	-
Breastfed with cereals after 4 months	0.019 (0.716)	-
Children in married households	0.055 (0.270)	-
Children from other HHs (divorce, widowed)	-0.034 (0.539)	-
N for analysis	5045	5709
R-square	0.160	0.082

The two models present very similar findings. Both models show that female children and younger children tend to be less stunted than male children and older children. Both models also indicate that HAZ is primarily associated with perceived (by the mother) low birth weight and sanitation variables. Thus, children perceived to be small at birth are significantly more stunted than children who were either perceived to be normal or large at birth. Additionally, children with no access to toilet facilities are significantly more malnourished than children with no access to toilet facilities. Good household's food access, returning in or later than 2005 from camps, and food secure households were all highly and positively correlated with stunting score.

Stunting, according to this data, does not appear to be related to episodes of illness (regardless of type of illness), caring practices, food consumption, or food access, as measured by this survey. This is not to say, however, that stunting is not affected by these variables. Rather, this only emphasises the problems discussed above. Additionally, the variables that did significantly affect HAZ, (perceived) low birth weight and poor sanitation are often indicative of or impact on high disease burden, low food availability, and proper caring practices and general poverty levels in the society.

Wasting

Determinants of wasting were examined in the same way described above. Wasting is a measure of acute malnutrition, mainly manifested by thinness. Low Weight for Height Scores (wasting), unlike stunting, due to acute and often severe food shortage or disease episode. High levels of wasting are rare, outside East Africa, and are usually brought on by a particular event, such as crop loss or conflict. As such, wasting prevalence is normally relatively low and is not highly correlated with poverty indicators. Bivariate and multivariate associations are discussed below.

Examining bivariate relationships, low WHZ was associated with health care and health indicators; children that have not received a measles immunisation or not been de-wormed as well as children who have recently experienced fevers, cough (with shallow breaths), or diarrhea had significantly lower weight for height score (significantly more wasted) that those who had not experienced illnesses or those who had been immunised or de-wormed.

Despite a general trend towards better nutritional status in areas where food consumption was reportedly higher, the food consumption score was not significantly associated with low WHZ. The food access score, on the other hand, was initially seen to be associated with acute malnutrition, though in the unexpected direction with children in households with poorer access to food had worse wasting levels. Examined further, it was revealed that this finding was being driven by household food expenditures which were very low in two counties; Lofa and Grand Kru, where wasting values were also lower than average. This mixture of low wasting and low food expenditures was enough for the food access score to be borderline significant when examined by WHZ. To determine if this association persisted outside of these two counties, this analysis was repeated on the other 13 counties, excluding Lofa and Grand Kru. In this analysis, the food access score was highly insignificant, indicating that this association was confined to these two counties. As such, it was decided to exclude the food access indicator from further analysis.[36]

Utilisation factors, such as access to latrines and improved water source, show no association with acute malnutrition. As discussed above, the association between water/ sanitation and acute malnutrition can be difficult to establish when examining wasting. Child age in months, child sex, and perceived child size at birth had the expected associations with older children being significantly more malnourished than younger children, males were also significantly more malnourished than females, and perceived low birth weight children were also more malnourished (all p-value <0.001). Closer examination further revealed that wasting is highest in ages 12-21 months. This is the critical age when active weaning of children takes places. The child is also more prone to illnesses at this age as a result of poor weaning practices. Further examination also revealed that children who were introduced to solid foods especially before the age of four months were more wasted than other age groups. This underscores the importance of exclusive breastfeeding and ensuring that solid foods are introduced at appropriate ages.

To further test these associations, regression models were developed. Table 27 shows two models. Model 1 includes all variables. Model 2 includes only the variables that significantly impacted on WHZ (wasting) controlling for expenditure variables, socio-economic group etc.

[36] It was not possible to include this variable in further multivariate analysis because doing so would have meant both 1) that all multivariate analysis would have to exclude Lofa and Grand Kru or that 2) this association, not seen in other counties, would be included and thus impact findings for the entire country.

Table 27: Regression Models Examining Associations between WHZ and Causal Factors

	Model 1	Model 2
	Coefficient (p-value)	Coefficient (p-value)
Constant	-0.790	-0.629
Age of child	0.131 (0.005)	0.127 (0.003)
Child is female	0.09 (0.006)	0.016 (0.000)
Child small at birth	-0.150 (0.000)	-0.265 (0.000)
Child normal size at birth	0.20 (0.937)	-0.102 (0.030)
Child was ever breastfed	-0.041 (0.369)	-
Antenatal care	0.032 (0.483)	-
Timely first suckling	0.004 (0.932)	
Age when children were given solid food for first time	0.014 (0.005)	0.014 (0.003)
Received Vitamin A supplementation	-0.008 (0.842)	-
Received measles vaccination	0.027 (0.585)	-
Received de-worming	0.041 (0.388)	-
Child had fever	-0.076 (0.000)	0.180 (0.000)
Did not have cough with shallow breaths	-0.032 (0.487)	-
Did not have diarrhea	-0.103 (0.003)	0.119 (0.005)
HH's Food consumption score	0.058 (0.221)	-
HH's Food access score	-0.060 (0.228)	-
Food assistance from MCH/SFP programme	0.116 (0.014)	0.079 (0.053)
Improved water source (dry season)	0.074 (0.123)	-
Access to toilet	0.100 (0.033)	-
Returned after 2005	0.099 (0.044)	0.083 (0.040)
Continued breastfeeding in addition to other foods at 12-15 months	0.148 (0.022)	-
Male headed households	0.075 (0.276)	0.151 (0.000)
Family size	-0.075 (0.157)	
Age of Household Head	0.012 (0.823)	
Cereals and liquids in addition to breast milk in last 24 hours	0.146 (0.253)	0.122 (0.005)
N for analysis	5182	5318
R-square	0.200	0.152

Again, model 1 and model 2 show very similar findings. Both models show that female children and younger children are significantly less wasted than male children and older children respectively. Both models also indicate that wasting is primarily associated with perceived birth size, caring practices (age of introduction of solid foods), and episodes of illness (fever and diarrhea). Thus, children born larger than normal; that are introduced to solid foods later in life (beyond 4 months) and that have not experienced a bout of fever or diarrhea were less likely than others (not matching these characteristics) to be wasted.
MCH food assistance played a role in improving nutritional status of children. Children from households that had benefited from MCH food assistance were less wasted than children from households that had not benefited from such assistance. This reinforces the known fact that assistance to women has greater impact on the welfare of children than support to men or other members of the household. However, the findings also reveal that children from households headed by men are significantly less wasted than those from female headed households. Other studies in Liberia (MOHSW/UNICEF 1999/2000) confirm this observation.

Once again, children from households that returned in or after 2005 were less wasted than their counterparts. Reasons cited in earlier sections explain this observation.

While conceptually, it is expected that household's consumption would be a determinant of wasting, it is not found to be associated with low WHZ in this data. Again, this should not be interpreted that household's food consumption does not play a role. Instead, there are

likely other reasons for this finding. Since food consumption mainly captured intake of solid foods, it is less likely to correlate with the nutritional status of young children who may not necessarily eat many solid foods yet. However, it is notable that continued breastfeeding in addition to intake of cereals and liquids as revealed by 24-hour recall had better impact on the nutritional status of young children. This underscores the importance of optimal child feeding practices.

In the multivariate, as well as, the bivariate analysis, water/ sanitation indicators were not found to be associated with acute malnutrition. Reasons for this have been discussed above. Additionally, measles vaccinations or Vitamin A supplementation, as well as pre-natal care by a trained professional were all found not to be related to low WHZ.

Underweight

Determinants of underweight were examined the same way as wasting and stunting were examined.

As stated previously, weight-for-age captures both linear growth failure (stunting), and thinness due to both growth failure and actual tissue loss (wasting). Consequently, since WAZ is a mixture of the two (stunting and wasting), underweight is likely to show determinants that are similar to both stunting and wasting. Thus, it was anticipated that low WAZ would be associated with water/ sanitation, health indicators, caring practices, and birth weight. Bivariate analysis confirmed this. Children living in households without latrines, and with no access to improved water sources were significantly more underweight. Likewise, children of mothers who had not received ante-natal care from trained professionals; children who had had fever, cough (with shallow breaths), or diarrhea were more likely to be underweight, though having had a cough (with shallow breaths) was not as strongly associated with underweight as was fever or diarrhea. Caring practices were also associated with low WAZ: - children who had never been breastfed and were introduced to solid foods at a young age (less than four months) were significantly more underweight. Finally, low birth weight was also found to be strongly associated with underweight.

The only variables that were not associated with WAZ were measles vaccinations, receipt of Vitamin A supplementation, food consumption score (as measured by dietary diversity and food frequency), and food access score[37]. This was not surprising considering that these variables did not significantly impact stunting or wasting models.

Multivariate regression modelling further tested these associations. Table 28 shows two models. Model 1, once again, includes all variables. Model 2 includes only variables that significantly impact WAZ after controlling for water and sanitation, socio-economic grouping and other variables.

Table 28: Regression Models Examining Associations between WAZ and Causal Factors

	Model 1	**Model 2**
	Coefficient (p-value)	**Coefficient (p-value)**
Constant	-0.928 (0.000)	-
Age of child	-0.005 (0.000)	-0.005 (0.000)
Child is female	0.182 (0.000)	0.191 (0.000)
Child small at birth	-0.572 (0.000)	-0.596 (0.000)
Child normal size at birth	-0.333 (0.000)	-0.356 (0.000)
Child was ever breastfed	-0.141 (0.212)	-
Antenatal care	-0.021 (0.801)	-
Age when children were given solid food	0.008 (0.144)	-
Received Vitamin A supplementation	-0.056 (0.224)	-
Received measles vaccination	-0.021 (0.653)	-
Received de-worming	-0.045 (0.257)	-
Did not have fever	0.193 (0.000)	0.148 (0.000)

[37] Food access score was once again removed from the multivariate analysis for same problem as was seen with wasting.

Did not have cough with shallow breaths	-0.049 (0.256)	-
Did not have diarrhea	0.127 (0.003)	0.131 (0.001)
Food consumption score	-0.010 (0.605)	-
Unimproved water source (dry season)	-0.067 (0.114)	-0.069 (0.60)
No toilet	-0.058 (0.210)	-
N for analysis	5248	5966
R-Square	0.04	0.039

Model 1 and model 2, indicate very similar findings. Both models show that female children and younger children tend to be less wasted that male children and older children. Both models also indicate that WAZ is primarily associated with perceived birth size and episodes of illness (fever and diarrhea). Consumption of water from unsafe sources was also strongly associated with low WAZ though not statistically significant with p-value =0.060. Thus, as anticipated, it appears that the underweight model is similar to models for both wasting and stunting. Children who were not larger than normal at birth and who have recently experienced at least one bout of fever or diarrhea in the weeks preceding the survey were significantly more likely than others (not matching these characteristics) to be underweight.

4.3.12 Causes of Mortality

The most common causes of death reported for the overall crude mortality were malaria (20%) and diarrhea (13%) respectively. Other common cause of death was acute respiratory infection (8%). Some deaths (5.4 to 0.1%) were attributed to other causes, such as birth complications and malnutrition and "unknown" or "other" causes. "Other" causes included deaths attributed to typhoid, tuberculosis, car accidents, work accidents and general "old age" as well as deaths due to traditional beliefs (commonly referred to as *African signs* and witchcraft). Overall, 20.0% of households reported that deaths were due to "unknown" causes while 26% of deaths were due to "other causes".

For the under 5 mortality rates, malaria and diarrhea were again the most common causes. Overall, about 36% and 19% of the deaths among under-five year old children was attributed to malaria and diarrhea respectively. In Grand Cape Mount and Nimba, malaria was cited by 40-60% of the respondents as the cause of death among under-fives while diarrhea was the single most cause of death among under-fives in Grand Bassa and River Cess respectively. Other causes of death among the under-fives were acute respiratory infections (8%), measles (6%) and malnutrition (3%). Some 7% of child deaths were attributed to "unknown" while about 17% were reportedly due to the "other" causes e.g. *African sign*, typhoid etc.

4.4 Vulnerability to Shocks and Coping Strategies

Food availability, access and utilisation are the three dimensions of food security. However, the system is dynamic and changes over time. It is therefore critical also to assess households' vulnerability to risks and shocks and their resilience to withstand negative impacts in case they occur.

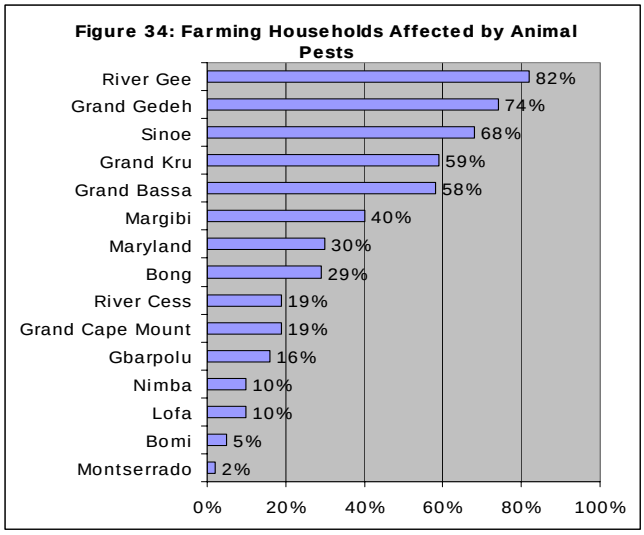
To assess the exposure of households to shocks, respondents were requested to list up to four shocks that were experienced by the household over the past 12 months and to assess the impact it had on household income, assets and food security status. Then households were requested to name the coping strategies they applied in order to overcome negative impacts. Finally they were asked if they implemented risk management or preventive measures in order to avoid negative impacts in the future if the event reoccurred.

4.4.1 Exposure to Risks and Shocks

Nationally, 49% households reported that they have experienced a shock during the past 12 months. The section differentiates between covariate and idiosyncratic shocks. Covariate refers to events that have negative impacts on whole communities or population groups while idiosyncratic refers to events that have major impacts on households that are affected.

Table 29: Shocks Experienced by Households

Rank	Shock Experienced	Type of shock: C=covariate, I=idiosyncratic	% of HHs	Highest Prevalence
			49%	River Gee (80%), Grand Gedeh (76%), Grand Bassa (67%)
1	Loss of harvest due to animal pests	C	18%	River Gee (64%), Grand Gedeh (55%), Grand Bassa (45%)
2	Serious illness/ accident	I	16%	Margibi (26%), Lofa (25%), Sinoe (23%)
3	Death of non-working HH-member	I	6%	Gbarpolu (16%), Lofa (15%), Maryland (11%)
4	Death of a working HH-member	I	4%	Sinoe (11%), Grand Kru/Bong (8%)
5	Loss of employment/ reduced income	I	4%	Monterrado/Margibi (8%), Grand Gedeh (5%)
6	House damaged/destroyed	I	4%	Bomi (8%), Bong/Montserrado (6%)
7	Early or heavy rains/ floods	C	3%	Grand Kru (22%), Sinoe (21%)
8	High level of plant disease	I/C	3%	Sinoe (14%), Grand Bassa (11%)
9	Theft	I	2%	Margibi (7%), Bong (6%)
10	Sudden price fluctuations	C	1%	Grand Bassa (5%)
11	Conflict/violence	I/C	1%	Bong (9%)



The most frequently mentioned shock was loss of harvest due to animal pests (18%), which include both groundhog and bird attacks. This shock has a negative impact on food availability at the local level and limits households' ability to access food through own production. Looking at the geographic distribution, a similar pattern can be observed as seen with the agricultural constraints in section 4.1.7. It was most frequently mentioned in River Gee, Grand Gedeh, Sinoe and Grand Bassa. Households that are relying on farming as their main livelihood were much more likely to mention this shock; in the total sample every third farming household was affected by animal pest – the highest number being found in River Gee, Grand Gedeh, Sinoe and Grand Kru. Generally the counties in south-east were more affected than households in the north-west (see figure 34).

The second to the sixth most cited shocks are all idiosyncratic – from a food security point of view these shocks can reduce the number of able-bodied workers or bring along financial burdens or loss in income. Serious illness/accident was reported by 16% of all households – most frequently by households in Margibi, Lofa and Sinoe. This was followed by deaths of non-working (6%) and working (4%) household members. It was most prevalent in Sinoe, Grand Kru, Bong, Gbarpolu, Lofa and Maryland. Loss of employment and income was mentioned by 4% of all households and was most common in Montserrado, Margibi and Grand Gedeh. House damaged or destroyed for example by storms or termites was mentioned by 4% of the total sample, followed by early or heavy rains and floods – a covariate shock, which was particularly experienced by households in Grand Kru and Sinoe, with 22% and 21% respectively. High level of plant disease was only mentioned by 3% of all households; in Sinoe and Grand Bassa, however, this distress was mentioned more regularly. Also theft was only mentioned by a few households but was more common in Margibi and Bong. Bong also has the highest number of households reporting that they recently experienced conflict/violence. This may be due to the fact that

the area shows a higher concentration of ex-combatants that decided not to take part in the disarmament and demobilization programme.

4.4.2 Impacts of Shocks on Income and Food Security Levels

Based on respondents' perceptions, loss of harvest due to animal pests, illness/accidents and death of a working household member had negative impacts on the household income as well as food security status. The only exception was death of a non-working household member, which was more perceived to be a financial burden, however had less impact on household food security status.

For more in-depth analysis it was investigated if shocks had an impact on household food and non-food expenditures as well as food security levels in terms of consumption and access. The following statistically significant results could be observed:

- Households that have suffered from **animal pest** show a lower food consumption score, as well as per-capita food, non-food and total expenditures ($p<0.001$).
- **Death of a working household member** has a negative impact on households food consumption levels ($p<0.001$), while households that have experienced the death of a non-working household member during the past 12 months had lower non-food expenditures ($p<0.01$) and total expenditures ($p<0.05$).
- **Sudden price fluctuations** had a negative impact on food consumption levels ($p<0.01$).

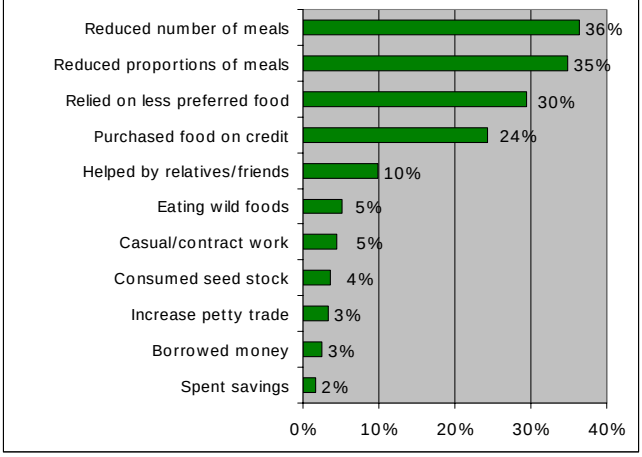
4.4.3 Households Coping Strategies

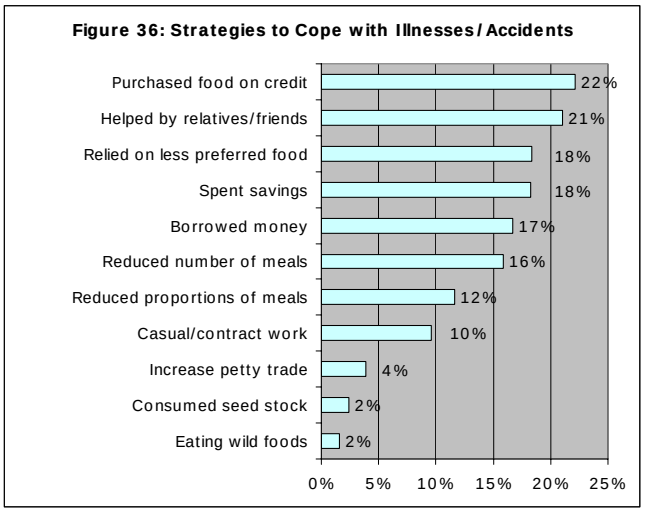
Coping strategies are used to offset threats to a household's food and economic resources in times of hardship. Nearly all respondents were able to name at least one coping strategy that the household applied in order to respond to the shock. Four general categories of coping exist:

1. **Dietary change** (e.g. eating less preferred but less expensive food etc.);
2. **Increasing short-term food access** (e.g. borrowing, gifts, wild foods, consuming seed stock, diversification of income sources, etc.);
3. **Decreasing numbers of people to feed** (e.g. short-term migration etc.);
4. **Rationing strategies** (mothers prioritising children/men, limiting portion size, skipping meals, skipping eating for whole days etc.).

Households in the sample mainly experienced two types of shocks, loss of harvest due to animal pests, which refers to groundhog and bird attacks, and serious illness or accident of a household member. The main coping strategies used by households to cope with animal pests were rationing strategies and dietary change. 36% of households who reported this shock responded with reduced number of meals, 35% with reduced proportions of meals, and 30% substituted the loss of rice harvest with less preferred food. 24% increased their food access through the purchase of food on credit.

Figure 35: Strategies to Cope with Animal Pests





Households that experienced illnesses or accidents of one or more of their household members were more likely to use strategies that increase their short-term food access, such as purchase food on credit (22%), support from relatives/friends (21%), spending of savings (18%) and borrowing of money (17%). They also engaged in additional casual labour (11%) to meet the costs involved. A similar pattern can be observed in households that experienced the death of a household member.

Households that have suffered from loss of income are highly likely to engage in casual labour (17%) or migrate in search of temporary work outside their community (8%), and to increases petty trade (13%). Households whose houses got damaged seek the assistance of their relatives and friends (41%); they are also likely to borrow money for the repair/reconstruction. Both groups were also more likely than other groups to reduce expenditures on health and education.

Households that have faced harvest losses, due to heavy or early rains relies on less preferred food (36%) and households that suffered from plant diseases were more likely to reduce the number and proportions of meals (30% and 26%, respectively). The last two groups were also more likely to have consumed their seed stocks with 6% and 12%, respectively, of households indicating that they have done so.

Households that have suffered from theft were likely to increase their income through additional casual labour, spent savings and borrowed money to compensate their losses. Sudden price fluctuations lead to dietary changes and food rationing strategies. 56% relied on less preferred food and 29% reduced the proportions of their meals. Households that suffered from conflicts and violence mostly relied on the support of their relatives and friends.

In summary, the shocks that mostly affect food consumption patterns are animal pests, early or heavy rains, and sudden price fluctuations. These are the indicators that should be monitored through a food security monitoring system (see section 5.1). Additionally, idiosyncratic shocks such as illnesses or death of household members can lead to short-term food shortages as households have decreased purchasing power to access food. Table 27 presents the coping strategies applied by households across all counties.

Table 30: Households' Coping Strategies

Coping Strategy	% of all HHs	Counties with Highest Prevalence
Reduced number of meals per day	13%	River Gee (33%), Grand Gedeh (28%), Sinoe (25%)
Relied on less preferred food	13%	River Gee/Grand Bassa (34%), Lofa (23%)
Helped by relatives/friends	12%	Bong (24%), Gbarpolu (21%), Maryland (20%)
Reduced proportions of meals	11%	River Gee (40%), Grand Kru (29%), Grand Gedeh (25%)
Purchased food on credit/borrowed food	11%	Grand Bassa (20%), Lofa (17%), Sinoe (18%)
Spent savings	6%	Maryland (18%), Margibi/Gbarpolu (16%)
Borrowed money	5%	Maryland (13%), Bong (12%), Margibi (11%)
Casual/contract work	4%	Margibi (14%), Grand Gedeh (9%), Lofa (8%)
Increase petty trade	2%	Grand Gedeh (8%), Lofa (6%)
Consumed seed stock	2%	Grand Kru/Sinoe (15%)
Eating wild foods	2%	Grand Kru (14%), Sinoe (13%)
Begging	1%	Gparpolu (4%)

The most common strategies were reducing numbers of meals per day with high prevalence in the south-eastern counties and relying on less preferred food items, such as

bulgur wheat, cassava and *eddoe*, the latter was most commonly reported by households in River Gee, Grand Bassa and Lofa. 12% of the total sample relied on the support of family or friends. Counties in the south-east were more likely to reduce the proportion of their meals with up to 40% of households in River Gee reporting having used this strategy during the past 12 months. 11% of households purchased food on credit or borrowed food. 6% were forced to spend some or all of their savings and 5% reported that they had borrowed money. This was mainly carried out by households in Maryland, Gbarpolu, Margibi, Nimba and Bong. In total, 4% and 2%, respectively, reported increasing casual work or petty trade as coping strategies to respond to shocks. Grand Kru and Sinoe showed the highest prevalence of households consuming their seed stock and households eating wild foods. In summary, households in River Gee, Grand Kru, Sinoe and Grand Gedeh were most likely to have changed their dietary habits and rationed their food in response to a shock, while Gbarpolu, Maryland, Bong and Margibi responded with strategies that increased their short-term access.

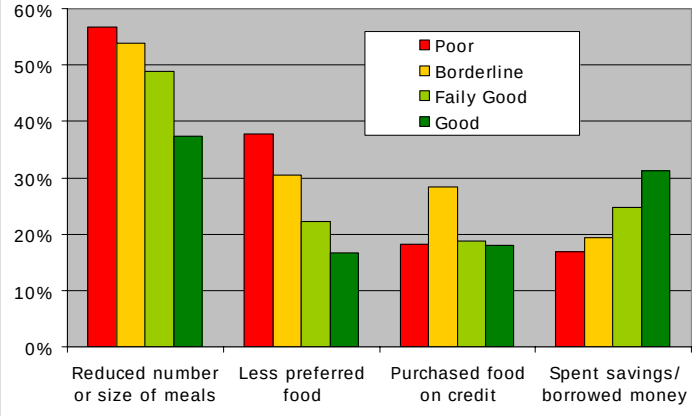
The sex and age of household heads also determine which coping strategy is applied if confronted with shock:

- **Female headed households** are more likely to receive support from family and friends or to work-for-food only ($p<0.001$). They are more likely to increase petty trade activities and to rely on less preferred food ($p<0.05$) than male-headed households. The latter, on the contrary, are more likely to spend their savings ($p<0.01$).

- **Elderly headed households** are more likely to receive support ($p<0.05$), while households with heads below 60 tend to spend their savings (p,0.05) and carry out additional contract work ($p<0.01$)

Food consumption profiles are related to the coping strategies applied as depicted in figure 37. The lower the food consumption profile, the higher the likelihood that households were forced to reduce the number or size of their meals and eat less preferred food if confronted with a shock. Households with borderline food consumption were more likely to purchase food on credit than all other groups, which is not surprising as households with poor food consumption may have fewer opportunities to do so. On the contrary, households with fairly good or good food consumption are more likely to spend their savings or to borrow money. This shows that these two groups are more resilient to shocks than the population groups with poor and borderline food consumption.

Figure 37: Coping Strategies by Food Consumption Profile



Food security scores were significantly lower for those households that are applying the following coping strategies. Households that were forced to use one of these strategies were more likely to have low food consumption and dietary diversity.

Table 31: Coping Strategies Associated with Poor Food Consumption

Coping strategy	Food consumption score of HHs that applied strategy	Food consumption score of HHs that did not apply strategy	P-value
Reduced number of meals	1.92	2.12	0.001
Relied on less preferred food	1.76	2.12	0.001
Reduced proportions of meals	1.92	2.06	0.01
Purchased food on credit	1.93	2.05	0.01
Consumed seed stock	1.60	2.04	0.001
Eating wild foods	1.75	2.03	0.01

Food security scores were significantly higher for those households that could apply one of the following coping strategies to respond to shocks. This indicates that these households are less vulnerable to food insecurity.

Table 32: Coping Strategies Associated with Good Food Consumption

Coping strategy	Food consumption score of HHs that applied strategy	Food consumption score of HHs that did not apply strategy	P-value
Spent savings	2.27	1.99	0.001
Borrowed money	2.24	2.00	0.001
Casual work/contract work	2.15	2.01	0.05
Increased petty trade	2.39	2.01	0.001

4.4.4 Prevention Strategies

Respondents were also asked if the household is applying any strategies to avoid negative impacts if the shock reoccurs. In the overall sample, every second household reported having experienced a shock, out of these, every second household reported using a prevention strategy. This varied highly between counties. Households in Lofa and in the south-eastern counties were much more likely to have engaged in applying prevention strategies than household in central Liberia. Possibly these are under more pressure to prevent future shocks which is confirmed by the fact that households with poor food consumption are more likely to pursue preventions strategies than those with fairly good food consumption levels (60% versus 49%); however more in-depth research would be required to obtain a better understanding on why these differences exist.

Table 33: Proportions of Households Applying Prevention Strategies

	Shock experienced	Prevention strategy applied
Lofa	50%	**88%**
Grand Gedeh	**76%**	**84%**
Sinoe	54%	72%
River Gee	**80%**	62%
Grand Kru	50%	57%
Gbarpolu	52%	56%
Nimba	40%	51%
Bomi	36%	49%
Bong	66%	49%
Margibi	66%	49%
Grand Cape Mount	**23%**	40%
Montserrado	**29%**	36%
Grand Bassa	67%	36%
Maryland	58%	**33%**
River Cess	42%	**30%**
Total	**49%**	**53%**

As the main shock was loss of harvest through animal pests/attacks, it is not surprising that the main prevention strategies reported are related to this. Other strategies are aiming at income diversification and improving households' resilience to shock by increasing financial assets.

Table 34: Types of Prevention Strategies Applied

Prevention strategy	Total	Counties with highest prevalence
Making larger farms	**21%**	Sinoe (41%), Nimba (35%), Grand Kru (33%)
More contract work	**21%**	Montserrado (47%), Lofa (37%), Margibi (33%)
Fencing of farmland/garden	**19%**	Grand Kru (64%), Sione (55%), Maryland (53%)
Increase petty trade	**17%**	Montserrado (53%), Margibi (23%)
Store palm oil to sell in times of need	**17%**	Lofa (45%), Bomi (35%)
Use traps around farmland	**14%**	Grand Kru (59%), River Cess (54%), Sinoe (48%)
Save money	**14%**	Nimba (33%), Bomi (31%), Lofa (21%)
Hunger farm	**11%**	Sinoe (29%), Margibi (25%)
Diversify food crops	**8%**	Grand Kru/Sinoe (42%), Gbarpolu (21%)
Use dummies/net (to scare/trap birds)	**6%**	Maryland (36%), Bong (29%)
Raise livestock to sell in times of need	**2%**	Nimba (6%)
Use of chemical fertilizer/pesticide	**2%**	Bong (12%)

South-eastern counties that suffered most from groundhog attacks responded with making larger farms, fencing their farmland, or using traps to prevent attacks during the next harvest. Households in Montserrado and Margibi who are the closest to markets and

employment opportunities indicated that they would increase petty trade and contract work. Saving money or storing palm nuts to sell in times of need was reported mainly by households in Lofa and Bomi.

Interventions that are aiming at improving the food security situation in Liberia should try to strengthen households' capacities to prevent or mitigate future shocks. Activities should focus on pest control, income diversification and improving human and financial capital to increase households' resilience to future food crises.

4.4.4 Key Indicators to Monitor Food Security

One of the objectives of the survey was to identify key food security and other related indicators that can be monitored overtime to ensure a coherent response to any emerging food insecurity problem. The survey identifies several factors that have profound impact on the food security and nutrition situation in the country. The findings therefore set a number of key indicators necessary to assess household food security and nutritional status. Cross-cutting is the exposure to risks and shocks and ability of households and communities to respond to shocks. Some indicators are to be collected at macro level (national/sub-national), others at community, household and individual level. Indicators should be collected on a regular basis, i.e. bi-monthly or quarterly, in order to detect seasonal changes and other trends over time. Joint efforts will be required to ensure the timely collection of all relevant indicators.

Table 35: Key Indicators to Monitor Food Security

Dimension	Trend indicators	Level
Availability	• National and regional food production	National/sub-national
	• Agricultural hazards (animal pests, early/late rains)	Community/household
Availability/access	• Market prices of staple foods	National/sub-national
Access	• Change in livelihood patterns • Household food and non-food expenditures • Household food production • Food consumption and diversity	Household
Utilisation	• Nutrition (stunting, wasting, underweight, BMI) • Morbidity	Individual
	• Access to basic services	Household
Risks/shocks	• National political instabilities • Instabilities in neighboring countries • Cross-border trade	National/sub-national, regional (West Africa Coastal countries)
	• Exposure to shocks and coping strategies	Households/ communities

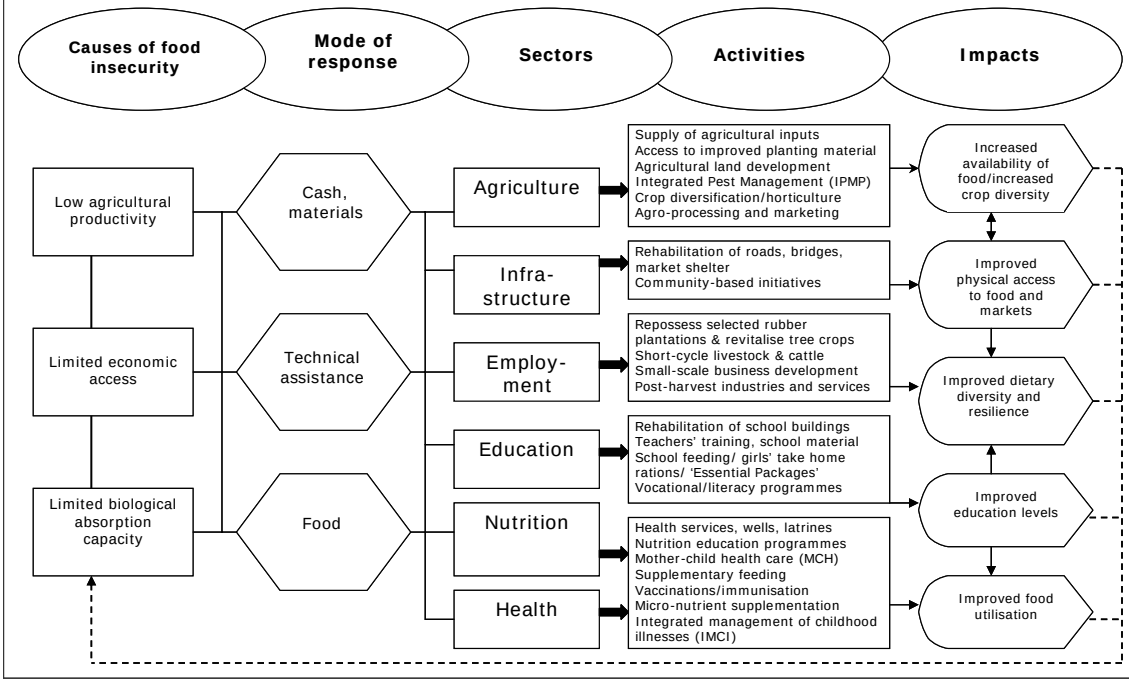
This food security and nutrition survey covered all 15 counties. In order to improve food security in Liberia, a multi-faceted approach is recommended based on the findings of the socio-economic, household food security, and the nutrition and health analysis. This section presents an integrated food security response framework while highlighting priority areas, beneficiary groups and the main actors for each recommended intervention.

In summary, a five-pronged approach is recommended to address food insecurity in Liberia:

- Augment food availability through measurable increase in sustainable production and productivity of major food crops, fisheries, short-cycle livestock, improved crop diversity, improved storage and conservation, and improved marketing and acquisition of food and inputs for agricultural production;
- Increase people's economic access to food through income-diversification in the agriculture and non-agricultural sector;
- Improve biological utilisation by improving access to basic health care services, and access to clean water and sanitation combined with awareness campaigns on infant and young child feeding practices, food preparation, dietary diversity, micronutrients and HIV/AIDS;
- In the short-term, improve people's access to food through food-for-work activities, supporting mother and child health through supplementary feeding programmes; and supporting education through food-for-education activities; and
- Enhance the institutional capacity to manage national and local development interventions and resources devoted to the improvement of food security and nutrition – including the development of an institutional policy framework and food security monitoring system.

Figure 38 illustrates how specific interventions in all relevant sectors can address the root causes of food security in Liberia. The mode of response will depend on the type of intervention, specific needs of socio-economic groups and vulnerability level of geographic areas. For many programmes, it will be essential to combine various modes, e.g. distribution of seeds and tools should go along with food packages in food insecure areas to protect seeds, while technical assistance in parallel would improve the efficiency of agricultural practices.

Figure 38: Integrated Food Security Response Framework for Liberia



5.1 Agricultural Interventions

As a result of the 14-year conflict, the productive capacity of the country has declined. The damage to the agricultural sector, fisheries and forestry is manifested in low productivity of agricultural systems; disruption of production due to the displacement of farming communities; erosion of marketing systems due to degradation of roads, transport and processing infrastructure; and lack of farming inputs in the areas of displacement. The following activities are proposed to increase the production levels of Liberia's farmers which will have positive impact on the availability and access dimensions of food security.

Table 36: Recommended Agricultural Interventions

Type of intervention	Primary Beneficiaries/criteria	Geographic areas to be prioritised	Key ministries/ agencies
SHORT-TERM INTERVENTIONS			
Supply of agricultural inputs (tools, seeds, fertilizers) including seed protection	Recently returned farming and highly food insecure counties	1. Lofa 2. Gbarpolu 3. Bomi 4. Grand Kru 5. River Gee	MOA, FAO, WFP, ICRC, NGOs
Farmers access to quality improved planting material (rice, vegetable seeds and cassava cuttings)	All farming population to benefit through establishment of National Seed Centres in 15 counties	All counties	MOA, FAO, WFP, NGOs
Swamp rice development	Farming households with access to land that did not cultivate in 2005	1. Lofa 2. Gbarpolu 3. Cape Mount 4. Bomi	MOA, FAO, WFP, NGOs
Integrated Pest Management Programme (IPMP)	Recently returned and farming households in areas highly affected (agricultural constraints, shock section)	All rural areas, but counties with high incidence of pests attacks should be prioritised 1. Sinoe 2. River Gee 3. Grand Kru 4. Grand Gedeh 5. Grand Bassa 6. Margibi	MOA, FAO, EPA, NGOs
MEDIUM- TO LONG-TERM INTERVENTIONS			
Crop diversification	Farming households with low dietary diversity	1. River Gee 2. Grand Gedeh 3. Lofa 4. Grand Kru	MOA, FAO, NGOs
Horticulture	Households with low dietary diversity or without farmland, school children (school gardens)	1. River Gee 2. Grand Gedeh 3. Lofa 4. Grand Kru 5. Montserrado 6. Margibi	MOA, FAO, WFP, NGOs
Improved post harvest technologies	Farming households in all rural areas, but counties with low food consumption and areas with high productivity should be prioritised	1. River Gee 2. Grand Gedeh 3. Lofa 4. Grand Kru 5. Nimba 6. Bong 7. Maryland	MOA, FAO, NGOs
Improved agro-processing and marketing	All farming households in areas with high productivity	1. Nimba 2. Bong 3. Maryland	MOA, LINFU, FAO

5.2 Infrastructure Projects

Lack of road infrastructure and markets have negative impacts on people's food security. Limited physical access to markets will limit farming households' motivation to produce surpluses. Improved road infrastructure is also correlated with improved access to health services, water & sanitation and community-based projects that have positive impact on the biological absorption of food. In terms of infrastructure projects, the report recommends the following:

Table 37: Recommended Infrastructure Projects

Type of intervention	Primary Beneficiaries/criteria	Geographic areas to be prioritised	Lead ministries/ agencies
SHORT-TO MEDIUM TERM INTERVENTIONS			
Rehabilitation of roads, bridges, market structures	Communities that are isolated or were heavily affected by the civil strife, focus should be on feeder roads that link production sites with markets	1. Lofa 2. Gbarpolu 3. Bomi 4. River Gee 5. Grand Kru 6. Sinoe 7. River Cess	MPW, MPEA, MOF, UNDP, WB, WFP, NGOs
Community-based initiatives to increase community assets	Communities that are isolated or were heavily affected by the civil strife		UNDP, WB, NGOs
Food-for-work (infrastructure)	Counties with high food insecurity levels (more than 50% of households are food insecure or highly vulnerable)	1. Lofa 2. Grand Kru 3. River Gee 4. Bomi 5. Gbarpolu 6. Nimba 7. Sinoe	WFP, NGOs

5.3 Employment and Income-generating Activities

Households' ability to purchase food and to be more resilient to future food crisis will be improved through livelihood enhancing and asset-creation activities as outlined below:

Table 38: Recommended Employment and Income-generating Activities

Type of intervention	Primary Beneficiaries/criteria	Geographic areas to be prioritised	Key ministries/ agencies
SHORT-TERM INTERVENTIONS			
Repossess selected rubber plantations	Occupied plantations	Selected rubber plantations in Bomi, Sinoe, Maryland	MOA, FAO, NGOs
Revitalise tree crop entities (cacao, coffee and oil palm)	Areas of high return and/or high tree crop ownership (more than 20% of HHs own coffee, cacao or oil palms)	1. Lofa 2. Nimba 3. River Gee 4. Grand Gedeh 5. Gbarpolu	MOA, FAO, NGOs
Rehabilitation/ construction of fish ponds	Households with weak access profiles (more than 50% of households have weak or very weak food access)	1. Bomi 2. Lofa 3. Grand Kru 4. Gbarpolu 5. River Gee 6. Sinoe	MOA, FAO, NGOs
Food-for-Work (agriculture)	Farming households in counties with high levels of poor food consumption (>30%) and/or very weak access profiles (>25%)	1. Lofa 2. River Gee 3. Bomi 4. Grand Gedeh 5. Gbarpolu 6. Grand Kru 7. Nimba 8. Sinoe	MOA, WFP, FAO, NGOs
Food-for-Training (FFT)	Female headed households and ex-combatants in counties with high levels of poor food consumption (>30%) and/or very weak access profiles (>25%)		WFP, FAO, NGOs
MEDIUM- TO LONG-TERM INTERVENTIONS			
Breeding and multiplication of short cycle livestock, poultry and restocking of cattle	Households residing with high natural potentials (e.g. grassland) and with low number of poultry	All counties with the following priorities: 1. Sinoe 2. Cape Mount 3. Margibi 4. Grand Gedeh 5. Nimba 6. Maryland 7. Sinoe 8. Grand Kru	MOA, FAO, NGOs
Small-scale business development	Households in semi-urban areas, female-headed households	Communities close to Monrovia, Buchanan, Kakata, Gbanga, Voinjama, Zwedru, Harper, Plebo	MOF, MPEA, UNDP, WB, NGOs
Post-harvest industries and services	Households in areas with high productivity and potential for marketing	1. Nimba 2. Bong 3. Grand Bassa 4. Maryland	MOA, MOF, MPEA, FAO, UNDP, WB

5.4 Education Interventions

To raise education levels in general and to close the education gap of children and young adults who missed school due to the civil conflict, a number of interventions are required (see table 39). They aim at increasing school enrolment and attendance as well as enhancing quality in terms of student's performance, teaching and learning materials. The results of the survey suggest that Food-for-Education programmes are associated with increased school enrolment. UNICEF and WFP have developed an 'Essential Package' that contains twelve interventions to improve the health and nutrition of school-age children. Special programmes are required for adults with very low education levels. As gender gaps are still apparent in the context of Liberia, special focus should be given to girls and women. Increased human capital will have positive impacts on food security levels on the medium and long-run.

Table 39: Recommended Education Interventions

Type of intervention	Primary Beneficiaries/criteria	Geographic areas to be prioritised	Key ministries/ agencies
SHORT- TO MEDIUM-TERM INTERVENTIONS			
Construction/ rehabilitation of school buildings	Communities with high return rates to avoid fragmentation of settlements	1. Lofa 2. Gbarpolu 3. Bomi	MOE, MPW, UNMIL, UNDP, NGOs
Teachers' training (plus incentives)	Teachers recruited for remote areas	1. Grand Kru 2. River Gee 3. Sinoe 4. River Cess	MOE, UNESCO, UNICEF
School materials	All school children	All regions with focus on remote locations	MOE, UNESCO, UNICEF
School feeding	School children in food insecure counties with high levels of poor food consumption (>30%) and/or very weak access profiles (>25%)	1. Lofa 2. River Gee 3. Bomi 4. Grand Gedeh 5. Gbarpolu 6. Grand Kru 7. Nimba 8. Sinoe 9. Grand Bassa 10. Margibi	MOE, WFP, NGOs
Girls' take home food rations or other incentives and awareness programmes to prevent early drop-outs	All female students in the age group 12-plus (5th grade upwards), counties with large gender gaps (more than 10%) to be prioritized	All regions, but counties with large gender gaps should be prioritized: 1. Bomi 2. River Cess 3. River Gee 4. Montserrado 5. Grand Kru	MOE, WFP, UNESCO, NGOs
'Essential Package' to improve the health and nutrition of school age children	Counties that are characterised by high malnutrition rates (stunting > 40% and/or wasting > 10%)	1. River Gee 2. Grand Bassa 3. Grand Kru 4. River Cess 5. Nimba 6. Sinoe 7. Bong 8. Bomi 9. Grand Gedeh 10. Maryland	MOE, UNICEF, WFP, NGOs
Vocational training/skills-training	Ex-combatants, people with disabilities, households with limited income activities, female-headed households	Communities close to Monrovia, Buchanan, Kakata, Gbanga, Voinjama, Zwedru, Harper, Plebo	MOE, UNDP, UNESCO, WFP, NGOs
Accelerated learning programmes	Areas with high numbers of students above 15 years of age in elementary schools (more than 40%)	1. Grand Gedeh 2. River Cess 3. Maryland 4. Sinoe/Bong 5. Gbarpolu 6. Grand Kru	MOE, UNESCO, UNICEF, NGOs
Literacy programmes	Women in areas with high gender gaps and general low female education levels	1. Lofa 2. Grand Bassa 3. Grand Kru 4. River Cess 5. Sinoe 6. Grand Cape Mount 7. Gbarpolu 8. Bomi 9. Bong	MOE, UNDP, UNESCO, WFP, NGOs

5.5 Health Interventions

To address concerns regarding health, there should be a focused campaign to improve water and sanitation facilities throughout the country, coupled with education campaigns and personal hygiene. Simultaneously, there should be continued focus multi-antigen immunisation including measles and de-worming campaigns, which will also help reduce the disease burdens and mortality rates.

There is a need to increase access to basic and secondary health services through human resource development for nutrition and health; financially sustainable health service delivery; establishment of health infrastructure in areas of need; provision of medical equipment; and drugs and medical consumables

The health interventions should be integrated to already existing initiatives within the health sector e.g. establishment/strengthening of the integrated management of childhood illnesses (IMCI) framework; expanded programme on immunisation for child survival, strengthening of maternal and child health and other integrated primary health care programmes including cross-cutting issues like HIV/AIDS, health promotion, malaria and diarrhea control programmes.

Table 40: Recommended Health Interventions

Type of intervention	Primary Beneficiaries/ criteria	Geographic areas to be prioritized	Key ministries/ agencies
SHORT- TO MEDIUM-TERM INTERVENTIONS			
Capacity building for health personnel	Communities with less access to health services	All counties	MOHSW, UNICEF, WHO, NGOs
Provision of medical equipment; drugs and other medical consumables	Health facilities	All counties	MOHSW, UNICEF, WHO, NGOs
Rehabilitation of health facilities	In communities massive destruction as well those with inadequate health facilities	All counties, especially the south-eastern counties	MOHSW, Public works, UNICEF, WHO, UNMIL, NGOs
Massive campaign /education on benefits of clean water including rehabilitation in areas with low access as well as chlorination campaigns	Communities in areas with low access to improved drinking water sources	1. Sinoe 2. Grand Bassa 3. River Gee 4. Gbarpolu 5. Grand Kru 6. River Cess	UNICEF, WHO, MOH, NGOs
Massive campaign /education on benefits sanitation as well as construction of latrines	Communities in areas with low access to sanitary facilities	1. Grand Bassa 2. Grand Gedeh 3. Margibi 4. Sinoe 5. Grand Kru	UNICEF, WFP, NGOs, MOH, MOA, MIA, MRD[38] Industries
Community based Integrated Management of childhood Illnesses (IMCI)	Pre-school children, Pregnant/lactating women	All counties, priority to areas with high morbidity (south-eastern Counties)	MOH, WHO, UNICEF, NGOs

5.6 Nutrition Interventions

To address low immunisation and micronutrient deficiencies, there is a clear need to access existing low-coverage areas and continue support to ongoing immunisation activities (measles, DPT etc). Provision of a twice-yearly Vitamin A supplements in addition to promoting dietary diversification by consumption of locally available Vitamin A rich foods should be prioritised. As the 1999 national survey indicated, high prevalence of anaemia coupled with endemic pre-disposing factors like malaria, an integrated anaemia control programme that includes iron supplementation, de-worming, provision of bed nets for malarial control and promotion of iron-rich foods is recommended. The *establishment of integrated child health days* is a potential strategy for immunisation and additional

[38] Currently discussions are underway for possible merging of the Ministry of Rural Development (MRD) and the Ministry of Public Works (MPW). In this case, the MPW would assume this task.

health and nutrition services to remote parts of the country. A minimum package might include Vitamin A, measles immunisation, insecticide treated bed nets, de-worming supplements, and screening of children for malnutrition. Currently, the Ministry of Health and Social Welfare in partnership with UNICEF and NGOs have been working on a framework for the implementation of massive de-worming campaigns.

To address deficiencies in child feeding practices, there is a need to initiate/activate community support groups or baby-friendly hospital initiatives in the country. Reasons for not exclusively breastfeeding need to be determined in order to come up with practical methods of effectuating a behaviour change. Promotion of appropriate feeding practices through behaviour change strategies is also required. Appropriate guidance should also be formulated in accordance with the WHO/UNICEF guidelines on HIV and infant feeding in instances where a mother is HIV+.

In the short-term, there is need for active case finding and community outreach to improve registration at TFCs and SFPs. The existing nutrition surveillance system within the Ministry of Health and Social Welfare should be strengthened to ensure that areas with large pockets of malnutrition are properly targeted, that active case-finding is conducted, and that selective feeding programmes are provided.

The revival of the health system is crucial to the success of nutrition programmes in the country. Most interventions such as micronutrient supplementations, immunisations programmes or promotion of optimal feeding practices are usually delivered through various health services e.g. under-five clinics, IMCI, maternal clinics etc. Programmes aimed at addressing malnutrition should vigorously utilise existing health care services.

The greatest challenge to the delivery of nutrition services is shortage of nutrition practitioners or staff cadres with an adequate grasp on nutrition issues at all levels. There is urgent need for a capacity building strategy to ensure effective coordination, and clear strategies to address nutrition concerns. The finalisation of the National Plan of Action on Nutrition would be a key activity towards achieving such coherence.

Table 41: Recommended Nutrition Interventions

Type of intervention	Primary Beneficiaries/ criteria	Geographic areas to be prioritized	Key ministries/ agencies
SHORT-TERM INTERVENTIONS			
Targeted supplementary feeding programmes (TFC/SFP/MCH)	Pregnant/ lactating women and malnourished under-fives in areas with high wasting	High Wasting rates (>10%) 1. River Cess 2. Grand Gedeh 3. Grand Bassa	MOH, UNICEF, WFP, NGOs
SHORT- TO MEDIUM-TERM INTERVENTIONS			
Health and nutrition education programmes (including HIV/AIDS)	Adolescents pregnant/ lactating women in areas with high underweight rates	Extremely high underweight (>30%) 1. River Cess 2. Grand Gedeh 3. Grand Bassa 4. Nimba 5. River Gee Extremely High stunting and underweight rates (>40% and 30% respectively) 1. Grand Kru 2. River Gee 3. Nimba 4. Bomi 5. Grand Bassa 6. Bong 7. Sinoe 8. Maryland 9. River Cess	MOH, FAO UNICEF, WFP, WHO, NGOs
Mother-child health programmes	Pregnant/lactating women, children <3 in areas with high malnutrition and morbidity prevalence		
De-worming activities	School children and pre-school children, pregnant/lactating women in areas with high wasting and stunting rates		MOH, WHO, UNICEF
Community based health and nutrition programmes including focussing IEC/BCC strategies	All communities; intensified efforts in communities in areas with high wasting and stunting rates		
Vaccination/immunisation (measles, BCG etc)	Pre-school and school children	All counties	MOH, MOE, WHO, UNICEF, NGOs
Breastfeeding campaigns focusing on benefits of breastfeeding	Pregnant and lactating Mothers as well as teen-age girls	All counties	MOHSW, UNICEF, WHO, NGOs

Vitamin A supplementation	Pregnant/lactating women, pre/school children in areas with high stunting rates	Areas with low coverage of Vitamin A supplement and strengthen in the rest 1. Grand Kru, 2. Sinoe, 3. Maryland and 4. Grand Bassa	MOH, UNICEF, WFP, WHO, NGOs
Iron Supplementation	Pregnant women, children 6 months to 35 months	TBD when results of DHS showing Fe prevalence	UNICEF, WHO, MOH, NGOs
Training of health personnel on basic nutrition skills	Community health workers	All counties	MOH, UNICEF, WFP, WHO, NGOs
MEDIUM- TO LONG-TERM INTERVENTIONS			
Micronutrient fortification (when industries are prepared)	All individuals	Nationwide	UNICEF, WFP, NGOs, MOH, MOA, Industries

5.7 Institutional Framework and Set-up of Monitoring Systems

Liberia still lacks the institutional framework that informs, guides, and coordinates recovery and development activities. To ensure a coherent approach in addressing food security and nutrition issues in collaboration with key stakeholders, it is recommended to develop comprehensive food security strategies (that address the three elements of food security) which would eventually lead to the development of a national food security policy. Increasing the capacity level of the government should be a priority, with the goal, over the medium to long-term, being a full assumption of control by the government for coordination of all related activities, including the monitoring of trends in food security. The main stakeholders for this initiative will comprise MOA, MPEA, MOHSW, MOG, MPW supported by FAO, UNICEF, WFP, WHO, civil and other non-governmental organisations and donors working in the food security sector. As an initial step, there is need for all stakeholders to agree on a common timeframe regarding three interrelated themes: policy formulation, capacity-building and the establishment of a food security monitoring system.

Table 42: Policy Formulation

Action point	Key ministries/ agencies
• Conduct external review and document current government, donor, UN and NGO policies, plans, strategies and processes relevant to food security and nutrition, and highlight areas of consistency, overlap, conflict and complementarity	MOA, MPEA, MOH, FAO, UNICEF, WFP, WHO
• Consultations with all key partners to collaborate on the formulation of food security strategies	All key stakeholders
• Formulation and adoption of a consolidated Food Security Strategy Statement based on consultations including the preparation of a joint action plan	All key stakeholders
• Finalisation of the national plan of action on nutrition including revision of policies and guidelines on infant feeding practices	MOA, MPEA, MOH, FAO, UNICEF, WFP, WHO, NGOs
• Advocacy for recognition of food insecurity and malnutrition as major development that requires due reflection in government policy documents	All key stakeholders

Table 43: Capacity Building

Action point	Key ministries/ agencies
• Low technical level of personnel in the sector need to be addressed through active on-the-job and specific training in middle level colleges and universities in professions such as agriculturalists, economists, nutritionists, food security experts, health personnel, etc.	GoL, FAO, UNDP, UNICEF, WHO
• Strengthen the capacity of government staff in monitoring the food security situation, preparedness and early warning	MOA, MOHSW, MPEA, FAO, WFP, UNICEF
• Strengthen the capacity of agricultural extension workers to provide knowledge and skills training in farming communities with regard to pest-management, improved post-harvest technologies, etc.	MOA, FAO, LINFU, NGOs
• Strengthen coordination on food security and nutrition. Specifically, the capacity of the Nutrition Coordination Committee should be enhanced to effectively contribute in the Food Security Cluster	All key stakeholders
• Strengthen the capacity of the Ministry of Health and Social Welfare in collection, management and utilisation of health information especially the monthly collection of health facility and community-based mortality data, but with a clear linkage and exchange of information with the proposed Food Security Monitoring System	MOHSW, UNICEF, WHO, NGOs
• Technical support to the Ministry of Health and Social Welfare for strengthening of programmatic public health specific interventions (malaria, diarrhea, etc.) that address the high burden of morbidity and mortality in the country	MOHSW, UNICEF, WHO, NGOS
• Strengthen the capacity of County and District Education Officers (CEOs/DEOs) in carrying-out supervision of schools in their area of responsibility	MOE, UNESCO, UNICEF

Table 44: Establishment of a Comprehensive Food Security Monitoring System

Action point	Key ministries/ agencies
• Agricultural sector review to improve information base on availability indicators	MOA, FAO, UNMIL, relevant NGOs
• Conduct market review and set-up market price system	MOA, MPEA, MOCI, FAO, WFP, UNDP, NGOs
• Development of a food security monitoring and early warning system based on indicators stated in table 35	All key stakeholders
• Establishment of a government-owned Food Security Monitoring and Early Warning Unit with clear roles, management, oversight, coordination, financial monitoring, information management	MOA, MPEA, MOH, FAO, WFP, NGOs
• Consolidation of nutrition surveillance system as part of the overall Comprehensive Food Security Monitoring System	MOH, UNICEF, WHO, WFP, NGOs

ANNEX 1. COUNTY PROFILES

BOMI	
Bomi County (better known as "Bomi Hill" on account of its iron Ore laden hills), is situated in northwest Liberia close to Montserrado County. Due to the war, the county's iron ore industry was destroyed. In mid August 2006, UN peacekeepers and government security forces reclaimed Guthrie Rubber plantation where about 500 former fighters had lived illegally for three years. Currently the majority of households rely on charcoal and palm oil production, and rubber tapping. Bomi is one of the counties with the highest vulnerability to food insecurity and chronic child malnutrition (stunting: 43.9%). Bomi indicated one of the highest prevalence of fever, a sign of malaria as well as low access to mosquito nets. Households are particularly vulnerable due to their weak access to food both in terms of production and purchasing power. Many households were displaced until recently and returned too late for the agricultural season in 2005.	
Main languages/dialects spoken	Gola (56%), Kpelle (21%) and Vai (11%)
Household status	Never displaced (0%), displaced (3%), returned before 2005 (59%), returned since 2005 (36%)
School enrolment rates and reasons for not being enrolled	Total enrolment (57%), male (65%), female (49%) Reasons for not being enrolled: no school in the community (61%), not enough money to pay school fees (24%)
Adult education	No schooling (58%), some elementary (18%), completed elementary (11%), some high school (10%)
Livelihood profiles	Charcoal producers (23%), palm oil producers/sellers (22%) and rubber tappers (18%)
Access to land	68%, of these 64% cultivated crops in 2005
Main crops cultivated	Cassava (84%), rice (61%), vegetables (19%)
Main agricultural constraints	Lack of seeds (51%), lack of tools (46%), and household engaged in other activities (42%)
Food consumption, access and security profiles	Food consumption: poor (9%), borderline (38%), fairly good (37%), good (17%) Food access: very weak (41%), weak (36%), medium (21%), good (2%) Food security profile: food insecure (13%), highly vulnerable (54%), moderately vulnerable (31%), food secure (3%)
Access to improved drinking water and sanitation	Improved water: rainy season (35%), dry season (24%), sanitation (23%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 77%, exclusive breastfeeding until 6 months (54%), average age of breastfeeding, (14 months), mean age of introducing solid foods, (7 months)
Child morbidity during the past 2 weeks	Fever (52%), diarrhea (16%), cough (10%)
Immunisation and Vitamin A supplementation	Measles (84%), Vitamin A (82%), de-worming (61%), use of mosquito net (11%)
Child malnutrition	Stunting (43.9%), wasting (5.3%), underweight (25.7%)
Main shocks during past 12 months	Shock experienced (36%) Illness/accident of HH member (8%) Death of non-working HH-member (8%) House damaged/destroyed (8%)
External assistance	Food assistance (31%) Agricultural assistance (38%) Water & sanitation (0%)

BONG	
Bong is located in north-central Liberia and borders Guinea. It is well connected to Montserrado through a tar-sealed road. Before the war, the Bong Mining Company (BMC) was providing many job opportunities for the population. The county hosts Phebe hospital, Cuttington University and the research institute "Africa Rice Center." The main livelihood activities that households pursue are food crop production, palm oil production and petty trade. Though formerly renown for high levels of food crop production, every second household is food insecure or highly vulnerable to food insecurity. Every third household mentioned that lack of fertilizer and pesticides is the main reason for low agricultural productivity – more than in any other county. Chronic malnutrition rates are also high at 42.9 percent.	
Main languages/dialects spoken	Kpelle (90%) and Mano (7%)
Household status	Never displaced (17%), displaced (5%), returned before 2005 (56%), returned since 2005 (20%)
School enrolment rates and reasons for not being enrolled	Total enrolment (71%), male (75%), female (67%) Reasons for not being enrolled: not enough money to pay school fees (74%), no school in the community (18%)
Adult education	No schooling (57%), some elementary (17%), completed elementary (6%), some high school (14%)
Livelihood profiles	Food crop farmers (23%), palm oil producers and food crop producers (18%) and petty trade (16%)
Access to land	66%, of these 89% cultivated crops in 2005
Main crops cultivated	Rice (88%), cassava (62%), vegetables (29%)
Main agricultural constraints	Lack of seeds (46%), lack of tools (40%) and lack of cash (30%), lack of fertilizer and pesticides (29%)
Food consumption, access and security profiles	Food consumption: poor (13%), borderline (36%), fairly good (44%), good (7%) Food access: very weak (16%), weak (33%), medium (37%), good (15%) Food security profile: food insecure (8%), highly vulnerable (42%), moderately vulnerable (42%), food secure (3%)
Access to improved drinking water and sanitation	Improved water: rainy season (45%), dry season (41%), sanitation (23%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 37%, exclusive breastfeeding until 6 months (59%), average age of breastfeeding, (13months), mean age of introducing solid foods, (10 months)
Child morbidity during the past 2 weeks	Fever (39%), diarrhea (25%), cough (24%)
Immunisation and Vitamin A supplementation	Measles (52), Vitamin A (91%), de-worming (24%), use of mosquito net (9%)
Child malnutrition	Stunting (42.9%), wasting (7.7%), underweight (24.3%)
Main shocks during past 12 months	Shock experienced (66%) Illness/accident of HH member (19%) Loss of harvest due to animal pest (18%) Death of non-working HH-member (9%)
External assistance	Food assistance (50%) Agricultural assistance (25%) Water & sanitation (11%)

GRAND BASSA	
Grand Bassa County in central Liberia bordering the Atlantic Coast hosts the second largest city in Liberia, Buchanan. The majority of the population speaks Bassa. Prior to the war the sea port and the Liberia American Company (LAMCO) that processed and exported iron ore from Nimba County provided immense employment opportunities for the population in and in the surroundings of Buchanan. Up to this day, the sea port is deactivated and LAMCO lies in ruins though there are plans to rehabilitate the industrial plant. The Liberia Agricultural Company (LAC) is operating a rubber plantation, but the most important livelihood activities are palm oil and food crop production, most households also engage in fishing, mainly in rivers and creeks. The county is less vulnerable to food insecurity – both in terms of access and actual food consumption levels; however both acute and chronic malnutrition rates are high. Access to health services such as immunisation, or de-worming is extremely low while the county also showed one of the worst infant and child feeding practice indicators (children introduced to breastfeeding late, low rates of exclusive breastfeeding etc). This can partly be attributed to the lack of access to improved drinking water and sanitary services – one of the lowest rates can be observed in this county. Grand Bassa also has the lowest enrolment rates and formal education levels. Lack of access to these basic services can possibly be explained by the settlement pattern as most households reside in small scattered communities.	
Main languages/dialects spoken	Bassa (94%) and Kpelle (5%)
Household status	Never displaced (2%), displaced (3%), returned before 2005 (87%), returned since 2005 (6%)
School enrolment rates and reasons for not being enrolled	Total enrolment (41%), male (45%), female (37%) Reasons for not being enrolled: no school in the community (63%), not enough money to pay school fees (25%)
Adult education	No schooling (59%), some elementary (27%), completed elementary (3%), some high school (8%)
Livelihood profiles	Palm oil producers/sellers (21%), palm oil and food crop producers (15%) and food crop farmers (14%)
Access to land	81%, of these 83% cultivated crops in 2005
Main crops cultivated	Cassava (87%), rice (60%), plantain / banana (7%)
Main agricultural constraints	Lack of tools (39%), lack of cash (38%) and groundhog attack (34%)
Food consumption, access and security profiles	Food consumption: poor (1%), borderline (36%), fairly good (56%), good (7%) Food access: very weak (11%), weak (29%), medium (38%), good (22%) Food security profile: food insecure (2%), highly vulnerable (35%), moderately vulnerable (57%), food secure (6%)
Access to improved drinking water and sanitation	Improved water: rainy season (10%), dry season (10%), sanitation (7%)
Infant and child feeding practices	Initiation of breastfeeding within a hour of life: 9%, exclusive breastfeeding until 6 months (41%), average age of breastfeeding (17 months), mean age of introducing solid foods (5 months)
Child morbidity during the past 2 weeks	Fever (58%), cough (20%), diarrhea (7%)
Immunisation and Vitamin A supplementation	Measles (52%), Vitamin A (67%), de-worming (38%), use of mosquito net (7%)
Child malnutrition	Stunting (43.8%), wasting (10.3%), underweight (32.6%)
Main shocks during past 12 months	Shock experienced (67%) Loss of harvest due to animal pest (18%) Loss of harvest due to plant disease (11%) Illness/accident of HH member (9%)
External assistance	Food assistance (18%) Agricultural assistance (1%) Water & sanitation (2%)

GRAND CAPE MOUNT	
Grand Cape Mount is situated in the north-west of Liberia along the border with Sierra Leone. The capital, Robertsport, is located near the famous Lake Piso and was a tourist attraction with hotel facilities prior to the war. Households today mainly engage in petty trade and contract labour. Many households also engage in fishing. Though food crop production is only secondary, many households are relatively better-off as they have more cash available to spend on food and non-food items compared to most other counties. Though only every second household has access to land and out of these only 41% cultivated in 2005, the households who did, fared quite well as they were able to sell parts of their rice and about half of their cassava and vegetable harvest.	
Main languages/dialects spoken	Vai (60%), Gola (23%) and Kpelle (6%)
Household status	Never displaced (8%), displaced (5%), returned before 2005 (57%), returned since 2005 (29%)
School enrolment rates and reasons for not being enrolled	Total enrolment (65%), male (68%), female (62%) Reasons for not being enrolled: not enough money to pay school fees (38%), no school in the community (16%)
Adult education	No schooling (69%), some elementary (15%), completed elementary (5%), some high school (7%)
Livelihood profiles	Petty traders (18%), contract labourers (15%) and palm oil producers/sellers (14%)
Access to land	52%, of these 41% cultivated crops in 2005
Main crops cultivated	Rice (53%), cassava (50%), vegetables (32%)
Main agricultural constraints	Lack of tools (73%), lack of seeds (66%) and lack of cash (60%)
Food consumption, access and security profiles	Food consumption: poor (4%), borderline (16%), fairly good (37%), good (43%) Food access: very weak (6%), weak (15%), medium (66%), good (13%) Food security profile: food insecure (2%), highly vulnerable (16%), moderately vulnerable (57%), food secure (26%)
Access to improved drinking water and sanitation	Improved water: rainy season (42%), dry season (43%), sanitation (21%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 37.5%, exclusive breastfeeding until 6 months (50%), average age of breastfeeding, (14 months), mean age of introducing solid foods, (9 months)
Child morbidity during the past 2 weeks	Fever (74%), cough (68%), diarrhea (28%)
Immunisation and Vitamin A supplementation	Measles (89%), Vitamin A (80%), de-worming (61%), use of mosquito net (6%)
Child malnutrition	Stunting (32.4%), wasting (5.5%), underweight (21.2%)
Main shocks during past 12 months	Shock experienced (23%) Loss of harvest due to animal pest (9%) Illness/accident of HH member (5%) House damaged/destroyed (3%)
External assistance	Food assistance (27%) Agricultural assistance (3%) Water & sanitation (0%)

GRAND GEDEH	
Grand Gedeh in the interior of south-east Liberia has a common border with Cote d'Ivoire. It is highly dominated by the Krahn ethnic group and characterised by vast areas of primary rain forest. The wild life is rich and hunting is an important source of food and income for many households. 15 percent of households reported that they own goats which are less common in most other counties. Food consumption levels and dietary diversity was very low with more than 78 percent of households having poor or borderline food consumption. This is despite the fact that most households have access to land and cultivated in 2005. However, many households suffered from groundhog attacks that destroyed the harvest. Acute malnutrition rates are alarmingly high which can partly be attributed to the low levels of access to sanitary facilities. Child feeding practices are poor characterised by less than a quarter of mothers introducing their new born to breast-milk within the recommended period	
Main languages/dialects spoken	Krahn (96%) and Kpelle (2%)
Household status	Never displaced (9%), displaced (5%), returned before 2005 (78%), returned since 2005 (6%)
School enrolment rates and reasons for not being enrolled	Total enrolment (81%), male (83%), female (79%) Reasons for not being enrolled: not enough money to pay school fees (58%), no school in the community (13%)
Adult education	No schooling (37%), some elementary (30%), completed elementary (4%), some high school (19%)
Livelihood profiles	Food crop farmers (26%), hunters (25%) and petty traders (13%)
Access to land	88%, of these 81% cultivated crops in 2005
Main crops cultivated	Rice (93%), cassava (35%), plantain / banana (12%)
Main agricultural constraints	Lack of seeds (46%), lack of tools (42%) and groundhog attack (38%)
Food consumption, access and security profiles	Food consumption: poor (33%), borderline (35%), fairly good (28%), good (5%) Food access: very weak (9%), weak (15%), medium (48%), good (27%) Food security profile: food insecure (10%), highly vulnerable (39%), moderately vulnerable (44%), food secure (7%)
Access to improved drinking water and sanitation	Improved water: rainy season (43%), dry season (41%), sanitation (8%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 21.5%, exclusive breastfeeding until 6 months (23%), average age of breastfeeding, (16 months), mean age of introducing solid foods, (9 months)
Child morbidity during the past 2 weeks	Fever (48%), diarrhea (35%), cough (29%)
Immunisation and Vitamin A supplementation	Measles (84%), Vitamin A (84%), de-worming (59%), use of mosquito net (13%)
Child malnutrition	Stunting (38.7%), wasting (10.5%), underweight (30.7%)
Main shocks during past 12 months	Shock experienced (76%) Loss of harvest due to animal pest (55%) Illness/accident of HH member (8%) Loss of employment for household member (4%)
External assistance	Food assistance (45%) Agricultural assistance (32%) Water & sanitation (4%)

GRAND KRU	
Grand Kru is Liberia's most peripheral county. A river divides Grand Kru in a relatively accessible part from Maryland (one third) and an inaccessible part (two thirds of the total area). Only recently a bridge constructed by UNOPS was opened which links the two parts. The county has a proportionally small population consisting of two tribes: Kru in the coastal and Grebo in the hinterland. The capital Barclayville has no government infrastructure – including a functioning administrative building. The county was the least affected by displacements. This and the difficult physical access have translated into very low key attention from development agencies though the needs are high. More than 70 percent of households are considered to be food insecure or highly vulnerable to food insecurity. The majority of households have poor and borderline food consumption as well as weak access profiles. More than every second household reported that groundhog attacks had destroyed their harvest in 2005, many farmers also suffered from early and heavy rains that led to soil erosion of seedlings. It is also the county with the highest chronic child malnutrition rates (47.3 percent), combined with extremely low numbers of households having access to improved drinking water and sanitation. Access to health services such as immunisation, Vitamin A supplementation and de-worming is extremely low in addition to poor infant and child feeding practices	
Main languages/dialects spoken	Grebo (65%) and Kru (33%)
Household status	Never displaced (53%), displaced (0%), returned before 2005 (40%), returned since 2005 (4%)
School enrolment rates and reasons for not being enrolled	Total enrolment (80%), male (85%), female (75%) Reasons for not being enrolled: not enough money to pay school fees (70%), long distance to school (10%),
Adult education	No schooling (45%), some elementary (30%), completed elementary (5%), some high school (13%)
Livelihood profiles	Food crop farmers (21%), fisherfolks (18%), and palm oil and food crop producers (11%)
Access to land	76%, of these 87% cultivated crops in 2005
Main crops cultivated	Cassava (82%), rice (82%), plantain / banana (22%)
Main agricultural constraints	Lack of seeds (64%), lack of tools (56%) and groundhog attack (55%)
Food consumption, access and security profiles	Food consumption: poor (12%), borderline (58%), fairly good (26%), good (4%) Food access: very weak (27%), weak (35%), medium (31%), good (7%) Food security profile: food insecure (14%), highly vulnerable (58%), moderately vulnerable (36%), food secure (2%)
Access to improved drinking water and sanitation	Improved water: rainy season (18%), dry season (7%), sanitation (15%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 35%, exclusive breastfeeding until 6 months (6%), average age of breastfeeding (16 months), mean age of introducing solid foods (5 months)
Child morbidity during the past 2 weeks	Fever (65%), diarrhea (52%), cough (27%)
Immunisation and Vitamin A supplementation	Measles (50%), Vitamin A (38%), de-worming (37%), use of mosquito net (9%)
Child malnutrition	Stunting (47.3%), wasting (5.3%), underweight (28.2%)
Main shocks during past 12 months	Shock experienced (50%) Loss of harvest due to animal pest (31%) Early or heavy rains/floods (22%) Illness/accident of HH member (16%)
External assistance	Food assistance (2%) Agricultural assistance (18%) Water & sanitation (0%)

LOFA	
Before the war Lofa was always considered the "bread basket" of the country on account of its high level of food production, especially the national staple food, rice. Lofa lies in the north-western corner of Liberia and borders the Republics of Guinea and Sierra Leone. Most of the fighting between former government troops and the LURD rebel movement (1999-2003), was concentrated in Lofa, and resulted in extensive damage to infrastructure and basic services, as well as mass displacements and loss of life. Today, Lofa has the highest number of food insecure people. Around 70% have poor or borderline food consumption levels. The majority of households also have weak access to food in terms of purchasing power and own production. Even though most households have access to land, they were not able to produce crops in 2005 mainly because people lack household labour, lack of inputs and the fact that most families returned too late for the farming season. As return migration is continuing throughout 2006, these problems will continue to exist in the short-to medium term. According to the MOA, an additional constraint for the agricultural cycle in 2006 has been the changing weather pattern. Many farmers were not able to burn and clear their plots on time as rains started too early.	
Main languages/dialects spoken	Lorma (51%), Kissi (28%) and Gbandi (12%)
Household status	Never displaced (1%), displaced (1%), returned before 2005 (21%), returned since 2005 (75%)
School enrolment rates and reasons for not being enrolled	Total enrolment (75%), male (78%), female (71%) Reasons for not being enrolled: not enough money to pay school fees (41%), long distance to school (26%)
Adult education	No schooling (58%), some elementary (24%), completed elementary (3%), some high school (11%)
Livelihood profiles	Palm oil producers/sellers (33%) contract labourers (16%), and palm oil and food crop producers (9%)
Access to land	88%, of these 37% cultivated crops in 2005
Main crops cultivated	Rice (95%), cassava (17%), vegetables (14%)
Main agricultural constraints	Lack of household labour (59%), lack of seeds (55%) and lack of tools (50%)
Food consumption, access and security profiles	Food consumption: poor (25%), borderline (44%), fairly good (25%), good (6%) Food access: very weak (49%), weak (25%), medium (23%), good (3%) Food security profile: food insecure (28%), highly vulnerable (48%), moderately vulnerable (21%), food secure (3%)
Access to improved drinking water and sanitation	Improved water: rainy season (33%), dry season (25%), sanitation (27%
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 35%, exclusive breastfeeding until 6 months (85%), average age of breastfeeding (16 months), mean age of introducing solid foods (7 months)
Child morbidity during the past 2 weeks	Fever (61%), diarrhea (42%), cough (37%)
Immunisation and Vitamin A supplementation	Measles (94%), Vitamin A (90%), de-worming (35%), use of mosquito net (21%)
Child malnutrition	Stunting (31.3%), wasting (4.6%), underweight (22.1%)
Main shocks during past 12 months	Shock experienced (50%) Illness/accident of HH member (25%) Death of non-working HH-member (15%) Loss of harvest due to animal pest (5%)
External assistance	Food assistance (71%) Agricultural assistance (30%) Water & sanitation (40%)

MARGIBI	
Margibi in central Liberia is closely connected to Monrovia. The international airport and renowned Firestone Rubber Plantation is located within the boundaries of Margibi County. Margibi hosts most of the currently still displaced population as more than every third household indicated to be still displaced. Around 35,000 acres of land are occupied by the rubber plantation company who provide jobs and basic services such as shelter, schools and health facilities to about 6,000 workers and their families. The main livelihoods in this county are rubber tapping and charcoal production. Food production is tertiary and only about every second household has access to land, rice was only produced by 33% of farming households. Major agricultural constraints were lack of agricultural inputs and groundhog attacks but many households also reported lack of arable land, bird attacks, lack of fertilizer and pesticides, and plant disease as reasons for low agricultural productivity. Despite this, households' food consumption levels and access to food is better than in most other counties as households have sufficient purchasing power to buy food from markets.	
Main languages/dialects spoken	Bassa (48%) and Kpelle (44%)
Household status	Never displaced (9%), displaced (30%), returned before 2005 (56%), returned since 2005 (3%)
School enrolment rates and reasons for not being enrolled	Total enrolment (62%), male (65%), female (59%) Reasons for not being enrolled: not enough money to pay school fees (67%), no school in the community (20%)
Adult education	No schooling (44%), some elementary (31%), completed elementary (4%), some high school (14%)
Livelihood profiles	Rubber tappers (26%), charcoal producers (21%) and food crop farmers (13%)
Access to land	46%, of these 81% cultivated crops in 2005
Main crops cultivated	Cassava (79%), rice (33%), corn (12%)
Main agricultural constraints	Lack of seeds (61%), lack of tools (50%) and groundhog attacks (30%), lack of arable land (29%), bird attacks (28%)
Food consumption, access and security profiles	Food consumption: poor (6%), borderline (26%), fairly good (37%), good (31%) Food access: very weak (11%), weak (17%), medium (57%), good (15%) Food security profile: food insecure (5%), highly vulnerable (28%), moderately vulnerable (42%), food secure (19%)
Access to improved drinking water and sanitation	Improved water: rainy season (25%), dry season (25%), sanitation (12%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 73%, exclusive breastfeeding until 6 months (49%), average age of breastfeeding (15 months), mean age of introducing solid foods (9 months)
Child morbidity during the past 2 weeks	Fever (70%), diarrhea (35%), cough (27%)
Immunisation and Vitamin A supplementation	Measles (71%), Vitamin A (77%), de-worming (47%), use of mosquito net (3%)
Child malnutrition	Stunting (36.6%), wasting (6.9%), underweight (25.5%)
Main shocks during past 12 months	Shock experienced (66%) Illness/accident of HH member (26%) Loss of harvest due to animal pest (22%) Theft (7%)
External assistance	Food assistance (12%) Agricultural assistance (1%) Water & sanitation (6%)

MARYLAND	
Maryland is located in the south-eastern corner of Liberia bordering the Atlantic Ocean and Cote d'Ivoire. The capital is the port city Harper. The infrastructure and access to basic services is better compared to other counties in the south-east. Prior to the war, agricultural processing industries existed in the county such as rubber, sugarcane and logging. Currently food crop production, rubber tapping and informal palm oil and sugarcane production are the main livelihoods. In the past, cattle were raised on the vast grassland areas along the coastline near Harper. Most of these were lost during the course of the war but communities are slowly starting to rehabilitate their livestock holdings. While food consumption and dietary diversity levels remain low (65 percent of households have poor or borderline food consumption), households have the potential to improve their food security levels as they have much better access profiles compared to the neighboring counties, Grand Kru and River Gee. The county has received a lot of external support. Access to improved water sources and sanitary facilities is one of the highest in the country. While acute malnutrition and the prevalence of illnesses are relatively low, the chronic malnutrition rate remains very high at 41.3 percent. Vitamin A supplementation coverage is low with equally wanting infant feeding practices as manifested in low proportions of infants initiated to breast-milk within the recommended period.	
Main languages/dialects spoken	Grebo (99%)
Household status	Never displaced (28%), displaced (1%), returned before 2005 (59%), returned since 2005 (11%)
School enrolment rates and reasons for not being enrolled	Total enrolment (80%), male (82%), female (77%) Reasons for not being enrolled: not enough money to pay school fees (71%), need to help with house/farm work (15%),
Adult education	No schooling (48%), some elementary (22%), completed elementary (6%), some high school (16%)
Livelihood profiles	Food crop farmers (26%), rubber tappers (18%) and palm oil and food crop producers (15%)
Access to land	70%, of these 94% cultivated crops in 2005
Main crops cultivated	Cassava (78%), rice (74%), vegetables (62%)
Main agricultural constraints	Household engaged in other activities (26%), groundhog attack (25%) and lack of household labour (25%)
Food consumption, access and security profiles	Food consumption: poor (15%), borderline (50%), fairly good (29%), good (5%) Food access: very weak (8%), weak (20%), medium (48%), good (24%) Food security profile: food insecure (6%), highly vulnerable (41%), moderately vulnerable (44%), food secure (9%)
Access to improved drinking water and sanitation	Improved water: rainy season (65%), dry season (66%), sanitation (47%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 30%, exclusive breastfeeding until 6 months (13%), average age of breastfeeding (15 months), mean age of introducing solid foods (10 months)
Child morbidity during the past 2 weeks	Fever (22%), cough (21%), diarrhea (19%)
Immunisation and Vitamin A supplementation	Measles (75%), Vitamin A (51%), de-worming (29%), use of mosquito net (9%)
Child malnutrition	Stunting (41.3%), wasting (5.8%), underweight (25.9%)
Main shocks during past 12 months	Shock experienced (58%) Loss of harvest due to animal pest (23%) Illness/accident of HH member (20%) Death of non-working HH-member (11%)
External assistance	Food assistance (55%) Agricultural assistance (43%) Water & sanitation (26%)

MONTSERRADO	
Montserrado County hosts the capital Monrovia and the largest food and non-food markets in the country. Main livelihood activities are petty trade, charcoal production and formal employment. Thirteen percent of the surveyed households reported that they are currently displaced. However, many of them have decided to remain in Montserrado due to better access to basic services and employment opportunities. During the war, the county received most of the IDPs, which is still reflected in larger household sizes as well as overcrowding as nearly every third household resides in overcrowded shelter with more than five people per room. Similar to Margibi, only about 40 percent of households have access to land. Out of these, only 16% of households produced rice in 2005. One of the main reasons provided for not producing crops was the lack of suitable land. In terms of food security, households fare slightly better than in most counties. They have the third best food consumption and dietary diversity and the majority of households have medium access profiles. These findings, however, should not disguise the fact that large parts of the population do not benefit from the access to basic services. School enrolment is only average and half of the population has no access to improved drinking water and sanitary services and as in the rest of the country there is no electric power though the government has recently started to rehabilitate the power infrastructure for central Monrovia.	
Main languages/dialects spoken	Kpelle (52%), Bassa (21%), Lorma (6%)
Household status	Never displaced (23%), displaced (13%), returned before 2005 (57%), returned since 2005 (4%)
School enrolment rates and reasons for not being enrolled	Total enrolment (70%), male (76%), female (65%) Reasons for not being enrolled: not enough school fees (71%), no school in the community (10%)
Adult education	No schooling (33%), some elementary (27%), completed elementary (7%), some high school (19%)
Livelihood profiles	Petty traders (18%), charcoal producers (16%) and employees (14%)
Access to land	39%, of these 67% cultivated crops in 2005
Main crops cultivated	Cassava (90%), vegetables (18%), rice (16%)
Main agricultural constraints	Lack of tools (59%), lack of seeds (53%), and lack of arable land (42%)
Food consumption, access and security profiles	Food consumption: poor (11%), borderline (29%), fairly good (36%), good (25%) Food access: very weak (19%), weak (24%), medium (48%), good (9%) Food security profile: food insecure (10%), highly vulnerable (35%), moderately vulnerable (43%), food secure (13%)
Access to improved drinking water and sanitation	Improved water: rainy season (47%), dry season (45%), sanitation (37%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 25%, exclusive breastfeeding until 6 months (35%), average age of breastfeeding (16 months), mean age of introducing solid foods (8 months)
Child morbidity during the past 2 weeks	Fever (65%), cough (39%), diarrhea (31%)
Immunisation and Vitamin A supplementation	Measles (81%), Vitamin A (64%), de-worming (58%), use of mosquito net (11%)
Child malnutrition	Stunting (31.9%), wasting (6.6%), underweight (25.3%)
Main shocks during past 12 months	Shock experienced (29%) Illness/accident of HH member (13%) House damaged/destroyed (6%) Loss of employment for household member (4%)
External assistance	Food assistance (25%) Agricultural assistance (10%) Water & sanitation (2%)

NIMBA	
Nimba County in central Liberia is bound on the north-west by the Republic of Guinea and on north-east by the Republic of Cote 'Ivoire. The main tribes are Mano and Gio. The Organization of African Unity (OAU) now called African Union (AU) was first established here. Before the war, the Liberia American Mining Company (LAMCO) provided job opportunities for the local population in the iron ore mines close to the Guinean border but the company was closed down and the railway that transported iron ore to Buchanan was destroyed during the course of the war. The majority of households are engaged in cash and food crop production. The county shows the highest crop diversification and in 2005 many households were able to sell some of their rice harvest and the majority of their vegetable harvest. 47 percent of households own tree or other cash crops such as rubber, coffee, cacao, sugarcane, pineapple, plantain and palm nuts. Livestock ownership is also more common than in all other counties, with 20 percent of households owning pigs, 13 percent goats and 6 percent sheep. Despite high potentials, food security levels are only average in this county illustrating that further efforts have to be made to reach the levels prior to the war. The county also has one of the highest chronic malnutrition rates in the country illustrating that households were deprived of food and other basic needs over an extended period of time.	
Main languages/dialects spoken	Mano (49%) and Gio (47%)
Household status	Never displaced (18%), displaced (6%), returned before 2005 (66%), returned since 2005 (8%)
School enrolment rates and reasons for not being enrolled	Total enrolment (67%), male (71%), female (62%) Reasons for not being enrolled: not enough money to pay school fees (64%), no school in the community (15%)
Adult education	No schooling (43%), some elementary (27%), completed elementary (11%), some high school (15%)
Livelihood profiles	Cash and food crop producers (20%), food crop farmers (17%) and petty traders (14%)
Access to land	72%, of these 94% cultivated crops in 2005
Main crops cultivated	Rice (80%), cassava (78%), vegetables (35%)
Main agricultural constraints	Lack of tools (51%), lack of seeds (48%), and lack of household labour (36%)
Food consumption, access and security profiles	Food consumption: poor (17%), borderline (38%), fairly good (32%), good (13%) Food access: very weak (20%), weak (28%), medium (45%), good (7%) Food security profile: food insecure (9%), highly vulnerable (47%), moderately vulnerable (41%), food secure (3%)
Access to improved drinking water and sanitation	Improved water: rainy season (33%), dry season (34%), sanitation (25%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 52%, exclusive breastfeeding until 6 months (75%), average age of breastfeeding (14 months), mean age of introducing solid foods (8 months)
Child morbidity during the past 2 weeks	Fever (47%), diarrhea (27%), cough (17%)
Immunisation and Vitamin A supplementation	Measles (87%), Vitamin A (80%), de-worming (49%), use of mosquito net (23%)
Child malnutrition	Stunting (45.4%), wasting (6.6%), underweight (31.4%)
Main shocks during past 12 months	Shock experienced (40%) Illness/accident of HH member (14%) Loss of harvest due to animal pest (8%) Death of working HH-member (7%)
External assistance	Food assistance (43%) Agricultural assistance (17%) Water & sanitation (0%)

RIVER CESS	
River Cess has very little road infrastructure but possesses vast areas of forest which has been exploited during the war though illicit logging activities. Today the main livelihood activities are palm oil production, hunting and food crop production. As the sanctions on timber export were recently lifted, the county may benefit from timber and logging trade once the forestry reform law is in place to ensure the sustainable use of natural resources. Though the county is doing relatively well in terms of food consumption and access to food, acute and chronic malnutrition rates are alarmingly high. This could be partly attributed to the fact that most households have no access to improved drinking water and health facilities in this geographically isolated county. Both exclusive breastfeeding and initiation to breastfeeding are poor while morbidity is a major problem.	
Main languages/dialects spoken	Bassa (96%)
Household status	Never displaced (8%), displaced (8%), returned before 2005 (70%), returned since 2005 (14%)
School enrolment rates and reasons for not being enrolled	Total enrolment (80%), male (86%), female (73%) Reasons for not being enrolled: not enough money to pay school fees (59%), no school in the community (16%)
Adult education	No schooling (44%), some elementary (36%), completed elementary (5%), some high school (11%)
Livelihood profiles	Palm oil producers/sellers (29%), hunters (21%) and food crop farmers (13%)
Access to land	76%, of these 74% cultivated crops in 2005
Main crops cultivated	Rice (84%), cassava (77%), vegetables (6%)
Main agricultural constraints	Lack of tools (60%), lack of cash (47%) and lack of seeds (45%)
Food consumption, access and security profiles	Food consumption: poor (8%), borderline (32%), fairly good (49%), good (11%) Food access: very weak (14%), weak (26%), medium (41%), good (18%) Food security profile: food insecure (6%), highly vulnerable (35%), moderately vulnerable (50%), food secure (9%)
Access to improved drinking water and sanitation	Improved water: rainy season (26%), dry season (22%), sanitation (25%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 10%, exclusive breastfeeding until 6 months (30%), average age of breastfeeding (14 months), mean age of introducing solid foods (8 months)
Child morbidity during the past 2 weeks	Fever (46%), cough (24%), diarrhea (22%)
Immunisation and Vitamin A supplementation	Measles (87%), Vitamin A (76%), de-worming (47%), use of mosquito net (7%)
Child malnutrition	Stunting (41.2%), wasting (11.3%), underweight (33.9%)
Main shocks during past 12 months	Shock experienced (42%) Loss of harvest due to animal pest (18%) Illness/accident of HH member (9%) Death of non-working HH-member (6%)
External assistance	Food assistance (23%) Agricultural assistance (5%) Water & sanitation (1%)

SINOE	
Sinoe, which belongs to the south-eastern region of Liberia, possesses vast natural primary rain forests including the Sapo National Park. Diamond and gold fields were discovered in the nineties but the local population does not benefit greatly from these natural resources. The main livelihood activities are food crop production and hunting. Though most households have access to land (83%) and cultivated in 2005 (80%), 60% of all households suffered from loss of harvest due to animal pests. The number of livestock owned by households is the lowest compared to all other counties. In terms of food security levels, more than half of the households are considered to be food insecure or highly vulnerable to food insecurity. Sinoe is one of the remotest counties and very few households have access to immunisation services, improved drinking water and sanitary facilities. This, together with the high level of child illnesses and poor infant feeding practices, leads to high acute and chronic child malnutrition rates.	
Main languages/dialects spoken	Kru (52%) and Sapo (39%)
Household status	Never displaced (34%), displaced (8%), returned before 2005 (48%), returned since 2005 (7%)
School enrolment rates and reasons for not being enrolled	Total enrolment (78%), male (82%), female (73%) Reasons for not being enrolled: not enough money to pay school fees (61%), no school in the community (17%)
Adult education	No schooling (39%), some elementary (36%), completed elementary (6%), some high school (13%)
Livelihood profiles	Food crop farmers (39%), hunters (16%) and palm oil producers/sellers (15%)
Access to land	83%, of these 80% cultivated crops in 2005
Main crops cultivated	Rice (83%), cassava (72%), potatoes/eddoes (14%)
Main agricultural constraints	Lack of seeds (74%), lack of tools (63%) and groundhog attack (60%)
Food consumption, access and security profiles	Food consumption: poor (14%), borderline (42%), fairly good (31%), good (14%) Food access: very weak (22%), weak (28%), medium (31%), good (21%) Food security profile: food insecure (8%), highly vulnerable (44%), moderately vulnerable (39%), food secure (10%)
Access to improved drinking water and sanitation	Improved water: rainy season (9%), dry season (7%), sanitation (13%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 32%, exclusive breastfeeding until 6 months (20%), average age of breastfeeding (14 months), mean age of introducing solid foods (8 months)
Child morbidity during the past 2 weeks	Fever (79%), cough (50%), diarrhea (43%),
Immunisation and Vitamin A supplementation	Measles (72%), Vitamin A (47%), de-worming (27%), use of mosquito net (2%)
Child malnutrition	Stunting (42.1%), wasting (8.8%), underweight (24.0%)
Main shocks during past 12 months	Shock experienced (54%) Loss of harvest due to animal pest (39%) Illness/accident of HH member (23%) Early or heavy rains/floods (21%)
External assistance	Food assistance (26%) Agricultural assistance (12%) Water & sanitation (0%)

RIVER GEE	
River Gee is inland and situated in south-east Liberia. Similar to Grand Kru it is characterised by challenging road conditions, particularly during the rainy season and limited availability of food and non-food items on the local market. As most international agencies are located in Harper (Maryland) and Zwedru (Grand Gedeh), the county has been neglected and remains highly underdeveloped in terms of basic infrastructure. Households mainly rely on food and palm oil production as well as hunting. Though most households have access to land and cultivated in 2005, the majority suffered from groundhog attacks. The county has the second worst levels of food security. Nearly 80 percent of the population has poor or borderline food consumption levels which are even worse than in Lofa and Grand Kru. River Gee also has one of the highest chronic malnutrition rates as well as poor access to health services.	
Main languages/dialects spoken	Grebo (92%) and Krahn (6%)
Household status	Never displaced (6%), displaced (3%), returned before 2005 (85%), returned since 2005 (5%)
School enrolment rates and reasons for not being enrolled	Total enrolment (76%), male (81%), female (70%) Reasons for not being enrolled: no school in the community (30%), not enough money to pay school fees (30%)
Adult education	No schooling (32%), some elementary (34%), completed elementary (5%), some high school (19%)
Livelihood profiles	Food crop farmers (23%), palm oil and food crop producers (13%) and hunters (12%)
Access to land	90%, of these 87% cultivated crops in 2005
Main crops cultivated	Rice (98%), cassava (17%), plantain / banana (11%)
Main agricultural constraints	Groundhog attack (57%), lack of tools (55%) and lack of seeds (47%)
Food consumption, access and security profiles	Food consumption: poor (39%), borderline (38%), fairly good (22%), good (1%) Food access: very weak (20%), weak (33%), medium (33%), good (14%) Food security profile: food insecure (20%), highly vulnerable (52%), moderately vulnerable (26%), food secure (1%)
Access to improved drinking water and sanitation	Improved water: rainy season (16%), dry season (15%), sanitation (28%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 23%, exclusive breastfeeding until 6 months (5%), average age of breastfeeding (15 months), mean age of introducing solid foods (7 months)
Child morbidity during the past 2 weeks	Fever (58%), cough (41%), diarrhea (36%),
Immunisation and Vitamin A supplementation	Measles (74%), Vitamin A (89%), de-worming (71%), use of mosquito net (7%)
Child malnutrition	Stunting (45.8%), wasting (8.7%), underweight (32.6%)
Main shocks during past 12 months	Shock experienced (80%) Loss of harvest due to animal pest (64%) Illness/accident of HH member (17%) Death of working HH-member (3%)
External assistance	Food assistance (39%) Agricultural assistance (61%) Water & sanitation (0%)

GBARPOLU	
Gbarpolu County, formerly Lower Lofa in the north-west, is rich in mineral resources such as gold and diamonds and has vast forested areas. Its main constraint is limited physical infrastructure leaving some of its districts inaccessible throughout the year. Main livelihood activities are hunting, palm oil production and contract labour. Similar to Lofa, most households were displaced and the majority only returned in 2005. Gbarpolu has one of the worst food access profiles after Bomi, Lofa and Grand Kru. It also has one of the lowest school enrolment rates and adult education levels. Similar to Lofa, chronic malnutrition rates are high but better than in all remaining counties which is an indication that formerly displaced households had reasonable access to basic services and food during their displacement but, also, that the situation will get worse if no measures are undertaken to prevent a decline. Access of basic health services is poor characterised by poor access to improved water, sanitation and high morbidity.	
Main languages/dialects spoken	Kpelle (53%) and Gola (31%)
Household status	Never displaced (7%), displaced (3%), returned before 2005 (35%), returned since 2005 (50%)
School enrolment rates and reasons for not being enrolled	Total enrolment (56%), male (57%), female (55%) Reasons for not being enrolled: no school in the community (65%), not enough money to pay school fees (36%)
Adult education	No schooling (58%), some elementary (21%), completed elementary (3%), some high school (14%)
Livelihood profiles	Hunters (17%), palm oil producers/sellers (15%) and contract labourers (13%)
Access to land	67%, of these 47% cultivated crops in 2005
Main crops cultivated	Rice (83%), cassava (33%), vegetables (6%)
Main agricultural constraints	Lack of seeds (62%), lack of tools (52%) and lack of cash (41%)
Food consumption, access and security profiles	Food consumption: poor (14%), borderline (46%), fairly good (27%), good (13%) Food access: very weak (26%), weak (28%), medium (40%), good (6%) Food security profile: food insecure (18%), highly vulnerable (42%), moderately vulnerable (34%), food secure (7%)
Access to improved drinking water and sanitation	Improved water: rainy season (16%), dry season (15%), sanitation (16%)
Infant and child feeding practices	Initiation of breastfeeding within first hour of life: 51%, exclusive breastfeeding until 6 months (67%), average age of breastfeeding (17 months), mean age of introducing solid foods (8 months)
Child morbidity during the past 2 weeks	Fever (52%), cough (33%), diarrhea (12%)
Immunisation and Vitamin A supplementation	Measles (78%), Vitamin A (71%), de-worming (45%), use of mosquito net (9%)
Child malnutrition	Stunting (29.6%), wasting (2.9%), underweight (21.5%)
Main shocks during past 12 months	Shock experienced (52%) Illness/accident of HH member (20%) Death of non-working HH-member (16%) Loss of harvest due to animal pest (7%)
External assistance	Food assistance (21%) Agricultural assistance (47%) Water & sanitation (3%)

ANNEX 2. OUTPUT TABLES

Annex 2.1: Demography and Education

	Demographic Indicators				
	HH size	Dependency ratio	Sex of HH head		Elderly headed households
			Male	Female	
Bomi	5.2	1.48	95%	5%	9%
Bong	5.5	1.41	84%	16%	8%
Grand Bassa	4.8	1.33	87%	13%	10%
Grand Cape Mount	4.6	1.33	83%	17%	16%
Grand Gedeh	6.1	1.21	93%	7%	13%
Grand Kru	5.8	1.61	90%	10%	7%
Lofa	5.1	1.25	79%	21%	5%
Margibi	5.3	1.23	90%	10%	9%
Maryland	5.6	1.33	89%	11%	12%
Montserrado	6.4	1.39	83%	17%	8%
Nimba	6.1	1.51	90%	10%	4%
River Cess	5.5	1.43	88%	12%	10%
Sinoe	5.5	1.37	89%	11%	9%
River Gee	5.9	1.35	91%	9%	10%
Gbarpolu	4.9	1.20	91%	9%	8%
Total	**5.6**	**1.37**	**87%**	**13%**	**8%**

	Language and Dialects Spoken													
	Bassa	Gbandi	Gio	Gola	Grebo	Kissi	Kpelle	Krahn	Kru	Lorma	Mano	Vai	Sapo	Other
Bomi	2%	0%	0%	56%	1%	3%	21%	0%	0%	3%	0%	11%	0%	3%
Bong	0%	0%	0%	0%	0%	0%	90%	0%	0%	1%	7%	0%	0%	1%
Gr. Bassa	94%	0%	0%	0%	0%	1%	5%	0%	0%	0%	0%	0%	0%	0%
Cape Mount	3%	1%	0%	23%	1%	1%	6%	0%	2%	1%	1%	60%	0%	2%
Gr. Gedeh	1%	0%	0%	0%	0%	0%	2%	96%	0%	0%	0%	0%	1%	1%
Grand Kru	1%	0%	0%	0%	65%	0%	0%	0%	33%	0%	0%	0%	0%	0%
Lofa	0%	12%	0%	0%	0%	28%	7%	0%	0%	51%	0%	0%	0%	1%
Margibi	48%	1%	1%	1%	1%	2%	44%	0%	0%	1%	1%	1%	0%	0%
Maryland	0%	0%	0%	0%	99%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Montserrado	21%	1%	3%	2%	2%	4%	52%	0%	4%	6%	1%	3%	0%	1%
Nimba	2%	0%	47%	0%	0%	0%	1%	0%	0%	0%	49%	0%	0%	0%
River Cess	96%	0%	0%	0%	1%	0%	1%	0%	2%	0%	0%	0%	0%	0%
Sinoe	1%	0%	1%	0%	1%	0%	0%	5%	52%	0%	0%	0%	39%	1%
River Gee	0%	0%	0%	0%	92%	0%	0%	6%	0%	0%	0%	0%	0%	1%
Gbarpolu	0%	1%	6%	31%	1%	2%	53%	0%	0%	1%	1%	0%	0%	4%
Total	18%	2%	7%	6%	9%	4%	26%	4%	3%	7%	7%	4%	1%	1%

	Households with Disabled Members and Orphans				
	Chronically ill/disabled	No of chronically ill/disabled	Chronically ill/disabled HH head	Orphans	No of orphans
Bomi	2%	1.0	43%	1%	1.0
Bong	7%	1.2	38%	2%	1.0
Grand Bassa	4%	1.1	55%	0%	.
Grand Cape Mount	9%	1.2	47%	3%	1.3
Grand Gedeh	10%	1.1	21%	1%	1.3
Grand Kru	4%	1.1	29%	5%	1.2
Lofa	9%	1.1	32%	0%	1.0
Margibi	11%	1.1	32%	0%	.
Maryland	8%	1.0	15%	4%	1.2
Montserrado	13%	1.2	24%	3%	1.8
Nimba	14%	1.3	13%	3%	1.6
River Cess	7%	1.1	24%	1%	2.0
Sinoe	7%	1.1	16%	3%	1.0
River Gee	13%	1.3	29%	1%	1.7
Gbarpolu	10%	1.1	17%	3%	1.7
Total	**9%**	**1.2**	**26%**	**2%**	**1.4**

	School Enrolment (6-18 Years)				
	Male	Female	Total	HH not benefiting from FFE	HH benefiting from FFE
Bomi	65%	49%	57%	31%	89%
Bong	75%	67%	71%	47%	89%
Grand Bassa	45%	37%	41%	29%	79%
Grand Cape Mount	68%	62%	65%	54%	87%
Grand Gedeh	83%	79%	81%	73%	90%
Grand Kru	85%	75%	80%	80%	100%
Lofa	78%	71%	75%	66%	87%
Margibi	65%	59%	62%	56%	84%
Maryland	82%	77%	80%	56%	89%
Montserrado	76%	65%	70%	70%	70%
Nimba	71%	62%	67%	56%	81%
River Cess	86%	73%	80%	76%	92%
Sinoe	82%	73%	78%	72%	91%
River Gee	81%	70%	76%	60%	97%
Gbarpolu	57%	55%	56%	53%	100%
Total	**73%**	**64%**	**69%**	**59%**	**85%**

	School Enrolment by Age Group												
	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28
Bomi	4%	26%	57%	58%	63%	57%	57%	32%	17%	13%	2%	4%	2%
Bong	7%	46%	60%	72%	75%	76%	66%	73%	42%	30%	24%	14%	11%
Gr. Bassa	4%	25%	41%	47%	46%	45%	36%	18%	14%	9%	2%	3%	0%
Cape Mount	17%	49%	66%	73%	80%	67%	50%	38%	35%	16%	6%	8%	2%
Gr. Gedeh	17%	57%	69%	81%	88%	90%	82%	82%	65%	37%	29%	18%	21%
Grand Kru	10%	38%	68%	81%	86%	91%	79%	84%	57%	36%	33%	19%	6%
Lofa	14%	36%	63%	79%	84%	87%	74%	43%	44%	20%	23%	18%	13%
Margibi	12%	45%	57%	61%	69%	65%	62%	60%	30%	13%	8%	9%	4%
Maryland	12%	49%	80%	82%	85%	82%	87%	74%	48%	43%	31%	10%	14%
Montserrado	12%	42%	65%	74%	80%	77%	72%	58%	46%	37%	23%	24%	10%
Nimba	7%	31%	49%	65%	77%	72%	68%	65%	48%	35%	23%	5%	7%
River Cess	12%	43%	64%	82%	90%	86%	82%	71%	56%	29%	9%	8%	7%
Sinoe	14%	44%	66%	80%	81%	86%	87%	60%	47%	36%	34%	13%	9%
River Gee	16%	52%	71%	78%	76%	87%	76%	71%	56%	29%	28%	11%	7%
Gbarpolu	15%	47%	66%	64%	45%	59%	54%	48%	22%	10%	7%	2%	0%
Total	**10%**	**40%**	**61%**	**71%**	**76%**	**74%**	**69%**	**59%**	**42%**	**27%**	**19%**	**12%**	**8%**

	Male School Enrolment by Age Groups												
	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28
Bomi	5%	26%	54%	63%	71%	63%	71%	36%	40%	30%	7%	7%	5%
Bong	4%	43%	61%	79%	74%	72%	69%	84%	75%	63%	25%	42%	11%
Gr. Bassa	4%	20%	41%	50%	42%	52%	36%	29%	26%	24%	7%	3%	0%
Cape Mount	13%	53%	62%	75%	78%	67%	52%	58%	65%	26%	8%	12%	5%
Gr. Gedeh	14%	57%	70%	79%	86%	93%	91%	92%	70%	56%	53%	32%	35%
Grand Kru	6%	43%	69%	81%	83%	93%	90%	96%	88%	77%	56%	43%	14%
Lofa	12%	36%	60%	76%	82%	83%	86%	69%	68%	38%	43%	41%	22%
Margibi	13%	48%	61%	55%	72%	71%	66%	67%	53%	28%	17%	19%	4%
Maryland	12%	52%	81%	82%	79%	82%	89%	84%	76%	67%	59%	18%	40%
Montserrado	10%	40%	63%	80%	81%	75%	74%	81%	62%	54%	45%	41%	11%
Nimba	6%	30%	49%	68%	78%	75%	74%	74%	84%	56%	36%	13%	6%
River Cess	13%	48%	69%	83%	91%	93%	88%	77%	83%	52%	19%	12%	12%
Sinoe	11%	45%	71%	81%	78%	86%	97%	72%	74%	63%	52%	25%	15%
River Gee	17%	48%	72%	83%	77%	90%	81%	82%	77%	48%	59%	25%	14%
Gbarpolu	20%	51%	64%	67%	54%	43%	45%	50%	37%	14%	12%	4%	0%
Total	**9%**	**39%**	**60%**	**73%**	**76%**	**75%**	**75%**	**74%**	**66%**	**48%**	**35%**	**24%**	**11%**

	Female School Enrolment by Age Group												
	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28
Bomi	3%	26%	60%	54%	53%	50%	46%	27%	8%	8%	0%	3%	0%
Bong	10%	47%	60%	62%	77%	80%	63%	55%	22%	17%	24%	5%	11%
Gr. Bassa	5%	29%	41%	43%	50%	39%	36%	12%	7%	0%	0%	3%	0%
Cape Mount	22%	46%	71%	71%	82%	67%	48%	13%	11%	11%	5%	4%	0%
Gr. Gedeh	20%	56%	69%	83%	91%	88%	72%	70%	58%	30%	20%	0%	3%
Grand Kru	14%	35%	66%	81%	88%	88%	57%	58%	33%	11%	17%	7%	0%
Lofa	16%	35%	67%	84%	86%	93%	54%	27%	23%	14%	9%	0%	7%
Margibi	10%	41%	53%	67%	67%	58%	56%	50%	20%	7%	3%	0%	4%
Maryland	13%	47%	80%	80%	94%	81%	83%	65%	30%	32%	7%	6%	4%
Montserrado	15%	44%	67%	68%	78%	78%	69%	43%	35%	23%	14%	16%	9%
Nimba	8%	32%	49%	60%	77%	68%	57%	56%	15%	17%	14%	0%	8%
River Cess	10%	39%	58%	80%	91%	76%	72%	64%	36%	14%	3%	4%	3%
Sinoe	17%	41%	61%	79%	84%	85%	77%	45%	35%	14%	19%	7%	3%
River Gee	15%	58%	69%	72%	74%	84%	67%	58%	34%	20%	6%	2%	3%
Gbarpolu	12%	44%	68%	59%	35%	75%	68%	47%	12%	8%	3%	0%	0%
Total	**12%**	**40%**	**62%**	**68%**	**76%**	**73%**	**61%**	**44%**	**25%**	**16%**	**11%**	**5%**	**6%**

		Reasons for Not Being Enrolled in School (Age Group 6-18)										
	Not enrolled	Needs to work to earn money	Not enough money to pay school fee	Got married/pregnant	Needs to help with house/ farm work	No school in the community	Long distance to school	No teachers at school	Insecurity	Sickness/disability	Refuse to go	Other
Bomi	**44%**	2%	24%	6%	3%	61%	7%	0%	0%	1%	3%	1%
Bong	**32%**	1%	74%	2%	3%	18%	8%	0%	0%	1%	2%	1%
Gr. Bassa	**60%**	0%	45%	8%	1%	63%	24%	0%	2%	0%	2%	0%
Cape Mount	**35%**	14%	38%	5%	15%	16%	5%	0%	2%	3%	5%	10%
Gr. Gedeh	**21%**	1%	58%	11%	6%	13%	9%	0%	0%	2%	6%	7%
Grand Kru	**22%**	3%	70%	3%	7%	6%	10%	0%	0%	4%	7%	1%
Lofa	**28%**	3%	41%	6%	24%	22%	26%	0%	0%	8%	6%	17%
Margibi	**40%**	4%	67%	8%	6%	20%	16%	0%	0%	1%	2%	1%
Maryland	**20%**	2%	71%	5%	15%	2%	7%	0%	0%	4%	6%	3%
Montserrado	**30%**	4%	71%	5%	4%	10%	8%	0%	0%	2%	6%	3%
Nimba	**36%**	3%	64%	5%	9%	15%	1%	0%	0%	5%	5%	0%
River Cess	**23%**	4%	59%	4%	9%	16%	30%	1%	0%	3%	12%	1%
Sinoe	**25%**	3%	61%	5%	8%	17%	11%	0%	0%	1%	0%	2%
River Gee	**25%**	1%	30%	8%	4%	30%	13%	4%	0%	4%	10%	4%
Gbarpolu	**42%**	2%	36%	5%	7%	65%	17%	1%	1%	1%	0%	4%
Total	**33%**	**3%**	**57%**	**6%**	**8%**	**26%**	**12%**	**0%**	**0%**	**3%**	**4%**	**4%**

	Reasons for Not Being Enrolled in School by Sex		
	Male	**Female**	**Total**
Not enrolled	***30%***	***37%***	***33%***
Needs to work to earn money	2%	3%	**3%**
Not enough money to pay school fee	58%	56%	**57%**
Got married/pregnant	1%	10%	**6%**
Needs to help with house/ farm work	8%	7%	**8%**
No school in the community	29%	24%	**26%**
Long distance to school	12%	11%	**12%**
No teachers at school	0%	0%	**0%**
Insecurity	0%	0%	**0%**
Sickness/disability	3%	3%	**3%**
Refuse to go	5%	4%	**4%**
Other	4%	3%	**4%**

Type of School Visited by Enrolled Students

	Attend kindergarten	Attend elementary school	Secondary school	Attend university	Vocational or other training programme
3-4	96%	3%	0%	0%	0%
5-6	94%	6%	0%	0%	0%
7-8	86%	14%	0%	0%	0%
9-10	72%	28%	0%	0%	0%
11-12	51%	47%	2%	0%	0%
13-14	30%	69%	2%	0%	0%
15-16	12%	82%	5%	0%	0%
17-18	10%	76%	14%	0%	0%
19-20	3%	64%	32%	1%	0%
21-22	2%	50%	44%	2%	2%
23-24	1%	37%	58%	0%	4%
25-26	0%	28%	61%	6%	6%
27-28	8%	36%	42%	4%	10%

	Student Absent for More than 1 Week during the past Month				
	Male	**Female**	**Total**	HH not benefiting from FFE	HH benefiting from FFE
Bomi	13%	12%	**13%**	11%	14%
Bong	18%	20%	**19%**	19%	19%
Grand Bassa	35%	22%	**29%**	25%	35%
Grand Cape Mount	24%	33%	**28%**	29%	26%
Grand Gedeh	17%	18%	**18%**	30%	7%
Grand Kru	20%	18%	**19%**	19%	0%
Lofa	10%	10%	**10%**	12%	7%
Margibi	33%	29%	**31%**	29%	37%
Maryland	11%	8%	**10%**	17%	8%
Montserrado	24%	29%	**27%**	24%	28%
Nimba	17%	13%	**15%**	18%	13%
River Cess	22%	26%	**24%**	21%	32%
Sinoe	16%	9%	**13%**	14%	11%
River Gee	9%	7%	**8%**	11%	6%
Gbarpolu	9%	3%	**7%**	8%	0%
Total	**19%**	**19%**	**19%**	**21%**	**16%**

	Education Level of Adults (>18 years)		
	Male	Female	**Total**
No Schooling	31%	62%	**48%**
Some elementary	25%	26%	**25%**
Completed elementary	8%	4%	**6%**
Some high school	23%	6%	**14%**
Completed high school	9%	1%	**5%**
Vocational	2%	1%	**1%**
Some University	1%	0%	**0%**
Completed University	0%	0%	**0%**

	Education level of adults (>18 years) by County							
	No Schooling	Some elementary	Completed elementary	Some high school	Completed high school	Vocational	Some University	Completed University
Bomi	58%	18%	11%	10%	1%	1%	0%	0%
Bong	57%	17%	6%	14%	4%	1%	0%	0%
Gr. Bassa	59%	27%	3%	8%	1%	0%	1%	0%
Cape Mount	69%	15%	5%	7%	3%	2%	0%	0%
Gr. Gedeh	37%	30%	4%	19%	3%	7%	1%	0%
Grand Kru	45%	30%	5%	13%	6%	0%	0%	0%
Lofa	56%	24%	3%	11%	4%	3%	0%	0%
Margibi	44%	31%	4%	14%	4%	2%	0%	0%
Maryland	48%	22%	6%	16%	6%	0%	0%	0%
Montserrado	33%	27%	7%	19%	11%	1%	1%	1%
Nimba	43%	27%	11%	15%	4%	0%	0%	0%
River Cess	44%	36%	5%	11%	3%	1%	1%	0%
Sinoe	39%	36%	6%	13%	5%	1%	1%	0%
River Gee	32%	34%	5%	19%	5%	4%	1%	0%
Gbarpolu	58%	21%	3%	14%	4%	0%	0%	0%
Total	**48%**	**25%**	**6%**	**14%**	**5%**	**1%**	**0%**	**0%**

Annex 2.2: Displacement and Resettlement

	Household Status					
	Never displaced	Displaced/ refugee	Returned before 2005	Returned since 2005	Away from home but not displaced nor a refugee	Times of displace-ments
Bomi	0%	3%	59%	36%	2%	2.5
Bong	17%	5%	56%	20%	2%	2.3
Grand Bassa	2%	3%	87%	6%	2%	2.4
Grand Cape Mount	8%	5%	57%	29%	1%	2.7
Grand Gedeh	9%	5%	78%	6%	2%	1.7
Grand Kru	53%	0%	40%	4%	3%	0.9
Lofa	1%	1%	21%	75%	3%	2.0
Margibi	9%	30%	56%	3%	2%	2.0
Maryland	28%	1%	59%	11%	1%	1.3
Montserrado	23%	13%	57%	4%	4%	1.4
Nimba	18%	6%	66%	8%	1%	1.5
River Cess	8%	8%	70%	14%	1%	2.1
Sinoe	34%	8%	48%	7%	3%	1.5
River Gee	6%	3%	85%	5%	1%	2.0
Gbarpolu	7%	3%	35%	50%	4%	2.0
Total	**14%**	**7%**	**57%**	**20%**	**2%**	**1.9**

		Reasons for Not Returning									
	Currently displaced	No work in area of return	Lack of seeds&tools to farm	Need to complete education in current location	Lack of services in area of return	Road/bridges destroyed	No money to return	No transpor-tation to return	Preference to stay in current location	Insecurity	House/village destroyed
Bomi	3%	22%	0%	0%	0%	0%	67%	33%	67%	0%	0%
Bong	5%	33%	17%	25%	25%	0%	42%	17%	42%	0%	0%
Grand Bassa	3%	0%	0%	0%	0%	0%	33%	0%	89%	0%	0%
Cape Mount	5%	31%	0%	0%	25%	0%	88%	38%	50%	0%	0%
Grand Gedeh	5%	19%	0%	0%	13%	6%	38%	25%	25%	25%	13%
Grand Kru	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Lofa	1%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Margibi	30%	35%	2%	3%	6%	0%	67%	44%	38%	0%	13%
Maryland	1%	50%	0%	0%	0%	0%	50%	50%	0%	0%	0%
Montserrado	12%	36%	15%	3%	3%	0%	42%	9%	67%	0%	24%
Nimba	6%	24%	5%	5%	0%	48%	62%	24%	62%	0%	14%
River Cess	8%	17%	0%	0%	0%	3%	72%	3%	52%	3%	7%
Sinoe	8%	23%	15%	0%	15%	8%	62%	23%	38%	8%	15%
River Gee	3%	0%	0%	0%	0%	0%	0%	0%	80%	20%	0%
Gbarpolu	3%	0%	30%	0%	0%	0%	60%	60%	50%	0%	10%
Total	**7%**	**30%**	**7%**	**4%**	**6%**	**6%**	**57%**	**27%**	**51%**	**1%**	**14%**

Annex 2.3: Housing and Living Conditions

	Household Size and Overcrowding		
	HH size	No of units/rooms	Overcrowded rooms (more than 5 people per room)
Bomi	5.2	1.5	25%
Bong	5.5	2.4	17%
Grand Bassa	4.8	1.5	18%
Grand Cape Mount	4.6	1.5	23%
Grand Gedeh	6.1	2.2	16%
Grand Kru	5.8	1.7	24%
Lofa	5.1	1.7	22%
Margibi	5.3	1.6	27%
Maryland	5.6	2.0	15%
Montserrado	6.4	2.3	25%
Nimba	6.1	2.0	19%
River Cess	5.5	1.9	21%
Sinoe	5.5	1.9	19%
River Gee	5.9	2.0	13%
Gbarpolu	4.9	1.8	21%
Total	**5.6**	**1.9**	**21%**

	House Tenure			If rented, monthly costs in LD
	Own	Live for free	Rent	
Bomi	64%	35%	1%	188
Bong	62%	29%	10%	368
Grand Bassa	69%	31%	0%	.
Grand Cape Mount	62%	31%	8%	165
Grand Gedeh	80%	19%	1%	225
Grand Kru	77%	22%	1%	185
Lofa	55%	42%	3%	244
Margibi	64%	24%	12%	218
Maryland	65%	34%	1%	75
Montserrado	61%	22%	17%	341
Nimba	79%	18%	3%	129
River Cess	73%	24%	3%	129
Sinoe	80%	19%	1%	163
River Gee	70%	28%	2%	244
Gbarpolu	55%	41%	4%	168
Total	**66%**	**28%**	**6%**	**286**

	Material of Outside Walls				
	Earth/ mud	Wood/ bamboo	Zinc/ metal sheet	Mud bricks/ blocks	Cement/ Concrete
Bomi	91%	0%	0%	2%	6%
Bong	88%	1%	1%	2%	9%
Grand Bassa	92%	6%	0%	0%	1%
Grand Cape Mount	82%	8%	4%	1%	5%
Grand Gedeh	99%	0%	0%	1%	1%
Grand Kru	100%	0%	0%	0%	0%
Lofa	41%	0%	0%	58%	1%
Margibi	67%	18%	1%	5%	8%
Maryland	82%	0%	0%	0%	18%
Montserrado	60%	6%	6%	5%	24%
Nimba	71%	0%	0%	26%	2%
River Cess	90%	8%	1%	0%	1%
Sinoe	94%	1%	3%	1%	1%
River Gee	97%	0%	0%	0%	3%
Gbarpolu	95%	0%	0%	4%	0%
Total	**75%**	**4%**	**2%**	**12%**	**7%**

	Material of Roof			Material of Floor		
	Straw /thatch	Zinc/ metal sheet	Plastic sheet (tarpaulin)	Mud/ stones	Wood	Cement
Bomi	72%	25%	3%	87%	0%	13%
Bong	30%	69%	1%	85%	0%	15%
Grand Bassa	84%	16%	0%	95%	1%	4%
Grand Cape Mount	51%	48%	1%	81%	0%	19%
Grand Gedeh	93%	7%	0%	94%	0%	6%
Grand Kru	87%	13%	0%	97%	0%	3%
Lofa	40%	56%	4%	95%	1%	4%
Margibi	54%	44%	2%	85%	0%	14%
Maryland	62%	38%	0%	76%	1%	23%
Montserrado	17%	75%	9%	61%	0%	39%
Nimba	27%	70%	3%	79%	0%	21%
River Cess	87%	13%	0%	96%	0%	3%
Sinoe	79%	20%	1%	95%	1%	5%
River Gee	77%	23%	0%	84%	0%	15%
Gbarpolu	58%	42%	0%	89%	0%	10%
Total	**49%**	**49%**	**3%**	**83%**	**0%**	**16%**

	Main Source of Lightning			Main Source of Cooking Fuel		
	Kerosene, oil or gas lantern	Battery flashlight	Candles/ firewood	Charcoal	Firewood	Kerosene
Bomi	92%	1%	7%	4%	96%	0%
Bong	94%	2%	4%	5%	94%	1%
Grand Bassa	94%	1%	5%	1%	99%	0%
Grand Cape Mount	94%	2%	4%	5%	94%	0%
Grand Gedeh	87%	4%	10%	2%	98%	0%
Grand Kru	100%	0%	0%	0%	100%	0%
Lofa	100%	0%	0%	1%	98%	1%
Margibi	84%	2%	14%	6%	94%	1%
Maryland	99%	1%	0%	1%	99%	0%
Montserrado	73%	0%	27%	37%	63%	0%
Nimba	95%	0%	5%	1%	98%	0%
River Cess	95%	1%	4%	1%	99%	1%
Sinoe	96%	1%	4%	0%	100%	0%
River Gee	98%	1%	1%	0%	100%	0%
Gbarpolu	91%	1%	8%	2%	98%	0%
Total	**91%**	**1%**	**8%**	**8%**	**92%**	**0%**

	Access to safe drinking water (rainy season)		Walking distance in min (total)	Main source				
	Improved	Unsafe		Tube well/bore well with pump	Protected dug well or spring	Un-protected well	Pond, lake, river, creek	Rain water
Bomi	35%	65%	6	33%	2%	7%	58%	0%
Bong	45%	55%	8	38%	6%	16%	36%	4%
Grand Bassa	10%	90%	9	10%	0%	2%	88%	0%
Cape Mount	42%	58%	5	42%	1%	9%	47%	1%
Grand Gedeh	43%	57%	8	42%	2%	7%	50%	0%
Grand Kru	18%	82%	12	16%	1%	0%	82%	0%
Lofa	33%	67%	8	28%	5%	13%	54%	0%
Margibi	25%	75%	6	21%	4%	16%	56%	3%
Maryland	65%	35%	7	65%	1%	0%	31%	3%
Montserrado	47%	53%	6	40%	7%	24%	28%	1%
Nimba	33%	67%	7	28%	5%	28%	39%	0%
River Cess	26%	74%	8	25%	1%	1%	73%	0%
Sinoe	9%	91%	14	9%	0%	0%	91%	0%
River Gee	16%	84%	7	15%	1%	3%	81%	0%
Gbarpolu	16%	84%	7	15%	1%	2%	79%	4%
Total	**34%**	**66%**	**8**	**31%**	**4%**	**13%**	**51%**	**1%**

	Access to safe drinking water (dry season)		Walking distance in min (total)	Main source			
	Improved	Unsafe		Tube well/bore well with pump	Protected dug well or spring	Un-protected well	Pond, lake, river, creek
Bomi	24%	76%	6	23%	1%	8%	69%
Bong	41%	59%	8	35%	6%	18%	41%
Grand Bassa	10%	90%	10	10%	0%	0%	90%
Cape Mount	43%	57%	6	42%	1%	10%	47%
Grand Gedeh	41%	59%	8	40%	1%	7%	52%
Grand Kru	7%	93%	13	7%	0%	1%	93%
Lofa	25%	75%	9	21%	4%	8%	67%
Margibi	25%	75%	7	21%	5%	19%	55%
Maryland	66%	34%	7	66%	0%	1%	33%
Montserrado	45%	55%	6	41%	5%	26%	29%
Nimba	34%	66%	7	27%	6%	28%	38%
River Cess	22%	78%	9	21%	1%	1%	77%
Sinoe	7%	93%	14	6%	1%	0%	93%
River Gee	15%	85%	7	14%	1%	2%	83%
Gbarpolu	15%	85%	7	15%	0%	2%	82%
Total	**32%**	**68%**	**8**	**28%**	**3%**	**14%**	**55%**

	Toilet Facilities				
	Traditional pit latrine	Open pit	Communal latrine	Flush toilet	None
Bomi	10%	2%	11%	0%	77%
Bong	10%	7%	6%	0%	77%
Grand Bassa	5%	1%	1%	0%	93%
Grand Cape Mount	10%	1%	11%	0%	79%
Grand Gedeh	3%	2%	3%	1%	92%
Grand Kru	6%	3%	6%	0%	85%
Lofa	5%	1%	22%	0%	73%
Margibi	8%	0%	3%	0%	88%
Maryland	35%	3%	9%	0%	53%
Montserrado	10%	3%	22%	2%	63%
Nimba	10%	1%	14%	0%	75%
River Cess	10%	2%	14%	0%	75%
Sinoe	6%	6%	0%	0%	87%
River Gee	14%	12%	2%	0%	72%
Gbarpolu	2%	2%	12%	0%	84%
Total	**9%**	**3%**	**11%**	**0%**	**76%**

Annex 2.4: Agricultural Production, Livestock, Fishing and Markets

	Access to Agricultural Land				
	% of HHs with access to land	Size in acres	Size of plot compared to before the war		
			Larger	Smaller	About the same size
Bomi	68%	1.8	24%	61%	15%
Bong	66%	3.5	15%	67%	18%
Grand Bassa	81%	3.8	24%	34%	41%
Grand Cape Mount	52%	2.8	32%	23%	45%
Grand Gedeh	88%	2.8	22%	38%	40%
Grand Kru	76%	1.9	63%	27%	10%
Lofa	88%	5.4	36%	31%	33%
Margibi	46%	3.0	22%	13%	65%
Maryland	70%	2.8	33%	56%	10%
Montserrado	39%	3.8	47%	20%	32%
Nimba	72%	2.6	27%	59%	15%
River Cess	76%	4.2	21%	39%	40%
Sinoe	83%	2.7	59%	33%	7%
River Gee	90%	1.9	23%	44%	33%
Gbarpolu	67%	2.3	34%	31%	35%
Total	**66%**	**3.3**	**31%**	**41%**	**28%**

	Type of Land Tenure				
	Personal plot with deed	Personal plot or community land without deed	Rented/ leased land	Squatter agreement	Other
Bomi	33%	55%	1%	11%	0%
Bong	22%	62%	6%	10%	0%
Grand Bassa	6%	78%	0%	14%	2%
Grand Cape Mount	60%	24%	2%	14%	0%
Grand Gedeh	10%	78%	2%	9%	0%
Grand Kru	0%	99%	0%	0%	0%
Lofa	0%	97%	0%	2%	0%
Margibi	52%	24%	7%	17%	0%
Maryland	5%	83%	1%	9%	1%
Montserrado	26%	43%	4%	25%	1%
Nimba	48%	46%	2%	5%	0%
River Cess	6%	79%	0%	15%	0%
Sinoe	3%	91%	0%	5%	0%
River Gee	1%	89%	0%	9%	0%
Gbarpolu	17%	70%	0%	13%	0%
Total	**20%**	**67%**	**2%**	**10%**	**0%**

		Food Crops								
	Number of food crops	Rice	Cassava	Sweet potatoes/ eddoes	Plantain/ banana	Corn	Vegetables	Groundnuts	Pulses	Other
Bomi	1.9	61%	84%	8%	12%	8%	19%	1%	1%	1%
Bong	2.3	88%	62%	17%	8%	19%	29%	4%	1%	2%
Grand Bassa	1.6	60%	87%	2%	7%	0%	6%	0%	0%	1%
Cape Mount	1.5	53%	50%	9%	0%	1%	32%	0%	1%	1%
Grand Gedeh	1.5	93%	35%	3%	12%	5%	3%	0%	0%	1%
Grand Kru	2.2	82%	82%	10%	22%	11%	11%	0%	0%	0%
Lofa	1.6	95%	17%	6%	6%	7%	14%	1%	11%	0%
Margibi	1.3	33%	79%	1%	1%	12%	3%	0%	1%	1%
Maryland	2.5	74%	78%	10%	16%	14%	62%	0%	1%	0%
Montserrado	1.6	16%	90%	8%	8%	16%	18%	0%	1%	3%
Nimba	2.5	80%	78%	22%	28%	6%	35%	3%	2%	0%
River Cess	1.8	84%	77%	5%	6%	1%	6%	1%	0%	1%
Sinoe	1.9	83%	72%	14%	10%	10%	1%	0%	0%	0%
River Gee	1.4	98%	17%	1%	11%	2%	5%	0%	0%	0%
Gbarpolu	1.3	83%	33%	3%	2%	3%	6%	1%	2%	0%
Total	**1.9**	**71%**	**67%**	**10%**	**12%**	**9%**	**20%**	**1%**	**2%**	**1%**

	Use of Rice Harvest					
	% rice consumed	% rice sold	% rice gifted	% rice used as payment	% rice spoiled	% rice seeds preserved
Bomi	78%	9%	3%	1%	2%	7%
Bong	73%	4%	5%	4%	1%	13%
Grand Bassa	75%	6%	6%	5%	0%	8%
Grand Cape Mount	58%	14%	9%	2%	0%	17%
Grand Gedeh	71%	5%	7%	1%	2%	13%
Grand Kru	73%	3%	2%	0%	0%	21%
Lofa	71%	4%	5%	1%	1%	17%
Margibi	66%	6%	7%	3%	4%	15%
Maryland	75%	4%	3%	3%	4%	10%
Montserrado	59%	10%	6%	4%	0%	15%
Nimba	69%	17%	2%	1%	1%	10%
River Cess	72%	1%	5%	3%	1%	18%
Sinoe	68%	4%	4%	1%	2%	20%
River Gee	72%	6%	5%	0%	1%	16%
Gbarpolu	71%	3%	5%	2%	1%	18%
Total	**71%**	**7%**	**5%**	**2%**	**1%**	**13%**

	Use of Cassava Harvest					
	% cassava consumed	% cassava sold	% cassava gifted	% cassava used as payment	% cassava spoiled	% cassava consumed
Bomi	57%	38%	3%	1%	1%	57%
Bong	61%	31%	3%	4%	1%	61%
Grand Bassa	70%	20%	6%	4%	0%	70%
Grand Cape Mount	39%	54%	5%	0%	2%	39%
Grand Gedeh	63%	27%	6%	1%	2%	63%
Grand Kru	73%	23%	3%	0%	0%	73%
Lofa	56%	41%	3%	0%	0%	56%
Margibi	50%	40%	8%	1%	1%	50%
Maryland	51%	43%	3%	2%	1%	51%
Montserrado	40%	55%	5%	0%	0%	40%
Nimba	53%	40%	4%	1%	2%	53%
River Cess	80%	9%	8%	2%	1%	80%
Sinoe	70%	18%	7%	2%	2%	70%
River Gee	44%	49%	7%	0%	0%	44%
Gbarpolu	68%	22%	9%	0%	1%	68%
Total	57%	35%	5%	2%	1%	57%

	Use of Vegetable Harvest					
	% vegetables consumed	% vegetables sold consumed	% vegetables gifted	% vegetables used as a payment	% vegetables that spoiled	% vegetables seeds preserved
Bomi	57%	33%	6%	3%	0%	0%
Bong	45%	46%	3%	4%	1%	2%
Grand Bassa	26%	67%	6%	2%	0%	0%
Grand Cape Mount	42%	45%	8%	3%	2%	0%
Grand Gedeh	44%	52%	3%	1%	0%	0%
Grand Kru	45%	50%	4%	0%	0%	0%
Lofa	62%	27%	6%	0%	0%	5%
Margibi	26%	56%	11%	0%	3%	4%
Maryland	41%	53%	2%	1%	1%	2%
Montserrado	32%	66%	1%	0%	0%	1%
Nimba	24%	72%	3%	0%	0%	1%
River Cess	40%	52%	5%	0%	3%	1%
Sinoe	100%	0%	0%	0%	0%	0%
River Gee	44%	47%	9%	0%	0%	0%
Gbarpolu	60%	27%	10%	2%	1%	0%
Total	**37%**	**56%**	**3%**	**1%**	**0%**	**1%**

	Agricultural Constraints			
	Farming household	Non-farming household with access to land	Non-farming household without access to land	**Total**
Lack of seeds	50%	56%	46%	**50%**
Lack of tools	47%	52%	54%	**50%**
Lack of fertilizer/pesticide	13%	8%	14%	**12%**
Lack of household labour	27%	37%	23%	**28%**
Lack of training	1%	1%	1%	**1%**
Bird attacks	17%	5%	5%	**11%**
Groundhog attack	30%	10%	7%	**19%**
Plant disease/insect attack	8%	2%	4%	**6%**
Loss of harvest due to heavy rain	3%	2%	0%	**2%**
No marketing opportunities	2%	1%	0%	**1%**
Lack of cash/money	29%	39%	30%	**31%**
Lack of arable land	3%	3%	34%	**13%**
Returned late for planting season	2%	21%	3%	**6%**
HH engaged in other activity	10%	12%	18%	**13%**
Other constraint	1%	2%	0%	**1%**

	Agricultural Constraints by County														
	Lack of seeds	Lack of tools	Lack of fertilizer/ pesticide	Lack of household labour	Lack of training	Bird attacks	Groundhog attack	Plant disease/ insect attack	Loss of harvest due to heavy rain	No marketing opportunities	Lack of cash	Lack of arable land	Returned late for planting season	HH engaged in other activity	Other constraint
Bomi	51%	46%	2%	26%	0%	12%	12%	4%	0%	0%	21%	3%	18%	42%	0%
Bong	46%	40%	29%	23%	0%	11%	17%	6%	2%	1%	30%	11%	2%	13%	0%
Gr. Bassa	21%	39%	10%	31%	7%	13%	34%	12%	4%	4%	38%	2%	3%	15%	1%
Cape Mount	66%	73%	18%	20%	2%	1%	8%	1%	1%	6%	60%	5%	3%	5%	1%
Gr. Gedeh	46%	42%	1%	24%	0%	6%	38%	3%	3%	3%	35%	4%	2%	4%	1%
Grand Kru	64%	56%	1%	14%	0%	8%	55%	1%	12%	0%	2%	1%	1%	28%	0%
Lofa	55%	50%	5%	59%	0%	5%	6%	2%	2%	0%	47%	1%	24%	10%	0%
Margibi	61%	50%	25%	15%	1%	28%	30%	13%	1%	0%	17%	29%	1%	2%	2%
Maryland	24%	19%	9%	25%	1%	13%	25%	9%	3%	1%	14%	7%	3%	26%	0%
Montserrado	53%	59%	19%	14%	1%	11%	8%	1%	0%	0%	25%	42%	1%	5%	0%
Nimba	48%	51%	9%	36%	1%	4%	4%	9%	1%	1%	32%	17%	2%	19%	0%
River Cess	45%	60%	6%	28%	2%	9%	14%	3%	5%	1%	47%	4%	3%	13%	0%
Sinoe	74%	63%	4%	27%	1%	17%	60%	4%	2%	2%	12%	1%	1%	5%	0%
River Gee	47%	55%	0%	20%	0%	11%	57%	6%	0%	1%	21%	1%	1%	8%	0%
Gbarpolu	62%	52%	3%	16%	1%	20%	23%	9%	1%	1%	41%	3%	8%	8%	7%
Total	**50%**	**50%**	**12%**	**28%**	**1%**	**11%**	**19%**	**6%**	**2%**	**1%**	**31%**	**13%**	**6%**	**13%**	**1%**

	Rice production in 2005			
		Rice production in 2005 compared to before the war		
	% of HHs growing Rice	More	Less	About the same
Bomi	39%	20%	63%	17%
Bong	80%	11%	84%	5%
Grand Bassa	49%	17%	69%	14%
Grand Cape Mount	20%	11%	89%	0%
Grand Gedeh	73%	16%	82%	2%
Grand Kru	70%	27%	62%	11%
Lofa	36%	22%	69%	9%
Margibi	27%	15%	79%	5%
Maryland	65%	21%	73%	6%
Montserrado	12%	7%	71%	21%
Nimba	75%	22%	66%	12%
River Cess	63%	11%	78%	10%
Sinoe	64%	50%	43%	7%
River Gee	85%	12%	83%	5%
Gbarpolu	40%	26%	71%	4%
Total	**52%**	**19%**	**72%**	**9%**

	Rice Production Technique				
	Only upland	More upland than swampland	Upland and swampland equally	More swampland than upland	Only swampland
Bomi	64%	19%	1%	2%	15%
Bong	70%	10%	7%	0%	13%
Grand Bassa	68%	3%	14%	1%	14%
Grand Cape Mount	66%	3%	0%	21%	11%
Grand Gedeh	44%	12%	11%	13%	21%
Grand Kru	76%	9%	6%	5%	4%
Lofa	34%	3%	0%	14%	50%
Margibi	54%	13%	9%	4%	20%
Maryland	66%	9%	9%	5%	11%
Montserrado	65%	12%	0%	6%	18%
Nimba	74%	12%	3%	2%	10%
River Cess	82%	5%	4%	1%	8%
Sinoe	69%	10%	10%	5%	6%
River Gee	44%	18%	1%	14%	24%
Gbarpolu	48%	14%	4%	5%	28%
Total	**63%**	**10%**	**6%**	**5%**	**17%**

	Rice production in 2005	Number of months harvest lasted for consumption	Months of main rice harvest
Bomi	39%	4.8	Oct-Nov
Bong	80%	4.8	Oct-Nov
Grand Bassa	49%	4.3	Sep-Oct
Grand Cape Mount	20%	4.1	Sep-Oct
Grand Gedeh	73%	5.1	Aug-Sept
Grand Kru	70%	5.0	Jul-Aug
Lofa	36%	5.4	Oct-Dec
Margibi	27%	3.7	Oct-Dec
Maryland	65%	4.8	Aug-Oct
Montserrado	12%	4.8	Oct-Dec
Nimba	75%	5.2	Oct-Nov
River Cess	63%	4.4	Sept-Oct
Sinoe	64%	4.7	Jul-Aug
River Gee	85%	5.4	Aug-Sept
Gbarpolu	40%	3.8	Oct-Dec
Total	**52%**	**4.9**	**Sept-Dec**

	Tins of rice seeds planted in 2005	Tins of rice seeds reserved for 2006	Source of Rice Seeds					
			Purchase	Own stock	Gifts from friends and relatives	NGOs	Borrow/ exchange	Other
Bomi	3.4	1.7	33%	13%	30%	39%	5%	0%
Bong	2.7	2.0	59%	20%	27%	16%	20%	1%
Grand Bassa	3.7	1.0	69%	6%	19%	1%	19%	0%
Gr. Cape Mount	2.9	1.1	76%	0%	13%	8%	13%	0%
Grand Gedeh	2.5	2.3	45%	27%	17%	34%	2%	0%
Grand Kru	3.5	2.0	47%	47%	18%	10%	2%	0%
Lofa	3.1	2.6	41%	13%	13%	34%	15%	1%
Margibi	2.4	1.5	80%	7%	15%	2%	11%	0%
Maryland	2.6	2.2	38%	46%	16%	26%	3%	1%
Montserrado	3.2	2.6	35%	6%	24%	18%	29%	0%
Nimba	4.2	3.3	62%	24%	34%	16%	4%	1%
River Cess	4.0	1.8	72%	5%	20%	6%	15%	0%
Sinoe	3.8	3.2	57%	29%	14%	11%	2%	1%
River Gee	2.2	1.7	47%	44%	13%	29%	2%	1%
Gbarpolu	2.6	2.4	54%	2%	21%	18%	14%	2%
Total	**3.3**	**2.3**	**55%**	**21%**	**22%**	**19%**	**10%**	**1%**

	HHs Owning Agricultural Assets				
	Cutlass	Hoe	Ax	Shovel	Spade
Bomi	97%	72%	62%	8%	14%
Bong	91%	78%	55%	13%	3%
Grand Bassa	95%	69%	54%	3%	0%
Grand Cape Mount	62%	26%	23%	8%	2%
Grand Gedeh	86%	68%	49%	10%	1%
Grand Kru	93%	56%	41%	6%	2%
Lofa	79%	48%	41%	19%	0%
Margibi	87%	28%	8%	6%	4%
Maryland	92%	86%	63%	12%	2%
Montserrado	61%	37%	21%	13%	0%
Nimba	92%	77%	70%	8%	1%
River Cess	86%	48%	35%	3%	0%
Sinoe	90%	66%	48%	11%	1%
River Gee	95%	88%	68%	6%	0%
Gbarpolu	92%	59%	44%	24%	1%
Total	**84%**	**58%**	**44%**	**11%**	**2%**

			If yes, type of hunger farm		
	Vegetable garden	**Hunger farm**	Rice hunger farm	Cassava hunger farm	Other crops on hunger farm
Bomi	49%	30%	4%	95%	13%
Bong	61%	41%	27%	87%	46%
Grand Bassa	49%	32%	21%	84%	23%
Grand Cape Mount	26%	7%	8%	75%	42%
Grand Gedeh	48%	23%	29%	71%	39%
Grand Kru	61%	42%	18%	63%	44%
Lofa	49%	13%	2%	78%	24%
Margibi	54%	27%	4%	92%	5%
Maryland	48%	43%	29%	90%	57%
Montserrado	48%	19%	0%	94%	7%
Nimba	55%	39%	8%	90%	10%
River Cess	31%	21%	41%	81%	14%
Sinoe	49%	40%	11%	90%	23%
River Gee	73%	42%	28%	74%	48%
Gbarpolu	55%	24%	44%	64%	16%
Total	**51%**	**28%**	**16%**	**86%**	**25%**

		If yes, type of cash crops									
	Cash crop production	Rubber	Coffee	Cacao	Coconuts	Sugarcane	Pineapple	Plantain/ banana	Palm nuts/oil	Cola nuts	Other
Bomi	27%	24%	3%	14%	3%	17%	29%	52%	17%	28%	0%
Bong	28%	52%	9%	26%	1%	21%	14%	26%	17%	4%	7%
Gr. Bassa	36%	16%	2%	18%	11%	28%	29%	53%	8%	2%	0%
Cape Mount	10%	3%	15%	18%	18%	0%	21%	18%	49%	13%	0%
Gr. Gedeh	26%	4%	13%	72%	2%	0%	2%	38%	4%	0%	3%
Grand Kru	37%	19%	1%	20%	12%	27%	12%	65%	5%	3%	0%
Lofa	37%	1%	82%	53%	0%	2%	3%	12%	10%	5%	0%
Margibi	8%	52%	0%	10%	14%	14%	14%	34%	14%	3%	3%
Maryland	38%	39%	2%	19%	9%	33%	9%	50%	4%	3%	1%
Montserrado	10%	41%	3%	5%	19%	11%	16%	49%	5%	16%	0%
Nimba	47%	38%	18%	37%	1%	34%	14%	45%	19%	8%	1%
River Cess	27%	31%	4%	19%	16%	7%	13%	50%	12%	2%	0%
Sinoe	31%	9%	8%	29%	21%	8%	10%	59%	17%	15%	1%
River Gee	46%	10%	4%	54%	19%	1%	4%	64%	5%	1%	0%
Gbarpolu	18%	9%	28%	52%	5%	6%	9%	23%	19%	17%	3%
Total	**28%**	**26%**	**20%**	**32%**	**6%**	**19%**	**14%**	**40%**	**13%**	**7%**	**1%**

	Livestock Ownership											
	Cattle		Goats		Sheep		Pigs		Chicken		Ducks	
	HH own	Median	HH own	Median	HH own	Median	HH own	Median	HH own	Median	HH own	Median
Bomi	0%	.	1%	2	1%	3	0%	8	59%	5	11%	3
Bong	0%	1	5%	5	1%	4	4%	2	43%	6	13%	4
Gr. Bassa	0%	.	3%	2	0%	2	6%	3	51%	5	8%	2
Cape Mount	0%	.	0%	1	0%	5	0%	.	34%	5	2%	7
Gr. Gedeh	1%	2	15%	2	2%	2	0%	.	55%	6	9%	4
Grand Kru	1%	2	10%	3	3%	4	2%	4	42%	4	11%	3
Lofa	0%	.	0%	.	0%	.	1%	3	50%	5	9%	2
Margibi	0%	.	1%	3	0%	.	6%	4	39%	5	6%	2
Maryland	3%	2	16%	3	6%	3	5%	5	57%	5	13%	3
Montserrado	0%	1	0%	.	0%	.	2%	5	44%	5	7%	3
Nimba	2%	1	13%	3	6%	3	20%	2	51%	6	9%	2
River Cess	0%	.	1%	3	0%	1	1%	1	41%	10	6%	3
Sinoe	0%	.	1%	2	0%	.	0%	4	31%	5	8%	4
River Gee	0%	.	10%	3	4%	3	0%	.	56%	5	4%	3
Gbarpolu	0%	.	0%	.	0%	.	0%	.	51%	5	6%	3
Total	**1%**	**1**	**5%**	**3**	**1%**	**3**	**5%**	**2**	**47%**	**5**	**8%**	**3**

		If fishing, where…			
	Fishing	Ocean	River	Creek	Swamps
Bomi	55%	0%	14%	88%	3%
Bong	58%	1%	41%	83%	17%
Grand Bassa	70%	4%	34%	79%	0%
Grand Cape Mount	69%	11%	15%	81%	2%
Grand Gedeh	68%	0%	30%	80%	1%
Grand Kru	71%	22%	12%	68%	0%
Lofa	61%	0%	34%	71%	3%
Margibi	72%	1%	43%	67%	25%
Maryland	44%	9%	42%	83%	2%
Montserrado	55%	0%	20%	70%	13%
Nimba	66%	0%	42%	81%	6%
River Cess	60%	3%	31%	64%	1%
Sinoe	59%	0%	26%	77%	0%
River Gee	64%	0%	28%	89%	0%
Gbarpolu	63%	0%	28%	82%	16%
Total	**62%**	**2%**	**31%**	**77%**	**8%**

	HHs Owning Fishing Assets					
	Canoe	Fishing basket	Fishing hook	Sea fishing net	Fish dryer	Fishing knife
Bomi	0%	20%	14%	16%	38%	10%
Bong	0%	47%	20%	17%	29%	7%
Grand Bassa	2%	52%	20%	4%	2%	6%
Grand Cape Mount	2%	28%	14%	27%	20%	38%
Grand Gedeh	0%	18%	23%	15%	32%	3%
Grand Kru	5%	40%	35%	13%	12%	15%
Lofa	0%	18%	22%	21%	7%	1%
Margibi	0%	37%	12%	3%	15%	8%
Maryland	2%	34%	17%	7%	50%	19%
Montserrado	0%	21%	10%	19%	6%	47%
Nimba	0%	45%	23%	11%	38%	10%
River Cess	3%	32%	10%	3%	7%	1%
Sinoe	0%	18%	5%	1%	13%	2%
River Gee	1%	39%	30%	13%	46%	2%
Gbarpolu	0%	36%	12%	10%	24%	12%
Total	**1%**	**33%**	**17%**	**13%**	**21%**	**15%**

	Access to Markets					
	Selling in Monrovia	Selling in urban centre/across the border	Walking distance to weekly market in hours	Access to market	If access, households ... buy food	sell food
Bomi	5%	27%	1.9	100%	98%	47%
Bong	6%	39%	1.5	99%	98%	62%
Grand Bassa	5%	14%	2.8	100%	98%	55%
Grand Cape Mount	6%	6%	3.3	100%	96%	19%
Grand Gedeh	3%	22%	10.2	87%	82%	53%
Grand Kru	2%	42%	3.3	97%	95%	67%
Lofa	2%	84%	1.9	100%	99%	85%
Margibi	13%	8%	1.8	100%	96%	43%
Maryland	1%	76%	3.9	99%	100%	80%
Montserrado	22%	18%	1.6	100%	95%	46%
Nimba	8%	29%	2.5	100%	95%	55%
River Cess	8%	10%	2.7	92%	92%	21%
Sinoe	5%	36%	2.5	91%	90%	51%
River Gee	1%	21%	3.0	100%	98%	62%
Gbarpolu	6%	18%	5.7	75%	86%	36%
Total	**8%**	**32%**	**2.6**	**98%**	**96%**	**55%**

Annex 2.5: Livelihood Activities and Sources of Income

	Proportion of Households Involved in Income-Generating Activities															
	Bomi	Bong	Grand Bassa	Grand Cape Mount	Grand Gedeh	Grand Kru	Lofa	Margibi	Maryland	Montserrado	Nimba	River Cess	Sinoe	River Gee	Gbarpolu	**Total**
Food crop production	23%	57%	58%	14%	37%	60%	24%	34%	66%	30%	55%	27%	53%	50%	32%	**41%**
Cash crop production	5%	16%	24%	1%	3%	10%	9%	3%	19%	1%	28%	3%	4%	5%	6%	**11%**
Ocean fishing	0%	1%	3%	8%	0%	16%	0%	2%	4%	0%	0%	2%	1%	0%	1%	**2%**
Inland fishing	2%	33%	26%	9%	10%	52%	8%	20%	32%	1%	13%	6%	10%	3%	8%	**14%**
Trapping/hunting	4%	5%	7%	12%	45%	18%	18%	1%	14%	1%	6%	32%	30%	31%	31%	**11%**
Petty trade/small-scale business	16%	41%	18%	16%	33%	24%	15%	22%	33%	46%	26%	17%	32%	35%	16%	**28%**
Processing/selling of fish/snails	1%	0%	2%	3%	7%	9%	3%	5%	1%	1%	2%	2%	1%	1%	1%	**2%**
Processing/sale of palm oil/palm nuts	46%	37%	42%	20%	19%	22%	57%	13%	34%	18%	17%	48%	36%	32%	33%	**31%**
Rubber tapping	21%	17%	4%	1%	0%	6%	1%	30%	27%	8%	10%	2%	6%	8%	2%	**10%**
Selling of firewood	0%	2%	1%	4%	2%	1%	1%	4%	2%	3%	1%	2%	2%	1%	0%	**2%**
Processing and selling of charcoal	28%	4%	9%	5%	0%	0%	1%	28%	0%	25%	1%	2%	4%	0%	1%	**9%**
Sale of sugarcane juice	2%	6%	2%	0%	0%	9%	2%	2%	12%	1%	13%	0%	0%	0%	1%	**4%**
Pit sawing	0%	1%	4%	1%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	1%	**1%**
Mining	2%	1%	1%	3%	2%	6%	0%	0%	1%	1%	1%	2%	1%	4%	9%	**1%**
Contract work/casual labour	19%	21%	8%	18%	17%	10%	35%	20%	11%	19%	19%	2%	6%	13%	19%	**18%**
Sales of prepared food	2%	5%	1%	6%	0%	1%	1%	1%	2%	1%	9%	1%	1%	1%	0%	**3%**
Shopkeeper	1%	2%	0%	1%	0%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	**1%**
Salary from employer	4%	9%	2%	4%	7%	13%	4%	4%	11%	17%	2%	6%	5%	5%	5%	**7%**
Skilled labour	4%	3%	3%	2%	2%	2%	6%	3%	2%	3%	4%	1%	2%	2%	2%	**3%**
Handicraft	4%	0%	3%	1%	0%	1%	1%	1%	0%	2%	1%	4%	1%	2%	1%	**1%**
Raising/selling of own livestock	1%	3%	1%	0%	1%	4%	1%	0%	9%	1%	3%	0%	0%	0%	1%	**2%**
Raising livestock for others	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**0%**
Begging	1%	1%	0%	1%	1%	1%	0%	2%	0%	5%	1%	1%	1%	1%	3%	**1%**
Assistance by relatives/remittances	0%	2%	1%	5%	0%	0%	2%	0%	2%	4%	0%	0%	0%	2%	1%	**2%**
Other	0%	1%	0%	1%	2%	0%	0%	0%	0%	3%	1%	1%	0%	0%	0%	**1%**

	Percent Activities Contributes to Total HH Income											
	% food crop production	% cash crop production	% fishing	% trapping/hunting	% contract work/casual labour	% petty trade/small-scale business	% salary from employer	% processing palm nuts/sugarcane	% selling of charcoal/ firewood/ pit-sawing	% skilled labour/ handicraft	% rubber tapping	% other activity
Bomi	8%	2%	1%	1%	7%	9%	3%	27%	18%	5%	15%	2%
Bong	25%	6%	7%	1%	8%	18%	3%	17%	2%	1%	8%	2%
Gr. Bassa	22%	10%	7%	4%	4%	11%	1%	28%	6%	3%	3%	2%
Cape Mount	8%	0%	14%	9%	15%	18%	3%	15%	6%	2%	0%	8%
Gr. Gedeh	22%	2%	7%	25%	9%	16%	4%	11%	1%	1%	0%	4%
Grand Kru	22%	4%	22%	8%	4%	10%	5%	15%	1%	2%	3%	6%
Lofa	10%	4%	5%	8%	19%	8%	3%	37%	1%	4%	0%	1%
Margibi	14%	1%	8%	0%	11%	11%	2%	6%	19%	2%	22%	1%
Maryland	29%	6%	7%	4%	5%	10%	5%	14%	1%	1%	13%	3%
Montserrado	14%	0%	1%	1%	11%	23%	11%	9%	14%	3%	6%	6%
Nimba	23%	15%	5%	2%	10%	16%	2%	16%	1%	3%	6%	2%
River Cess	15%	1%	6%	20%	1%	11%	3%	33%	3%	4%	1%	2%
Sinoe	35%	1%	4%	15%	2%	13%	2%	19%	3%	1%	3%	2%
River Gee	26%	3%	1%	13%	8%	16%	3%	17%	0%	2%	5%	5%
Gbarpolu	15%	3%	4%	17%	13%	10%	3%	21%	1%	2%	1%	9%
Total	**18%**	**5%**	**6%**	**5%**	**10%**	**15%**	**4%**	**19%**	**6%**	**3%**	**6%**	**3%**

	Livelihood Profiles												
	Food crop farmers	Palm oil seller/producer	Petty traders	Hunters	Contract labourers	Rubber tappers	Charcoal producers	Fisherfolks	Employees	Skilled labourers	Cash and food crop producers	Palm oil and food crop producers	Other activity
Bomi	5%	22%	6%	1%	5%	18%	23%	1%	3%	6%	2%	4%	2%
Bong	23%	7%	16%	1%	7%	9%	2%	2%	4%	2%	7%	18%	1%
Gr. Bassa	14%	21%	9%	4%	5%	3%	9%	4%	0%	4%	11%	15%	2%
Cape Mount	7%	14%	18%	10%	15%	0%	6%	13%	4%	2%	1%	2%	8%
Gr. Gedeh	26%	9%	13%	25%	7%	0%	1%	5%	4%	1%	2%	2%	4%
Grand Kru	21%	9%	8%	8%	3%	3%	1%	18%	5%	2%	5%	11%	7%
Lofa	6%	33%	9%	7%	16%	0%	1%	5%	3%	5%	5%	9%	0%
Margibi	13%	5%	9%	0%	12%	26%	21%	5%	2%	3%	2%	1%	1%
Maryland	26%	5%	7%	4%	4%	18%	1%	3%	5%	1%	9%	15%	2%
Montserrado	12%	5%	18%	1%	12%	7%	16%	1%	14%	3%	1%	3%	5%
Nimba	17%	11%	14%	1%	11%	6%	1%	4%	2%	3%	20%	8%	1%
River Cess	13%	29%	10%	21%	2%	1%	3%	6%	2%	3%	1%	5%	2%
Sinoe	39%	15%	9%	16%	1%	3%	3%	2%	3%	1%	1%	4%	2%
River Gee	23%	12%	12%	12%	8%	6%	0%	1%	3%	2%	3%	13%	5%
Gbarpolu	12%	15%	9%	17%	13%	1%	1%	4%	4%	2%	4%	8%	9%
Total	**15%**	**14%**	**12%**	**5%**	**10%**	**7%**	**7%**	**4%**	**5%**	**3%**	**6%**	**8%**	**3%**

HH-Members' Contribution to Total HH Income

	% Men only	% Women only	% Women and men	% Boys only	% Girls only	% Girls & boys	% Women & children	% Men and children	% Everybody
Bomi	29%	10%	50%	0%	0%	0%	2%	1%	8%
Bong	32%	18%	31%	1%	1%	2%	9%	2%	5%
Grand Bassa	26%	13%	48%	0%	0%	0%	2%	1%	9%
Cape Mount	38%	19%	39%	0%	0%	0%	1%	1%	2%
Grand Gedeh	38%	11%	25%	1%	1%	0%	5%	3%	16%
Grand Kru	43%	16%	30%	0%	0%	0%	5%	1%	4%
Lofa	29%	15%	25%	1%	0%	0%	5%	1%	23%
Margibi	41%	15%	27%	1%	0%	0%	2%	1%	13%
Maryland	34%	13%	31%	2%	0%	1%	10%	3%	6%
Montserrado	38%	25%	26%	1%	0%	0%	6%	1%	3%
Nimba	27%	12%	36%	0%	0%	0%	8%	1%	16%
River Cess	37%	11%	36%	1%	0%	0%	5%	3%	7%
Sinoe	32%	14%	37%	0%	0%	2%	7%	2%	7%
River Gee	33%	9%	30%	2%	1%	0%	6%	3%	16%
Gbarpolu	48%	11%	34%	0%	0%	0%	1%	1%	5%
Total	**33%**	**16%**	**33%**	**1%**	**0%**	**0%**	**5%**	**1%**	**10%**

Participant: Food Crop Production

	Men only	Women only	Women & men	Boys only	Girls only	Girls & boys	Women & children	Men & children	Everybody
Bomi	0%	5%	80%	0%	1%	0%	5%	0%	9%
Bong	14%	7%	58%	1%	0%	1%	5%	2%	12%
Grand Bassa	1%	6%	69%	0%	0%	0%	3%	0%	20%
Grand Cape Mount	17%	17%	63%	0%	0%	0%	0%	0%	4%
Grand Gedeh	4%	3%	38%	0%	0%	0%	4%	1%	50%
Grand Kru	2%	7%	82%	0%	0%	0%	3%	1%	4%
Lofa	1%	10%	35%	0%	0%	0%	12%	0%	42%
Margibi	9%	14%	46%	0%	0%	0%	6%	1%	25%
Maryland	4%	6%	60%	1%	0%	0%	12%	2%	14%
Montserrado	13%	19%	52%	0%	0%	0%	10%	1%	5%
Nimba	1%	4%	55%	0%	0%	0%	7%	0%	34%
River Cess	8%	9%	52%	0%	0%	0%	7%	9%	14%
Sinoe	9%	10%	63%	0%	0%	2%	5%	1%	11%
River Gee	2%	4%	50%	0%	0%	0%	4%	1%	39%
Gbarpolu	6%	4%	75%	0%	0%	0%	2%	0%	14%
Total	**6%**	**8%**	**57%**	**0%**	**0%**	**0%**	**6%**	**1%**	**21%**

	Participant: Cash Crop Production								
	Men only	Women only	Women & men	Boys only	Girls only	Girls & boys	Women & children	Men & children	Everybody
Bomi	16%	5%	53%	0%	0%	0%	16%	0%	11%
Bong	24%	6%	54%	4%	0%	0%	0%	2%	10%
Grand Bassa	13%	2%	59%	0%	0%	0%	2%	0%	23%
Grand Cape Mount	33%	0%	67%	0%	0%	0%	0%	0%	0%
Grand Gedeh	45%	27%	18%	0%	0%	0%	0%	0%	9%
Grand Kru	22%	8%	50%	0%	0%	0%	6%	0%	14%
Lofa	13%	0%	56%	0%	0%	0%	0%	3%	28%
Margibi	30%	20%	40%	0%	0%	0%	10%	0%	0%
Maryland	26%	5%	45%	3%	0%	2%	3%	5%	11%
Montserrado	50%	0%	25%	0%	0%	0%	0%	0%	25%
Nimba	22%	6%	43%	0%	0%	0%	1%	0%	27%
River Cess	42%	8%	33%	0%	0%	0%	0%	0%	17%
Sinoe	29%	7%	29%	0%	0%	0%	0%	0%	36%
River Gee	16%	11%	26%	5%	0%	0%	0%	21%	21%
Gbarpolu	52%	0%	35%	0%	0%	0%	0%	0%	13%
Total	**22%**	**5%**	**49%**	**1%**	**0%**	**0%**	**2%**	**1%**	**21%**

	Labour Migration				
	% of HHs with labour migrants	Number of labour migrants	Destination within district	Destination within county	Destination other county
Bomi	16%	1.2	11%	18%	67%
Bong	15%	1.2	35%	45%	24%
Grand Bassa	7%	1.3	19%	52%	33%
Grand Cape Mount	14%	1.3	28%	24%	46%
Grand Gedeh	13%	1.4	46%	43%	28%
Grand Kru	18%	1.3	8%	33%	36%
Lofa	7%	1.9	65%	4%	23%
Margibi	23%	1.4	62%	20%	33%
Maryland	12%	1.3	63%	26%	5%
Montserrado	25%	1.4	53%	65%	18%
Nimba	15%	1.4	11%	39%	52%
River Cess	6%	1.3	21%	13%	75%
Sinoe	17%	1.6	10%	63%	47%
River Gee	10%	1.1	26%	35%	21%
Gbarpolu	11%	1.5	32%	24%	55%
Total	**15%**	**1.4**	**38%**	**40%**	**33%**

	Sex of Labour Migrants			
	Male migrants (< 14 years)	Male migrants (14 years and above)	Female migrants (< 14 years)	Female migrants (14 years and above)
Bomi	0%	91%	0%	15%
Bong	0%	94%	0%	10%
Grand Bassa	0%	100%	0%	0%
Grand Cape Mount	2%	95%	0%	2%
Grand Gedeh	4%	91%	0%	11%
Grand Kru	0%	93%	0%	16%
Lofa	9%	83%	4%	39%
Margibi	1%	96%	5%	16%
Maryland	0%	92%	5%	24%
Montserrado	0%	93%	0%	14%
Nimba	0%	96%	0%	6%
River Cess	9%	73%	5%	18%
Sinoe	0%	93%	2%	21%
River Gee	0%	100%	0%	3%
Gbarpolu	0%	94%	0%	9%
Total	**1%**	**93%**	**1%**	**13%**

	Type of Work of Labour Migrants										
	Regular work on plantations	Petty trade/ commerce	Pit-sawing	Charcoal burning	Domestic work	Skilled work	Salaried work	Mining	Casual work	Trying to find work	Other type of work
Bomi	7%	5%	5%	0%	0%	26%	28%	11%	26%	2%	0%
Bong	22%	10%	2%	2%	6%	14%	26%	2%	12%	12%	0%
Grand Bassa	22%	4%	30%	11%	0%	4%	11%	4%	22%	19%	0%
Cape Mount	4%	0%	0%	0%	0%	31%	13%	4%	42%	6%	2%
Gr. Gedeh	0%	7%	4%	0%	4%	9%	43%	11%	24%	9%	2%
Grand Kru	3%	10%	5%	0%	3%	3%	18%	15%	43%	16%	0%
Lofa	4%	16%	0%	0%	4%	12%	4%	0%	72%	4%	8%
Margibi	37%	7%	0%	6%	0%	15%	13%	2%	10%	26%	0%
Maryland	28%	13%	0%	0%	3%	13%	40%	3%	10%	8%	0%
Montserrado	2%	6%	2%	4%	0%	18%	24%	2%	4%	56%	0%
Nimba	2%	11%	2%	0%	2%	22%	31%	0%	26%	15%	2%
River Cess	9%	17%	0%	4%	0%	13%	9%	26%	13%	22%	0%
Sinoe	12%	12%	3%	2%	2%	15%	32%	20%	10%	25%	2%
River Gee	14%	9%	0%	0%	0%	6%	14%	20%	26%	11%	3%
Gbarpolu	8%	3%	0%	0%	8%	28%	41%	10%	10%	15%	0%
Total	**11%**	**8%**	**3%**	**2%**	**2%**	**17%**	**23%**	**4%**	**19%**	**25%**	**1%**

	Remittances Received by Households from Labour Migrants							
	Money/ cash	LD remitted during the past 12 months	Medicine	Clothing/ shoes	Household utensils	Food	Building/ construction materials	Seeds or tools
Bomi	41%	2,787	14%	19%	2%	24%	0%	2%
Bong	67%	1,404	8%	18%	0%	27%	6%	2%
Gr. Bassa	56%	983	26%	44%	4%	56%	0%	0%
Cape Mount	56%	633	0%	0%	0%	21%	0%	0%
Gr. Gedeh	67%	2,010	11%	17%	4%	26%	2%	2%
Grand Kru	55%	1,184	8%	32%	0%	29%	0%	0%
Lofa	85%	712	0%	15%	4%	27%	4%	4%
Margibi	62%	1,371	2%	8%	1%	29%	0%	0%
Maryland	85%	2,755	28%	30%	8%	68%	3%	0%
Montserrado	34%	1,945	9%	6%	6%	14%	1%	0%
Nimba	24%	2,675	7%	17%	2%	11%	0%	2%
River Cess	46%	1,264	21%	13%	13%	42%	4%	0%
Sinoe	35%	3,510	8%	28%	8%	20%	0%	0%
River Gee	71%	2,150	20%	26%	17%	37%	0%	0%
Gbarpolu	15%	867	5%	8%	5%	21%	0%	0%
Total	**49%**	**1,681**	**9%**	**15%**	**4%**	**24%**	**1%**	**1%**

	Access to credit	Relatives/ friends	Charities/ NGOs	Local lender	Susu-club	Bank	Co-operatives
Bomi	69%	68%	0%	1%	1%	0%	0%
Bong	70%	42%	0%	3%	20%	0%	1%
Grand Bassa	33%	25%	0%	1%	6%	0%	1%
Grand Cape Mount	18%	10%	0%	0%	0%	0%	1%
Grand Gedeh	24%	15%	1%	3%	4%	0%	0%
Grand Kru	29%	26%	1%	1%	0%	0%	0%
Lofa	59%	54%	0%	0%	3%	0%	1%
Margibi	73%	60%	0%	8%	12%	0%	0%
Maryland	64%	57%	0%	2%	3%	0%	2%
Montserrado	40%	22%	0%	0%	19%	0%	3%
Nimba	84%	46%	0%	1%	52%	0%	0%
River Cess	37%	23%	0%	3%	8%	0%	1%
Sinoe	36%	31%	1%	1%	3%	0%	0%
River Gee	21%	17%	0%	4%	0%	0%	0%
Gbarpolu	49%	44%	0%	1%	2%	0%	1%
Total	**53%**	**38%**	**0%**	**2%**	**14%**	**0%**	**1%**

		No of times food purchased on credit				
	Purchase food on credit	On one occasion	On two occasions	On three occasions	On more than three occasions	Not during this time period
Bomi	80%	21%	24%	10%	31%	13%
Bong	57%	17%	30%	27%	13%	14%
Grand Bassa	48%	11%	16%	23%	46%	4%
Grand Cape Mount	19%	23%	29%	19%	17%	12%
Grand Gedeh	29%	11%	21%	20%	17%	31%
Grand Kru	35%	4%	31%	15%	18%	32%
Lofa	59%	29%	34%	14%	5%	18%
Margibi	74%	19%	36%	23%	16%	5%
Maryland	74%	26%	17%	28%	8%	21%
Montserrado	51%	13%	16%	34%	34%	2%
Nimba	73%	34%	22%	19%	18%	7%
River Cess	39%	14%	13%	21%	41%	10%
Sinoe	36%	9%	31%	32%	23%	5%
River Gee	26%	15%	22%	21%	15%	27%
Gbarpolu	57%	21%	22%	24%	9%	25%
Total	**55%**	**21%**	**25%**	**23%**	**21%**	**11%**

Annex 2.6: Household Expenditures

	Per-capita food expenditures (LD)	Per-capita non-food expenditures (LD)	Per-capita total expenditures (LD)	Share of food expenditures in %	Share of staple food in total expenditure
Bomi	338	86	424	79%	77%
Bong	464	238	700	66%	63%
Grand Bassa	522	246	768	68%	66%
Grand Cape Mount	771	498	1269	61%	52%
Grand Gedeh	605	314	919	66%	64%
Grand Kru	270	117	387	68%	67%
Lofa	316	161	477	66%	60%
Margibi	665	226	891	74%	64%
Maryland	488	331	819	61%	59%
Montserrado	567	375	942	60%	55%
Nimba	363	155	519	68%	65%
River Cess	535	231	765	70%	67%
Sinoe	442	220	661	67%	64%
River Gee	439	209	648	68%	66%
Gbarpolu	556	300	855	65%	60%
Total	**492**	**257**	**749**	**66%**	**62%**

	Quintiles food expenditures					**Quintiles non-food expenditures**				
	I.	II.	III.	IV.	V.	I.	II.	III.	IV.	V.
Bomi	24%	35%	29%	8%	4%	58%	28%	11%	2%	0%
Bong	25%	24%	16%	16%	18%	23%	22%	22%	17%	15%
Grand Bassa	12%	20%	23%	24%	20%	14%	23%	23%	23%	18%
Cape Mount	1%	6%	19%	28%	46%	0%	6%	11%	25%	59%
Grand Gedeh	10%	11%	19%	29%	31%	16%	13%	15%	24%	32%
Grand Kru	52%	20%	12%	11%	5%	50%	23%	16%	9%	2%
Lofa	41%	26%	15%	11%	8%	37%	28%	17%	12%	6%
Margibi	6%	10%	21%	26%	37%	11%	23%	28%	25%	13%
Maryland	16%	18%	22%	27%	17%	9%	17%	21%	24%	29%
Montserrado	5%	22%	23%	26%	24%	1%	8%	23%	31%	37%
Nimba	36%	22%	19%	15%	9%	30%	32%	19%	14%	5%
River Cess	17%	14%	22%	23%	25%	20%	25%	21%	18%	16%
Sinoe	27%	17%	23%	18%	17%	26%	15%	22%	20%	17%
River Gee	23%	27%	20%	18%	12%	28%	30%	17%	12%	13%
Gbarpolu	24%	16%	19%	16%	25%	21%	18%	16%	21%	24%
Total	**20%**	**20%**	**20%**	**20%**	**20%**	**20%**	**20%**	**20%**	**20%**	**20%**

Annex 2.7: Shocks, Risk and Coping Strategies

	Shocks Experienced by Households							
	Bomi	Bong	Grand Bassa	Grand Cape Mount	Grand Gedeh	Grand Kru	Lofa	Margibi
Shock experienced	**36%**	**66%**	**67%**	**23%**	**76%**	**50%**	**50%**	**66%**
Loss of harvest due to animal pests	7%	18%	45%	9%	55%	31%	5%	22%
Serious illness/ accident of HH member	8%	19%	9%	5%	8%	16%	25%	26%
Death of non-working household member	8%	9%	2%	1%	3%	3%	15%	3%
Death of a working household member	2%	8%	1%	2%	3%	8%	1%	2%
House damaged/destroyed	8%	6%	2%	3%	2%	0%	4%	4%
Early or heavy rains/floods	0%	6%	6%	1%	3%	22%	3%	0%
Lost of harvest due to plant disease	1%	7%	11%	1%	0%	6%	1%	1%
Loss of employment for a household member	0%	1%	1%	0%	4%	0%	0%	3%
Reduced income of a household member	0%	2%	0%	0%	1%	1%	3%	5%
Theft	2%	6%	1%	0%	2%	0%	3%	7%
Sudden price fluctuations	1%	2%	5%	0%	0%	0%	1%	1%
Conflict/violence	0%	9%	1%	0%	0%	0%	0%	0%
Late rain/drought	0%	1%	1%	0%	0%	0%	1%	0%
Unusually high level of human disease	0%	2%	0%	0%	0%	0%	0%	0%
Bushfire/Fire	0%	0%	2%	0%	0%	0%	0%	0%
Unusually high level of livestock diseases	1%	1%	1%	0%	0%	0%	0%	0%
Landslides, erosion	0%	2%	1%	0%	0%	0%	0%	0%
Restricted access to markets	0%	0%	0%	0%	1%	1%	0%	0%

	Shocks Experienced by Households							
	Mary-land	Mont-serrado	Nimba	River Cess	Sinoe	River Gee	Gbarpolu	**Total**
Shock experienced	**58%**	**29%**	**40%**	**42%**	**54%**	**80%**	**52%**	**49%**
Loss of harvest due to animal pests	23%	2%	8%	18%	39%	64%	7%	**18%**
Serious illness/ accident of HH member	20%	13%	14%	9%	23%	17%	20%	**16%**
Death of non-working household member	11%	2%	5%	6%	4%	3%	16%	**6%**
Death of a working household member	9%	1%	7%	4%	11%	3%	5%	**4%**
House damaged/destroyed	1%	6%	3%	2%	0%	1%	2%	**4%**
Early or heavy rains/floods	3%	0%	0%	3%	21%	0%	1%	**3%**
Lost of harvest due to plant disease	3%	0%	2%	2%	14%	1%	1%	**3%**
Loss of employment for a household member	0%	4%	1%	1%	0%	1%	3%	**2%**
Reduced income of a household member	0%	4%	1%	0%	0%	1%	1%	**2%**
Theft	0%	3%	2%	1%	1%	1%	2%	**2%**
Sudden price fluctuations	1%	2%	0%	2%	0%	0%	0%	**1%**
Conflict/violence	2%	0%	0%	0%	1%	0%	1%	**1%**
Late rain/drought	0%	0%	2%	1%	1%	0%	0%	**1%**
Unusually high level of human disease	1%	0%	2%	0%	0%	0%	0%	**1%**
Bushfire/Fire	0%	0%	1%	1%	1%	0%	0%	**0%**
Unusually high level of livestock diseases	0%	0%	1%	0%	0%	0%	0%	**0%**
Landslides, erosion	0%	0%	0%	0%	0%	0%	0%	**0%**
Restricted access to markets	0%	0%	0%	0%	0%	0%	1%	**0%**

	Coping Strategies Applied by Type of Shock										
	Animal pests	Illness/ accident	Death of non-working HH-member	Death of a working HH-member	Loss of employment / income	Damage of house	Heavy/ early rain	Plant disease	Theft	Sudden price fluctuations	Conflict/ violence
Reduced number of meals per day	36%	16%	9%	22%	15%	14%	18%	30%	15%	16%	25%
Reduced proportions of meals	35%	12%	8%	13%	18%	8%	13%	26%	12%	29%	7%
Rely on less preferred food	30%	18%	21%	15%	14%	9%	36%	20%	23%	57%	15%
Purchased food on credit/ borrowed food	24%	22%	16%	14%	16%	5%	21%	21%	23%	17%	8%
Helped by relatives/friends	10%	21%	34%	38%	10%	41%	13%	11%	14%	25%	42%
Eating wild foods	5%	2%	1%	2%	0%	0%	6%	2%	3%	4%	2%
Casual/contract work	5%	10%	7%	7%	17%	9%	3%	4%	13%	6%	7%
Consumed seed stock	4%	2%	1%	4%	2%	1%	6%	12%	0%	0%	1%
Increase petty trade	3%	4%	4%	5%	13%	5%	3%	1%	2%	1%	12%
Borrowed money	3%	17%	16%	7%	9%	6%	1%	6%	12%	0%	17%
Spent savings	2%	18%	20%	14%	1%	13%	4%	4%	9%	0%	11%
Long-term migration for work	1%	1%	1%	3%	0%	2%	2%	1%	0%	4%	4%
Reduced expenditures on health & education	1%	1%	0%	1%	6%	5%	0%	3%	0%	0%	3%
Worked for food only	1%	2%	1%	2%	4%	5%	3%	3%	2%	3%	5%
Temporary migration for work	1%	1%	0%	0%	8%	2%	1%	2%	0%	1%	0%
Begging	1%	4%	2%	1%	8%	3%	2%	1%	4%	3%	1%
Sold livestock	1%	2%	5%	2%	0%	3%	1%	0%	6%	0%	3%
Send children to live with relatives	0%	1%	2%	5%	2%	9%	1%	0%	3%	0%	0%
Sold household belongings	0%	1%	2%	2%	2%	0%	0%	0%	1%	0%	3%
Other	2%	5%	4%	3%	3%	13%	6%	1%	3%	0%	6%
There was no need to do anything	3%	2%	5%	0%	0%	2%	4%	4%	3%	4%	3%
We were not able to do anything	3%	4%	11%	3%	3%	6%	3%	5%	9%	2%	0%

	Coping Strategies Applied by County							
	Bomi	Bong	Grand Bassa	Grand Cape Mount	Grand Gedeh	Grand Kru	Lofa	Margibi
Reduced number of meals per day	10%	23%	18%	5%	28%	18%	3%	10%
Rely on less preferred food	4%	12%	34%	2%	13%	15%	23%	12%
Helped by relatives/friends	16%	24%	18%	5%	7%	5%	8%	9%
Reduced proportions of meals	8%	14%	15%	4%	25%	29%	3%	12%
Purchased food on credit	6%	17%	20%	2%	7%	10%	17%	15%
Spent savings	8%	8%	2%	1%	1%	0%	2%	16%
Borrowed money	5%	12%	2%	1%	4%	0%	7%	11%
Casual/contract work	1%	3%	1%	3%	9%	1%	8%	14%
Increase petty trade	0%	2%	1%	1%	8%	0%	6%	3%
Consumed seed stock	2%	2%	2%	0%	1%	15%	0%	0%
Eating wild foods	0%	2%	2%	0%	3%	14%	0%	1%
Begging	1%	1%	0%	0%	2%	0%	1%	2%
Temporary migration for work	0%	1%	0%	0%	0%	0%	0%	2%
Long-term migration for work	0%	1%	5%	0%	0%	0%	0%	0%
Reduced exp. on health & education	1%	1%	1%	1%	1%	1%	0%	1%
Sold livestock	0%	2%	0%	0%	2%	0%	1%	0%
Worked for food only	0%	2%	0%	0%	1%	0%	3%	1%
Send children to live with relatives	0%	6%	0%	0%	2%	0%	1%	0%
Sold household belongings	0%	2%	1%	0%	0%	0%	0%	0%
Other	3%	3%	0%	2%	4%	1%	4%	2%
There was no need to do anything	1%	2%	6%	0%	0%	0%	2%	1%
We were not able to do anything	0%	3%	5%	2%	3%	2%	5%	3%

	Coping Strategies Applied by County							
	Maryland	Mont-serrado	Nimba	River Cess	Sinoe	River Gee	Gbar-polu	**Total**
Reduced number of meals per day	16%	7%	14%	13%	25%	33%	12%	**13%**
Rely on less preferred food	11%	6%	4%	11%	20%	34%	11%	**13%**
Helped by relatives/friends	20%	4%	10%	10%	4%	17%	21%	**12%**
Reduced proportions of meals	18%	5%	9%	7%	25%	40%	6%	**11%**
Purchased food on credit	16%	3%	6%	10%	18%	4%	9%	**11%**
Spent savings	18%	1%	9%	2%	2%	4%	16%	**6%**
Borrowed money	13%	1%	4%	4%	0%	3%	9%	**5%**
Casual/contract work	0%	4%	3%	1%	2%	4%	6%	**4%**
Increase petty trade	0%	2%	2%	1%	1%	3%	1%	**2%**
Consumed seed stock	2%	0%	2%	1%	15%	2%	0%	**2%**
Eating wild foods	4%	0%	0%	1%	13%	2%	0%	**2%**
Begging	0%	2%	2%	1%	0%	1%	4%	**1%**
Temporary migration for work	0%	1%	1%	1%	1%	0%	1%	**1%**
Long-term migration for work	1%	0%	0%	3%	1%	0%	1%	**1%**
Reduced exp. on health & education	1%	1%	2%	0%	1%	0%	1%	**1%**
Sold livestock	4%	1%	2%	0%	0%	2%	0%	**1%**
Worked for food only	0%	1%	1%	1%	1%	1%	1%	**1%**
Send children to live with relatives	2%	0%	0%	0%	0%	0%	0%	**1%**
Sold household belongings	1%	0%	0%	0%	1%	1%	1%	**0%**
Other	0%	4%	0%	1%	3%	1%	0%	**2%**
There was no need to do anything	0%	1%	0%	1%	1%	0%	0%	**1%**
We were not able to do anything	0%	3%	1%	4%	3%	0%	1%	**2%**

Annex 2.8: External Assistance

	Food Assistance during the Past 6 Months					
	% of HHs that have received food assistance	Food for education	Food for community projects	Food for mothers and children	Food for returning households	Other type of food assistance
Bomi	31%	31%	1%	0%	0%	0%
Bong	50%	45%	7%	2%	1%	0%
Grand Bassa	18%	17%	0%	0%	0%	0%
Cape Mount	27%	25%	1%	1%	0%	0%
Grand Gedeh	45%	41%	2%	1%	1%	1%
Grand Kru	2%	0%	1%	1%	0%	0%
Lofa	71%	32%	2%	0%	52%	5%
Margibi	12%	11%	0%	0%	1%	0%
Maryland	55%	54%	0%	1%	1%	0%
Montserrado	25%	21%	3%	1%	0%	1%
Nimba	43%	38%	3%	2%	0%	1%
River Cess	23%	21%	0%	0%	0%	2%
Sinoe	26%	23%	1%	2%	0%	0%
River Gee	39%	35%	7%	0%	0%	0%
Gbarpolu	21%	4%	4%	1%	14%	1%
Total	**36%**	**29%**	**2%**	**1%**	**7%**	**1%**

	Agricultural Assistance during the Past 6 Months					
	% of HHs that have received agricultural assistance	Tools	Seeds	Extension/ training	Agricultural loan/credit	Other type of agricultural assistance
Bomi	38%	38%	17%	0%	0%	0%
Bong	25%	18%	15%	1%	0%	0%
Grand Bassa	1%	1%	0%	0%	0%	0%
Cape Mount	3%	3%	1%	0%	0%	0%
Grand Gedeh	32%	30%	18%	0%	0%	0%
Grand Kru	18%	16%	6%	0%	0%	0%
Lofa	30%	25%	24%	0%	0%	0%
Margibi	1%	0%	0%	0%	0%	0%
Maryland	43%	43%	32%	0%	0%	0%
Montserrado	10%	10%	5%	1%	0%	1%
Nimba	17%	10%	10%	0%	1%	0%
River Cess	5%	4%	1%	0%	0%	0%
Sinoe	12%	9%	6%	0%	0%	0%
River Gee	61%	55%	44%	0%	0%	0%
Gbarpolu	47%	42%	34%	1%	0%	1%
Total	**19%**	**17%**	**12%**	**0%**	**0%**	**0%**

	Other Assistance Received during the Past 6 Months					
	% of HHs that have received other assistance	Loans	Educational support	Medical services	Construction/ building materials	Water and/ or sanitation
Bomi	1%	0%	1%	1%	0%	0%
Bong	30%	13%	7%	9%	1%	11%
Grand Bassa	5%	0%	2%	1%	0%	2%
Cape Mount	6%	3%	0%	1%	1%	0%
Grand Gedeh	26%	14%	5%	6%	1%	4%
Grand Kru	4%	0%	0%	0%	0%	0%
Lofa	77%	12%	7%	55%	8%	40%
Margibi	7%	1%	0%	1%	0%	6%
Maryland	55%	11%	26%	21%	1%	26%
Montserrado	8%	3%	4%	0%	0%	2%
Nimba	10%	2%	6%	4%	0%	0%
River Cess	12%	1%	8%	2%	1%	1%
Sinoe	3%	1%	1%	0%	0%	0%
River Gee	22%	12%	10%	1%	1%	0%
Gbarpolu	29%	1%	4%	20%	11%	3%
Total	**22%**	**5%**	**5%**	**10%**	**2%**	**8%**

Annex 2.9: Food Security Profiling and Food Sources

	Food Consumption Group			
	Poor	Borderline	Fairly good	Good
Bomi	9%	38%	37%	17%
Bong	13%	36%	44%	7%
Grand Bassa	1%	36%	56%	7%
Grand Cape Mount	4%	16%	37%	43%
Grand Gedeh	33%	35%	28%	5%
Grand Kru	12%	58%	26%	4%
Lofa	25%	44%	25%	6%
Margibi	6%	26%	37%	31%
Maryland	15%	50%	29%	5%
Montserrado	11%	29%	36%	25%
Nimba	17%	38%	32%	13%
River Cess	8%	32%	49%	11%
Sinoe	14%	42%	31%	14%
River Gee	39%	38%	22%	1%
Gbarpolu	14%	46%	27%	13%
Total	**14%**	**36%**	**36%**	**15%**

	Access Group			
	Very weak access	Weak access	Medium access	Good access
Bomi	41%	36%	21%	2%
Bong	16%	33%	37%	15%
Grand Bassa	11%	29%	38%	22%
Grand Cape Mount	6%	15%	66%	13%
Grand Gedeh	9%	15%	48%	27%
Grand Kru	27%	35%	31%	7%
Lofa	49%	25%	23%	3%
Margibi	11%	17%	57%	15%
Maryland	8%	20%	48%	24%
Montserrado	19%	24%	48%	9%
Nimba	20%	28%	45%	7%
River Cess	14%	26%	41%	18%
Sinoe	22%	28%	30%	21%
River Gee	20%	33%	33%	14%
Gbarpolu	26%	28%	40%	6%
Total	**21%**	**26%**	**41%**	**12%**

	Food Security Group			
	Food insecure	Highly vulnerable	Moderately vulnerable	Food secure
Bomi	13%	54%	31%	3%
Bong	8%	42%	42%	8%
Grand Bassa	2%	35%	57%	6%
Grand Cape Mount	2%	16%	57%	26%
Grand Gedeh	10%	39%	44%	7%
Grand Kru	14%	58%	26%	2%
Lofa	28%	48%	21%	3%
Margibi	5%	28%	49%	19%
Maryland	6%	41%	44%	9%
Montserrado	10%	35%	43%	13%
Nimba	9%	47%	41%	3%
River Cess	6%	35%	50%	9%
Sinoe	8%	44%	39%	10%
River Gee	20%	52%	26%	1%
Gbarpolu	18%	42%	34%	7%
Total	**11%**	**40%**	**41%**	**9%**

Food source	Food consumption group	Food Source by Food Item and Food Consumption Group							
		Own production	Hunting/ fishing/ gathering	Bought using cash	Bought on credit	Gifted	Food aid	Begging	Other
Rice	Poor	11%		67%	14%	5%		1%	1%
	borderline	14%		67%	13%	4%		0%	2%
	fairly good	15%		70%	10%	3%		0%	1%
	Good	11%		75%	11%	2%		0%	0%
	Total	**14%**		**69%**	**12%**	**4%**		**0%**	**1%**
Cassava and other tubers	Poor	31%	1%	45%	5%	14%		2%	2%
	borderline	37%	0%	43%	4%	12%		1%	2%
	fairly good	39%	0%	42%	3%	13%		1%	2%
	Good	35%	0%	53%	3%	7%		0%	1%
	Total	**37%**	**0%**	**45%**	**4%**	**12%**		**1%**	**2%**
Bulgur	Poor			79%	8%	4%	7%	1%	1%
	borderline			81%	9%	5%	3%	1%	1%
	fairly good			86%	7%	4%	1%	1%	1%
	Good			87%	8%	3%	1%	1%	1%
	Total			**83%**	**8%**	**4%**	**2%**	**1%**	**1%**
Bread/ flour	Poor			93%	2%	5%		0%	0%
	borderline			97%	2%	1%		0%	1%
	fairly good			96%	1%	3%		0%	0%
	Good			95%	3%	1%		0%	1%
	Total			**96%**	**2%**	**2%**		**0%**	**1%**
Fish	Poor		33%	55%	7%	3%		0%	1%
	borderline		30%	59%	7%	3%		0%	1%
	fairly good		31%	62%	4%	2%		0%	1%
	Good		26%	67%	4%	2%		0%	1%
	Total		**30%**	**61%**	**6%**	**3%**		**0%**	**1%**
Bush meat	Poor		33%	52%	4%	9%		1%	0%
	borderline		28%	55%	4%	10%		1%	2%
	fairly good		23%	62%	3%	10%		1%	1%
	Good		17%	68%	5%	8%		1%	1%
	Total		**25%**	**59%**	**4%**	**9%**		**1%**	**1%**
Other meat	Poor	38%	3%	38%	0%	10%		5%	5%
	borderline	40%	1%	48%	2%	9%		0%	1%
	fairly good	42%	1%	45%	1%	11%		0%	1%
	Good	23%	3%	64%	5%	5%		0%	1%
	Total	**33%**	**2%**	**53%**	**3%**	**8%**		**0%**	**1%**
Eggs	Poor	42%		58%	0%	0%		0%	0%
	borderline	15%		78%	2%	6%		0%	0%
	fairly good	15%		82%	1%	3%		0%	0%
	Good	10%		82%	3%	4%		0%	0%
	Total	**13%**		**81%**	**2%**	**4%**		**0%**	**0%**
Pulses/ groundnuts	Poor	10%		59%	3%	18%	7%	2%	1%
	borderline	11%		68%	2%	14%	2%	1%	1%
	Fairly good	8%		81%	2%	6%	1%	0%	1%
	Good	7%		85%	3%	4%	1%	1%	0%
	Total	8%		77%	2%	9%	2%	1%	1%
Fresh vegetables/ fruits	Poor	42%	2%	28%	1%	27%		0%	1%
	borderline	45%	2%	24%	1%	27%		0%	1%
	Fairly good	47%	1%	29%	0%	21%		0%	1%
	Good	40%	1%	45%	1%	12%		0%	1%
	Total	45%	2%	30%	1%	22%		0%	1%
Oil/palm butter	Poor	31%	1%	53%	5%	6%	1%	1%	1%
	Borderline	30%	2%	55%	6%	5%	0%	1%	1%
	fairly good	28%	0%	62%	4%	5%	0%	1%	1%
	Good	21%	1%	69%	5%	4%	0%	0%	1%
	total	28%	1%	59%	5%	5%	0%	1%	1%
Sugar	Poor	0%		95%	3%	0%		2%	0%
	Borderline	2%		89%	4%	4%		0%	0%
	fairly good	3%		93%	2%	2%		0%	1%
	Good	0%		95%	2%	1%		0%	1%