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Greater Monrovia

Comprehensive Food Security and Nutrition Survey (CFSNS)

Conducted December 2006

Republic of Liberia:

Greater Monrovia Food Security and Nutrition Survey (CFSNS)

Monrovia, July 2007

FOREWORD

This report on the Monrovia Comprehensive Food Security and Nutrition Survey in Liberia complements the Comprehensive Food Security and Nutrition Survey that was launched in October 2006 to give a more complete picture of the food security and nutrition situation in Liberia as a whole. Similar to the previous report, it provides very rich and invaluable data on the social sector, particularly health and education.

Liberia like most countries in West Africa is experiencing increased urbanization. Before the war, Monrovia was an icon of economic development in West Africa. The years of civil war has devastated the city and its basic infrastructure and services. These factors working in concert have resulted in an escalation in urban poverty, food insecurity and malnutrition.

However, the factors which affect the shape of urban food insecurity and malnutrition differ from those operating at the rural level. Understanding these factors is crucial to enable us to establish a clear vision of where we want to be and to define a comprehensive framework for a coherent response to improve the food security and nutrition for all Liberians.

The report, as expected, shows that the food security and malnutrition situation is generally better in Greater Monrovia than in rural and semi-rural Liberia. However, there is still cause for concern. One in three Liberians living in Greater Monrovia is food insecure or vulnerable to food insecurity. Thousands of children in the city are at risk of impaired educational and productive capacity, infections and the prospect of an early death, all as a result of inadequate nutrition.

This report provides a clear picture of the factors contributing to this situation. The key factors causing both food insecurity and malnutrition in the urban context are poverty and education status.

The majority of the urban population relies on a fragile informal sector for their livelihoods, engaging in small-scale business and petty trading as main sources of income. The nutrition of children is threatened by poor access to basic services, inadequate caring and feeding practices and an unhealthy physical environment.

While some may argue that urban food insecurity and malnutrition is of less concern when compared to the rural context, we must consider that more than a third of our population now lives in Greater Monrovia – a number that is likely to increase in the future. With the support of the international community, we must act now.

The report proposes a wide range of interventions to address the specter of urban poverty, food insecurity and malnutrition. These include the promotion of girls' continued education, investment in employment generation programmes, capacity building in small business skills, access to micro finance schemes and improvements in health, water and sanitation services.

On behalf of the Government of Liberia, I would like to congratulate and thank all agencies and organisations for their technical and financial support. In particular, I would like to thank Irish Aid; the following United Nations agencies: Food and Agriculture Organization (FAO), United Nations Development Programme (UNDP) including the National Information Management Centre (NIMAC), United Nations Children's Fund (UNICEF), World Food Programme (WFP), World Health Organization (WHO); and World Vision International (WVI).

I am particularly grateful to the Liberia Institute of Statistics and Geo-Information Services (LISGIS) for its role in the survey preparation and implementation phase, to the 32 enumerators, and finally to the individuals, households and community leaders, without whose participation this survey would not have been possible.

The Government looks forward to a concerted effort and commitment on the part of all stakeholders towards achieving our collective vision of sustainable food security and nutrition for all Liberians.

Toga G. McIntosh (PhD)
Minister for Planning and Economic Affairs
Monrovia, July 2007

ACKNOWLEDGEMENTS

The Government of Liberia is deeply grateful to the individuals and households of Greater Monrovia for their time and hospitality. This survey report is the culmination of six months worth of effort from staff representing a number of organizations.

The Greater Monrovia Comprehensive Food Security and Nutrition Survey (CFSNS) was funded by Irish Aid through the World Food Programme (WFP) Liberia. The Government of Liberia is grateful for this generous contribution.

The survey was led by the Ministry of Planning and Economic Affairs (MPEA) and supported by the Ministries of Agriculture (MOA) and Heath and Social Welfare (MOHSW). Technical and logistical support during the survey preparation and data collection phase was provided by the Liberia Institute of Statistics and Geo-Information Services (LISGIS) and the following development partners: Food and Agriculture Organization (FAO), United Nations Development Programme (UNDP) including the National Information Management Centre (NIMAC), United Nations Children's Fund (UNICEF), World Food Programme (WFP), World Health Organization (WHO) and World Vision International (WVI).

We are deeply appreciative for the useful inputs provided by various organizations and institutions on the survey design or draft report, in particular Action Contre la Faim (ACF), Danish Refugee Council (DRC), Humanitarian Coordination Service (HCS), Save the Children United Kingdom (SC UK), United High Commission for Refugees (UNHCR), and the University of Liberia.

The analysis was carried out and the report compiled by WFP and WHO. National stakeholders including representatives from MPEA, MOHSW, MOA and LISGIS have reviewed the report and provided valuable comments. For any feedback, clarifications, or comments, please contact any of the following persons:

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LIST OF ACRONYMS

ACF	Action Contre la Faim
AIDS	Acquired Immunodeficiency Syndrome
BCC	Behaviour Change and Communication
BMI	Body Mass Index
CSB	Corn-Soya Blend
CFSNS	Comprehensive Food Security and Nutrition Survey
DRC	Danish Refugee Council
EA	Enumeration Area
ECOMOG	ECOWAS Monitoring Group
ECOWAS	Economic Community of West African States
ENA	Essential Nutrition Actions
ESF	Emergency School Feeding
FANTA	Food and Nutrition Technical Assistance Project
FAO	Food and Agriculture Organization
FSLI	Food Support for Local Initiatives
FEWS	Famine Early Warning System
GAM	Global Acute Malnutrition
GOL	Government of Liberia
HH	Households
HIC	Humanitarian Information Centre
HIV	Human Immunodeficiency Virus
IDP	Internally Displaced Person
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illnesses
IPRS	Interim Poverty Reduction Strategy
LD	Liberian Dollars
LDHS	Liberia Demographic Health Survey
LINNK	Liberia NGO Network
LISGIS	Liberia Institute of Statistics and Geo-Information Services
LURD	Liberians United for Reconciliation and Democracy
MCC	Monrovia City Cooperation
MGD	Ministry for Gender and Development
MOCI	Ministry of Commerce and Industry
MOA	Ministry of Agriculture
MOE	Ministry of Education
MOF	Ministry of Finance
MOHSW	Ministry of Health and Social Welfare
MOJ	Ministry of Justice
MOLME	Ministry of Lands, Mines and Energy
MOYS	Ministry of Youth and Sports
MPEA	Ministries of Planning and Economic Affairs
MPW	Ministry of Public Works
NCHS	National Centre for Health Statistics
NGOS	Non-Governmental Organizations
NHA	National Housing Authority
NIMAC	National Information Management Centre
NPFL	National Patriotic Front of Liberia
PCA	Principal Component Analysis
PLWH	Person Living with HIV
RIA	Roberts International Airport
SC UK	Save the Children United Kingdom
TB	Tuberculosis
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHABITAT	United Nations Human Settlements Programme
UNHCR	United High Commission for Refugees
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
UNMIL	United Nations Mission in Liberia
USAID	United States Agency for International Development
VAM	Vulnerability Analysis and Mapping
WATSAN	Water & Sanitation
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization
WVI	World Vision International

1. Scope and Methods

The Greater Monrovia Comprehensive Food Security and Nutrition Survey was a joint effort led by the Government of Liberia, specifically the Ministries of Planning and Economic Affairs, Health and Social Welfare and Agriculture in collaboration with FAO, UNDP/NIMAC, WFP, WHO and WVI. The primary objectives of the Monrovia CFSNS which will compliment the countrywide findings were to:

- Assess levels of household food insecurity in Greater Monrovia, while focussing on the following key questions: Who are the food insecure people, why are they food insecure, and what role external assistance could play in improving food security in the urban context;
- Identify urban livelihood patterns and assess the levels of vulnerability to food insecurity of livelihood groups;
- Assess the extent of urban agriculture, livestock production, and fishing activities, including the identification of potentials and constraints;
- Assess the prevalence and distribution of malnutrition among children and women and determine the root causes of malnutrition; and
- Identify key indicators that could be measured through a Food Security Monitoring System to assess changes and trends in food security, malnutrition and vulnerability over time.

The survey was implemented between November 2006 and March 2007. Data collection took place in December 2006. In total, 1,255 households were interviewed and the nutritional status of 712 children under-5 and their caretakers was determined. Information was collected on demography and education, urban migration, displacement, labour migration, housing and facilities, agriculture, employment and livelihoods activities, access to credit, household expenditures, food sources and consumption, shocks and coping strategies, external assistance, maternal and child health, and infant and young child feeding practices.

2. Socio-economic Situation

The population of Greater Monrovia is still highly affected by the consequences of the 14-year civil war that left the city with a destroyed infrastructure, a devastated economy and an impoverished, vulnerable population. Today the city is facing numerous **challenges**, such as urbanisation, limited employment opportunities, lack of adequate shelter and housing, lack of appropriate drainage and waste management systems and high levels of crime.

The pre- and post-war periods, have been characterized by population growth related to **rural-urban migration.** Only a third of household heads interviewed were born in Greater Monrovia. The majority (65%) migrated from rural areas, and 5% originate from neighbouring West African countries. For 73% of household heads, the main reason for moving to Monrovia was for better employment opportunities and living conditions. Migration rates reached their peak in the early 1980's and dropped between 1986 and 1995, due to the declining economic situation and the onset of the civil war. During this period, security reasons emerged as a decisive factor for households and individuals choosing to migrate.

As with the rest of the country, physical **infrastructure**, heavily affected by the war, is slowly being rehabilitated but remains largely in ruins. 54% of dwellings in Greater Monrovia are perceived to be partly or fully damaged and 19% of households are squatters. While a large proportion of the population now has access to improved water (mainly from a tube well with pump), 18% buy water from street vendors, which is potentially hazardous. Up to now, the public electricity system has not been restored; candles as well as oil and kerosene lamps are the main source of lighting.

The survey identified **9 urban livelihood profiles** based on the contribution of various income sources. The majority of households have only one major source of income. 30% of households rely mainly on petty trading, closely followed by employees (27%), skilled labourers (14%) and casual labourers (9%). A small proportion of households rely on remittances from abroad (6%) and support/gifts from relatives or friends within Liberia (5%). In terms of cash availability based on food and non-food expenditures, households relying on large scale trading, foreign remittances, households renting out and employees are relatively better off than the other groups and spend proportionately less of their total expenditure on food. The worst-off livelihood groups are households depending on support and gifts, casual labour and food crop production.

Access to **education** in Greater Monrovia is better compared to other parts of the country. In the adult population, 11% of men and 36% of women never attended school. For those who did, 51% of men and 23% of women completed high school. Since 2004, a large proportion of schools have reopened. Although, 84% of school-age children between 6 and 18 are enrolled, many are catching-up. They often attend school levels that do not correspond to their age indicating low net-enrolment rates. Enrolment rates are associated with the presence of a living parent, literacy level and employment status of the household head, household livelihood profile, and access to school feeding. The greater proportion of girls compared to boys in kindergarten and elementary school is an encouraging sign but gender disparities still exist at higher levels. Only a third of university students are female. The survey concludes that it is essential to enhance accelerated learning initiatives for 'over-aged' students as well as illiterate adults, and to encourage enrolment in secondary schools and advanced learning institutions with a focus on girls and young women.

3. Household Food Security and Vulnerability

Availability of Food

Households in Greater Monrovia are heavily reliant on **imported food** for their consumption as very few engage in agricultural production. Only 17% of all households surveyed reported having access to agricultural land – largely located in other counties – and only 8% of households actually produced crops in 2006. The food crops most commonly cultivated by urban households were cassava and vegetables. The predominant reason for not engaging more in food production is lack of arable land. Physical access to **markets** is generally good with approximately 21 major daily markets within the boundaries of Greater Monrovia.

Since 2006, **food aid** has shifted from emergency relief towards recovery activities such as emergency school feeding (ESF) and nutrition intervention programmes. Currently, 24% of school aged children in Greater Monrovia are benefiting from the school feeding programme.

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 households' 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 using food expenditure quintiles. The third step was to combine the two approaches and develop household food security profiles.

Based on the analysis, households in Greater Monrovia show higher frequencies of **food consumption** as well as more dietary diversity compared to rural households. In particular, they consume more protein rich foods such as chicken and other meat, eggs, pulses and groundnuts. Only 3% of urban households are considered to have poor food consumption compared to 14% in the rural sample and 10% have borderline food consumption compared to 36%. The majority of households have good food consumption, 66% compared to only 15% in the rural sample. There is also an association between food consumption and number of meals consumed per day.

The survey revealed that **14% of households in Greater Monrovia are food insecure** and 16% are vulnerable to food insecurity. While in the rural sample, only 9% were considered to be food secure, **51% of urban households are food secure.**

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 adequately. The nutritional status of children under-5 is the key outcome indicator of food utilisation.

Stunting or **chronic malnutrition**, a condition where children are too short for their age, was estimated at **27.4%**. This is poor according to WHO standards; however, the prevalence was higher in the rural sample at 39.4%. Stunting portrays long-term socio-economic problems and the consequences are irreversible, they affect future educational and economic potential if not addressed in the first two years of life.

Wasting or **acute malnutrition**, a condition where children are too thin for their height, was estimated at **7.8%**, also poor by WHO standards. Acute malnutrition in rural Liberia was slightly lower at 6.9%. In both samples, children aged 12-24 months showed the highest rates.

Underweight combines both stunting and wasting. It was estimated at **21.3%** compared to 26.8% in the rural population. These levels are of serious concern according to WHO standards.

Many mothers in Greater Monrovia engage in sub-optimal **feeding practices**. Only about a third of children are exclusively breast-fed for the first six months of life. 48% of these children receive water and a quarter are fed infant formula, both practices increase the risk of infectious diseases. By the age of 6 to 10 months, only 46% of children are receiving complementary foods. Consequently, the prevalence of good young child feeding practices is poor at 14% in children 6-23 months.

Vulnerability to Shocks and Coping Strategies

Exposure to shocks and ability to cope or mitigate the impact of these shocks determine households' food security levels over time. Overall, only a third of households reported having experienced a shock over the past 12 months, the majority of which were idiosyncratic. The most frequently reported shock was loss of employment or reduced income followed by serious illness/accident and theft.

Common **coping strategies** applied to respond to shocks were: reducing the number and proportion of meals, seeking support from relatives and friends, and spending savings. Less common coping strategies were the reliance on less preferred foods and the purchase of food on credit if compared to rural Liberia. Female and elderly household heads were more likely to receive support and apply food rationing strategies. There was also an association between food consumption levels and the type of strategies applied, for example, households with poor food consumption were more likely to be forced to reduce the number or size of their meals, while households with good food consumption were more likely to seek help from others or spend their savings.

4. Causes of Food Insecurity and Malnutrition

Statistically significant relationships between food insecurity and malnutrition with key demographic and socio-economic indicators were identified.

Households with the following characteristics are more likely to have **poor** or **borderline food consumption** profiles: female headed households, illiterate household head, disabled household head, unemployed or self-employed household head, households that have recently migrated to Monrovia, households relying on one income source, households relying on gifts or casual labour, squatters, households without access to agricultural land, low productive and unproductive asset base, no access to credit, non-membership to community support groups.

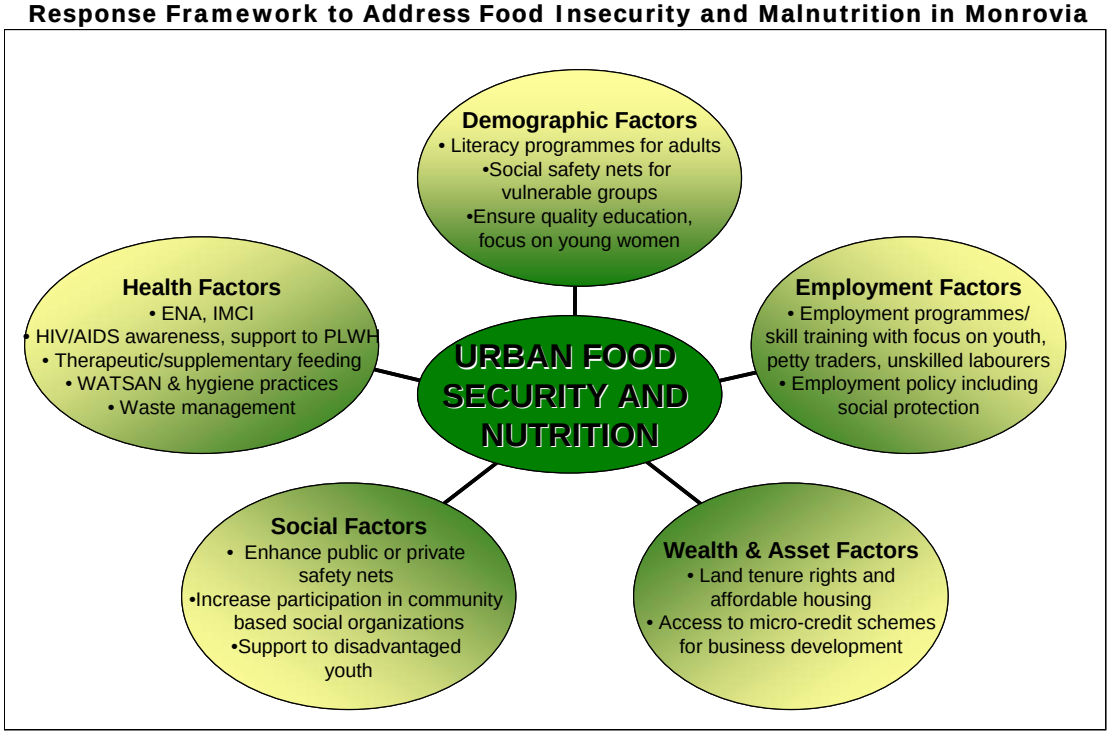
Households with the following characteristics are more likely to have **weak access to food**: illiterate or elderly household head, large and overcrowded households, households not benefiting from remittances or other monetary assistance, low productive and unproductive asset base, and non-membership to community support groups.

Stunting is associated with mother's age, educational and employment status. Other factors included poor sanitation and use of unsafe drinking water. **Wasting** was significantly associated with age and educational level of mother and morbidity (mainly malaria and acute respiratory infections). Underlying causes of **underweight** were age of mother, poor household food consumption levels, number of meals consumed and household purchasing power. Size at birth, income poverty and method of water storage are associated with all forms of malnutrition.

5. Recommendations

Faced with the challenges of increasing urbanisation and recovery from the war, there is a need to prioritise the response options to address food insecurity and malnutrition in Greater Monrovia. Concerted efforts will be required to increase the overall impact of food security and nutrition status of households and individuals. Specific actions are illustrated in the diagram below:

Response Framework to Address Food Insecurity and Malnutrition in Monrovia



Improving the earning capacity of poor and vulnerable groups is paramount to deal with the **demographic** and **employment factors** associated with food insecurity and malnutrition in Greater Monrovia. Access to informal education initiatives, such as literacy programmes for adults and unemployed youth should be enhanced. The identification of innovative employment generating schemes, and training in marketable skills and small-business management are of critical importance. Child caring, nutritional status and income earning potential will be greatly enhanced if girls are allowed to stay in school. Promoting girls' continued education through awareness programmes and lowering the costs of secondary and tertiary education – for example, through the establishment of scholarship funds – will be essential.

Wealth and **asset factors** play an important role in increasing the economic capital of the Liberian population. As the majority of households in Monrovia depend on informal labour, business and marketing obstacles need to be reduced by improving access to micro-finance schemes for business development. Secure land tenure rights and affordable housing are a prerequisite for ensuring that the livelihoods of the poor and vulnerable are not constantly threatened.

Even if food consumption levels are better in the urban context compared to the rural context, pockets of high levels of food insecurity and malnutrition can be found. In order to address these **social factors**, community-based social organizations need to be nurtured and appropriate social safety nets put in place. As poverty is widely dispersed in different clusters throughout the city, social safety net strategies must target households and individuals rather than geographically separate neighbourhoods.

For nutritional status to be improved, interventions to tackle the associated **health factors** such as water, sanitation and waste disposal and coverage of quality health and nutrition services need to be reinforced. The particular challenges to infant and young child feeding practices posed by urbanisation need to be addressed. As more and more mothers work away from home, alternative child care facilities are required. Innovative nutrition education approaches for reaching young mothers from disadvantaged backgrounds – particularly, in support of breastfeeding – need to be put in place.

INTRODUCTION

Battered by civil war from 1989 to 2003, Liberia is now on the 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 both in the rural and urban context.

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 first survey that was launched in October 2006 covered rural and semi-urban groups representing 65 percent of the total population which is estimated to be roughly three million. A second survey was implemented in December and covered Greater Monrovia which was excluded during the first round of data collection. The countrywide CFSNS covered 5,409 households; an additional 1,255 households were interviewed in Greater Monrovia.

The Monrovia CFSNS is a joint effort led by the Government of Liberia – in particular, the Ministries of Planning and Economic Affairs, Agriculture, Health and Social Welfare, the Institute of Statistics and Geo Information Services in collaboration with the Food and Agriculture Organization (FAO), United Nations Development Programme (UNDP/NIMAC), United Nations Children's Fund (UNICEF), World Food Programme (WFP), World Health Organization (WHO), and World Vision International (WVI). The survey had the financial support of Irish Aid

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

1.1 Objectives

The Monrovia CFSNS was a joint effort led by the Government of Liberia, specifically the Ministries of Planning and Economic Affairs, Health and Social Welfare and Agriculture in collaboration with FAO, UNDP/NIMAC, WFP, WHO and WVI. The primary objectives of the Monrovia CFSNS that will compliment the countrywide findings were to:

- Assess levels of household food insecurity in Greater Monrovia, while focussing on the following key questions: Who are the food insecure people, why are they food insecure, and what role external assistance could play in improving food security in the urban context;
- Identify urban livelihood patterns and assess the levels of vulnerability to food insecurity of livelihood groups;
- Assess the extent of urban agriculture, livestock production, and fishing activities, including the identification of potentials and constraints;
- Assess the prevalence and distribution of malnutrition among children and women and determine the root causes of malnutrition; and
- Identify key indicators that could be measured through a Food Security Monitoring System to assess changes and trends in food security, malnutrition and vulnerability over time.

1.2 Definitions, Terminology and Concepts

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.

The Food Security and Vulnerability Framework as well as the UNICEF framework for Causal Analysis of Malnutrition were described in the Liberia CFSNS report which covered rural and semi-urban communities across all 15 counties in Liberia.[1] These conceptual frameworks are also applicable for the urban context. However, underlying **causes of food insecurity and malnutrition in urban areas** often differ from those in rural areas. According to Frankenberger, Garrett and Downen, urban dwellers are distinguished by the following key characteristics that will be taken into account during the analysis of the Monrovia CFSNS data:[2]

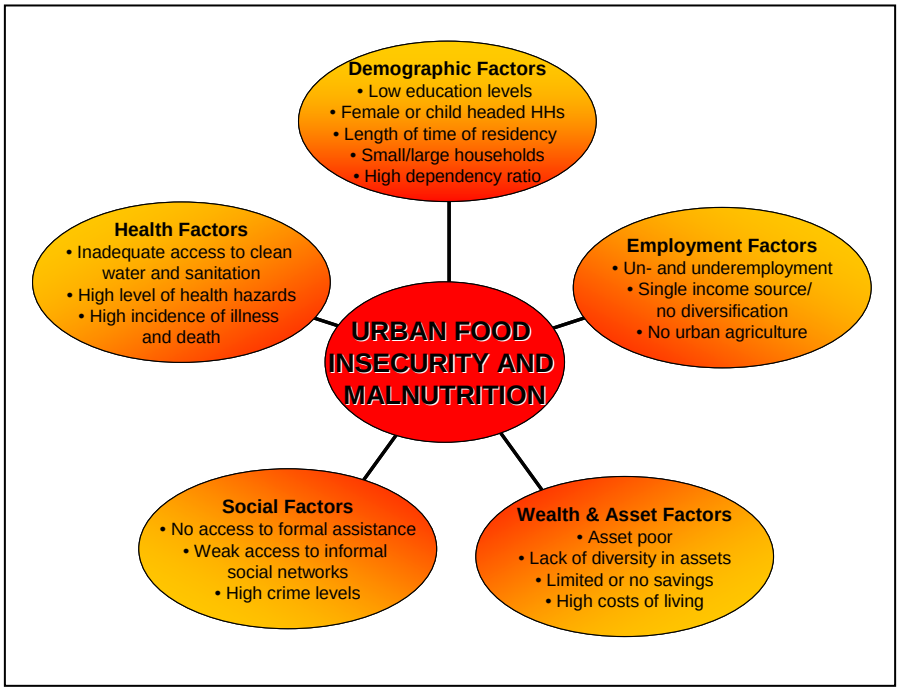
- A greater dependency on cash income and less reliance on agricultural production and natural resources to meet their food and other needs;

[1] GoL/UN: Liberia Comprehensive Food Security and Nutrition Survey, October 2006 (pg. 3 to 6).
[2] Frankenberger, T. R., Garett J. L. & Downen, J. (2000): Programming in Urban Areas: How Can We Address the Key Constraints and Opportunities facing the Urban Poor?

- Urban poor often work for low wages at casual or temporary jobs, making them vulnerable to seasonal employment trends and economic fluctuations;
- Food is primarily obtained through the market, so price fluctuations due to market distortions or policy changes can directly affect their access;
- Informal social networks may be weaker, reducing the ability of the urban poor to deal with economic shocks and other types of risk that could affect their livelihoods;
- Urban women participate in the labour force outside the home, which can potentially leave less time for managing the household, purchasing and preparing food or taking care of children;
- Globally, the urban poor do not have good access to safe water and other public services such as sanitation facilities, health clinics and garbage disposal. Overcrowding and poor sanitation increase the risk to illness and infectious diseases; and finally,
- Insecure land and housing tenure can threaten urban livelihood opportunities.

According to Bonnard, several factors can be identified that are particularly relevant for food security and good nutrition status in the urban context: demographic, employment, wealth and assets, social assistance, and health factors.[3] The following diagram illustrates how these critical factors are likely to contribute to food insecurity and malnutrition. The presence of these factors signals risk to food insecurity and malnutrition.

Fig. 1: Critical Factors Affecting Food Security and Nutrition in the Urban Setting



Vulnerability refers to the conditions which increase household's susceptibility to having insufficient food access in the event of a hazard. The term risk is used to describe the probability of insufficient access to food resulting from interactions between natural or human-induced hazards and household vulnerability. According to Bonnard, what differs across rural and urban setting is the nature and prevalence of the food security factors described above. Rural and urban households also differ in terms of their exposure to shocks that threaten their food security – both in terms of the probability of an event and its magnitude, and their options for coping with these shocks. Urban households, for example, are particularly vulnerable to inflation, food price increases, basic non-food price increases, exchange rate/depreciation, policies and regulations, unemployment, crime, illness/death, disease including HIV/AIDS and epidemics, separation/divorce, general economic decline, conflicts and population influx, and natural disasters.

[3] USAID FEWS Project: Assessing Urban Food Security: Adjusting the FEWS Rural Vulnerability Assessment Framework to Urban Environments. July 2000.

1.3 Stakeholders and Implementation Process

The design and implementation of the Monrovia CFSNS was conducted by the Government of Liberia, specifically the Ministries of Planning and Economic Affairs (MPEA), Health and Social Welfare (MOHSW), Agriculture (MOA), the Liberia Institute of Statistics and Geo-Information Services (LISGIS), in collaboration with FAO, UNDP/NIMAC, UNICEF, WFP, WHO, and WVI. The survey was financed by Irish Aid funds channelled through WFP. Other agencies – Action Contre la Faim (ACF), Danish Refugee Council (DRC), Save the Children United Kingdom (SC UK), United Nations High Commission for Refugees (UNHCR), 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	MPEA, MOHSW, MOA
Technical coordination	FAO, UNICEF, WFP, WHO
Instrument design	All stakeholders + other agencies
Sampling design	LISGIS, WFP
Nomination/provision of survey staff	Ministries, LISGIS, universities
Training of data collection teams	LISGIS, FAO, WFP, WHO
Logistical support	UNDP, WFP
Data collection supervision	LISGIS, WFP, WHO
Data entry	NIMAC, WFP, WVL
Data analysis/reporting	WFP, WHO
Dissemination	Ministries supported by the technical coordination team
Financial contributions	Irish Aid

The actual implementation of the survey from design to data analysis took 5 months from November 2006 to March 2007. A specific emphasis was given to the training phase during which 40 participants from ministries, local NGOs and universities were trained in data collection and supervision for four days. Ten participants were specifically trained in anthropometry. In total, 32 enumerators were chosen to participate in the implementation phase. Enumerators were divided into 8 teams that consisted of one team leader, two food security enumerators, and one nutrition/anthropometry data collector. The latter was supported by the driver who had been trained to assist with the anthropometric measurements. Each team covered 7 to 9 Enumeration Areas (EAs). The data collection process took place between 2 and 22 December 2006. Field work was supervised by LISGIS, WFP and WHO staff.

1.4 Survey Instruments

First, a literature review was undertaken which provided the basis for the background section of this report and the development of data collection tools. Two instruments were used for the primary data collection: a household questionnaire based on the one used for the Liberia CFSNS and an anthropometric survey of children under-5 and women in the reproductive age group. It was decided not to carry out community level interviews because the primary sampling units were enumeration areas which are artificial constructs. Team leaders were requested to collect basic information on available infrastructure and services based on observation for each EA.

1.4.1 Household Questionnaire

The Monrovia CFSNS survey was designed to collect quantitative information at household and individual level. The household questionnaire for household members including children contained 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, external assistance, maternal and child health, infant and young child feeding and nutritional status. Where feasible, the same questions and response options that were used during rural/semi-urban CFSNS were maintained. In some cases, response options were adapted to reflect the urban context, the agricultural section was shortened and some additional relevant topics were added or extended: employment of individual

household members, children living with or without their parents, disability and chronic diseases of individual household members, urban migration, hygiene practices and crime.

The questionnaire was developed in English and translated into Liberian English that nearly all respondents in Greater Monrovia could understand and speak. Additionally, the questionnaire was field-tested several times in various parts of Monrovia.

1.4.2 Anthropometric Survey

The nutritional module of the questionnaire was administered to the mother/caretaker of children under-5 or, in their absence, the head of the household. In each household, weight and height measurements were taken for all children aged between 6 and 59 months or measuring 65-110 cm, as well as for all women of child bearing age, that is, between the ages of 15-49 years. If a child or woman fitting this criteria was absent during the team's visit, arrangements were made to return and take the necessary measurements at a later date. If the team failed to trace a child within the age cohort, he/she was pronounced missing. All children within the age of 6-59 months identified in a selected household were included in the survey.

Both mothers and children were weighed to the nearest 100 grams using a UNICEF uniscale. For children below the age of 2 or less than 85 cm tall, length was measured to the nearest millimeter in the recumbent position using a standard height board. Children over 85 cm and women were measured in the standing position. Mother's height was measured using a specially designed height board.

To determine nutritional status of children, anthropometric information was compared to both the National Centre for Health Statistics (NCHS) international reference standards for comparative purposes and the new WHO Child Growth Standards for future reference purposes.

Where facilities existed, children identified as severely malnourished (<70% of the median weight-for-height) and moderately malnourished (70-80% of the median weight-for-height) were referred to therapeutic feeding centers and supplementary feeding programmes respectively, for treatment.

1.5 Sampling Procedures

The main focus of this survey was to compare the food security and nutrition situation in Greater Monrovia to rural Liberia; hence, the district was treated as one stratum. A two-stage cluster sampling procedure was applied. The first stage – the selection of 66 randomly selected enumeration areas – was already completed by LISGIS in preparation for the Liberia Demographic and Health Survey (LDHS).

The second stage was to select 20 households in each enumeration area (EA). In April/March 2006, LISGIS conducted household listings in each EA. Based on these listings, 20 households were selected using systematic random sampling techniques.[4] In case households were not present during the day of interview, enumerators were instructed to revisit the household at least three-times. If not present after three visits, the household was not replaced. Only if the household moved out of the dwelling, the new household that moved in – if any – was interviewed. The sample size was calculated using the following formula[5]:

[4] The Monrovia CFSNS and the LDHS technical teams collaborated closely on sampling procedures. As LDHS households were already selected, it was decided to exclude these in the Monrovia CFSNS sample frame to avoid respondent fatigue. During the preparation stage some inconsistencies were found in several pre-selected Enumeration Areas, corrections were made in close cooperation with LISGIS and the LDHS team.

[5] FANTA: Sampling Guide, 1997.

$$n = D\,[(Z\alpha + Z\beta)^2 * (P1\,(1 - P1) + P2\,(1 - P2))\,/(P2 - P1)^2]$$

n = required minimum sample size per survey round or comparison group

D = design effect (default value of 2 was applied)

P1 = the estimated level of an indicator (stunting/wasting underweight) measured as a proportion at the time of the first survey (countrywide CFSNS)

P2 = the expected level of the indicators for Greater Monrovia based on previous surveys and estimations. Hence, (P2 - P1) is the size of the magnitude of change it is desired to be able to detect

Zα = the Z-score corresponding to the degree of confidence with which it is desired to be able to conclude that an observed change of size (P2 - P1) would not have occurred by chance (α - the level of statistical significance)

Zβ = the z-score corresponding to the degree of confidence with which it is desired to be certain of detecting

According to the formula, a sample size of 1,200 households was required. It was decided to interview 1,320 households in order to account for non-responses. In total, **1,255 households** were interviewed and **780 children 0-59 months** were covered. Out of these, **712 children aged 6-59** months were measured. During the countrywide CFSNS which covered rural and semi-urban communities, 5,409 households were surveyed and 6,041 children were measured.

1.6 Data Entry and Statistical Analysis

Questionnaires were submitted on a rolling basis and entered using Microsoft Access 2003 under the supervision of WVL staff. Data cleaning and analysis were carried by the Liberia WFP and WHO technical staff using SPSS 11.5 and ADDATI. The calculation of anthropometric indices was conducted in Nutrisurvey for SMART.

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.

As the LDHS sample frame was based on 1984 population proportions it was decided to introduce a weighting system to reflect the population size of each zone of Greater Monrovia. The actual population per zone was estimated based on 2005 polio vaccination data provided by UNICEF.

$$w_s = \frac{N_s / N}{n_s / n} = \frac{n\,N_s}{N\,n_s}$$

w_s: normalized weight for zone s
N_s: number of children under-5 in zone s
N: total number of children under-5 in the entire sampling universe
n_s: sample size of zone s
n: total sample size of zones

1.7 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. It was decided that the UNICEF polio data provides a proxy for population distribution as all children under-5 were targeted.

The data collection in Greater Monrovia took place in December 2006, while the countrywide survey was conducted in March to April 2006. Some indicators could be subject to a seasonal bias, (e.g. expenditure data, wasting and morbidity); thus in these instances, direct comparison should be treated with care.

This section presents the findings of a literature review which was undertaken to provide background information on key features and events that have a bearing on the current food security and nutrition situation in Greater Monrovia.

2.1 Historical and Political Context

Monrovia was founded in 1822 by the American Colonization Society as a settlement for freed slaves from the United States and the British West Indies. It was named after James Monroe, the president of the United States at the time. It is the administrative, political, and economic centre of Liberia.

Life in Monrovia was severely disrupted during the 14-year civil war, which erupted in December 1989 and left thousands killed and homeless, and the city's economy and infrastructure in ruins. During this time period, the city experienced intermittent episodes of critical levels of acute food insecurity and malnutrition.

In August 1990, an Economic Community of West African States (ECOWAS) Monitoring Group known as ECOMOG intervened but hostilities continued resulting in the assassination of President Samuel K. Doe in September. Civilians in Monrovia were subject to molestation and forceful recruitment, women and children were raped and abducted and men were publicly beaten, tied up and detained. Certain tribes such as the Krahn, Mandingo, Gio, and Mano were targeted for allegedly supporting the former Government. The uncertainty about security caused mass movement from Central Monrovia to other parts of Liberia and into neighbouring countries. ECOMOG intervened and succeeded in preventing Charles Taylor from capturing Monrovia. In October 1990, an Interim Government of National Unity was formed with the backing of the ECOMOG peacekeeping force.

By end of 1990, Monrovia was geographically divided from the rest of country. The Spriggs Payne Airfield in Monrovia was the only point of access by air and roads leading to the Roberts International Airport (RIA) and other areas were closed. In 1991, fighting spilled over into Sierra Leone. In October 1992, Charles Taylor's National Patriotic Front of Liberia (NPFL) invaded Monrovia during "Operation Octopus" causing excessive human casualties. All roads leading to and from Monrovia were seized. In 1993, the main roads were recaptured by ECOMOG forces and a security buffer was created around the city making the area a civilian safe haven for nearly one million people with more and more displaced people moving into Monrovia. In 1994, the insecurity in Monrovia increased following an insurgence in central Liberia. The tension affected relief operations and aid convoys had to travel with military escort. In 1995, the situation calmed down after the Liberian Council of State comprising all the warring factions was formed under the Abuja Peace Accord[6].

Shortly thereafter, in April 1996, the warlords resumed fighting due to internal power struggles. As a consequence some 1,500 people were killed in the clashes that lasted seven weeks. Major parts of the city were destroyed once more and many businesses were heavily looted. Nearly half of the population was forced to flee. The UN agencies and NGOs evacuated most of their staff and millions of dollars worth of relief supplies and equipment were looted. Health workers in Monrovia reported outbreaks of severe diarrhea and high prevalence of malnutrition in young children. The Government and humanitarian community struggled to sensitize the public on prevention of cholera and provide emergency food assistance.

In August 1996, Nigeria and other West African states brokered a ceasefire between the warring factions. Taylor emerged the dominant power and won the subsequent elections in mid 1997. The situation deteriorated again in late 2000, following the insurgence of the Liberian United for Reconciliation and Development (LURD) forces in Lofa County resulting in increased numbers of IDPs taking refuge in Monrovia. All major roads leading to and from Monrovia were seized again in 2002 and thousands of people in the displaced camps around Greater Monrovia moved into the city. Living conditions deteriorated considerably resulting in a humanitarian crisis due to no or poor access to food, water supply and sanitation leading to starvation, outbreak of disease and death. By mid-2003, the rebels

[6] National Transitional Assembly Government established through a 'supplemental' Agreement in Abuja, Nigeria in August 1995.

controlled roughly two-thirds of the country and threatened to seize Monrovia. Eventually, this led to calls from the international community for Taylor to relinquish power.

In August 2003, Charles Taylor finally stepped down as president and Gyude Bryant, a businessman was selected by the various factions as the interim leader. UN peacekeepers were deployed in Monrovia and the humanitarian community was eventually able to provide relief assistance to the displaced population.

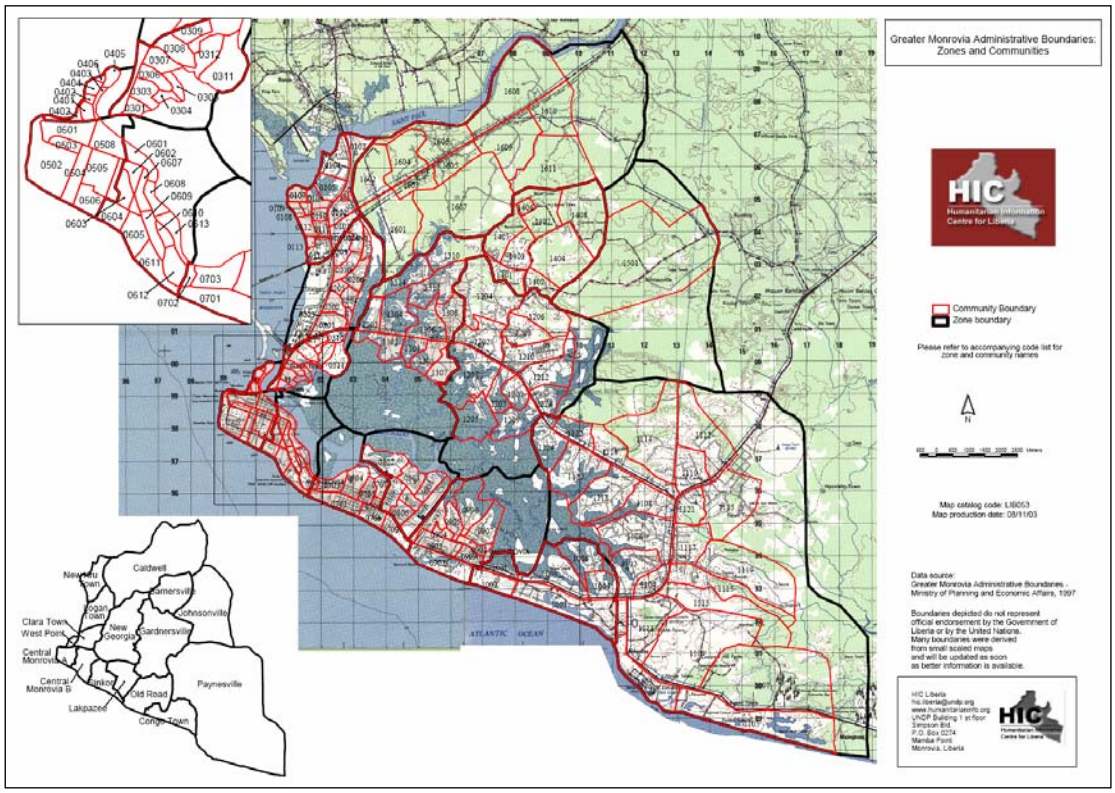
In November 2005, Ellen Johnson-Sirleaf was elected and became Africa's first female president. The new government took office in January 2006 and has prioritized the need for socio-economic development, poverty reduction, good governance and transparent financial management. Her government with its development partners has begun taking steps to address the problems of corruption in the public sector. The government is also being supported by the United Nations and other stakeholders through development programmes such as infrastructure rehabilitation projects and provision of basic social services. Ellen Johnson-Sirleaf committed her Government to provide electricity and other basic services to the capital, which had been without electricity and running water for 15 years. As a symbolic step, 272 streetlights were installed and lit as promised after her first 150 days in office. Despite all efforts, the rehabilitation of the social infrastructure and access to basic services remains a challenge.

2.2 Geography and Climate

Monrovia is located in Montserrado County, on a peninsula between the Atlantic Ocean and the Mesurado River, situated at 6°18'N and 10°47'W. The city has a tropical climate with a wet season lasting from May to October and a dry season from November to April. The average annual rainfall in Monrovia is 4,150 mm of torrential rains accompanied by thunderstorms and heavy lightning – one of the highest levels of precipitation in the world. The average temperature ranges from 22 degrees Celsius to 27 degrees Celsius.

Monrovia with approximately one million inhabitants is Liberia's largest city and its administrative, commercial, communication, and financial center. The city houses a Freeport which is the major entry point for most imported commodities. Greater Monrovia is divided into 16 administrative zones. Lagoons and mangrove swamps are the main features of the city. Some of the swamp areas have been reclaimed and inhabited. These man-made islands are located mostly in the New Georgia and Gardnersville suburbs.

Map 1: Administrative Boundaries of Greater Monrovia



2.3 Socio-economic Challenges

Liberia is faced with numerous challenges after nearly 15 years of disruption of economic activities in both the public and private sectors. Key for the new government is poverty reduction hindered by poor governance, corruption, rapid growth of urban centers, unemployment and inflation. The government's major priority through the interim Poverty Reduction Strategy (IPRS) is to build the economy through creation of employment opportunities, improving economic governance and developing human capacity in order to revitalize the shattered financial systems and strengthen institutions that support basic social services such as healthcare, education, road systems, water and electricity.

2.3.1 Urbanisation

Liberia is rapidly urbanising with an annual urban population growth of 4.5%[7] which is higher than the national population growth rate of 3.4%[8]. The population of Greater Monrovia is estimated at around one million, which represents about a third of the total population.[9] In 1985, the population of Monrovia was estimated at 400,000 people.[10] These indicators show that significant urban trends have emerged as challenges that need to be addressed.

The original infrastructure of Monrovia was meant to accommodate 350,000 to 450,000 residents. The city has grown beyond its capacity due to both economic and political migration. During the last civil war, Monrovia was considered a safe haven which attracted hundreds of thousands of Liberians some of whom have not returned to their county of origin. Additionally, a large number of Liberians who repatriated from neighbouring countries opted to settle in Monrovia instead of their county of origin. This significant population increase coupled with the impact of the war on public utility services such as water supply, electricity and sewerage systems means that the needs of the population for adequate sanitation and waste disposal facilities can no longer be met. Major challenges lie ahead for the Monrovia City Corporation that is responsible for the rehabilitation and proper use of public facilities.

All 16 distinct ethnic groups of Liberia are represented in Greater Monrovia. There are small minority groups from other West African countries, Europe, and Asia. An estimated 4,000 strong Lebanese community, many of whom were born in the country dominate Liberia's economy, notably the importation of rice – Liberia's staple food – and other basic commodities and services. Many of them transfer locally generated income oversees and they contribute little to national socio-economic development.

2.3.2 Unemployment

Employment creation and skills training are amongst the most significant challenges Liberia is facing today. Creating economic opportunities is a prerequisite for sustained economic and social development. In particular, the inclusion of young people in the labour market is central for restoring peace and security in the country.[11]

The Liberian economy, with an unemployment rate estimated at 85%[12], has only limited capacity to absorb unemployed youth. Liberian youth who lack employable skills and experience in technical fields, account for a major proportion of the unemployed population. More than half of the young people of Liberia are not educated or trained to be absorbed into the labour sector.[13] Thousands of reintegrated ex-combatants form a significant part of the unemployed population. The level of unemployment continues to increase due to limited employment opportunities in the public sector and a weak private sector.

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[7] UN Habitat: Liberia Urban Sector Profile, 2005.
[8] GOL/UNDP: Liberia, Mobilizing Capacity for Reconstruction and Development, National Human Development Report, 2006.
[9] Population data is scanty in Liberia. The last census was conducted in 1984 and a new census is planned for 2008.
[10] See: www.atlapedia.com/online/countries/liberia.htm.
[11] GOL/UNDP/ILO: Employment Opportunities and Working Conditions of Rural and Peri-Urban Youth in Liberia, 2006.
[12] GOL/UNDP: Liberia, Mobilizing Capacity for Reconstruction and Development, National Human Development Report, 2006.
[13] African Development Forum (ADF-V): Country Brief, Liberia November 2006.

The 'informal sector' is the major source of employment and income, particular for the urban population in Greater Monrovia and serves as a cushion for the unemployed. This sector includes small scale retailing of general merchandise, construction, mechanical, food, janitorial and security services. A particular challenge is to link the provision of skills training with actual employment opportunities. Often employment interventions do not meet the demands of the informal and formal labour markets.

2.3.3 Housing Conditions and Squatters

The lack of adequate shelter has resulted in the proliferation of unplanned settlements and services and enclaves of residential communities and slums characterized by congestions, makeshift buildings, unsanitary conditions and insecure tenure status. The slums are mainly located in Central Monrovia, the marshlands around the lagoon, and along the beachside near the port. However, pockets of slum-like makeshift communities exist across Greater Monrovia – even within the better-off neighbourhoods. Slum formation accelerated with the civil crisis and continues to grow as a result of high urban population growth, chronic poverty and the high cost of living. In particular, the high cost of land and accommodation has pushed the urban poor into informal settlements. The city authorities grant rights to squatters to live in public property with the understanding that when the government decides to develop such areas all inhabitants must be relocated.[14]

During and after the war, thousands of internally displaced people (IDPs) took refuge in vacant buildings such as the once exclusive Ducor Palace Hotel, where about 2,500 are crammed into 300 rooms under unhealthy sanitary conditions. In April 2007, President Ellen Johnson Sirleaf directed the Ministry of Justice to prepare for the eviction of individuals occupying the Ducor Palace Hotel and other public buildings which have been earmarked for re-development. There is an urgent need to ensure that housing needs of evicted population groups are adequately addressed.

2.3.4 Environmental Issues and Waste Management

According to UNEP, the management of solid municipal waste, commercial, industrial and health care waste, represents the largest and most serious environmental and public health challenge facing Liberia. Basic garbage and waste disposal system are not available and large mounds of uncollected waste accumulate throughout Monrovia. These create profound risks to those households and individuals, in particular young children, living close to the informal disposal sites. Common practices such as defecating in open water sources and public surroundings, and the uncontrolled garbage dumping contribute further to deteriorate the environment and aggravate the risks of waterborne diseases.

2.3.5 Security and Crime

According to the UNMIL Liberia Information Analysis Reviews, Monrovia's crime rate is high and theft and armed robbery are major problems. Incidences of rape are also regularly reported. The police are ill equipped and largely incapable of providing effective protection. Public protests and demonstrations often turn into violence.

Law enforcement is generally weak and it is not uncommon for members of the public to take the law into their hands by engaging in 'mob violence'. Although there has been no serious political unrest since the inauguration of President Ellen Sirleaf in January 2006, the security situation remains volatile. Despite considerable efforts of the United Nations Mission in Liberia (UNMIL) and the Liberian National Police, there is still much to be done to make the citizens of Monrovia feel safe.

[14] UN Habitat: Liberia Urban Sector Profile, 2006.

This section presents key information on demography, displacement and resettlement, living conditions, livelihood activities, household expenditures, and access to basic services and infrastructure. All tables and charts presented in this section are based on the findings of this household survey. Major results are compared with those of the countrywide (rural/semi-urban) CFSNS.

3.1 Demography

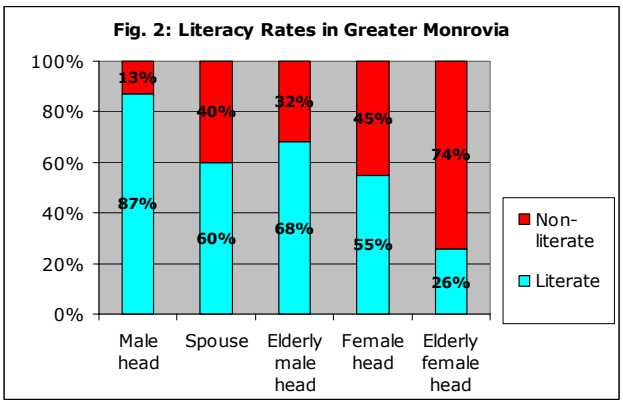
Greater Monrovia is characterized by a large number of households comprised of different ethnic origins where **English** is the main language spoken (23%). The second main language spoken is Bassa (15%) – the predominant ethnic group in Greater Monrovia, followed by Kpelle (10%) – the largest ethnic group in Liberia.

Household size in Greater Monrovia is slightly **larger** than in the rural sample: 5.9 persons compared to 5.6 respectively. This can be explained through urban migration and the fact that some displaced household members decided to remain with their extended families or friends. Interestingly, rural households had 1.3 children per household under-5 compared to only 0.7 in urban households. This indicates that fertility rates in Greater Monrovia are much lower compared to rural and semi-urban Liberia.

Among the urban sample population, the ratio of males to females is 48.1% to 51.9% (49.5% to 50.5% in the rural sample). Eighteen percent of households are **headed by females** compared to only 13% in the rural sample.[15]

The mean **age of household heads** from sampled households was 42 years old, only slightly higher than the rural sample with 40 years. The mean percentage of households headed by **elderly members** (60 years-of-age or above) was 10% – about the same compared to the rural sample. The **dependency ratio**[16] was much lower in Greater Monrovia with only 0.9 dependents per independent household member compared to 1.4 in the rural sample. This is mainly related to the lower fertility rate in Greater Monrovia as reported above.

Literacy rates[17] in Greater Monrovia depend on the type of household, sex and age of the household head. Male household heads are more likely to be able to read and write a basic message (87%), while 40% of their spouses are illiterate. Illiteracy rates are even higher among households headed by females (45%). Elderly headed households are disadvantaged, in particular elderly female headed households. As these figures are closely correlated with education levels, it can be expected that literacy rates for both women and men are much lower in the rural sample compared to Greater Monrovia.



In both surveys, about 10% of respondents reported a **chronically ill and/or disabled household member**. In 56% of the cases in Greater Monrovia, this was the household head compared to 26% of households in the rural sample.

Four percent of households have at least one disabled member. The most common cause of disability is immobility due to polio (32%), followed by immobility due to injury (18%), blindness (15%), deaf-/muteness (12%), and amputation (5%). Eight percent of

[15] In Accra, for example, percentage of female headed households is 35% (source: Armar-Klemesu, M.; Maxwell, D., ed. 1998. Urban agriculture in the greater Accra metropolitan area. Final Report to IDRC (Centre File: 003149). Noguchi Memorial Institute for Medical Research, Legon.
[16] 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'.
[17] To be 'literate' was defined as to be able to read and write a basic message based on the perception of the respondent.

households reported at least one household member who suffers from a chronic disease, mainly from high blood pressure (39%), respiratory diseases (13%), heart disease (7%), diabetes (3%) and tuberculosis (1%). Hardly any households reported the presence of a household member living with HIV, which is not surprising giving that respondents may not be aware of their own or others household members' HIV status or because of the social stigma associated with the disease.[18]

In both the urban and rural samples, only 2% of households reported the care of an **orphan**. Taking a closer look at the status of children and their parents in the Greater Monrovia sample provides a more in-depth insight. One percent of children below 19 years of age are double-orphans – meaning that both father and mother had passed away – most of whom were above the age of 10 years (85%). One in ten children (10%) were single-orphans, either their father or mother had passed away. On the other hand, only 50% of children are living with both of their biological parents. Twenty percent of children live with their mother only, 6% with their father only and 23% of children are living with other relatives or acquaintances. The high prevalence of orphan-hood and non-orphans living with relatives or acquaintances is a consequence of the social disruptions that Liberia faced during the civil war.

The survey reported **265 deaths** in the 12 months preceding the survey. Of this total, 18 (7%) occurred in children under-5. The proportion of deaths in males and females was 51% and 49% respectively and the mean age of death in both sexes was 49 years. The mean age of people dying as a result of chronic illness and tuberculosis (TB) was 49 years and 36 years respectively.

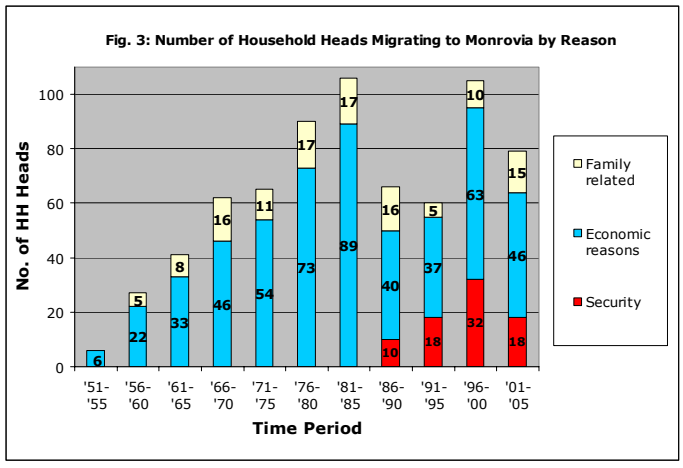
The most common **cause of death** was by acute illness (32%) followed by chronic illness (27%). Acute illness also accounted for the most deaths in all age ranges except for the 46-60 year age range, where chronic illness was the most common cause of death. A third of all deaths in children under-5 was attributed to acute illness (31%) followed by chronic illness (27%). Although, accidents accounted for only 5% of deaths, a significantly higher proportion of men died from accidents compared to women (9% compared to 2%). No causes of deaths due to AIDS were reported. 16% of deaths were due to 'old age', and 3% of deaths were related to TB.

When explored by **sex** in children under-15, deaths in male children exceeded deaths in female children (57% compared to 43%). However, in the reproductive age group of 15 to 45, the proportion of deaths in females (56%) exceeded that in males (44%). This could be attributed to factors associated with child birth and reproductive health. Beyond the age of 46, there were no differences in mortality by sex.

The information on cause of death is based on perception of respondents. As household members may not always be aware of the actual cause of death of another member of their household, this information should be interpreted with caution.

3.2 Rural-Urban Migration

Migration to Monrovia is characterized by two types of migration flows: the **rural-urban migration** for economic and social reasons and flows of **internally displaced persons** (IDPs) who sought refuge during the years of the civil strife. Since peace prevailed, many IDPs returned to their home counties, others decided to stay on and often reside in poor living conditions or as squatters in makeshift huts or public buildings.



In the sample households, only 30% of household heads were born within the boundaries of Greater Monrovia. 65%

[18] Current data indicate that HIV adult prevalence in Liberia is 5.2% and in Greater Monrovia 9.5% (source: GOL: Global Fund Proposal, Round 6. 2006).

migrated to Monrovia from rural areas within Liberia –19% from Lofa, 13% from Bong, 10% from Grand Bassa, and 10% from Nimba. Finally, 5% originate from other West African countries, mainly from Guinea, Sierra Leone, Ghana, Nigeria, Cote d'Ivoire and Mali.

Overall, 73% of the household heads reported that the main reason for moving to Monrovia was to look for better living conditions in terms of employment opportunities and better social infrastructure. The second most cited reason was marriage or family reunification which was quoted by 17%. Finally, security related reasons were decisive for 11% of the respondents.

Underlying causes of migration vary depending on **place of origin** and **time period** when the household head and his/her family decided to move. Security was more often mentioned by respondents who originated from the North-West, mainly Gbarpolu (26%) and Lofa (24%). Economic reasons were most frequently mentioned by household heads originating from within Montserrado (90%), Grand Gedeh (85%), Maryland and Nimba (81%). Interestingly, family-related reasons were more often cited by households originating from counties in the South-East, Grand Kru (33%), River Gee (28%), and Sinoe (22%). Figure 3 illustrates, the time period during which household heads first moved to Monrovia. Similar to other African countries, rural-urban migration started in the early 1950's with a steady and sharp incline up to the mid 1980's. The decision to move to Monrovia was mainly based on economic reasons. A decrease in migration to Monrovia can be observed during the second half of the eighties as a result of declining economic growth under the Doe regime. In late 1989/early 1990, Charles Taylor led the country into war and migration to Monrovia declined to its lowest rate since the late 1960's. Security increasingly became a major reason for households to move to Monrovia.

3.3 Displacement and Resettlement

In Greater Monrovia households were **displaced** an average 2.1 times since the beginning of the civil war, slightly higher compared to the rural sample (1.9 times). Overall, households in Monrovia were to some extent less likely displaced in the past compared to households residing in rural Liberia. Currently only 3% are still displaced (7% in the rural sample), an indication that most IDPs have already left Monrovia or that they are integrated and perceive themselves as regular residents. The majority of households that were displaced in the past returned before 2005 to Monrovia. There are very few recent returnees unlike in the rural areas.

3.4 Housing and Living Conditions

Shelter is a basic need and its ownership plays a paramount role in stability and subsequent developments. Not surprisingly, fewer households in Monrovia own the dwelling that they live in compared to the rural sample (33% versus 66%). The majority of households are renting their dwelling (49%) and pay on average Liberian Dollars (LD) 698 rent per month, about 2.5 times the value of rent for households in the rural sample, where only 6% of households are renting. 19% of the households in Greater Monrovia are squatters, meaning that they settle upon unoccupied land without legal claim or authority.

Overcrowding is more serious in Greater Monrovia compared to the rest of the country. Households occupy on average 1.8 rooms[19], which translates to an average occupancy of about 3.8 people per room. From the number of people per room, it is possible to calculate the rate of overcrowding. Households are considered overcrowded when there are 5 or more people per room. Using this definition, the overall overcrowding rate is 30% compared to only 21% in the rural sample.

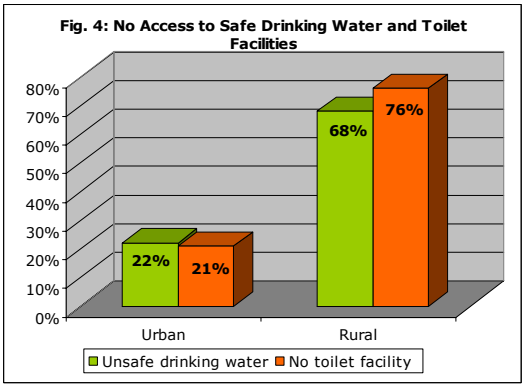
Predominant **construction materials** in Monrovia are cement for floors (89%), zinc for roofs (91%) and cement for walls (56%). Mud or mud bricks and zinc metal sheets are used for walling in 18% and 17% of households respectively. In the rural areas, mud floors and walls as well as thatched roofs predominate. Despite improved housing materials, 54% of dwellings in Monrovia are perceived to be partly or fully damaged as a consequence of the civil war or lack of maintenance.

[19] Excludes kitchen.

The survey also collected information on **sources of cooking** and **lighting fuel**. In contrast to the rural sample, an overwhelming majority (96%) reported the use of charcoal while firewood is used by 3% of households sampled. Candles, oil and kerosene are the main fuel for lighting in Greater Monrovia, 47% of the households use candles, 42% oil or kerosene, and only 6% use a generator for lighting while 4% use a torch. To date, public electricity is still not available to private households.

3.5 Access to Water and Sanitary Services

3.5.1 Access to Drinking Water



Based on the classification of improved water sources (piped water/standpipe, borehole with hand-pump, protected wells/springs) as described by Sphere Guidelines (Sphere Handbook, 2004), it is estimated that 78% of households in Greater Monrovia have access to safe water for drinking. This is more than twice the proportion of households in rural Liberia. The most common source of water is from a tube well with pump (50%), 18% of households buy water from a street vendor which is both expensive and unreliable, 14% use a public tap, and 11% have a protected dug well. Only 3% have their water piped into their yard or plot and very few households receive water delivered by water tankers. Unlike in rural areas, urban households do not use water from open water sources for drinking.

The proportion of households who store water in covered and closed containers is 30% and 65% respectively; 5% of households use open containers. Only 16% of households reported treating their drinking water, and the most common form of treatment is by adding bleach or chlorine. Very few households boil their drinking water and no households own a water filter or strain water through a cloth.

3.5.2 Sanitary Facilities and Practices

In contrast to the situation in rural Liberia, more than four-fifths of households in Greater Monrovia reported having access to a sanitary facility – toilet, latrine or safe disposal facility. The most common form of sanitary facility is a flush toilet (32%) followed by a traditional pit latrine (19%), while 18% use communal facilities. 7% of households use a toilet facility that is directly located over a natural open water source (lagoon, river). 21% of households had no access to sanitary facilities compared to three quarters of households in the rural sample. Most households in Greater Monrovia without access to toilets use the beaches in their neighborhoods.

Respondents were also asked questions relating to safe hygienic practices such as hand washing before eating and after using the toilet, to ensure cleanliness and good health. Hand washing with soap and water was more common after using the toilet than before eating, practiced by 64% and 40% of respondents respectively. Approximately one in four household heads questioned reported that they did not wash their hands before eating.

Approximately half of households use a personal dirt heap (28%) or dirt heap on the road (25%) for the disposal of household refuse. Thirty eight percent of households dispose of their rubbish by dumping in a drain, lagoon or other open water source and only 9% burn their rubbish.

As reported in later sections of the report, the Greater Monrovia survey reported high levels of child morbidity in the two weeks prior to the survey as well as high rates of malnutrition. These results emphasise the need for improved water and sanitation efforts as a major component in addressing childhood illnesses, malnutrition and mortality.

3.6 Access to Productive and Unproductive Household Assets

Ownership of assets is a poverty indicator that is closely correlated with income and expenditure data. On average, households in Greater Monrovia own more productive and unproductive assets than households in rural Liberia.

Most households own at least one mattress, a coal pot, table and some chairs and between 60% and 65% own a bed, radio/tape or cell phone. In contrast, in the rural sample, only every second household owns a mattress, only 9% a coal pot and only 3% a cell phone. Not surprisingly, rural households are more likely to own agricultural and fishing tools.

Table 2: Ownership of Productive and Unproductive Assets

ASSET	Greater Monrovia	Rural/Semi-urban Liberia	ASSET	Greater Monrovia	Rural/Semi-urban Liberia
Mattress	96%	49%	Axe	6%	44%
Coal pot	93%	9%	Sewing machine	4%	0%
Table	88%	40%	Automobile	3%	0%
Chairs	84%	46%	Camera	3%	0%
Radio/Tape	65%	26%	Bicycle	2%	1%
Bed	64%	52%	Refrigerator/freezer	2%	0%
Cell phone	60%	3%	Fishing basket	1%	33%
Cutlass	28%	84%	Fish dryer	1%	21%
Mosquito net	26%	12%	Fishing hook	1%	17%
Hoe	22%	58%	Electric gas/stove	1%	0%
Shovel	19%	11%	Sea fishing net	0%	13%
Generator	16%	1%	Tapping knife	0%	8%
TV	12%	0%	Spade	0%	2%
Fishing knife	7%	15%	Canoe	0%	1%

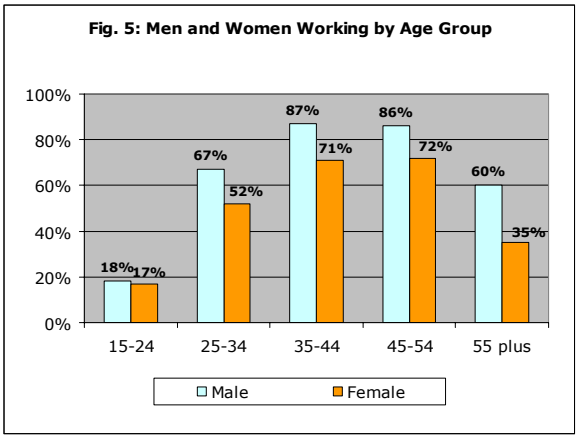
3.7 Livelihood Activities and Sources of Income

Compared to rural households, urban households access their food mainly through purchases from markets. They are therefore highly dependent on the availability of regular employment opportunities in the formal and informal sectors. As shown in section 4.2.5, unemployment is one of the main causes leading to food insecurity in the urban context.

3.7.1 Work Status of Women and Men

The survey collected information on **work activities** of each individual household member during the past month prior to data collection in Greater Monrovia. In total, 53% of men and 42% of women aged 15 to 64 reported that they had worked during the past month to earn money. These included formal as well as informal income activities and did not differentiate between full or part-time. Surprisingly, only 5% of working men and 4% of working women are engaged in more than one income generating activity. In the sampled households, 3% of children 10 to 14 years of age and 10% of children 15 to 19 years of age are working. Though child labour seems relatively low, figures could possibly disguise the fact that many children support their parents during their work, which may not be considered as a work activity. Another limiting factor to capture child labour could be that street children are usually not part of formal households, the primary sampling unit of this survey.

Fig. 5: Men and Women Working by Age Group



The work status of household members varies by age group and sex. Figure 5 illustrates that across all age groups, women have lower employment rates than men, which can be explained by the fact that some women are dedicated to housework or other family duties. The rates for youth from 15 to 24 years old are particularly low at 18% for men and 17% for women. 67% of those not working are still going to school or attend other training courses, which is in line with the large number of over-aged school children (see section 3.9). 33% of men and 48% of women aged 25 to 34 have not carried out any work activity during the past month. The main reason provided

for not working was that no employment opportunity was available. For both women and men, the age groups 35 to 54 show the highest employment rates, which decline heavily from 55 years onwards mainly due to illness and old age.

In terms of **main income activities**, men are more likely to engage in skilled labour (26%) and clerical/professional work (23%), followed by casual labour (20%). In contrast to women, relatively few men engage in street vending or petty-trading (18%). For women, the main income activities are marketing and small-scale trade. Forty percent of them reported street vending or petty-trading to be the main income activity and 29% identify themselves as 'market women', meaning that they sell goods in formal market structures in Monrovia. Only 11% of women are engaged in clerical/professional work and 7% in skilled labour. Street-vending and casual labour are more common among the younger generation up to 35, while the older generation is more likely to engage in clerical and professional jobs, especially men. This is another indication of the education gap in the younger generation.

Just as important is how regular and secure the income source is, which can be assessed by the **mode of payment** (see figures 6 and 7). 43% of working men indicated that they receive a regular wage or salary compared to only 19% of working women. Casual, irregular payment on hourly or daily basis was reported by 15% of male household members. For women the main way to access income is through **informal** self-employment (73%). Casual labour and informal self-employment are more common among the younger generation while, the older generation is more likely to earn a regular salary or wage.

Fig. 6: Mode of Payment (Men)

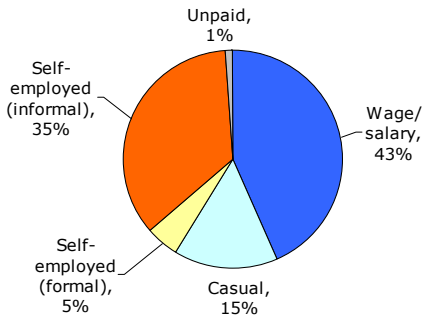
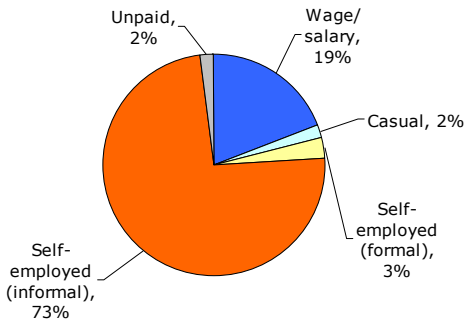


Fig. 7: Mode of Payment (Women)



Of the non-self employed workers, the main **employers** are private businesses with 49% followed by government (26%) and private households (14%). Interestingly, 9% of respondents reported to be employed by international organizations including embassies and 2% with local NGOs. 14% of self-employed men have officially **registered businesses**, while only 4% of all self-employed women have a registered business.

3.7.2 Labour Migration

Ten percent of urban households reported having at least one household member that had migrated. This is slightly lower than rural households where 15% of households reported the existence of labour migrants. In terms of **destination**, however, urban households were much more likely to have international migrants: 15% of households with migrants compared to only 6% among rural households. Most common destination countries for international migrants are the USA (55%), Europe (20%), Cote d'Ivoire (10%) and Sierra Leone (5%). In the rural sample, internal labour migration is generally characterized by shorter distances. 38% of households with labour migrants reported that at least one migrant remained within the same district, 40% have migrants within the same county, and only 33% are associated with migrants who left for another county within Liberia – most often Montserrado where Greater Monrovia is located. In Greater Monrovia, 62% of households with labour migrants reported that these had left for other counties in search of work opportunities. They predominately migrated to Bong (21%), Margibi (16%), Nimba (12%), Grand Bassa (11%), Bomi (9%), Sinoe (6%), and Lofa (6%).

Urban households with migrants are more likely to benefit from remittances which could be explained by the fact that no reliable infrastructure and services exist in rural areas to receive remittances. In total, 72% of households with migrants received cash, on average

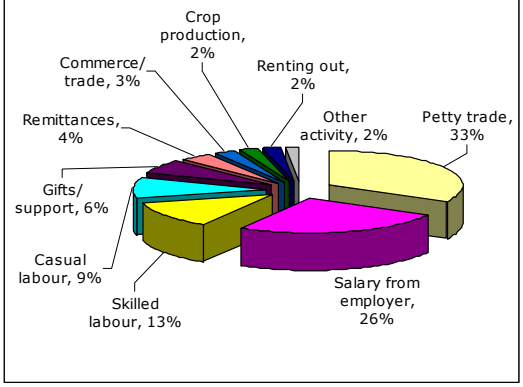
7,746 LD during the past year – more than 4.5 times as much as their rural counterparts. In kind remittances included food for selling or consumption (45%), clothing (12%), medicine (8%) and household utensils (5%). Only 28% received no remittances at all, compared to 44% in the rural sample.

3.7.3 Household Income Sources

Beside employment data on each individual member, respondents were asked to name the four **main household income sources** and estimate the contribution of each source to the total annual household income.

Both in Greater Monrovia and rural Liberia, households pursue on average two income activities. In Greater Monrovia, 58% of households engage in petty trade or small-scale business, 37% receive a regular salary from an employer, 19% engage in skilled labour, and 22% rely on support from others (e.g. foreign remittances or gifts). Finally, 15% of households are engaged in casual labour. In comparison, 41% of rural 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 casual work. Figure 8 illustrates the **share of each income activity** to the total annual household income. The urban economy is dominated by petty trade, salaried work, and skilled labour.

Fig. 8: Contribution of Income Sources to Annual Household Income (Urban)



In terms of **demographic factors**, female-headed households in Greater Monrovia are significantly more likely than male-headed to rely on support from relatives (16% versus 4%), remittances (7% versus 3%), petty trade and street vending (42% versus 30%). Male-headed households depend more on salaries (29% versus 20%), skilled labour (14% versus 5%), and casual labour (11% versus 3%). Also, elderly headed households depend more on support (13% versus 6%) and remittances (10% versus 3%) compared to younger household heads. Not surprisingly, very few households with an illiterate head of household receive a regular salary from an employer. Only 8% of their income is generated through salaried employment compared to 31% of households with a literate head. They are more likely to engage in informal employment, 43% of their income is generated through petty trade compared to only 30% of the income from household with literate heads.

Respondents were also 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, only 11% of the household income is jointly generated by men and women, 51% by men only, 25% by women only (additional 6% were generated by women with the support of children), and only 3% jointly by all household members. Households in Greater Monrovia are less likely to engage jointly in income activities compared to rural Liberia, where 33% of the income was jointly generated by women and men, and 10% jointly by all household members.

3.7.4 Livelihood Profiles using Multivariate Techniques

As a second step, livelihood profiles were created using multivariate techniques based on the main activities households are involved in and their respective shares in the total household income. Using principal component (PCA) and cluster analysis, 9 relatively homogeneous livelihood profiles were created. The livelihood groups that dominate in Greater Monrovia are petty traders, employees, skilled and casual labourers.

Table 3 illustrates that petty traders, employees, skilled labourers, casual labourers, support receivers and traders are primarily dependent on one single income source. Households receiving remittances receive additional support from relatives within Liberia and may have members who earn a salary. Households that engage in renting out land or property, also engage in petty trade and salaried employment. Moreover, food crop producers carry out petty trade and receive support from relatives or friends. All livelihood

groups supplement their main income activity with petty trading, even one third of households receiving regular salaries engage in petty-trading or other small-scale business to make up for inadequate income.

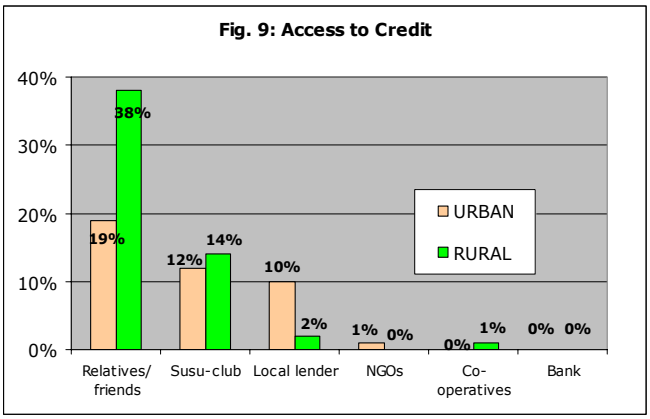
Table 3: Urban Livelihood Profiles

		Contribution to Annual Income		
Livelihood Profile	**%**	**Main income**	Second income	Third income
Petty traders	30%	**Petty trade (86%)**	Salary from employer (4%)	Casual labour (3%)
Employees	27%	**Salary from employer (85%)**	Petty trade (8%)	Skilled labour (2%)
Skilled labourers	14%	**Skilled labour (80%)**	Petty trade (12%)	Salary from employer (2%)
Casual labourers	9%	**Casual labour (82%)**	Petty trade (12%)	Receiving support (3%)
Remittance receivers	6%	**Remittances (59%)**	Receiving support (13%)	Petty trade / salary from employer (10%)
Support receivers	5%	**Receiving support (89%)**	Petty trade (4%)	Salary from employer (3%)
HHs renting out	4%	**Renting out (53%)**	Petty trade (20%)	Salary from employer (10%)
Traders	3%	**Commerce/trade (86%)**	Salary from employer (5%)	Petty trade (5%)
Food crop farmers	2%	**Food crop production (78%)**	Petty trade (14%)	Receiving support (4%)
TOTAL	**100%**			

3.7.5 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, 38% of urban households reported access to credit, mainly through relatives or friends (19%), informal saving clubs – so called '*susu*' (12%), or money lenders (10%). Similar to the rural sample, very few households have access to formal credit sources. More rural households are accessing credit (59%), however the most common way is to borrow cash from friends or relatives, 38% of all households reported doing so. '*Susu*' clubs are more common in the rural context, while money lenders dominate in Greater Monrovia. 21% of urban households indicated that they have taken out a loan during the past 12 months, mainly for business investment (37%) and to pay for education (26%), 9% for home improvements and 8% was used to cover medical costs.

Fig. 9: Access to Credit



A common practice is to **purchase food on credit** or borrow money to purchase food. This coping strategy is more common in the rural context, where 55% of households reported that they sometimes purchase food on credit compared to only 30% of urban households. These results could indicate that urban households are less pressured to manage their budgets on a day-to-day basis. Another possible factor could be that shop keepers are more reluctant to provide food on credit in urban areas.

3.8 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 expenditure quintiles.

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

Examining per-capita expenditures, sampled households in Greater Monrovia reported an average per-capita expenditure of **LD 2,401** per month. The amount spent on food items per month was **LD 1,191** while **LD 1,209** was spent on non-food items. On average, households allocate **52%** of their monthly expenditure on food as opposed to non-food items. In comparison, rural households have much lower food and non-food expenditures (LD 492 and LD 257 respectively) and also spend much more of their total income on food (66%).

The bulk of expenditure in Greater Monrovia is spent on rice (17%), the main staple food – although the share is lower compared to the rural survey (25%). Only 1% is spent on the less preferred bulgur wheat compared to 8% in the rural sample. Urban households have much higher expenditure on education and utilities (both 8%) compared to rural households, who only spend 3%. Interestingly, urban households spend 5% of their expenditures on pre-paid mobile phone cards. This figure is less surprising given that 60% of households in Greater Monrovia own a cell phone (see section 3.6).

Fig. 10: Share of HH Expenditures (Monrovia)

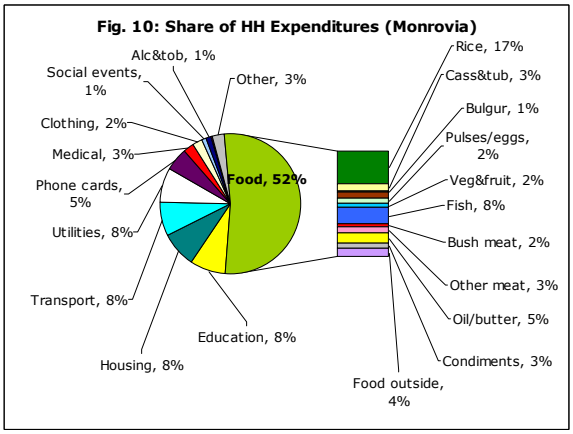
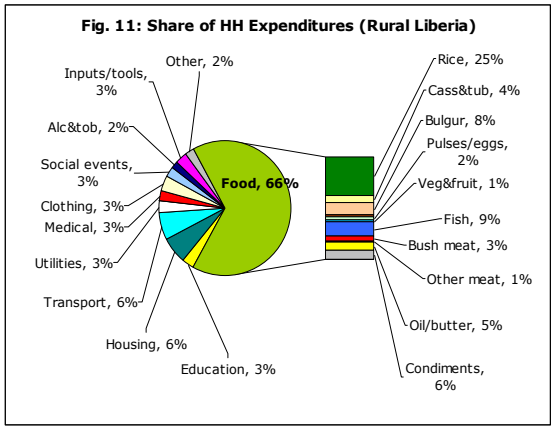


Fig. 11: Share of HH Expenditures (Rural Liberia)



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 expenditures by livelihood profile.

3.8.2 Expenditures by Demographic Factors and Livelihood Group

Examined by age of household head, elderly headed households (over 60 years of age) have significantly lower per-capita food expenditures than households with younger heads (LD 851 vs. LD 1,229 at $p<0.01$). They also spend a larger share of expenditures on food (56% versus 53%). There are no significant differences between female and male headed households. Another decisive factor is the literacy of the head of households. Households with illiterate household members have lower total per-capita expenditure (LD 1,864 vs. LD 2,534 at $p<0.001$) and they spend 60% of their expenditures on food ($p<0.001$). The literacy status of the spouse is also a critical factor.

Table 4 presents expenditures differentiated by livelihood profile. 'Large scale traders', 'remittance receivers', 'households renting out' and 'employees' have significantly higher cash expenditures than most other urban livelihood groups. They have the highest non-food and total expenditures. Not surprisingly, food crop producers have low food expenditures. Overall, the worst-off groups consist of households that mainly depend on support and gifts, casual labour or food crop production. More than 30% of households in these livelihood groups fall into the poorest expenditure quintile.

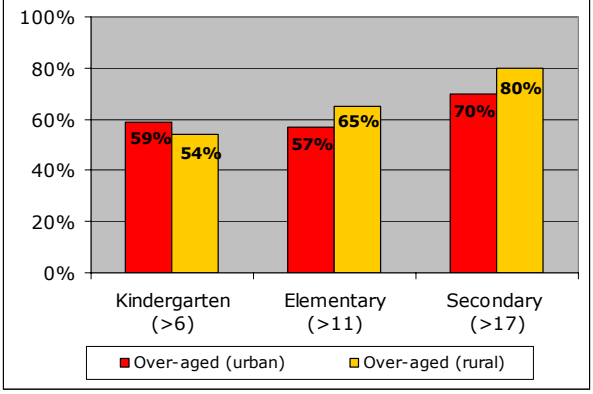
Table 4: Per-capita Expenditures by Livelihood Profile

	Per-capita food expenditure (LD)	Per-capita non-food expenditure (LD)	Per-capita total expenditure (LD)	Share of food expenditure in %	Share in lowest per capita total expenditure quintile in %
Large scale traders	**1742**	**1694**	**3436**	51%	**12%**
Remittance receivers	1167	**1670**	**2837**	**41%**	**15%**
Households renting out	**994**	**1709**	**2704**	**37%**	24%
Employees	1139	**1465**	**2605**	**44%**	**12%**
Support/gifts	**1260**	1108	2368	**53%**	**30%**
Skilled labourers	1224	1137	2362	52%	**14%**
Petty traders	**1264**	**970**	**2234**	**57%**	22%
Casual labourers	**1114**	**783**	**1899**	**59%**	**31%**
Food crop producers	**630**	**966**	**1596**	**39%**	**74%**

3.9 Education

Because of the war, both adults and children had restricted access to education. 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 have had to re-enrol in pre- or elementary schools. As illustrated in figure 12, more than half of students in Greater Monrovia attending kindergarten and primary school and two thirds in secondary school are 'over-aged'. There is a similar phenomenon in the rural sample, where 'over-aged' students were even more common in primary and secondary schools. These findings show how important it is to strengthen and expand accelerated learning initiatives as well as reduce early drop-out and encourage enrolment in secondary schools and advanced learning institutions.

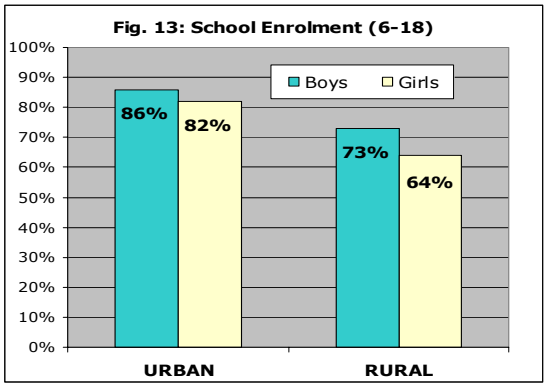
Fig. 12: 'Over-aged' Students

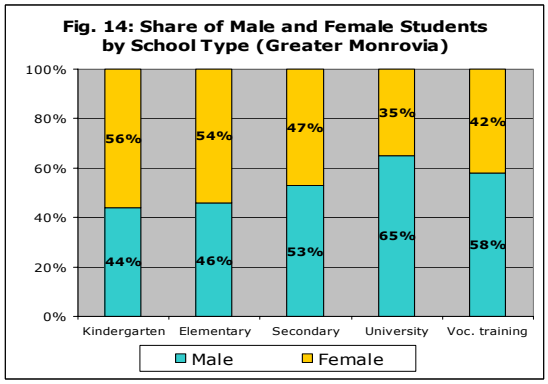


3.9.1 School Enrolment

In Greater Monrovia, 84% of school age children (6-18 years of age) are enrolled in some formal level of schooling compared to only 69% in the rural sample. The gender gap is less severe in Greater Monrovia compared to the rural setting (see figure 13). The gender ratio in this age group is 0.97 girls per one boy in Greater Monrovia compared to 0.88 in rural Liberia. Girls drop-out of school at an earlier age than boys in all parts of the country; however, age of drop-out is later in Greater Monrovia for both sexes. In Greater Monrovia, girls are dropping out at the age of 17 compared to 13 in the rural sample; for boys, the age is 19 versus 17. Taking into consideration the information above on over-aged students, at this age girls and boys in Monrovia would have only completed elementary school. In rural Liberia, they would not even have completed elementary school.

Figure 14 illustrates that the gender gap widens considerably at the secondary and tertiary educational levels. The differences between elementary and secondary school as well as secondary school and university are statistically significant ($p<0.05$ and $p<0.01$ respectively). While in kindergarten and elementary school, more girls than boys are enrolled, the picture is reversed in secondary schools and in particular among university students, where only 35% of them are female. In the rural sample, enrolment rates in kindergarten are about the same, but the gender gap appears from the elementary school level (43% girls versus 57% boys). In secondary schools, 71% of the students are male and only 29% are female.





3.9.2 Reasons for Not Being Enrolled

In total 18% of school-aged children (6 to 18 years) in Greater Monrovia are not enrolled at all. The single main reason provided by 82% of the respondents for not sending their children to school was related to financial constraints. Unlike in the rural areas, physical access to schools is not an issue.

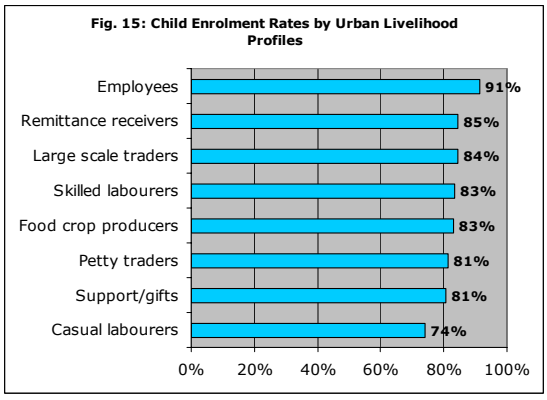
Reasons provided only differ slightly between sex and age. Similar to the rural survey, for girls 15 years and above, one of the main reasons provided for not being enrolled in school is that they got married or pregnant.

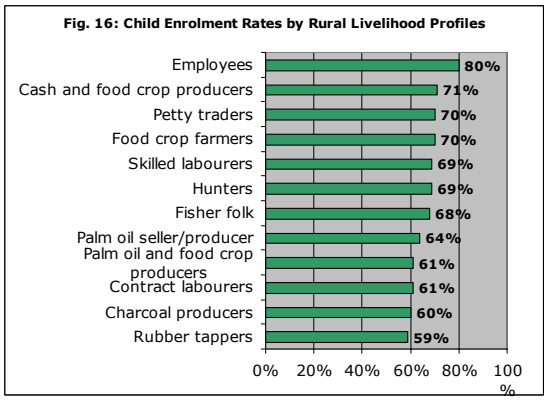
Indeed **poverty** is one of the main causes for children not attending school. Per-capita cash expenditures of households with children at school is significantly ($p<0.001$) higher than households where children aged 6 to 18 are not enrolled (LD 1,996 versus LD 1,596). These households are also having lower shares on food expenditures (50% versus 58%).

Enrolment rates in Greater Monrovia are also statistically associated with the following factors:

- Father alive and living in household (88% of children are enrolled compared to 82% if father not living in household and 70% if father died)
- Mother alive and living in household (85% of children are enrolled compared to 83% if mother not living in HH and 76% if mother died)
- Male versus female household head (86%/78%)
- Literate versus illiterate household head (87%/70%)
- Literate versus illiterate spouse (91%/78%)
- Employment status of household head (90% in households where head earns a regular wage/salary compared to 81% if household head is unemployed)
- Livelihood profile: Employees (91%) compared to casual labourers (75%)
- Not displaced versus displaced household (84%/74%)
- Household benefiting from school feeding versus those that are not benefiting (91%/82%) – enrolled school children are also more likely to eat three or more meals per day than those not enrolled.

In the rural sample, there was an even stronger association between **school feeding** and enrolment. 83% of children living in households benefiting from school feeding were enrolled compared to only 58% in households not benefiting ($p<0.001$). Other significant factors included per capita expenditures (LD 658 compared to LD 592 where children are not enrolled) and livelihood profiles. 80% of children of households characterized as employees were enrolled compared to only around 60% of children in households relying on rubber tapping, charcoal production or casual labour as the main source of income.





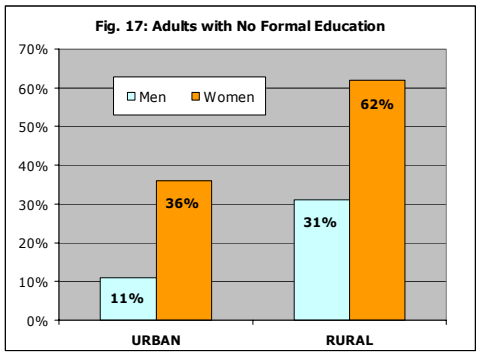
3.9.3 Absenteeism

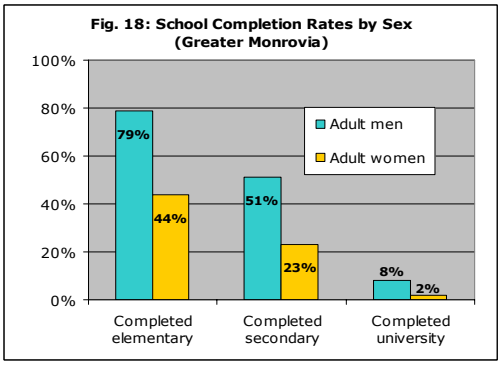
Absenteeism, defined as missing at least one week of school in the last month, was reported for 11% of children (19% in the rural sample).

The main reasons provided for not attending school are 'school fees not paid' (60%), followed by 'sickness' (26%). Other reasons, such as 'no teacher at school' and 'student needed to work to earn money' are not as relevant as in the rural context. No major differences were observed between sex and age groups.

3.9.4 Adult Educational Levels

Over 25% of adults, 19 plus, in Greater Monrovia who are not currently enrolled in school reported having no formal schooling (compared to 48% in the rural survey). 15% reported having attended some elementary level schooling, but, did not complete elementary school. 5% of respondents reported having completed primary school, while 20% reported having completed elementary and attending at least one year in high school. 23% of respondents reported having completed secondary school (compared to only 5% in the rural sample) while 9% reported having attended university (close to zero in the rural sample).





The differences in education levels were highly associated with gender (see figure 17). In Greater Monrovia, men 19-years-old and above, are more than three-times as likely as women to have received some schooling. In cases where females did receive formal schooling, they are more likely to reach basic education levels only. As illustrated in figure 18, the proportion of females having completed elementary school is two-thirds that of males and the proportion completing secondary school is only half that of males. While 8% of men have a completed university degree, only 2% of women do so. A positive sign is that current enrolment rates among school-age children show smaller gender disparities in comparison to the adult generation (see figure 13 and 17).

This section presents key information relating to the four dimensions of food security, namely availability of, access to, and utilisation of food as well as vulnerability to food insecurity.

4.1 Availability of Food

Generally, urban households are highly dependent on commercial food imports, particularly for rice. Although some households grow substantial amounts of their own food, urban agriculture usually accounts for only a small percentage of household food consumption compared to the rural economy. One of the major constraints preventing people from increasing production in urban areas is that access to land is usually informal and insecure. On the other hand, urban agriculture can contribute to household nutrition and income; it can also support urban households to mitigate the impact of seasonal market-based vulnerability.

4.1.1 Food Imports

Commercial food imports play a critically important role for Liberia's food security. Rice is the most important staple, with approximately two-thirds of the annual consumption being met through imports. The rice consumption needs of households in Greater Monrovia are mainly met through imported rice, only a small portion derives from local production. In 2006, it is estimated that more than 200,000 metric tons of rice was imported at a cost of US$ 59 million.[20]

In late 2006 there was a concern that importers had been holding off on a large consignment of rice in order to speculate for higher prices. Government intervened charging the importers with "economic piracy." This example shows that the nation should maintain a predictable rice import pipeline. This has been proposed under the National Food Security and Nutrition Strategy document.

The effect of rapid rises in food prices are felt more keenly in urban centers, in particular in Greater Monrovia, with immediate political ramifications. Regulations to minimize sharp changes in food prices and mechanisms to temporarily buffer such changes, such as price stabilization funds, are critical to the welfare of urban households in Liberia.

While rice is the most important food import, it is not the only food imported into Liberia. Of note are pulses, groundnuts and condiments imported from Liberia's neighbors, in particular Guinea. The recent instability in Guinea led to an acute shortage and increased prices of dried pepper and groundnuts throughout Liberia.

4.1.2 Food Aid

As a result of the civil crisis, several humanitarian organizations have been providing food assistance to the people of Liberia. WFP's food aid intervention in response to the civil war in Liberia started in 1990 with the distribution of food to vulnerable populations. Between 2001 and 2006, WFP, the largest food aid provider, distributed a total of 234,137 metric tons of food comprising mainly of bulgur wheat, pulses, vegetable oil and corn-soya-blend (CSB). In 2006, WFP imported 35,400 metric tons of bulgur wheat. Catholic Relief Services also has a food aid pipeline. The largest distributions took place in 2004 and 2005, when IDPs in more than 20 camps were assisted; the last camps were closed in April 2006. Resettlement of IDPs and repatriation of refugees started in 2004 and officially ended in mid 2007.

Since 2006, activities of humanitarian agencies are shifting towards recovery activities such as emergency school feeding (ESF), food support for local initiatives (FSLI), and nutrition intervention programmes. For 2007, the planned tonnage will be around 41,800, which is approximately 60% of the food distributed in 2004. While in the rural sample, 32% of households were benefiting from some kind of food assistance (mainly school feeding), only 20% of households in Greater Monrovia reported that their children benefited from school feeding during the past 6 months prior to the survey. Other forms of food assistance were not reported by sample households in Greater Monrovia.

[20] GOL/FAO/WFP: Liberia Market Review, July 2007.

4.1.3 Access to Agricultural Land and Tenure

Tenure in the context of access to land is becoming a more and more critical issue in post-conflict Liberia. With continued economic growth, new industries and businesses will induce more pressure on land, particularly close to the urban and semi-urban centres of the country.

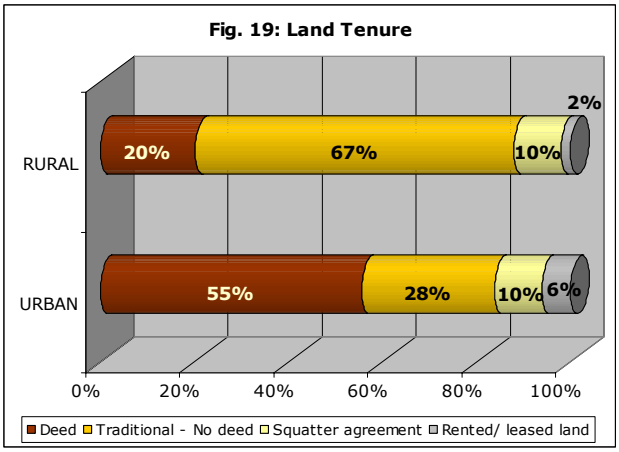
Not surprisingly, households in Greater Monrovia are less likely to have access to agricultural land. Only 17% of households reported to have access to land for cultivation compared to 66% in rural Liberia. Urban households own larger plots; the median size was 4 acres, twice as large as in rural Liberia. However, less than half of urban households make use of their land, only 43% of land owners were actually cultivating their plots in 2006.

In terms of demographic factors, female-headed households in Greater Monrovia are less likely to have access to land than their male counterparts (13% versus 18%) and their plots are smaller (1 acre versus 4 acres) but if they have access they are also more likely to have cultivated crops in 2006 (60% versus 41%). Elderly-headed households are more likely to have land (25%); their plots are also larger (6 acres) but only 41% of households with elderly heads who owned land produced crops in 2006.

Households with access to land in Greater Monrovia are much more likely than households in rural areas to have a deed for their land as depicted in figure 19. Fifty-five percent (55%) of urban households have a deed compared to only 20% in the countrywide sample. The remaining households reported having traditional land rights (28%), squatter agreement (10%), or they were renting or leasing the land (6%).

For about 40% of urban households with land, their plots are located within their communities, for 7% the plots are located within Montserrado, for the remaining 53% their land is located in other counties, mainly in Lofa (17%), Grand Cape Mount (14%), Bong, Grand Bassa and Nimba (all 13%) – in most cases the place where the household head originated from. The distance to their agricultural land could partly explain why relatively few urban households – even if they have access to agricultural land – produced crops in 2006.

Fig. 19: Land Tenure



It is however common, that other people cultivate the land on behalf of or instead of the owner. This was the case for 45% of households with land outside Montserrado. 12% of these receive rent for the plot, and 44% reported to have received a share of the food that was produced on the land.

4.1.4 Urban Food Crop Production and Use of Harvest

In the past year prior to the surveys, only 8% of households in the urban sample produced crops as compared to 49% in rural Liberia. While the percentage is expected to have increased in rural Liberia since 2005 due to resettlements and repatriation, increased land pressure in Greater Monrovia could lower agricultural production capacities.

Households in Greater Monrovia who produced crops in 2006 were asked to report on the four most important food crops cultivated. The majority planted cassava (52%), closely followed by vegetables (50%). All other crops were much less frequently mentioned: corn (14%), plantains (13%), rice (12%), sweet potatoes or eddoes[21] (10%), and groundnuts (3%). Rice production was close to zero among households with agricultural land within the boundaries of Greater Monrovia. On the contrary, 40% of households with land in other counties produced rice. Urban households that produced crops are much more likely

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

to produce vegetables (50%) compared to rural producers, of whom only 20% produced vegetables.

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 (see figures 20 and 21).

Fig. 20: Use of Food Crops (Urban)

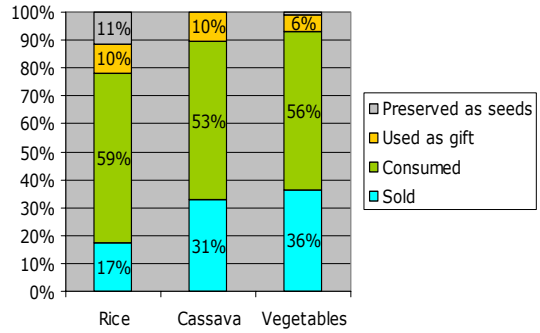
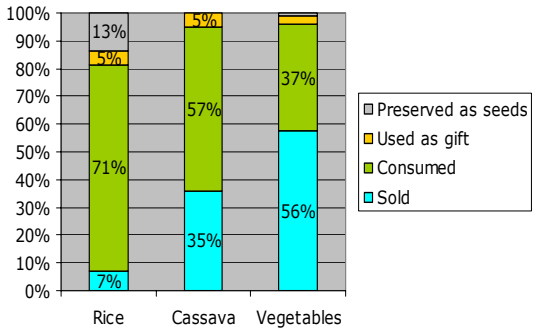


Fig. 21: Use of Food Crops (Rural)



In comparison, urban households are more likely to produce for their own consumption than rural households, who are – with the exception of rice – more likely than households in Monrovia to market their produce, in particular vegetables. Demand for vegetables is higher in urban settings; hence, vegetable production is a profitable source of income for many rural households. Urban households, on the other hand produce to meet their own needs and to be less dependent on markets where vegetables are generally very expensive.

4.1.5 Vegetable Gardens

Only 7% of households in Greater Monrovia have a vegetable garden, while every second rural household reported to have one. Vegetable production should be encouraged as it provides opportunities for cash-generation besides its value to contribute to dietary diversity at household level. This is particularly valid for the outskirts of Greater Monrovia, where land plots are generally larger and more suitable for horticulture. As these areas are close to urban markets with high demands in vegetables, households could make profits if they engage in vegetable production.

4.1.6 Agricultural Production Constraints

Not surprisingly, by far the largest agricultural constraint faced by urban households is lack of arable land. Other reasons include lack of inputs (seeds, tools, capital) and the fact that many households are engaged in other livelihood activities. In the rural sample, lack of inputs and animal pests were the main agricultural constraints.

Table 5: Agricultural Constraints

	RURAL		URBAN	
1	Lack of tools	50%	Lack of arable land	71%
2	Lack of seeds	50%	Lack of cash	36%
3	Lack of cash	31%	Lack of tools	28%
4	Lack of household labour	28%	HH engaged in other activity	25%
5	Groundhog attack	19%	Lack of seeds	18%
6	Lack of arable land	13%	Lack of household labour	9%
7	HH engaged in other activity	13%	Lack of training	3%
8	Lack of fertilizer/ pesticide	12%	Lack of fertilizer/ pesticide	2%
9	Bird attacks	11%		
10	Plant disease/ insect attack	6%		
11	Returned late for planting season	6%		

4.1.7 Livestock and Fisheries

The Liberia **livestock** sector was heavily affected by the 14 years of civil strife and is only slowly starting to recover. The predominant livestock owned by rural and urban Liberians today is poultry. In Greater Monrovia, 20% of households own chicken compared to 47% in the rural sample, and 5% own ducks compared to 8%. Other livestock were not reported in Greater Monrovia.

Fishing is much less common in Greater Monrovia, even though the capital is located by the sea. Only 2% of households reported to be engaged in fishing compared to 62% of rural households. One possible reason for lower engagement in fishing could be high pollution levels in lagoons and swamps within Greater Monrovia.

4.1.8 Access to Markets

Physical access to markets is not a constraint in Greater Monrovia. The Liberia Market Review listed 21 major daily markets within the boundaries of Greater Monrovia (see map 2). In terms of variety, markets in Greater Monrovia show the highest variety of food and non-food commodities, in particular the Gobachop Market in Paynesville.

All imported commodities are cheaper in Monrovia compared to the rest of the country, in particular, imported rice, pulses and groundnuts. Prices for butter rice, for example are more than 30% more expensive in Maryland in the South-East. Commodities that are more expensive in Greater Monrovia include country rice, cassava, vegetables and bush meat. In January 2007, country rice is 25% more expensive compared to Lofa, and bush meat is twice the price compared to Grand Gedeh.

Availability of country rice and cassava is highest from February to May which follows the harvest season with a time lag due to the time required for transport. During the rainy season, supply is lowest due to agricultural lean season and bad road conditions.

Map 2: Location of Markets in Greater Monrovia

4.2 Households' Access to Food

Households can access food through purchases, own production, gifts, or food aid to obtain sufficient and nutritious food to meet their dietary needs and food preferences. Food consumption frequency and dietary diversity are good proxy indicators of the access dimension of food security and nutrition intake. The regression analysis developed for the countrywide CFSNS was used to compare urban and rural food consumption patterns. The second step was to assess households' potential to access sufficient food through purchasing power using food expenditure quintiles. The third step was to combine the two approaches by developing household food security profiles.

4.2.1 Household Food Consumption Profiling

The Household Food Consumption Profiling uses groups based on information collected at 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 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	

During the countrywide CFSNS, households were clustered into food consumption profiles using principal component analysis (PCA) and cluster analysis[22]. The aim of the analysis was 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.

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.

The formula was then used to calculate food consumption levels in Greater Monrovia in order to compare rural and urban consumption patterns. Labels of main food consumption groups, short description of different dietary profiles and their defining cut-off points are reported in table 6 below. The same cut-off points were used as in the rural/semi-rural CFSNS.

[22] 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 6: Description of Household Food Consumption Groups

Household Food Consumption group	% of HH (URBAN)	% of HH (RURAL)	Ranking cut-off point	Description
Poor	3.2%	13.5%	Below 1.00	Households in group are characterised by poor diversification in their diet which is mainly based on consumption of staple – rural 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	10.4%	36.0%	Between 1.00 and 1.99	Households in this group have a regular food intake of rice. 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	20%	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 fish in high frequency. They gain additional protein sources from bush meat, eggs, or pulses.
Good	66.4%	15.0%	Equal/ above 3.00	Households in this group have 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. These protein sources are particularly common among urban households. This is the only group that frequently consumes bread/flour and sugar.

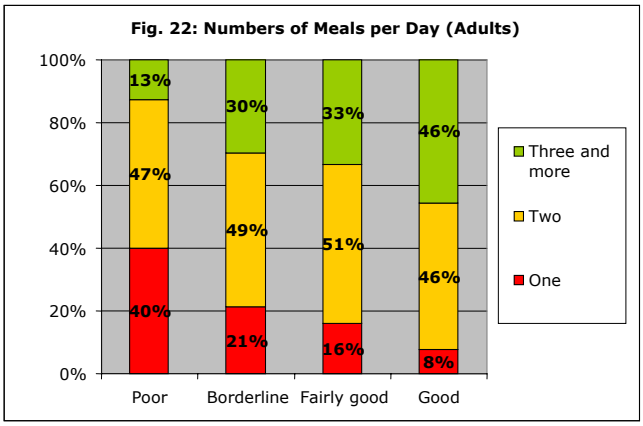
Table 7: Frequency of Consumption by Food Consumption Group (Days per Week)

Food consumption	Rice		Cassava / Tuber		Bulgur		Bread/ flour		Fish		Bush meat		Other meat		Eggs		Pulses/ ground nuts		Veg. & fruits		Oil		Sugar	
	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN	RURAL	URBAN
Poor	3	3	3	1	3	1	0	1	3	3	1	0	0	0	0	1	1	1	3	2	4	3	0	1
Borderline	5	5	4	2	3	1	0	2	5	5	1	0	0	1	0	1	1	2	4	3	6	5	0	1
Fairly good	6	6	5	2	3	1	1	2	6	6	2	1	0	2	0	2	2	2	5	5	7	6	1	2
Good	7	7	5	3	3	1	3	5	7	7	2	2	1	4	1	4	3	3	6	6	7	7	3	5
Total	**5**	**6**	**4**	**3**	**3**	**1**	**1**	**4**	**5**	**6**	**2**	**1**	**0**	**3**	**0**	**3**	**2**	**3**	**5**	**5**	**6**	**6**	**1**	**4**

The basic Liberian diet consists of either rice, cassava, or other tubers and a 'soup' or stew made from greens or palm nuts or vegetable oil. If available, small pieces of dried fish or bush meat are added. All soups or stews tend to be heavily seasoned with fresh or dried pepper, which is consumed by nearly all households on a daily basis.

Many Liberians do not consider themselves to have eaten during a day if they have not had at least one meal of rice. Cassava is the second most commonly consumed staple and is preferred in some parts of the country. Food preferences and preparation methods have been influenced by the experience of Liberians as refugees in neighboring countries or in the U.S. Whatever the socioeconomic level, the basic ingredients are much the same. The differences are in the quantity (especially rice) and the quality of the stew or soup. Higher income households will prepare stew or soup that includes considerable quantities of fish, poultry, or meat. Lower income households will prepare stew that has relatively more oil (for calories and to make the soup go further), little meat or fish, and fewer greens. For those with little money, a meal may consist of rice with palm oil.

Based on the analysis, households in Greater Monrovia show higher frequencies of food consumption as well as more dietary diversity compared to rural households. In particular, they consume more protein rich foods such as chicken and other meat, eggs, pulses and groundnuts. They also consume more flour and sugar. Products that are more frequently consumed by rural households are cassava, tubers and bulgur wheat, which are generally less preferred items. Only 3% of urban households are considered to have poor food consumption compared to 14% in the rural sample and 10% have borderline food consumption compared to 36%. The majority of households have good food consumption, 66% compared to only 15% in the rural sample.



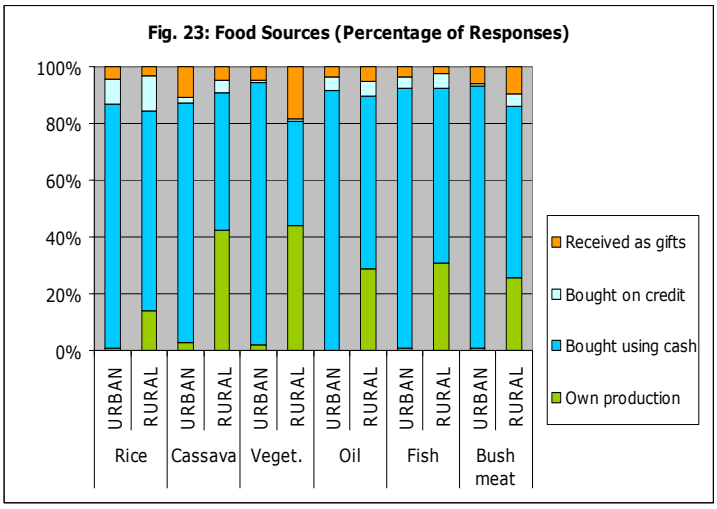
There is a strong positive correlation between food consumption level and frequency of meals consumed by children and adults (see figure 22). 40% of adults in the poor food consumption group only consumed one meal compared to 47% of adults with good food consumption, who ate three or more meals the previous day. A very similar pattern can be observed for children under-5.

4.2.2 Food Sources

Households were requested to mention the two main food sources for each food item to assess the household's ability to obtain food from their own production, purchase (cash/credit), hunting/fishing/gathering, gift or borrowing, food aid and begging.

Households can combine various sources to access food; figure 23 illustrates the percentage of responses.

In Greater Monrovia purchases of **rice** dominates and is done by nearly all households. The second most common source is buying rice on credit which is done by 10% of households. On average, 5% of households receive rice as gifts, which was higher among the households with poor food consumption (8%). In the rural sample, households were more likely to produce the rice they consume. 17% reported that the rice they consumed during the past week was produced by the household.



Cassava is mainly purchased using cash; very few households purchase cassava on credit. 12% of households, however, receive cassava as gifts from others. Own production plays a slightly higher role among households with poor food consumption. In the rural sample, half of the households produced and the other half purchased cassava.

Vegetables follow a very similar pattern, very few urban households consume vegetables that are produced by them, while half of the rural households reported own production as one of the main sources. In the rural context, vegetables are often given away as gifts.

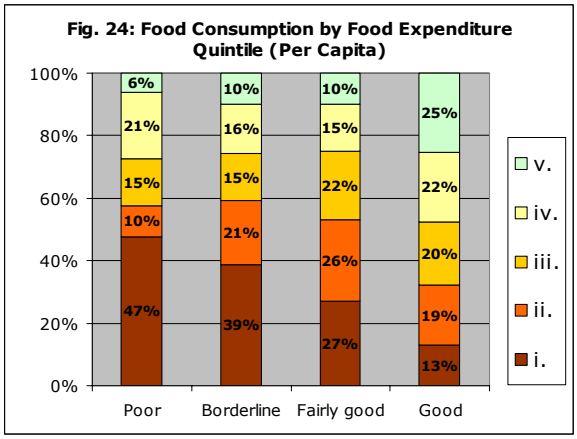
Palm or vegetable oil is purchased by nearly all urban households, while 33% of rural households consume oil that is produced by them. This is not surprising, as palm oil production is a major livelihood activity in rural Liberia.

Also **fish** is mainly purchased by urban households, since close to none of the households reported fishing as a source of income. This compares with 33% in the rural sample, where fishing is carried out regularly by 62% of the households. A similar pattern is obtained for **bush meat**.

These results indicate that the dominating source of urban households to access food is through **purchase**. Therefore, food security is directly linked to cash income generated by household members and food prices. But also many rural households depend on a functioning market system – especially for rice. The situation in the rural context may change over time, as households restore their livelihoods and rehabilitate their farming systems which were disrupted for a long period due to the civil strife and displacements.

4.2.3 Household Food Access Profiling

The access profiling in the rural/semi-urban CFSNS was based on production indicators and per capita household food expenditure quintiles. As production plays only a minor role in the urban context, the methodology was simplified and only quintiles based on per capita household food expenditure were used. This parameter is considered to be a good proxy for the access dimension of food security and therefore complements the consumption profiles. The lowest 20% of the sample (quintile i.) is considered to have very weak access potential, while the highest 20% (quintile v.) has good access potential. The other groups fall in between.



As figure 24 shows, food expenditure quintiles have a close correlation with food consumption profiles. 47% of the households with poor food consumption fall into the poorest quintile; while on the other hand, 25% of households with good food consumption fall into the best-off quintile. Generally, the trend is similar for non-food expenditures; however, the borderline food consumption group is more likely than all other groups to fall into the lowest quintile (53%).

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' (red), 'highly vulnerable to food insecurity' (orange), 'fairly food secure' (yellow) or 'food secure' (green). The combinations are illustrated in table 8, for example, households with poor, borderline and fairly good food consumption combined with very weak access are considered food insecure, etc.

Table 8: Food Security Profiling (Table Valid N %)

	I. Quintile (very weak access)	II. Quintile (weak access)	III. Quintile (average access)	IV. Quintile (good access)	I. Quintile (very good access)	**TOTAL**
Poor	2%	0%	0%	1%	0%	3%
Borderline	4%	2%	2%	2%	1%	10%
Fairly good	5%	5%	4%	3%	2%	20%
Good	9%	13%	14%	15%	17%	66%
TOTAL	20%	20%	20%	20%	20%	**100%**

Based on this analysis, **14% of households in Greater Monrovia** can be considered to be **food insecure** and **16%** are **vulnerable to food insecurity**. While in the rural sample, only 9% were considered to be food secure, **51%** of urban households are **food secure** and **19%** are **fairly food secure.**

4.2.5 Socio-economic Classification of Vulnerable Groups

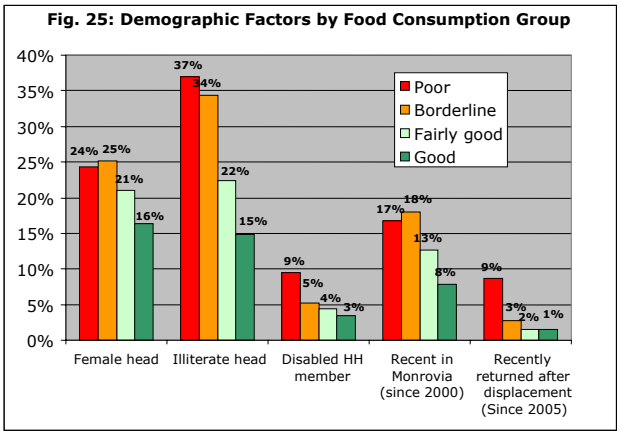
In order to assess the socio-economic characteristics of food insecure groups, statistically significant relationships were identified with key demographic and socio-economic indicators based on the conceptual framework outlined in section 1.2. As health factors are

more relevant to food utilisation and nutrition status, they are treated in section 4.3.9. The following relationships could be established:

Demographic Factors

Households with the following characteristics are more likely to have **poor or borderline food consumption profiles**: (1) households headed by women ($p<0.05$); (2) households headed by an illiterate household head and illiterate spouse ($p<0.001$); (3) households with a disabled household member, in particular if the head is disabled ($p<0.05$); (4) households that have moved to Monrovia since 2000 ($p<0.001$); and (5) households that returned to Monrovia since 2005 after being displaced ($p<0.05$).

Figure 25 illustrates various demographic factors by food consumption profiles:



- About 25% of households with poor or borderline food consumption are headed by women compared to only 16% among the households with good food consumption;
- 37% of households with poor food consumption are headed by an illiterate household head compared to only 15% of households with good food consumption;
- 9% of households with poor food consumption have a disabled household member compared to only 3% in households with good food consumption;
- About 17% of households have moved to Monrovia since 2000 compared to only 8% of households with good food consumption; and finally,
- 9% of households with poor food consumption have recently returned to Monrovia after being displaced compared to only 1% in households with good food consumption.

Households with the following characteristics are more likely to have weak access profiles (belong to I. or II food expenditure quintile): (1) households headed by an elderly person ($p<0.01$); (2) households headed by an illiterate household head ($p<0.001$) and illiterate spouse ($p<0.01$); (3) large households with 8 or more household members ($p<0.001$); (4) households with high dependency ratios ($p<0.001$).

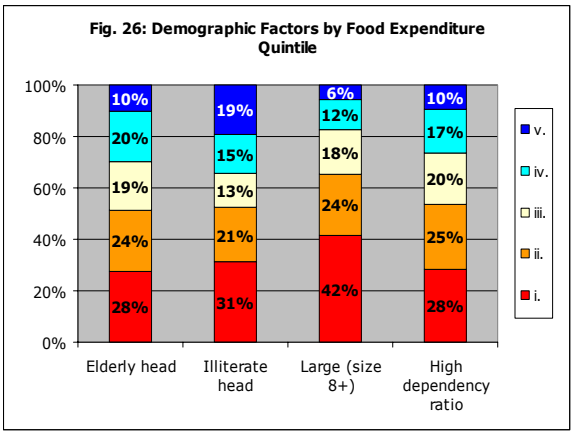


Figure 26 illustrates various demographic factors by food expenditure quintile:

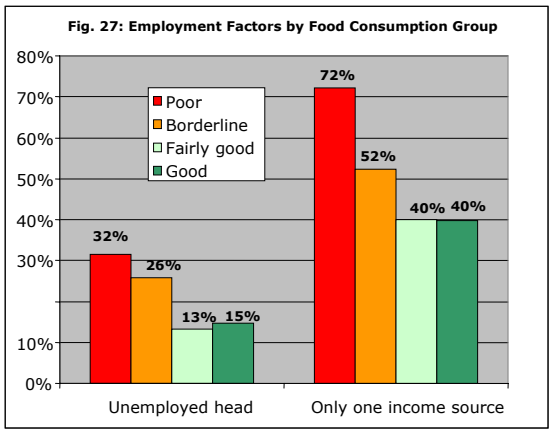
- 28% of elderly headed households belong to the lowest wealth quintile and only 10% to the best-off quintile;
- 31% of the households with illiterate heads belong to the lowest wealth group;
- 41% of large households belong to the lowest wealth quintile and only 6% to the best-off group; and
- 28% of households with high dependency ratios belong to the worst wealth quintile.

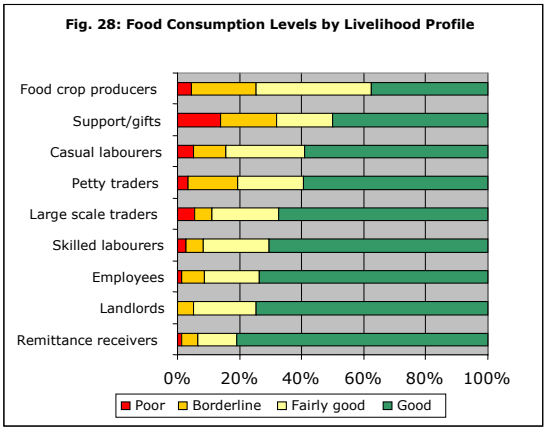
Employment Factors

Households with the following characteristics are more likely to have poor or borderline food consumption profiles: (1) households with an unemployed or self-employed household head ($p<0.001$); (2) households with only one income source ($p<0.001$); and (3) households relying on gifts and other support and casual labour ($p<0.05$). Households

that receive a regular salary or remittances and skilled labourers have the best consumption profiles.

Figure 27 illustrates that 32% of households with poor food consumption are headed by unemployed household heads compared to about 14% in households with fairly good or good food consumption. As depicted in figure 28, the livelihood groups with the lowest food consumption are urban food crop producers, households relying on gifts and casual labourers. On the contrary, employees, households renting out land or houses, and households receiving foreign remittances have the best food consumption levels.





Households with the following characteristics are more likely to have weak access profiles (belong to I. or II food expenditure quintile): (1) households that are not benefiting from remittances, in particular cash flows ($p<0.05$); and (2) households that have a vegetable garden.

Wealth & Asset Factors

Households with the following characteristics are more likely to have poor or borderline food consumption profiles: (1) households that are considered squatters ($p<0.01$); (2) households with no access to agricultural land ($p<0.01$); (3) households with a low productive and/or unproductive asset base ($p<0.001$); and (4) households that do not own a bed ($p<0.001$), table ($p<0.001$), chairs ($p<0.001$), mattress ($p<0.01$), cupboards ($p<0.001$), coal pot ($p<0.001$), generator ($p<0.001$), radio/tape ($p<0.001$), cell phone ($p<0.001$), sewing machine ($p<0.05$), bicycle ($p<0.05$), car ($p<0.001$), mosquito net ($p<0.01$), wheel barrow ($p<0.01$), shovel ($p<0.001$), shop building ($p<0.05$), iron ($p<0.001$), cooler ($p<0.001$), TV ($p<0.001$), refrigerator ($p<0.001$), electric stove ($p<0.05$), and/or camera ($p<0.001$).

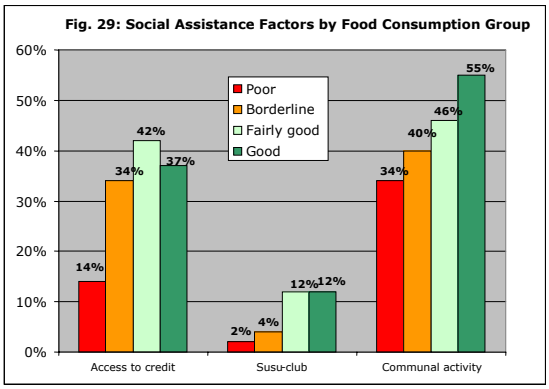
Households with the following characteristics are more likely to have weak access profiles (belong to I. or II food expenditure quintile): (1) households with poultry ($p<0.001$) and engaged in fishing ($p<0.01$). This means that poor urban households are more likely to own poultry and engage in fishing than better off households; (2) households with a low unproductive and overall asset base ($p<0.01$); and (3) households that do not own a bed ($p<0.01$), mattress ($p<0.05$), cupboards ($p<0.001$), coal pot ($p<0.001$), generator ($p<0.001$), radio/tape ($p<0.001$), cell phone ($p<0.001$), shop building ($p<0.05$), iron ($p<0.001$), cooler ($p<0.05$), TV ($p<0.05$), refrigerator ($p<0.05$), and/or camera ($p<0.05$).

Table 9: Food Consumption Levels and Asset Ownership

	Food consumption level			
	Poor	Borderline	Fairly good	Good
Own dwelling	29%	31%	36%	33%
Rent dwelling	38%	47%	44%	51%
Squatter	11%	4%	2%	2%
Caretaker	22%	17%	18%	14%
Access to land	6%	12%	17%	18%
Number of assets	6	6	7	8
Number of productive assets	1	2	2	3
Number of non-productive assets	4	5	5	6
Bed	42%	49%	58%	69%
Table	74%	80%	84%	91%
Chairs	53%	75%	81%	88%
Cupboard	15%	8%	10%	23%
Mattress	99%	95%	93%	97%
Coal pot	78%	86%	93%	95%
Generator	5%	4%	12%	19%
Radio/Tape	50%	43%	57%	72%
TV	3%	5%	8%	14%
Cell phone	42%	36%	51%	67%
Sewing machine	0%	3%	4%	4%
Bicycle	2%	1%	2%	3%
Automobile	0%	1%	1%	4%
Shovel	14%	12%	13%	22%
Mosquito net	9%	22%	23%	28%
Wheelbarrow	7%	5%	8%	12%
Shop building/stall	1%	1%	2%	3%
Iron	12%	22%	31%	42%
Cooler	0%	4%	6%	12%
Refrigerator/freezer	0%	0%	1%	2%
Electric gas/stove	0%	0%	1%	1%
Camera	0%	2%	1%	3%

Social Assistance Factors

Households with the following characteristics are more likely to have poor or borderline food consumption profiles: (1) households with no access to credit ($p<0.05$) and no access to '*susu*'-clubs ($p<0.001$); (2) households that are not members of community support groups ($p<0.001$); (3) households that do not support community members in need ($p<0.001$); and (4) households that do not benefit from assistance such as educational support and money allowances/loans ($p<0.001$).



Only 14% of households with poor food consumption have access to credit compared to 42% and 37% of households with fairly good and good food consumption levels (see figure 29). '*Susu*'-clubs are mainly accessed by households with better food consumption profiles. Only 34% of households with poor food consumption engage in community activities compared to 55% of households with good food consumption profiles. These were also more likely to receive money allowances or loans (23% versus 10%) and educational support (7% versus 2%).

Households with the following characteristics are more likely to have weak access profiles (belong to I. or II. food consumption quintile): (1) households that are not members of community support groups ($p<0.05$); (2) households that do not support community members in need ($p<0.001$); and (3) households that do not benefit from assistance such as money allowances/loans ($p<0.05$).

4.3 Food Utilisation: Mother and Child Health and Nutrition

This section includes findings related to maternal and child health, infant and young child feeding, and maternal and child nutritional status. In total 780 children aged 0-59 months were surveyed, out of these 712 children aged 6-59 months were measured. However,

since some cases were eliminated as a result of incomplete records or extreme measurements outside the criteria for inclusion, only information from 695 children aged 6-59 months was considered. Of these, 51% are male and 49% are female, representing a male to female ratio of 1.04. This is similar to the male to female ratio observed in the rural sample (1.01) and is within the recommended range of 0.9 to 1.1.

The age distribution of the surveyed children is normal for children aged 6-59 months in developing countries (see table 10).

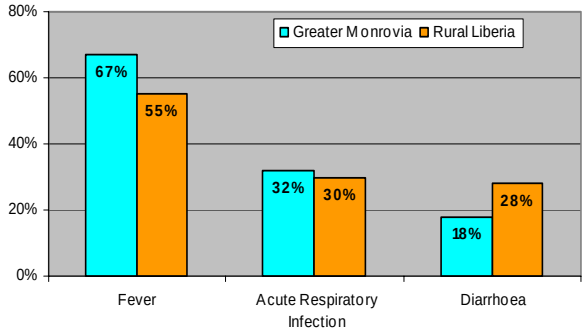
Table 10: Distribution of Children Aged 6-59 months

Age group	Greater Monrovia	Rural Liberia
6-11 months	19%	22%
12-23 months	21%	22%
24-35 months	18%	20%
36-47 months	23%	20%
48-59 months	18%	15%

4.3.1 Child Morbidity

Respondents were asked about the occurrences of common childhood illnesses in the two weeks prior to the survey. Overall, eight out of ten children (81%) had suffered at least one of the following illnesses (fever, diarrhea or cough) in the two weeks prior to the survey compared to 70% in the rural sample. At least one in ten (11%) had suffered from all the three illness. Only 19% of the children surveyed did not report having any of the three illnesses.

Fig. 30: Reported Cases of Childhood Illness



As illustrated in figure 30, in Greater Monrovia, the most common childhood illness is fever (67%) followed by acute respiratory infection (32%) and diarrhea (18%). With the exception of diarrhea, the reported cases of fever and coughing are higher in the Greater Monrovia sample compared to the rural sample.

When a child is sick, mothers reported that they give more liquid and breastfed than normal, but give less food. Overall, 63% of mothers reported that they gave more liquid than normal when their children are sick, and 70% reported that they give more breast-milk than normal. In contrast, 79% reduce the amount of solid food given to a sick child. While the pattern of feeding of solid food during illness episodes was similar in both the Greater Monrovia and rural CSFNS surveys, more mothers in rural Liberia (84%) gave more liquid to a sick child. Fewer mothers in rural Liberia give more breast-milk to a sick child.

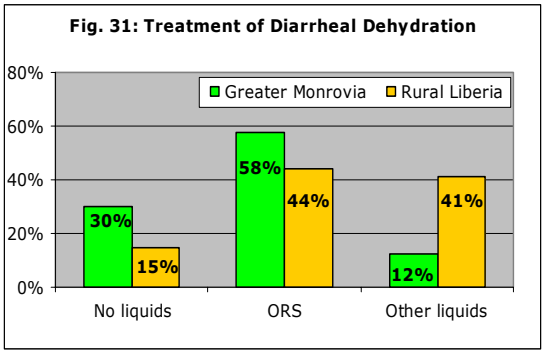
Source of Treatment

Ninety seven percent of sick children received treatment. Of these, nine out of ten children (90%) received treatment from a health facility during episodes of cough, fever or diarrhea. In 8% of cases, children were treated with drugs kept at home and less than 3% received treatment from unknown or other sources of health care. Only 3% of children did not receive any form of treatment. Of those children whose mother's reported that they were not treated, the reasons given for not treating their sick child were: lack of money, the child was not considered sick enough, and poor access to good treatment.

Treatment of Diarrheal Dehydration

Overall, 58% of children received treatment in the form of ORS or home-made sugar-salt solution during their last episode of diarrhea. This was more than in the rural sample, where 44% of children received treatment for diarrhea dehydration. As indicated in figure 31, twice as many mothers in Monrovia reported that they did not give any liquids to their child during the last diarrhea

Fig. 31: Treatment of Diarrheal Dehydration



episode. Mothers in rural Liberia were over three times more likely to give fluids other than ORS or SSS solution to a child with diarrhea.

4.3.2 Measles Immunisation and Vitamin A Supplementation

The survey collected information on the coverage of measles immunization and vitamin A supplementation. Mothers were asked whether their children under-5 had received a vitamin A supplement in the last 6 months, and measles immunization at the age of 9 months or older. In Greater Monrovia, only 65% of children received a vitamin A supplement in the 6 months preceding the survey. This level of coverage is 'poor' by UNICEF standards and lower than the coverage rate of 71% reported in the rural Liberia survey. WHO recommends that countries with high rates of infant mortality should aim to achieve 90% coverage with at least one dose of measles vaccine administered at the age of nine months or shortly thereafter. But only 74% of children over 9 months in this survey had received a measles vaccine compared to 80% in the rural sample.

4.3.3 De-worming and Mosquito Nets

School-age children typically have the highest intensity of worm infection of any age group. Regular de-worming contributes to good health and nutrition for children of school age, and has the potential to increase enrolment, attendance and educational attainment. Therefore, schools offer a cost-effective way of delivering de-worming pills.

Mothers were also asked questions relating to de-worming and use of mosquito nets by children under-5. Two thirds of children (61%) in Greater Monrovia, compared to 45% in rural Liberia had been de-wormed in the 6 months preceding the survey. In Monrovia, 21% of children from households sampled slept under a mosquito net the night preceding the survey. This is approximately twice the average (12%) reported in the rural Liberia survey. A quarter of households (25%) own a mosquito net compared to 14% in rural Liberia.

Malaria and helminth infections are important factors contributing to the high prevalence of anaemia in children. De-worming and malaria control are important strategies for controlling iron deficiency anaemia in children. There is a need to raise awareness on the benefits of sleeping under a mosquito net and to improve access to mosquito nets particularly for households with pregnant women and children under-5.

4.3.4 Infant and Young Child Feeding Practices

To improve the nutrition status, growth and development, health and survival of infants and young children, WHO and UNICEF recommend that all mothers should begin breastfeeding within one hour after birth, breastfeed exclusively for the first six months and continue to breast feed for two years or more with age appropriate, responsive complementary feeding. Children who are not breastfed appropriately are almost six times more likely to die by the age of one month than children who receive at least some breast milk. It is estimated that exclusive breastfeeding in the first six months of life and continued breastfeeding from six to eleven months could reduce the annual number of deaths of children under-5 by 13%.[23]

From six months onwards, breast milk alone is not sufficient to meet all nutritional needs, and the infant enters a particularly vulnerable period of complementary feeding during which he or she makes a gradual transition to eating family foods. In most countries, the incidence of malnutrition rises sharply during the period from 6 to 18 months of age, and some of the consequences are irreversible later in childhood.

As indicated in Table 11 below, although the proportion of children who have ever been breastfed is high, infant and child feeding practices in Greater Monrovia as in other parts of the country are sub-optimal.

[23] Jones G, Steketee RW, Black RE et al. (2003) How many child deaths can we prevent this year? *The Lancet* 362:65-71.

Table 11: Prevalence of Recommended Feeding Practices

	Sampled Age Range (months)	Prevalence	
		Greater Monrovia	Rural Liberia
Ever breastfed	0-23	98.3%	99.6%
Timely initiation of breastfeeding	0-23	31.8%	39.9%
Median duration of breastfeeding	0-23	12	12
Exclusive breastfed (<4 months)	<4	38.1%	43.3%
Exclusive breastfed (<6 months)	<6	30.5%	21.7%
Continued breastfeeding at 12 months	12-15*	77.8%	64.4%
Continued breastfeeding at 24 months	20-23*	36.8%	24.7%
Timely complementary feeding	6-10	45.9%	45.6%
Infant formula feeding (<6 months)	<6	20.2%	
% of children <24 currently breastfeeding	0-23	77.9%	77.4%
Average age of introduction of solid foods	0-23	6.7	8.0
Good infant and young child feeding practice	0-23	20.1%	
Good young child feeding practice	6-23	13.7%	

* The 4-month cross-section makes the indicator more reliable and is also used in DHS surveys.

Timely Initiation Rate

WHO recommends that babies be put to the breast within the first hour after delivery. This enhances bonding, increases the chances of breastfeeding success and generally lengthens the duration of breastfeeding, provides the infant the enhanced anti-bacterial, anti-viral, and nutritional properties of colostrum (the first milk).

In Greater Monrovia, the prevalence of Timely Initiation of Breastfeeding is 32% compared to 40% in rural Liberia. This is the percentage of infants and young children <24 months who were put to the breast within one hour after birth. Although more than half of sampled mothers did initiate breastfeeding within a day of giving birth, in Greater Monrovia compared to rural Liberia, fewer children were put to the breast 24 hours after delivery (10% compared to 22%), a practice which is likely to deprive the child of the important benefits of colostrum.

Exclusive Breastfeeding

As a global public health recommendation, infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health[24]. Exclusively breastfed children are at a much lower risk of infection from diarrhea and acute respiratory infections than infants who receive other foods. Exclusive breastfeeding also contributes to a delay in the return of fertility.

The exclusive breastfeeding indicator shows the percentage of infants 0-<6 months who are currently being exclusively breastfed, i.e. who are receiving only breast-milk and no water, other liquids or solids. Drops or syrups of vitamins, mineral supplements or medicines do not interfere with exclusive breastfeeding. The indicator provides a measure of the degree to which women have adopted behavior consistent with the WHO recommendation. As seen in table 11 the prevalence of exclusive breastfeeding at 6 months of age is only 31% indicating that seven out of ten women are not following the recommendation. In both the Greater Monrovia and rural Liberia, the proportion of infants exclusively breastfeed decreases with age. The rates of exclusive breastfeeding at 4 and 6 months are 38% and 31%, and 43% and 22% for Greater Monrovia and rural Liberia respectively. At 4 months, more infants in the rural survey were exclusively breastfed. However, the trend changes at 6 months when more infants in Greater Monrovia are exclusively breastfed.

Further examination of infant feeding patterns revealed that approximately 37% of infants aged 0 to 4 months were exclusively breastfed in the 24 hours prior to the survey. This figure declines drastically to 0% in the 4 to 6 month old age group indicating that by 4 months all the children surveyed are receiving other foods in addition to breast-milk.

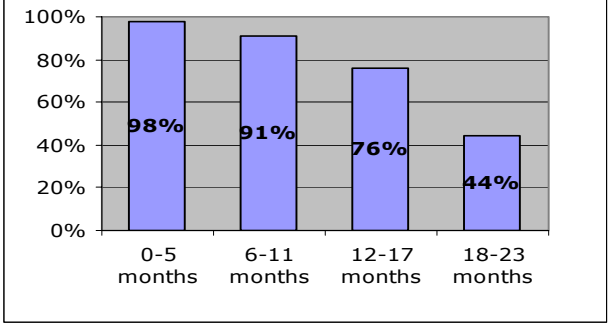
[24] As formulated in the conclusions and recommendations of the expert consultation (Geneva, 28–30 March 2001) that completed the systematic review of the optimal duration of exclusive breastfeeding (see document A54/INF.DOC./4). See also resolution WHA54.2.

Continued Breastfeeding

It is globally recommended that children be breastfed for at least one year and preferably up to 2 years of age or beyond. The continued breastfeeding at 12 months indicator measures7 the percentage of children 12-<16 months who were breastfed up to the age of 12 months. The continued breastfeeding rate at 12 months is 77% and 41% at 24 months. In rural Liberia, only a quarter of children were still being breastfeed at 24 months.

All mothers with children under 24 months were asked whether the child was breastfed in the 24 hours preceding the survey. 76% of children aged 12-17 months were breastfeed the day before the survey compared to 44% who were aged 18 to 23 months (see figure 32). The median duration of breastfeeding is estimated at 12 months for both Greater Monrovia and rural Liberia. In Greater Monrovia, the commonly cited reasons for early stoppage of breastfeeding are: child refused breast (18%), child has reached weaning age (17%), mother works (15%), mother not producing enough breast-milk (12%), a new pregnancy (10%) and mother sick (11%).

Fig. 32: Children Under 24 Months Breastfed the Day before the Survey



Complementary Feeding Rate

The timely complementary feeding rate indicator gives an overall measure of the degree which women have complied with the recommendation that infants aged 6-<10 months receive appropriate and adequate complementary foods in addition to breastmilk and is an assessment of feeding patterns of children in the age group 6-<10 months. 'Solids' are referred to as food of semi-solid or solid consistency such as porridge and gruels but does not include fluids such as fruit juices.

The survey estimated the timely complementary feeding rate at 46%.The mean age of introduction of solid foods was 6.7 months in Greater Monrovia compared to 8 months in rural Liberia, indicating that children in Greater Monrovia are introduced to solid foods at an earlier age.

Introduction of Different Foods by Age

The normal introduction of different foods to infants and children is summarized in the following three figures. Breast milk consumption is predominant in the early months of a child's life but diminishes with age. Approximately one in five children below the age of 6 months is receiving infant formula, however this practice also diminishes with age, whilst the use of tinned powdered milk increases with age (see figure 33).

Fig. 33: Milk Consumption in Children Under 24 Months

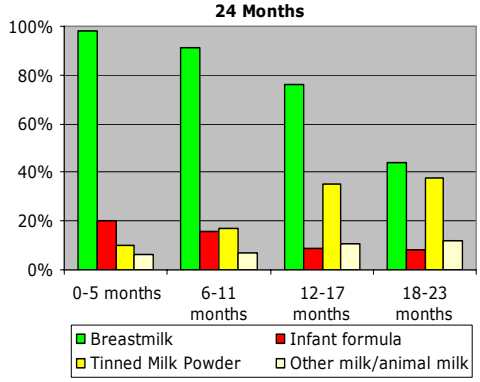


Fig. 34: Consumption of Water and Other Fluids in Children Under 24 Months

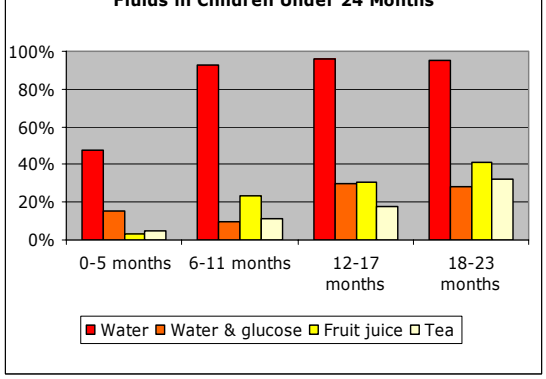
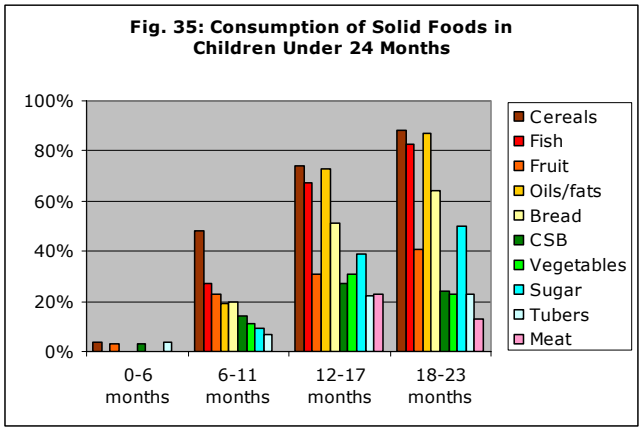


Figure 34 presents the proportion of children under 24 months of age who are receiving water and/or other fluids. Forty eight percent (48%) of children under-6 months of age are

receiving water. By the age of 2 months, 23% of children have been introduced to water and 15% received infant formula. This is an alarming practice considering the fact that very few households have access to safe water. The consumption of tea also increases with age up to 32% in children 18-23 months. Tea drinking has an established role in reducing iron absorption and increasing the risk of iron deficiency.



The introduction of complementary foods (in the form of semi-solid and solid foods) in addition to breastmilk on a daily basis increases steadily with age. According to figure 35, some children below the age of 6 months do receive solid foods (cereals, fruit, CSB and sugar). However, as demonstrated by the low prevalence of timely introduction of complementary infant foods indicator, many infants do not receive adequate complementary foods until the age of around 12 months. At 6 months of age, only 60% of infants receive cereal based foods and approximately 20% of them are receiving fruits and vegetables which are rich sources of micronutrients such as iron, vitamin A and vitamin C. Nutrient dense foods such as legumes, meat and eggs are rarely consumed. By the age of 12 months, children begin to consume a meal pattern similar to adults and more children in Greater Monrovia are consuming a greater quantity of other foods compared to their rural counterparts: cereal 81% compared to 50%, fish 74% compared to 34%, oils and fats 74% compared to 42%, vegetables 28% compared to 13%, fruits 36% compared to 6%, and meat 23% compared to 11%.

Young Child Feeding Practice Score

The young child feeding score[25] developed by FANTA is an indicator that captures the multidimensional nature of infant feeding between the ages of 6-23 months (see also table 11). It takes into account a young child's main feeding practices and expresses them comprehensively through a single summary indicator. The score is based on a simplified version of a previously developed infant and child feeding index[26] and gives points for positive practices in terms of breast-feeding, age-appropriate frequency of feeding and dietary diversity. The young child feeding score is expressed as an average; on a scale of 0-6 where "6" indicates good practices (child still breastfed, fed with at least the minimum age-appropriate frequency of feeding, and eaten at least 5 food groups yesterday). The good young child feeding practices prevalence is expressed as the percent of children 6-23 months who scored "6". To cover the age range 0-23 months, information on exclusive breastfeeding is combined with information on young child feeding in children 6-23 months to present the percent of children 0-23 months using good practices. The mean young child feeding score was 3.55. 14% of children aged 6-23 months had good young child feeding practices compared to 20% in the 0-23 month age group. These figures compare favourably with rates reported from Benin were the percent of young children and infants and young children with good feeding practices are 11% and 18% respectively.

4.3.5 Nutritional Status of Children

The nutritional status of 695 children aged 6-59 months was measured using the following anthropometric indicators: age, weight and height. The measurements assessed linear growth and/or thinness. Three indicators were used to assess nutritional status. These were weight-for-height, height-for-age, and weight-for-age and malnutrition was defined using the anthropometric cut-offs derived from the NCHS reference and the new WHO child growth standards datasets. Table 12 and 13 present the prevalence of malnutrition in children 6-59 months.

[25]Arimond M & Ruel M. Generating Indicators of Appropriate Feeding of Children 6 through 23 Months from the KPC 2000+. Washington, D.C.: Food and Nutrition Technical Assistance Project, Academy for Educational Development, 2003.

[26] Ruel MT, Menon P. Creating a child feeding index using the demographic and health surveys: an example from Latin America. FCND discussion paper no 130 Washington, DC; IFPRI; 2002.

Table 12: Prevalence and Mean Levels of Malnutrition in Children 6-59 Months (**NCHS** Reference Standards)

Type of malnutrition	Global (95% CI) (<-2z scores)	Severe (95% CI) (<-3z scores)	Means (95% CI)
GREATER MONROVIA (NCHS)			
Acute malnutrition	**7.8%** (5.8 – 9.8)	**1.4%** (0.5 – 2.3)	-0.45 (-0.54 – -0.37)
Chronic malnutrition	**27.4%** (24.0 – 30.6)	**10.8%** (8.4 – 13.0)	-1.23 (-1.34 – -1.13)
Underweight	**21.3%** (18.2 – 24.3)	**5.5%** (3.8 – 7.2)	-1.15 (-1.24 – -1.06)
RURAL LIBERIA (NCHS)			
Acute malnutrition	**6.9%** (6.2 – 7.6)	**1.7%** (1.3 – 2.1)	-0.32 (-0.35 – -0.30)
Chronic malnutrition	**39.2%** (37.9 – 40.5)	**15.8%** (14.8 – 16.8)	-1.59 (-1.63 – -1.52)
Underweight	**26.8%** (25.6 – 28.0)	**7.9%** (7.2 – 8.4)	-1.28 (-1.32 – -1.25)

Table 13: Prevalence and Mean Levels of Malnutrition in Children 6-59 Months (new **WHO** Child Growth Standards)

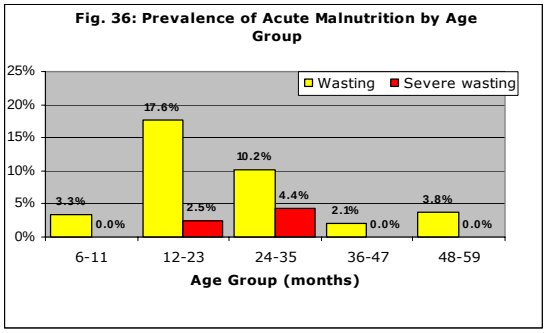
	Global (95% CI) (<-2z scores)	Severe (95% CI) (<-3z scores)	Means (95% CI)
Acute malnutrition	**7.9%** (5.9 – 10.0)	**2.3%** (1.1 – 3.4)	-0.19 (-0.28 – -0.10)
Chronic malnutrition	**33.2%** (29.6 – 36.7)	**12.2%** (9.7 – 14.7)	-1.42 (-1.52 – -1.31)
Underweight	**16.1%** (13.3 – 18.8)	**4.8%** (3.2 – 6.4)	-0.94 (-1.02 – -0.85)

Acute Malnutrition (Wasting)

In Greater Monrovia, the prevalence of global acute malnutrition and severe acute malnutrition are 7.8% and 1.4% respectively. The global prevalence rate is at a poor level. There is no significant difference between the rates of wasting in rural Liberia and Greater Monrovia, and in boys (7.7%) and girls (7.8%).

Table 14: Prevalence of Acute Malnutrition in Children Aged 6-59 Months

Acute Malnutrition	Prevalence
Not wasted (≥2 z scores)	92.2%
Moderate (≥-3 & <-2z scores)	6.4%
Severe (<-3z scores)	1.4%



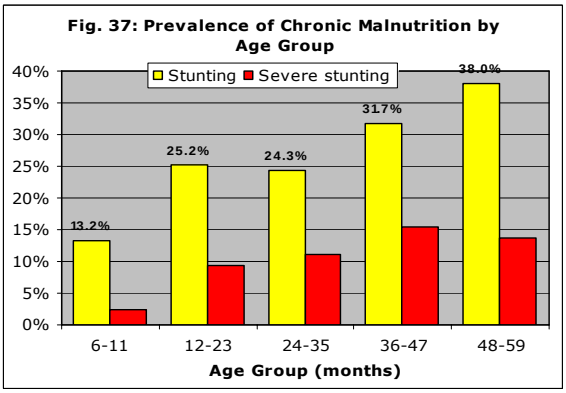
According to figure 36, the prevalence of wasting is highest in the 12-23 months age group followed by a decline with age indicative of catch up growth. A significant difference was seen in acute malnutrition by age ($p<0.01$). Children within the age range of 12 to 35 months were more likely to be severely malnourished. These trends in moderate and severe wasting are similar to those indicated in the rural sample. However, no cases of oedema were identified in the Monrovia sample.

Chronic Malnutrition (Stunting)

Overall chronic malnutrition or stunting levels are estimated at 27.0%. This figure is significantly lower than the rural average of 39.2%. 10.9% of children in Greater Monrovia compared to 15.8% in rural areas are severely stunted.

Table 15: Chronic Malnutrition in Children Aged 6-59 Months

Chronic Malnutrition	Prevalence (%)
Not stunted (≥2 z scores)	72.6
Moderate (≥-3 & <-2z scores)	16.6
Severe (<-3z scores)	10.8



Examined by sex, the survey indicated that male children are significantly more stunted than female children (32.7% versus 22.7% respectively), and statistically significant at p-value <0.01.

A significant difference in chronic malnutrition by age was also detected ($p<0.01$) and is presented in figure 37. Examination of chronic malnutrition across age groups shows a different pattern when compared to acute malnutrition. Although global chronic malnutrition rates remain relatively the same between the ages of 12 and 36 months, the general trend is upwards for both global and severe chronic malnutrition. By the age of 5 years, more than a third of children in

Greater Monrovia compared to a half of children in the rural sample are stunted or chronically malnourished. However, unlike the rural trend where the prevalence of global stunting is almost equal to the prevalence of severe stunting at 36-47 months and beyond, in Greater Monrovia, the difference in rates of global and severe chronic malnutrition are maintained and are at their widest in the 48 to 59 month cohort. There is a steady increase in the prevalence of moderate stunting and a leveling off in the prevalence of severe stunting.

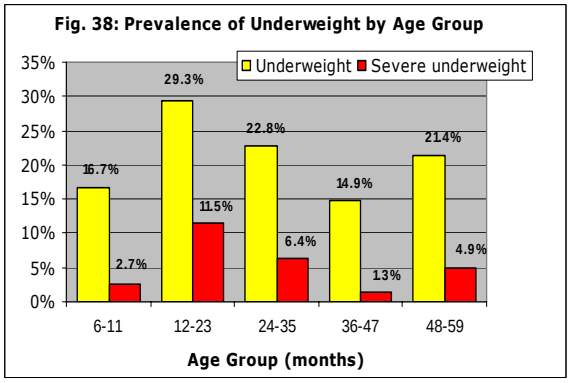
Stunting in childhood is associated with impaired mental development and poor school performance and leads to reduced adult size and reduced work capacity which in turn has an impact on economic productivity at the national level.

Underweight

In Greater Monrovia, underweight (a composite indicator of acute and chronic malnutrition) is estimated at 20.9%. Although this level is considered high according to WHO child growth standards it is significantly lower than the rural average of 26.8%. 5.3% of children in Greater Monrovia are severely underweight. As with stunting, underweight is more predominant in boys (23.7%) than girls (18.6%).

Table 16: Underweight in Children Aged 6-59 Months

Underweight	Prevalence
Not underweight (≥2 z scores)	78.7%
Moderate (≥-3 & <-2z scores)	15.8%
Severe (<-3z scores)	5.5%



Both severe and global underweight are highest at 12 to 23 months (see figure 38). There is a general downward trend to 48 months of age, but both severe and global underweight rates increase after 48 months. A review of population based studies of anthropometry-mortality relationships from several countries in Africa and Asia has shown that approximately 80% of deaths due to malnutrition in children are associated with mild to moderate under-nutrition and significant reductions in mortality can be expected from preventing disease and malnutrition.

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 categorizing them into small sized births, normal sized births and over sized births. As the indicator relies on perception it is treated as a proxy indicator for birth weight. The number of children who were categorized as normal sized, above normal or of low birth weight was relatively equal. In this survey, 34% of children were reported normal birth weight, whilst 32% were reported to be above normal birth weight or oversized, and 32% low birth weight or undersized. In the rural CSFNS survey, 26% of mothers reportedly had a low birth weight or undersized baby.

The process that leads to stunting is thought to occur during pregnancy and after birth, primarily during the first two to three years of life and indicate long-term, cumulative effects of inadequacies of health, diet, or care. Women of short stature are at greater risk of obstetric complications because of smaller pelvic size. Small women have a greater risk of delivering an infant with low birth weight and countries with high rates of stunting and underweight also tend to have high rates of low birth weight. The survey indicated a strong correlation between stunting and perceived age at birth (p value <0.01).

There is now considerable evidence mostly from developing countries that intra-uterine growth retardation or low birth weight is associated with an increased risk of coronary heart disease, stroke, raised blood pressure and diabetes.

4.3.7 Provision of Antenatal Care

In this survey, questions on provider's of antenatal care were asked to all women with children under-5 years of age. Questions related to frequency of antenatal visits were not posed. The most often mentioned providers of antenatal care are nurses and midwives

mentioned by 47% and 38% of mothers respectively. One in ten mothers reported that they saw a doctor and 2% of mothers reported that they saw a TBA. Only 1% of mothers said that they had not seen anyone indicating that the vast majority of mothers visit a trained medical personnel for antenatal care at least once.

4.3.8 Nutritional Status of Women

Nutritional status in women was assessed using the Body Mass Index (BMI). The analysis indicates that 7.4% of women are malnourished or of low BMI (<18.5). There is a larger percentage of low BMI women in the rural sample (13.5%). More than a quarter of women (27.6%) are overweight and/or obese. This degree of overweight in Monrovia indicates that problems of under and over-nutrition co-exist and that women consume diets and adopt lifestyles associated with a number of chronic diseases.

Table 17: Malnutrition in Women Aged 15-49 Years

BMI Classifications	Percentage
Underweight (≤ 18.5)	7.4%
Normal (>18.5 – 24.99)	65.0%
Overweight (25 – 29.99)	15.8%
Obese (≥30)	11.8%

4.3.9 Causes of Malnutrition

Given that rates of malnutrition differed between Greater Monrovia and the rest of Liberia, an important objective of the survey was to assess potential causes of malnutrition in the urban context. In order to identify the factors associated with childhood nutritional status, statistically significant relationships were identified with key demographic, employment, social and health factors based on the conceptual framework outlined in section 1.2. The following relationships could be established:

Demographic Factors

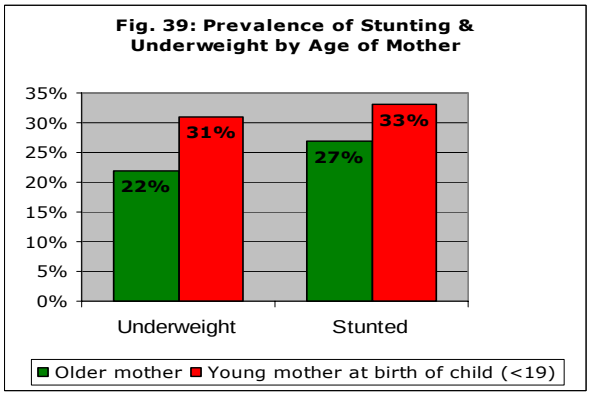
Children are more likely to be **underweight** if: (1) their mother is less than 19 years old at the time of their birth ($p<0.05$); and (2) their primary caretaker is less than 22 years of age ($p<0.001$).

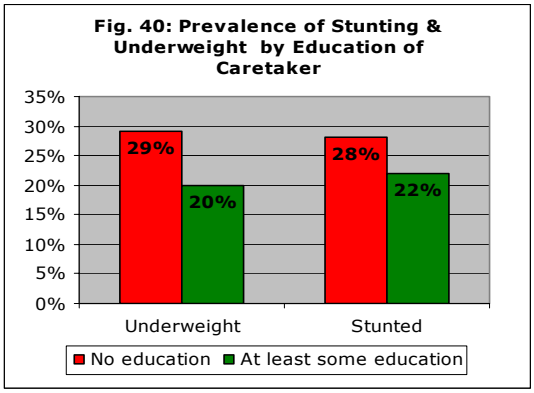
Children are more likely to be **wasted** if: (1) the primary caretaker is less than 22 years of age ($p<0.01$); (2) the primary caretaker has no education ($p<0.05$); and (3) the child does not live with its mother ($p<0.05$).

Children are more likely to be **stunted** if: (1) the household head is illiterate ($p<0.05$); (2) the household is overcrowded (with 5 or more people per room) ($p<0.05$); (3) the household was displaced before ($p<0.05$); (4) the mother is less than 19 years old at the time of their birth ($p<0.05$); (5) the primary caretaker is less than 22 years of age ($p<0.05$); (6) the primary caretaker has no education ($p<0.05$); and (7) father is dead ($p<0.05$).

Children whose caretakers are older than 22 years of age were less likely to be malnourished. There is some association between the literacy of the household head and malnutrition though not statistically significant.

Figure 39 illustrates the association between age of mother at time of birth of child and malnutrition. Children whose mothers are aged 19 years or younger at time of birth are more likely to be malnourished than those born to older mothers. Figure 40 illustrates the association between education of caretaker and malnutrition. A child whose caretaker has no education is more likely to be underweight and stunted than one whose caretaker has some education.





Employment Factors

Children are more likely to be **underweight and or stunted** if: (1) the household they belong does not receive remittances (p<0.05); (2) the household does not receive financial support from a household member living abroad (p<0.05); and (3) the main income activity of the child's caretaker is in the informal/unskilled sector (p<0.001).

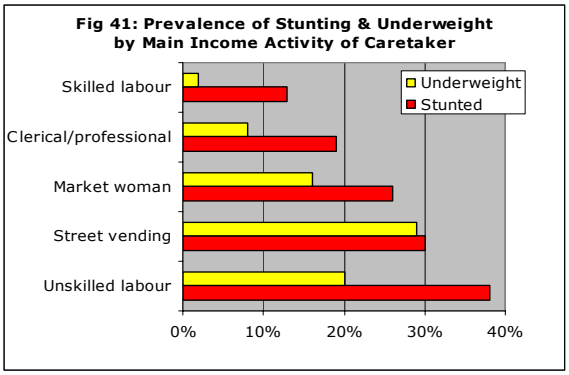


Figure 41 illustrates the association between main income activity of care taker and malnutrition. Children cared for by caretakers engaged in unskilled labour are more likely to be stunted and underweight than children cared for by caretakers engaged in other forms of economic activity.

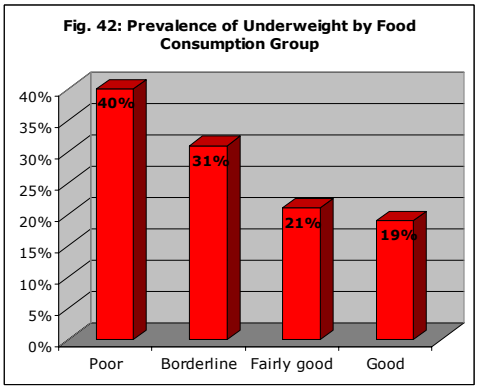
Wealth & Asset Factors

Children from households with the following characteristics are more likely to be **underweight**: (1) households with borderline or poor food consumption level (p<0.01); (2) households belonging to the lowest non-food expenditure quintile (<0.05): 30% of underweight children are from households in the lowest quintile; and (3) households without an inside kitchen (p<0.05).

Children are more likely to be **wasted** if the household belongs to the lowest non-food expenditure quintile (<0.05).

Children from households with the following characteristics are more likely to be **stunted**: (1) households belonging to the lowest non-food expenditure quintile (<0.05): 35% of stunted children are from households in the lowest quintile; and (2) households with poor or borderline food consumption levels (p<0.01).

Figure 42 illustrates that households with poor food consumption are more likely to have underweight children compared to households with good food consumption.



Malnutrition rates in Greater Monrovia are also statistically associated with the following asset and wealth factors:

- Mean number of household assets: Households with underweight children had fewer household assets than households with children who were not underweight (7 compared to 8);
- Total number of meals: Households with underweight children had fewer meals per day than households with children who were not underweight (2.4 compared to 2.6);
- Food expenditure: Households with underweight children had spent less on food than households with children who were not underweight (LD 4,789 compared to LD 5,503); and
- Per capita non-food expenditure: Households with stunted children spent less on non-food items than households with children who were not stunted (LD 738 compared to LD 889).

Health Factors

Children with the following characteristics are more likely to be **underweight**: (1) children who were small at birth (p<0.001); (2) children who had an acute respiratory tract infection in the 2 weeks preceding the survey (p<0.05); (3) children who had diarrhea during the same period (p<0.05); (4) children from households that store water in open containers (p<0.001); and (5) children from households that dispose of rubbish through drainage (p<0.05).

Children with the following characteristics are more likely to be **wasted**: (1) children who were small at birth ($p<0.001$); (2) children who were sick in the 2 weeks preceding the survey ($p<0.01$), (3) children who had fever in the 2 weeks preceding the survey ($p<0.01$); (4) children who had an acute respiratory tract infection or a cough in the 2 weeks preceding the survey ($p<0.01$). Unlike for the other disease conditions, the presence of diarrhoea was not shown to be associated with wasting; and (5) children from households that store water in open containers ($p<0.001$);

Children with the following characteristics are more likely to be **stunted**: (1) children who were small at birth ($p<0.001$); (2) children with no access to improved drinking water ($p<0.01$); (3) children from households that store water in open containers ($p<0.05$); (4) children from households that dispose of rubbish through drainage ($p<0.05$); and (5) children with no access to toilet facilities ($p<0.05$). Storing water in a covered or closed container conferred some protection against all forms of malnutrition.

Figure 43 illustrates the association between size at birth and malnutrition. Children who are normal or larger than normal size at birth are less likely to be malnourished than those who were small at birth.

Children with access to water from protected wells or bore holes with pumps were better nourished than children from households that source water either from street vendors, public taps or private taps within their compounds.

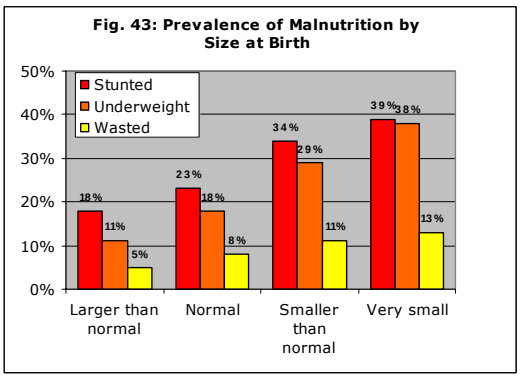
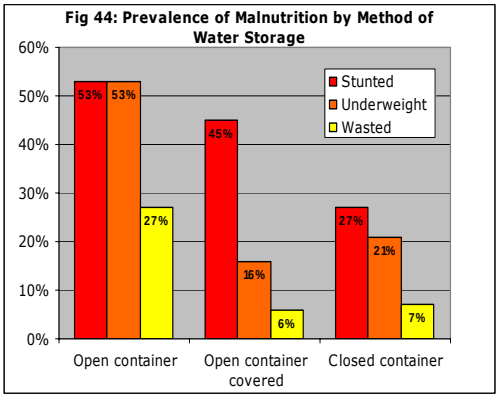


Figure 44 presents the association between method of water storage and malnutrition.



- 53% of children from households that store water in open containers are stunted compared to 27% of children whose households store water in closed containers.
- 53% of children from households that store water in open containers are underweight compared to 16% and 21% of children whose households store water in covered and closed containers respectively.
- Four times more children from households that store water in open containers are wasted than children from households that store water in covered or closed containers.

4.4 Vulnerability to Shocks and Coping Strategies

4.4.1 Exposure to Risks and Shocks

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 impact on affected households.

In Greater Monrovia only every third household reported that they had experienced a shock during the past 12 months compared to every second household in rural Liberia. In the urban context, idiosyncratic shocks clearly dominate (see table 18).

The most frequently mentioned shock was **loss of employment or reduced income** (9%). Given the importance of monetary income to ensure access to food and basic services in the urban context, it is not surprising that this shock was mentioned most frequently.

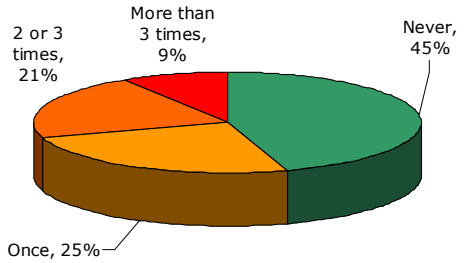
It is closely followed by **serious illness and or accident** (8%) which usually leads to higher expenses on medical care and services thus reducing the financial capital of the household.

Table 18: Shocks Experienced by Households

Greater Monrovia				Rural CFSNS			
Rank	**Shock**	Type: C= covariate, I= idiosyncratic	**% of HH**	**Rank**	**Shock**	Type: C=covariate, I=idiosyncratic	**% of HH**
1	Loss of employment/reduced income	I	9%	1	Animal pests	C	18%
2	Serious illness/ accident of HH member	I	8%	2	Serious illness/accident	I	16%
3	Theft	I	7%	3	Death of non-working HH-member	I	6%
4	Death of a working household member	I	5%	4	Death of a working HH-member	I	4%
5	Death of non-working household member	I	4%	5	Loss of employment/reduced income	I	4%
6	House damaged/destroyed	I	1%	6	House damaged/destroyed	I	4%
7	Conflict/violence	I/C	1%	7	Early or heavy rains/ floods	C	3%
				8	High level of plant disease	I/C	3%
				9	Theft	I	2%
				10	Sudden price fluctuations	C	1%
				11	Conflict/violence	I/C	1%

Theft was the third most frequently mentioned shock reported by 7% of the households. Generally crime rates are much higher in the urban areas. Households are more vulnerable because they own more valuable assets, in many urban communities there is less social control and the environment is more conducive for criminal groups. Households were also asked if they were victim of a crime during the past 12 months. 55% of households reported that somebody had entered their home to steal something or to commit another crime, for 21%, this happened twice or three-times, and for 9% it occurred more then three-times during the recall period (see figure 45). Furthermore, 31% of households indicated that one or more of their household members became victim of a crime outside their homes.

Fig. 45: Households Experiencing Burglery or other Crimes during the past 12 Months



Other shocks reported included death of a working household member (5%); death of non-working household member (4%); house damaged/destroyed (1%); and conflict/violence (1%).

The twelve-month period was characterised by a relatively stable political environment and therefore, very few households reported conflict as a shock. However, it is recognized that the **political situation** remains potentially volatile and should be monitored in the context of the food security and monitoring system.

4.4.2 Impact of Shocks on Income and Food Security Levels

Based on respondents' perceptions, all shocks reported have negative impacts on the household income and or asset base as well as 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 consumption levels. The following statistically significant results could be observed:

- Households that have experienced **loss of employment** have much lower food ($p<0.01$), non-food ($p<0.05$) and total expenditures ($p<0.01$). Household who suffered from loss of employment only spent per capita LD 789 on food and 771 on non-food commodities and services, while households that did not experience sudden unemployment spent LD 1,217 and 1,237 respectively.

- Food consumption scores for households who have experienced loss of employment, reduced income, an accident or serious illness and death of a working household member are lower; however, results are not statistically significant. Theft or death of a non-working household member did not have any impact on the food consumption level.

4.4.3 Household 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.).

The main coping strategies used by households to cope with **loss of employment** are rationing strategies and increasing short-term food access. 53% of households who reported this shock responded with reduced number of meals, 50% with reduced proportions of meals, and 17% received help from relatives and friends or engaged increased petty trade or casual labour.

Households that suffered from an **accident or serious illness**, mainly received help from relatives or friends (35%); they also reduced their meal size (31%), reduced the number of meals per day (30%) or spent their savings (27%).

Households that experienced **theft** reported that they were not able to respond (17%) and 16% reported that there was no need to respond. Others responded by using rationing strategies, received help or spent their savings.

Households that had experienced the **death of a working household member** were most likely to spend their savings (31%), use rationing strategies (27%) or were supported by others (20%). 13% also indicated that they were not able to do anything. In the case of the **death of a non-working member**, households mainly received help from others (26%) or reduced the proportions of their meals. 18% said that there was no need to do anything and 16% spent their savings.

In summary, the shock that has most affected food consumption patterns in the urban context is loss of employment. This indicator should be closely monitored through a food security monitoring system (see section 5.1). Other idiosyncratic shocks such as illnesses or death of household members can also lead to short-term food shortages as households have decreased purchasing power to access food.

Table 19 presents the coping strategies applied by households in Greater Monrovia compared to the rural survey.

Table 19: Coping Strategies Applied by Urban and Rural Households

Coping Strategy	URBAN	RURAL
Reduced proportions of meals	11%	11%
Reduced number of meals per day	10%	13%
Helped by relatives/friends	7%	12%
Spent savings	6%	6%
Relied on less preferred food	2%	13%
Purchased food on credit/borrowed food	2%	11%
Increase petty trade	2%	2%
Borrowed money	1%	5%
Casual/contract work	1%	4%
Begging	1%	1%
Reduced expenditures on health & education	1%	0%
Worked for food only	1%	0%
Send children to live with other relatives	1%	0%
Consumed seed stock	0%	2%
Eating wild foods	0%	2%

Both urban and rural households are likely to use food rationing strategies but rural households were more likely to change their diet to less preferred and less expensive food items and eating wild foods. Rural households were also more likely to purchase food on credit, receive help from others, borrow money or engage in casual labour.

The **sex and age of household heads** also determine which coping strategy is applied if confronted with shock. Female headed households are slightly more likely than male headed households to receive support from family and friends or to reduce the number of meals consumed. They are more likely to increase petty trade activities and purchase food

on credit. Elderly headed households are more likely to receive support and use food-rationing strategies

There is a relationship between **food consumption profiles** and the type of coping strategy applied as depicted in figure 46. Households with poor food consumption were more likely to have reduced the number of meals and to eat less preferred food compared to households with good food consumption.
Households with borderline food consumption are more likely to reduce the size of their meal and receive help than all other groups. Interestingly, households with poor food consumption are the least likely to receive help from others.

Fig. 46: Coping Strategies by Food Consumption Group

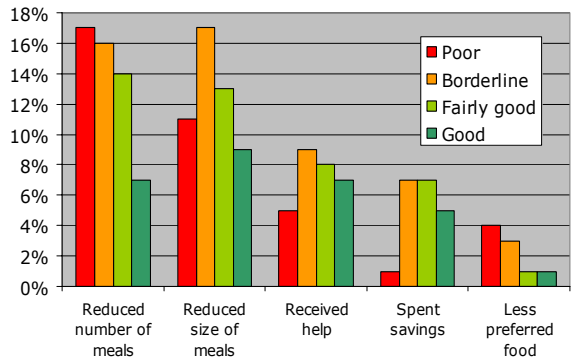
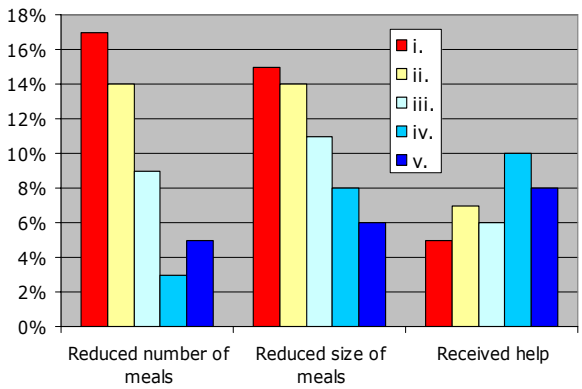


Fig. 47: Coping Strategies by Food Expenditure Quintile



There is also an association between **food expenditure quintiles** and coping strategies (see figure 47). Food rationing strategies are much more frequently used by households that belong to the lower wealth quintiles. The lowest quintile is the least likely to have received help from others.

4.4.4 Prevention Strategies

Respondents were also asked if the household applies any strategies to avoid negative impacts if the shock reoccurs. In the urban sample, every third household reported to have experienced at least one shock. Out of these, 31% reported to have applied a preventive strategy. In comparison, every second rural household reported having experienced a shock and out of these, 49% reported using a preventive strategy.

Households try to prevent negative impact deriving from **loss of employment** by diversifying their income sources including increased or start of petty trade and casual labour as well as looking for work outside Greater Monrovia. Some households indicated that they increased their efforts to save money or enrolled in educational programmes.

To mitigate the possible effects of future **accidents** or **illnesses,** households are diversifying their livelihoods. They also try to save and increase security measures to avoid accidents and illnesses. Security measures are also applied by households that became victims of **theft**. The main prevention strategy to avoid negative impacts following the **death of a household member** is to increase efforts to save money. This will lighten the burden to cover burial costs and also support the remaining household members to cope financially with the situation in case the main income earner passes away.

In summary, increased petty trade and saving money are the most common prevention strategies applied in the urban context, with the exception of theft. As very few households have access to the formal banking system, the main option for them to save money is through informal saving-clubs, so called '*susu*'-clubs. Prevention activities applied in the rural context were mainly related to agricultural activities, such as increasing farm size and fencing farm land.

4.4.5 Key Indicators to Monitor Food Security in the Urban Context

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 a profound impact on the food security and nutrition situation in Greater Monrovia. The findings therefore suggest a number of key indicators necessary to assess and monitor household food security and nutritional status. Some indicators are to be collected at macro level (national/sub-national), others at household and individual level. Indicators should be collected on a regular basis in order to detect seasonal fluctuations and other trends over time. Joint and coordinated efforts will be required to ensure the timely and accurate collection and analysis of all relevant indicators.

Table 20: Key Indicators to Monitor Food Security

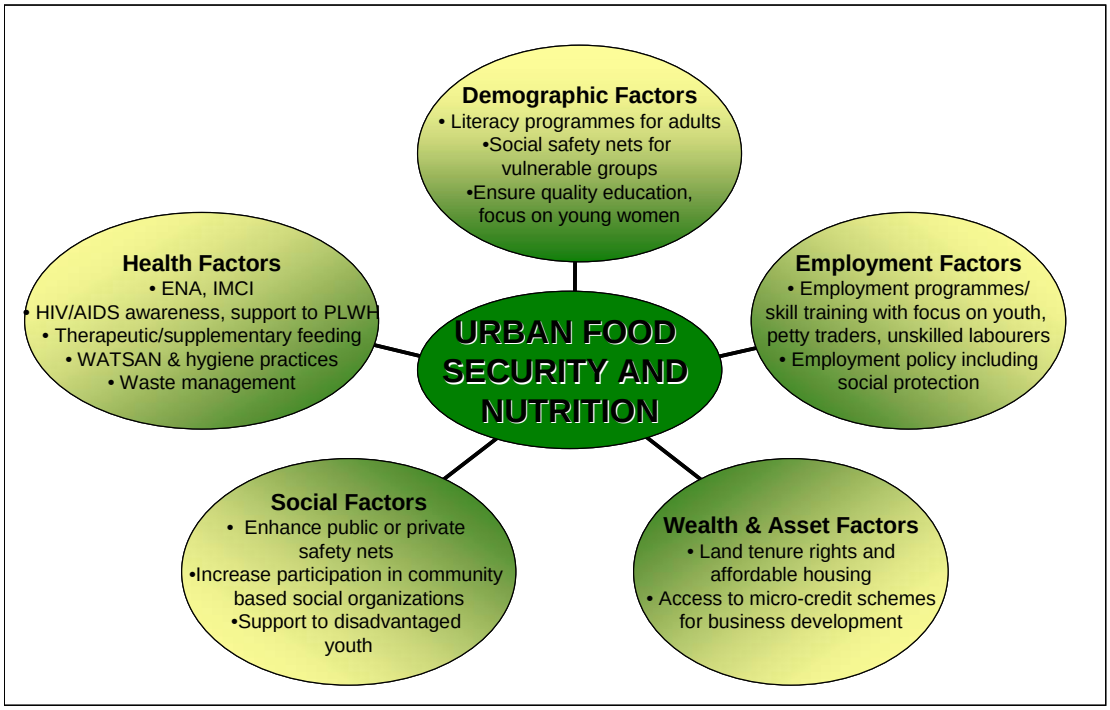
Dimension	Trend indicators	Level
Availability	• National/sub-national food production	National/sub-national
	• Food import pipeline (in particular rice)	National
Availability/access	• Market prices of staple foods • Monrovia Consumer Price Index	National/Greater Monrovia
Access	• Change in livelihood patterns • Household food and non-food expenditures • Food consumption and diversity • School enrolment/attendance	Household
Utilisation	• Nutritional status (wasting, underweight, BMI) • Morbidity	Individual
	• Access to basic services	Household
Risks/shocks	• National political instabilities • Instabilities in neighboring countries • International trade flows • National economic statistics • Exchange rates • Inflation rates	National/Regional (West Africa Coastal countries)
	• Formal and informal employment statistics • Youth unemployment • Urban migration • Housing/land prices • Crime rates	Greater Monrovia

This food security and nutrition survey covered households in Greater Monrovia. In order to improve food security in urban Liberia, a multi-sectoral approach is recommended to address all factors causing food insecurity and malnutrition based on the analysis presented in this report. Many recommendations will also be relevant for other parts of Liberia as they become more and more urbanised.

This section presents an integrated food security and nutrition response framework while highlighting priority interventions, target groups and the main actors.

Figure 48 illustrates how specific interventions can address the root causes of food insecurity and malnutrition outlined in figure 1. Some interventions have multiple outcomes, for example, higher education levels will prevent early motherhood and will therefore have a positive impact on children's well being and nutritional status. Concerted efforts will be required to increase the overall impact of the food security and nutrition status of households and individuals in Greater Monrovia.

Figure 48: Response Framework to Address Food Insecurity and Malnutrition in Greater Monrovia



5.1 Demographic Factors

Food security is closely correlated with education level. Urban households whose heads are literate and have attained higher levels of education are more food secure. Improving access to quality education for poor population groups is an effective way of improving their food security situation. Urban women do not have equal access to higher education and vocational training programmes, which limits their participation in the formal labour market. Especially for adults, it may be more effective to improve access to informal education initiatives instead of providing support for formal education programmes, which are not always accessible to the urban poor.

Parent's education level, especially female education, has a positive effect on nutritional status of their offspring. Nutritional status is also correlated with the education level of caretakers. Children of adolescent mothers (aged 14-19 years) are of particular risk of malnutrition. Supporting girls to achieve advanced level education – for example, through scholarships – will improve child caring capacities and delay the age at first birth.

Even if food consumption levels are better in the urban context compared to the rural context, pockets of high levels of food insecurity can be found. A properly designed safety net provides a predictable set of institutionalized mechanisms to help households in

distress cope with shocks and meet their minimum consumption requirements. In the urban context, particular vulnerable groups are elderly, disabled people, large households with high number of dependants, and households that recently moved to Monrovia.

Table 21: Recommended Interventions to Address Demographic Factors

Type of intervention	Primary target groups	Key ministries/ agencies
Promote girls' continued education in higher learning institutions	Adolescent girls	MOE, MGD, UNESCO, UNIFEM, NGOs
Informal education initiatives for adults, e.g. literacy programmes	Adults who are illiterate, disadvantaged youth	MOE, MOYS, UNESCO, NGOs
Assess feasibility of urban public safety net programme	Elderly people without support, disabled people, households with high dependency ratios, migrants from rural Liberia	MOHSW, UNDP, WB, WFP, NGOs
Food-for-education	Should be limited to schools that are situated in the poorest areas of Greater Monrovia or its surroundings (e.g. squatter settlements, areas with high rates of former IDPs)	MOE, WFP, NGOs

5.2 Employment Factors

The food and nutritional security of the urban population highly depends on people having cash for purchasing food and other goods. Economic security plays a far greater role in urban than in rural food security. Inhabitants in Greater Monrovia have to pay for many goods and services that are usually free in rural settings, including shelter, water and sanitation. A high proportion of the income of an urban household is spent on rent, transport, water and fuel, school fees, and health care. The majority of households in Greater Monrovia depend on informal labour, their wages are low and job tenure is insecure. Loss of employment is a shock that has a direct impact on income and well-being as well as access to food. They are also more likely to be affected by seasonality of casual employment opportunities. Recommended interventions include marketable skills training programmes that should be particularly addressed to petty traders, market women, and unskilled labourers who belong to the most vulnerable groups. A special focus should be paid to disadvantaged youth, e.g. those who dropped-out of school prematurely and those who never attended school.

Women's caring capacity – the time, attention and support to meet the physical, mental and social needs of her growing child - is dependent on how she allocates her time between productive (income-earning) and reproductive (domestic) work as well as her access to essential services and supplies like health, water, fuel etc. For many women in the urban context, work is a survival strategy. Women usually work away from home and depend on informal employment with irregular incomes and few or no maternity benefits nor maternity protection. Alternatives for appropriate child care – especially those that support breastfeeding for pre-school aged children from low-income families – are non-existent. Meanwhile, traditional family and community support structures have been eroded. Women in both formal and informal employment should be supported to continue breastfeeding by being provided with easily accessible community based quality child care, such as family day-care homes. The greater involvement of elders in child care should be encouraged.

Table 22: Recommended Interventions to Address Employment Factors

Type of intervention	Primary target groups	Key ministries/ agencies
Employment generation programmes, e.g. waste collection schemes, road maintenance and rehabilitation of community infrastructure	Unemployed youth	MOL, MGD, MOYS, ILO, UNESCO
Small business management training	Petty traders, market women	MOL, MGD, MOYS, ILO, UNESCO, NGOs
Skill-training in marketable skills, e.g. carpentry, plumbing, etc.	Unemployed youth, casual workers	MOL, MGD, MOYS, ILO, UNESCO, NGOs

Develop national employment policy including social protection measures	Employers, workers, working women	MOL, MPEA, MGD, MOYS, UNDP, ILO, UNICEF, NGOs
Improved community-based child care institutions for working mothers	Petty traders, market women	MOL, MOHSW, MGD, UNICEF, NGOs
Income diversification, e.g. production of marketable vegetables	Peri-urban households	MOL, MOA, FAO

5.3 Wealth and Asset Factors

Insecure land tenure and housing tenure threaten urban livelihood opportunities especially if the home is a base for household enterprises. Poor urban households often face legal obstacles when attempting to secure their shelter and land. Many newcomers to urban areas live in illegal squatter settlements or on the city periphery, where their land tenure rights are not protected. Poor housing conditions also have a negative implication on health and nutritional status. Poor households also find it difficult to improve their small businesses as they do not have access to credit to afford the necessary inputs.

Table 23: Recommended Interventions to Address Wealth and Asset Factors

Type of intervention	Primary target groups	Key ministries/ agencies
Ensure land tenure rights and affordable housing	'Squatters', households with access to agricultural plots	MOLM, NHA, UNHABITAT, FAO
Improve access to economically viable micro-finance schemes for business development	Petty traders, market women	MOF, MPEA, UNDP, WB, NGOs

5.4 Social Factors

In many urban neighbourhoods, social networks and family cohesion have become weak. Food sharing, child care, loans, group membership and other informal safety nets tend to be weaker in Greater Monrovia because residents have come from different parts of the country and there is little sense of community. Social trust, collaboration, reciprocity is also weaker because there is greater mobility and social and economic heterogeneity. Currently, there are no formal public safety nets and only few private initiatives in place to support the urban poor. As poverty is widely dispersed in different clusters throughout the city, social safety net strategies must target households and individuals rather than geographically separate neighbourhoods.

Poverty and crime co-exist. In Greater Monrovia, criminal activities have become a major threat to public safety. A safe environment is critical for the well-being of households and children in particular. There is a need for a balanced, integrated approach to address urban crime. Unemployed and disadvantaged youth are particularly vulnerable in this context.

Table 24: Recommended Interventions to Address Social Factors

Type of intervention	Primary target groups	Key ministries/ agencies
Encourage participation in community social organizations	Urban communities	Faith-based institutions, NGOs
Enhance private initiatives that support the urban poor	Elderly people without support, disabled people, households with high dependency ratios, migrants from rural Liberia	Faith-based institutions, NGOs, individuals
Ensure that vulnerable groups are covered in the National Social Welfare policy through the establishment of public safety nets.	Elderly people without support, disabled people, households with high dependency ratios, migrants from rural Liberia	MOHSW, UNDP, WB, WFP
Strengthen neighbourhood networks	Communities	NGOs, Faith-based institutions
Support to disadvantaged youth (youth clubs, employment schemes, etc.)	Youth	MOYS, NGOs, Faith-based institutions

5.5 Health Factors

Access to sufficient food is not enough for good nutrition. In Monrovia, unsafe water and poor storage practices, poor garbage disposal practices and facilities are substantial threats to health and nutrition. Households in Greater Monrovia have better access to health care and information than their rural counterparts, however, even where health facilities are available, the poor often have limited access to quality services. Also, there is a lack of facilities that manage acutely malnourished children.

Breastfeeding and young child feeding practices are poor, particularly among young mothers. Virtually all mothers can breastfeed provided they have accurate information and support within their families, communities, and from the health care system. From the age of 6 to 24 months, inadequate knowledge about appropriate foods and feeding practices is often a greater determinant of malnutrition than the lack of food. In the urban context, access to accurate information on optimal infant feeding practices is a challenge due to wider feeding options and conflicting information from commercial advertising. Behaviour change and communication strategies need to be tailored to reach young mothers who are often less knowledgeable about infant feeding issues and have little decision-making power. The HIV pandemic and the risk of mother-to-child transmission of HIV through breastfeeding pose an additional challenge to the promotion of breastfeeding, even among unaffected families.

Potentially harmful changes in diets also accompany urbanisation. The typical urban diet is higher in levels of animal protein, saturated fat and sugar and lower in intakes of fiber. Combined with sedentary lifestyles, this diet increases the risk of nutrition related chronic disease, such as diabetes, hypertension and cardio-vascular disease. Saddled with the burden of trying to overcome undernutrition, the public health sector now faces a significant challenge of responding to diseases associated with urbanisation.

Table 25: Recommended Interventions to Address Health Factors

Type of intervention	Primary target groups	Key ministries/ agencies
Improved access to safe water and sanitary facilities and garbage collection including campaigns on proper hygiene and sanitary practices	Urban communities	MOHSW, MPW, MOE, MCC, UNICEF,
Strengthen the support and protection of breastfeeding through the enforcement of the code of marketing of breastmilk substitutes	Infants and young children 0-24 months	MOHSW, MOJ, MOCI, UNICEF, WHO
Focussed multimedia IEC/BCC strategies on infant and young child feeding practices	Women of child bearing age (15-49 years) – focus on mothers below 25	MOHSW, MGD, UNICEF, WHO, WFP, NGOs
Integration of essential nutrition actions – including adequate food intake during pregnancy and lactation – into the basic package of health services	Pregnant and lactating women and children under-5	MOHSW, UNICEF, WHO, WFP, NGOs
Strengthen capacity to detect and manage malnourished children through targeted supplementary/ therapeutic feeding programmes	Pregnant and lactating women and malnourished children under the age of 36 months	MOHSW, UNICEF, WHO, WFP, NGOs
Health and nutrition education programmes (including HIV and AIDs, prevention of diet related chronic disease)	Urban communities	MOHSW, MOE, WHO, NGOs

GLOSSARY

Body mass index (BMI) – A simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by height in meters squared.

Chronic malnutrition – An indicator of nutritional status over time. Chronically malnourished children are shorter (stunted) than their comparable age group.

Coping strategies – Activities that people apply in order to obtain food, income and/or services when their normal means of livelihood have been disrupted.

Food access (at household level) – A household's ability to regularly acquire adequate amounts of food through a combination of their own home production and stocks, purchases, barter, gifts, borrowing or food aid.

Food availability – The amount of food that is physically present in a country or region through domestic production, commercial imports and/or food aid.

Food insecurity – A situation in which household members lack stable, secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level.

Food security – A situation in which all people at all times have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary requirements and food preferences for an active and healthy life.

Food utilisation – This refers to: (a) households' use of the food to which they have access, and (b) individuals' ability to absorb the nutrients.

Global Acute Malnutrition – GAM includes all children suffering from moderate and severe malnutrition; percent of children under 5 who have low weight-for-height measured by -2-z-scores and with or without oedema.

Livelihoods – Livelihoods comprises households' capabilities, assets and activities required to secure basic needs such as food, shelter, health, education and income.

Risk – The probability of insufficient access to food resulting from interactions between natural or human-induced hazards and household vulnerability.

Stunting (chronic malnutrition) – Growth failure in a child that occurs over a slow cumulative process as a result of inadequate nutrition and/or repeated infections; measured by the height-for age index. Stunted children are short for their age and may look younger than their actual age; it is not possible to reverse stunting.

Underweight – This is a composite measure of both chronic and acute malnutrition. It is the percentage of children under the age of five with weight-for-age below -2SD from median weight-for-age reference population.

Vulnerability – The conditions which increase household's susceptibility to having insufficient food access in the event of a hazard.

Wasting (acute malnutrition) – The percentage of children under the age of five suffering from moderate or severe wasting (below -2SD from median weight-for-height of reference population.

Z-score – Score expressed as a deviation from the mean value in terms of standard deviation units; the term is used in analysing continuous variables such as heights and weights of a sample.