Comprehensive Food Security and Vulnerability Analysis (CFSVA)

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April, 2009

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Foreword

It is a great pleasure for the WFP Country Office to further support Ghana, its Government and the development partners in our joint efforts to achieve the Millennium Development Goals (MDG) of eradicating extreme poverty and hunger in the country by 2015.

This is the first nationwide comprehensive food security and vulnerability assessment (CFSVA) in Ghana. It is a tool that helps to better understand who the food insecure and vulnerable people are in the country and where they live. Most importantly, it points to the underlying causes of limited access to sufficient and nutritious food, ill-health and persistent malnutrition. Only by knowing the answers to those key questions is it possible to decide on the most effective means to address those underlying causes at their roots. Addressing the root causes is the surest and most cost-effective way to help people help themselves and ensure sustainability of development gains. Additionally, the survey is intended to be a tool against which future success of interventions and negative impacts of natural or man-made shocks can be measured.

Its unique feature is its nationwide focus and its analysis of people's food, nutrition and health status in rural as well as urban locations, in the ten regions and three agro-ecological zones. Furthermore, by adopting a livelihoods approach the survey takes a close look at people's specific capacities and the specific constraints experienced in their endeavours to lead a healthy and active life.

I would like to express my sincere gratitude to the valuable input and support we have received from all our partners during this important exercise, most importantly that of the Government through the Ghana Statistical Service, the Ministry of Food and Agriculture, the Ministry of Economic and Social Welfare and the Ministry of Health/Nutrition Unit. Furthermore, I would like to thank WHO for their financial support and valuable technical input into this analysis. Other partners without whom this study would have been impossible include UNICEF, Plan International and CARE.

Last but not least I would like to thank the Bill and Melinda Gates foundation and the Department for International Development (DFID) for having provided the necessary financial resources to implement this comprehensive baseline study.

I look forward to continued collaboration with the Government of Ghana and its development partners.

Ismail Omer
WFP Representative

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Not to be missed is the great support I received from my WHO colleague Jonathan Rivers.

Last but not least my appreciation goes to all the 3,854 households and 321 communities who were willing to spare time for us in their busy lives to answer the numerous questions we asked them.

Lisa Biederlack
CFSVA Coordinator

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1 List of Acronyms

AAA	Accra Agenda on Aid Effectiveness
AEZ	Agro-Ecological Zone
BMI	Body Mass Index
CFSVA	Comprehensive Food Security and Vulnerability Assessment
DHS	Demographic Health Survey
EFSA	Emergency Food Security Assessment
FASDEP	Food and Agriculture Sector Development Policy
FSMS	Food Security Monitoring System
GAM	Global Acute Malnutrition
GDP	Gross Domestic Product
GoG	Government of Ghana
GPRS	Ghana Poverty Reduction Strategy
GSS	Ghana Statistical Service
IFPRI	International Food Policy Research Institute
ISSER	Institute of Statistical Social and Economic Research
LEAP	Livelihood Empowerment Against Poverty
MoFA	Ministry of Food and Agriculture
MoH	Ministry of Health
MDA	Ministries, Departments and Agencies
MDG	Millenium Development Goals
MICS	Multiple Indicator Cluster Survey
MDBS	Multi-Donor Budget Support
NEPAD	New Partnership for Africa's Development
NDC	National Democratic Congress
NDI	Northern Deveopment Initiative
NHIS	National Health Insurance System
NSPS	National Social Protection Strategy
NPP	National Patriotic Party
ODA	Overseas Development Assistance
SAM	Severe Acute Malnutrition
UNCT	United Nations Country Team
UNDAF	United Nations Development Assistance Framework
UNICEF	United Nations Children's Fund
VAM	Vulnerability Assessment and Mapping
WB	World Bank
WFP	World Food Programme
WHO	World Health Organization

2 Preface

Ghana is often referred to as the "rising star" of Africa and there are plenty of reasons why that image has emerged over the years.

The country's economic growth has been substantial, reaching 6.2% in 2008 compared to an average of 4.4% between 2000 and 2003. This development has been largely due to the government's extensive support to the mining and cocoa sectors in the form of subsidies on agricultural inputs, increasing producer prices and other support mechanisms that have left both sectors booming as a result.

In parallel, Ghana has seen the number of people living in poverty halve: in 2005/2006 the share of the population living in poverty was calculated at 28.5%[1] down from 39.5% in 1998/1999. This makes Ghana one of the few countries that is on track to meet Millenium Development Goal (MDG) 1 before the target year of 2015. As per the UNDP human development index of 2007/2008, Ghana is in the medium human development category and ranks 135 out of 177 countries.

These positive developments have inspired the country to graduate from a low income to middle income country over the next six years, by channeling increasing support to the private sector in agriculture. Ghana's graduation would mean an increase in the current national average per capita income of USD400 to USD1,000 per year.

Nevertheless, recent economic progress has not brought about solutions to all of Ghana's challenges that continue to exist and that, it is argued, may have been aggravated as a result of this rapid economic progress at national level. Although the number of people living below the poverty line may have decreased over the past two decades, the depth of poverty has worsened, has spread into the urban areas and significant regional differences persist. Recent soaring food prices have left the 18% of the population whose income is less than the costs of the minimum food basket even more vulnerable and less resilient[2].

According to the findings of the CFSVA, persistent food insecurity is concentrated in the poorest regions of the country which are also the areas most prone to adverse weather conditions, such as floods and droughts, and that have been disproportionately affected by last year's soaring food prices. Additionally, the prevalence of malnutrition among children under five years and women of reproductive age is still high. In fact, 22% of children are stunted or too short for their age, 7% of children are wasted or to thin for their height. As measured by the Multiple Indicator Cluster Survey (MICS 2006) one in nine children die before reaching age five and maternal mortality rates were found to have increased from 197 to 224 per 100,000 live births.

Policies have been designed and programmes implemented by the government in collaboration with its development partners, to address some of the above challenges within the framework of the Growth and Poverty Reduction Strategy (GPRS) II. Three of the most exemplary initiatives that put Ghana on the right track to continued poverty reduction include 1) the Livelihood Empowerment Against Poverty (LEAP) project which supports the extremely poor households with a monthly cash transfer and which is to reach 7% of the population by 2012, 2) the National Health Insurance System (NHIS) which ensures quality access to health care by all at affordable or no costs and 3) the Capitation Grant that guarantees every young Ghanaian the right to free basic education as prescribed by the National Constitution.

However, LEAP currently operates at a very small-scale and due to financial constraints struggles to increase its coverage. The NHIS premium still appears to be unaffordable to a large share of households and despite the capitation grant, which has increased Ghana's net primary school enrolment rate to 73%.

[1] Ghana Living Standard Survey (GLSS) 4, 2005/2006.

These internal challenges have been compounded by the impacts of the hikes of food and fuel prices in 2008 to which Ghana has not been immune. As prices continue to remain high, households' budgets continue being stretched, further reducing their purchasing power. The global financial crisis is another external weight on the country's shoulders. Crucial remittances to Ghana are forecast to decline and its macroeconomic performance is threatened by an international climate less favorable to trade, credit and investment. In fact, the International Monetary Fund (IMF) listed Ghana among the 26 countries that are highly vulnerable to an external shock of declining trade, remittances, Foreign Direct Investment (FDI) and Overseas Development Assistance (ODA). Due to the economy's almost exclusive dependence on cocoa and gold exports, Ghana is particularly vulnerable to a trade shock which in turn can have significant impacts on households' welfare.

There have been concerns that the impressive progress Ghana has made towards achieving the MDGs may show signs of reversal as a result of the above ongoing and recent challenges. The newly inaugurated democratic government will have to take innovative and effective measures if the MDGs are to be fully achieved by 2015. The increasingly decentralized government structures will help with identifying the real needs of the poorest people in the country at grass-root level and facilitate the implementation and expansion of pro poor, pro food secure programmes.

3 Executive Summary

3.1 Why a Comprehensive Food Security and Vulnerability Analysis in Ghana?

There is a wealth of information available in Ghana. Numerous nationwide surveys are conducted on a regular basis, such as the Ghana Living Standard Survey (GLSS), the Multiple Indicator Cluster Survey (MICS) and the Demographic Health Survey (DHS). The Food Security Monitoring System (FSMS) which is jointly operated by the Ministry of Food and Agriculture (MoFA), MoH and WFP, provides monthly updates on food security related information collected in three northern regions. In addition there have been and continue to be informative research initiatives related to food security carried out by the World Bank (WB), the International Food Policy Research Institute (IFPRI), Institute of Statistical Social and Economic Research (ISSER), among others.

With the aim to provide a clearer picture of how Ghanaians access food and the difficulties they face, the survey was to draw from this rich pool of information, further build on it and enrich it with updated information collected at the grass root.

The first WFP CFSVA was carried out in 2004, however, it was limited to five regions in the country, including Ashanti, Central, Northern, Upper East and Upper West. Apart from the need for updated information, it was deemed necessary to find out more about the food security status in the entire country and go beyond the Northern Savannah zone. Concerns were expressed about potential pockets of food insecurity in other areas of the country. Furthermore, in the wake of rising food and fuel prices and the global financial crisis, it was necessary to better understand the potential impact of those new developments on Ghanaians' general welfare and household food security, in both, rural and urban areas.

The availability of updated baseline information on the food security situation in the country is meant to inform, guide and fine-tune ongoing and future interventions of all stakeholders, most importantly those of the government, whose mandate is to eradicate persisting hunger and achieve the MDGs. This was to be done by highlighting areas and population groups experiencing difficulties in accessing sufficient and nutritious food and provide recommendations regarding most appropriate assistance that would make a difference in their lives. In addition, the survey findings will be the basis to further

improve the existing FSMS which tracks changes in the food security situation and provides advanced notice of a deterioration of a situation.

3.2 Scope and Methods

The nationwide CFSVA, the first of its kind in Ghana, analyses the current food security situation among the population and identifies its underlying causes. At every stage of the survey, WFP collaborated with partners to draw from other organizations' knowledge and expertise and to ensure maximum usefulness of the survey for all stakeholders whose mandate is to eradicate poverty and hunger in the country.

A stakeholder group consisting of government partners (Ghana Statistical Service, Ministry of Agriculture, Ministry of Health/Nutrition Unit), other UN agencies (WHO, UNICEF) and NGOs (CARE, Plan International) was set up at the beginning of August 2008. The group met on a regular basis to discuss and agree on what type of information should be collected to best capture the food security situation in the country, to provide technical feedback on draft questionnaires, formulations and general advice.

The primary data collection involved interviewing 3,851 households and key informants in 321 communities located in all ten regions of the country, including rural and urban areas. Both, households and communities were randomly selected for the interviews, giving every Ghanaian citizen an equal opportunity of being selected.

In each household, the weight and height of every child below five years and all women of reproductive age (15 – 49 years) were recorded for anthropometric analyses. Furthermore, each household's cooking salt was tested for its iodine level.

3.3 How many food insecure and vulnerable people are there and where do they live?

Food insecurity

Solely on the basis of households' food consumption[3], the CFSVA found 5% of the population or 1.2 million people to have very limited access to sufficient and nutritious food for an active and healthy life and are defined as food insecure.

This national average hides striking regional differences.

Food insecurity is concentrated in the poorest regions of the country which are also the areas most prone to adverse weather conditions, such as floods and droughts, and that have been disproportionately affected by last year's soaring food prices.

Regions	Food Insecure		Vulnerable to food insecurity	
	No. of people	% pop	No. of people	% pop
Western Rural	12,000	1%	93,000	6%
Central Rural	39,000	3%	56,000	5%
Greater Accra Rural	7,000	1%	14,000	3%
Volta Rural	44,000	3%	88,000	7%
Eastern Rural	58,000	4%	116,000	8%
Ashanti Rural	162,000	7%	218,000	10%
Brong Ahafo Rural	47,000	3%	152,000	11%
Northern Rural	152,000	10%	275,000	17%
Upper East Rural	126,000	15%	163,000	20%
Upper West Rural	175,000	34%	69,000	13%
Urban (Accra)	69,000	2%	158,000	4%
Urban (Other)	297,000	4%	572,000	8%
Total	1,200,000	5%	2,007,000	9%

[3] Households' food consumption is not the sole indicator to be used for the identification of the worst affected and vulnerable in need of assistance. The CFSVA involved an extensive and careful triangulation of the above findings with an array of additional proxy indicators of food insecurity, including the wealth of households, peoples' capacities to cope, health, nutritional and educational status, livelihood strategies, etc.

Thirty four percent (34%) of the population in Upper West region is food insecure, followed by Upper East with 15% and Northern region with 10%. This is the equivalent of approximately 453,000 people. The lowest prevalence of food insecurity was found in Accra (2%) and the rural areas in Greater Accra (1%) and Western region (1%).

Vulnerable of becoming food insecure

Throughout the country, about 2 million people are vulnerable to become food insecure. They were not food insecure at the time of the survey (November 2008), however, their food consumption patterns were barely acceptable and are likely to deteriorate during the lean season (March to September) when food prices generally increase or following a natural or man-made shock.

In the rural areas of Upper West, Upper East and Northern regions 507,000 people were found to be vulnerable of becoming food insecure. Up to 1.5 million people vulnerable to food insecurity live in the rural and urban areas of the remaining seven regions, with the largest share in Brong-Ahafo (11%), in Ashanti (10%), followed by 8% in Eastern and 7% in the Volta region.

People residing in rural areas are disproportionately worse affected than their counterparts in urban areas. While 19% of the rural population is currently food insecure or prone to become so, only 10% of the urban population is.

3.4 Who are the food insecure and vulnerable people?

The survey identified fifteen distinct livelihood groups. Five of those livelihoods have a large share of food insecure and vulnerable households in specific areas of the country. One of the most telling characteristic common to all five is the importance of agriculture as a source of households' income. Together, households engaged in these five livelihoods make up 55% of all the food insecure. Below is a brief description of each:

Food crop farmers

They represent 48% of the population in the Northern Savannah zone with the largest share living in Upper East region (56%). This livelihood is characterized by the lowest annual per capita income, falling below the national poverty threshold[4] of GHc1.47 per capita per day and the recently agreed upon minimum daily wage rate of GHc2.65. Almost three-quarter of them (72%) cultivate land less than two ha in size and almost all are entirely reliant on rainwater for cultivation (98%). Nearly half (48%) of the households have family heads without any educational background and 13% of their primary school aged children are not attending school. Twenty-two percent (22%) of households were found to be female headed.

Cash crop farmers

Although the large majority of cash crop farmers live in the Forest zone with 15% of the zone's population, the most vulnerable cash crop farmers live in Upper West region (Northern Savannah zone) representing 17% of the region's population. Their share of income from cash cropping (67%) is complemented by food crop farming (20%) as the second most important income source. Among the agriculturalists, cash crop farmers have the highest annual per capita income with an average of GHc644. Nevertheless, more than half (51%) were identified to be in the poorest wealth quintile. Eighteen percent (18%) of them are female headed households.

[4] Established by the GLSSV 2005/2006 and inflation adjusted for the purpose of this study.

Agro-pastoralists

Fifty-nine percent (59%) of agro-pastoralists live in Northern and 21% in Upper East region. While 63% of their average income is derived from livestock and animal husbandry, one-fifth of their income is covered by food crop production. The most common livestock are cattle and poultry. Lack of education among household heads was most pronounced among the agro-pastoralists with 83% of them not having received any schooling at all. Four out of five households (88%) were identified as poor and 9% are female headed.

Food processors

Food processors include millers, brewers and shea nut producers who are engaged in the manufacturing of agricultural products. Their second most important income source is food crop production. They have one of the highest shares of poor households (56%) with the third lowest average annual per capita income of USD445. Food processors have the largest share of households (46%) who indicated to have loans or debts to pay back at the time of the survey. Food processors also have one of the largest shares of female headed households (41%).

Unskilled labourers

About half of unskilled labourers live in urban areas. They form part of the urban poor population who was found to spend approximately 67% of their income on food compared to the national average of 52%. The other half of unskilled labourers lives in the rural areas spread across the country with the largest shares in Ashanti and Upper East. The second most important source of income comes from food crop production. The average annual per capita income earned by unskilled labourers is the second lowest among all livelihoods and falls below the national poverty threshold of USD437. Households engaged in unskilled labour had one of the highest share of single heads of households (33%). Twenty-two percent (22%) of households were headed by women.

3.5 What are the underlying factors of food insecurity?

With over three million people affected or vulnerable to food insecurity, it is important to understand the root causes. It is difficult, if not impossible to single out one stand-alone determinant for why some areas or some livelihoods are more prone to food insecurity than others. However, the survey was able to pinpoint to a number of macro-level factors and developments, as well as shortcomings at household level that are causing, in tandem, the observed level of food insecurity in the northern sector of Ghana.

Macro-level factors include:

High food prices have been stretching Ghanaians' budgets since 2007. Inflation adjusted retail prices of maize had increased by 88% in July 2008 compared to the same month the year before. With markets being the main source of food for 80% of households the majority of the population is highly vulnerable to such market upheavals.

The impact of the global financial crisis has led to a decline in selected agricultural export crops, even if to varying degrees, and a downward trend in international remittances[5]. Small-holder farmers making a living of these export crops have already seen their income decrease. The same is true for the 16% households, as identified by this survey, for whom remittances from abroad are a major income source. Should the ODA also see a decline as a result of this crisis, the Government

[5] WFP assessment on the impact of the global financial crisis, April 2009

may be constrained to finance its ongoing and future development programmes, which in turn will leave a large number of Ghanaians without the support they need.

Natural hazards, such as floods and droughts, disproportionately impact on the poorer households in the northern regions of Ghana. Floods in particular, have destroyed large areas of cultivated land at crucial times during past cropping seasons, leaving the farming population with reduced harvests to sustain them throughout the year and a damaged asset base that take a long time to replenish, if at all. Reduced resilience is likely to trigger a chain reaction, the outcome of which has been found to be limited access to sufficient and nutritious food.

Household level factors include:

Lack of education is closely associated with food insecurity. Half of the food insecure households were headed by individuals who had never received any schooling in their life. Similarly, their own children were found be less likely to attend school, spinning the intergenerational cycle into motion. Lack of education will hamper their childrens' potential to escape from the food insecurity-poverty trap in the future.

High dependency on agricultural livelihood activities as primary income source has been found to increase vulnerability to food insecurity. The large majority of small holder farmers and agro-pastoralists apply traditional, often inefficient agricultural practices and are entirely dependent on rain for cultivation. The average productivity of maize cultivated without improved inputs, irrigation and extension support - which is the norm - is four times below its potential[6]. Extension services that provide agricultural support and advice to remote farming households are greatly limited. This general lack of incentives drives young people out of the rural areas, leaving the farming population with limited labour further increasing their vulnerability.

Lack of access to output markets are well-known barriers to farming households that discourage them to produce beyond their subsistence needs and build on their potential.

Poverty is very closely linked to food insecurity. Almost half of all food insecure households were also the poorest of the poor (47%). Similarly, 35% of households vulnerable to become food insecure were also identified as the poorest of the poor. Poor urban households spend a significantly larger share of income on food (67%) compared to the national average of 52%, leaving insufficient financial resources for essential non food expenditures, such as on health and education, which in turn are critical in ensuring and sustaining welfare and food security.

3.6 What are the underlying factors of malnutrition?

Malnutrition rates among children was elevated but below emergency levels according to internationally set thresholds. Wasting, a manifestation of acute malnutrition stands at 7%. Stunting, a reflection of chronic deficiencies, was 22%. Underweight, a composite measure of acute and chronic deficiency, was seen amongst 11% of the children.

AEZ	# children	Wasting [95% CI]	Stunting [95% CI]	Underweight [95% CI]
Coastal	400	6%	14%	7%
Forest	690	7%	26%	13%
Savannah	864	9%	24%	14%
National	1.954	7%	22%	12%

Source: CFSVA 2008

Compared to the last nutritional survey (MICS 2006), the percent of underweight children has declined, indicating general improvements in nutritional status.

[6] MoFA *Facts and Figures*, 2007

National averages hide significant regional variation. High wasting and stunting prevalence was observed among children in the Northern Savannah zone (9.1% and 24.2% respectively). Stunting prevalence was also high in the Forest zone where 26.3% of children were affected.

Depending on the location, the most prominent underlying factors of acute malnutrition in Ghana include poverty, high disease burden, unsafe sanitation facilities and unsafe sources of drinking water. Lack of access to food, as measured by households' food consumption, was a determining factor for acute malnutrition in the Coastal zone of Ghana.

Chronic malnutrition was linked to the poverty level of the household, disease burden, the lack of de-worming medication, unsafe sanitation facilities, as well as inadequate child feeding practices at crucial times of their early development. Lack of access to food was the determining factor in the northern regions of Ghana, highlighting the inadequate diet that is common among the poor population in that part of the country which has long lasting and irreversible effects on children's mental and physical developments.

3.7 What needs to be done?

Food insecurity has a multitude of underlying, intertwined factors that influence and aggravate each other. They cannot be addressed individually but need to be looked at in tandem in order to achieve maximum success.

Programmatic recommendations include short-, medium and long-term interventions. They include interventions to address current malnutrition and ill-health among children and women, as well as support to livelihoods, with a particular focus on agriculturalists, to help them gradually build up and strengthen their asset base that guarantees greater resilience in the future. Additionally, recommendations include the improvement and strengthening of already existing monitoring and preparedness measures that can detect a deterioration in people's food security, health and nutrition status at an early enough stage to allow for interventions that prevent the situation from spiralling out of control. Recommendations of food security interventions fall into the following broad domains:

- Livelihood support
- Safety nets
- Nutrition and Health
- Education
- Monitoring and preparedness

Specific response options are summarised in section 9.

Any food security intervention should be built on already existing programmes and initiatives and should aim to improve and/or expand them. New, stand alone activities are to be avoided.

4 CFSVA Objectives and Methodology

4.1 CFSVA objectives

The primary aim of the Comprehensive Food Security and Vulnerability Analysis (CFSVA) in Ghana is to provide much needed baseline information on the food security, health and nutrition situation in the entire country at sub-national and agro-ecological level in both, rural and urban areas.

This baseline study is meant to inform and guide WFP's and its partners' programming – most importantly that of the newly inaugurated government – mandated to address food insecurity and its underlying causes. It is meant to serve as a tool with a potential to refine the implementations of GPRS II, the UNDAF and similar future development frameworks that aim to achieve the Millennium Development Goals (MDG). The survey provides reliable, comprehensive and multi-sectoral information that should assist in strengthening targeting, identifying priority areas for interventions, etc.

Specifically, the CFSVA is intended to:

- Assess levels of household food insecurity in ten administrative regions, three agro-ecological zones and in urban and rural areas while focusing on the following questions:
    - Who are the food insecure people?
    - Where do they live?
    - Why are they food insecure?
    - How and what type of external assistance play a role in improving the food insecurity situation?

- Identify the main livelihoods in the country and analyse their contribution to food security at regional, agro-ecological, rural and urban level, and analyse households' capacity to withstand future shocks and problems;

- Assess households and communities' dependence on markets and the impact increasing food prices have had and are expected to have on their lives and livelihoods;

- Assess the prevalence and distribution of malnutrition among children and mothers and define the relationship between food insecurity and malnutrition by determining whether the underlying reasons for prevailing child malnutrition are consumption or health related;

- Determine which populations or regions of the country are most vulnerable to poor health outcomes;

- Identify key indicators to be captured in the already operational Food Security Monitoring System to detect changes and trends in food security and vulnerability situation over time.

4.2 Definition, terminology and concepts

Box 1: **Definition of food security**

At the World Food Summit in 1996, food security was agreed to exist 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."

There is no single measure to analyse the level of food security of a population, a community or an individual. Food security is highly complex in that it is determined by a range of inter-related agro-environmental, socioeconomic, and biological factors, all of which have to be addressed to conclude whether food security exists or not. The complexity of food security can be simplified by focusing on three distinct, but also highly interrelated dimensions of food security[7]:

Food availability: concerns the food that is physically present in the area of concern, through all forms of domestic production, commercial imports and food aid. This might be aggregated at the regional, national, district or community level.

Food access: concerns a household's ability to regularly acquire adequate amounts of food, through a combination of its own home production and stocks, purchases, barter, gifts, borrowing or food aid.

Food utilization: refers to households' use of the food to which they have access, and individuals' ability to absorb and metabolize the nutrients, i.e. the conversion efficiency of the body.

The Food and Nutrition Security Conceptual Framework on which the CFSVA is based, acknowledges malnutrition and mortality to be the final outcome or the manifestation of insufficient food intake and/or disease at the individual level. These two immediate determinants of malnutrition and mortality are in turn determined by the household's ability to access food, the care practices used and/or the wider health and hygiene environment in which the household lives. The purpose of the CFSVA is to identify the underlying reasons of the prevailing malnutrition rates.

Box 2: Triangulation is the key!

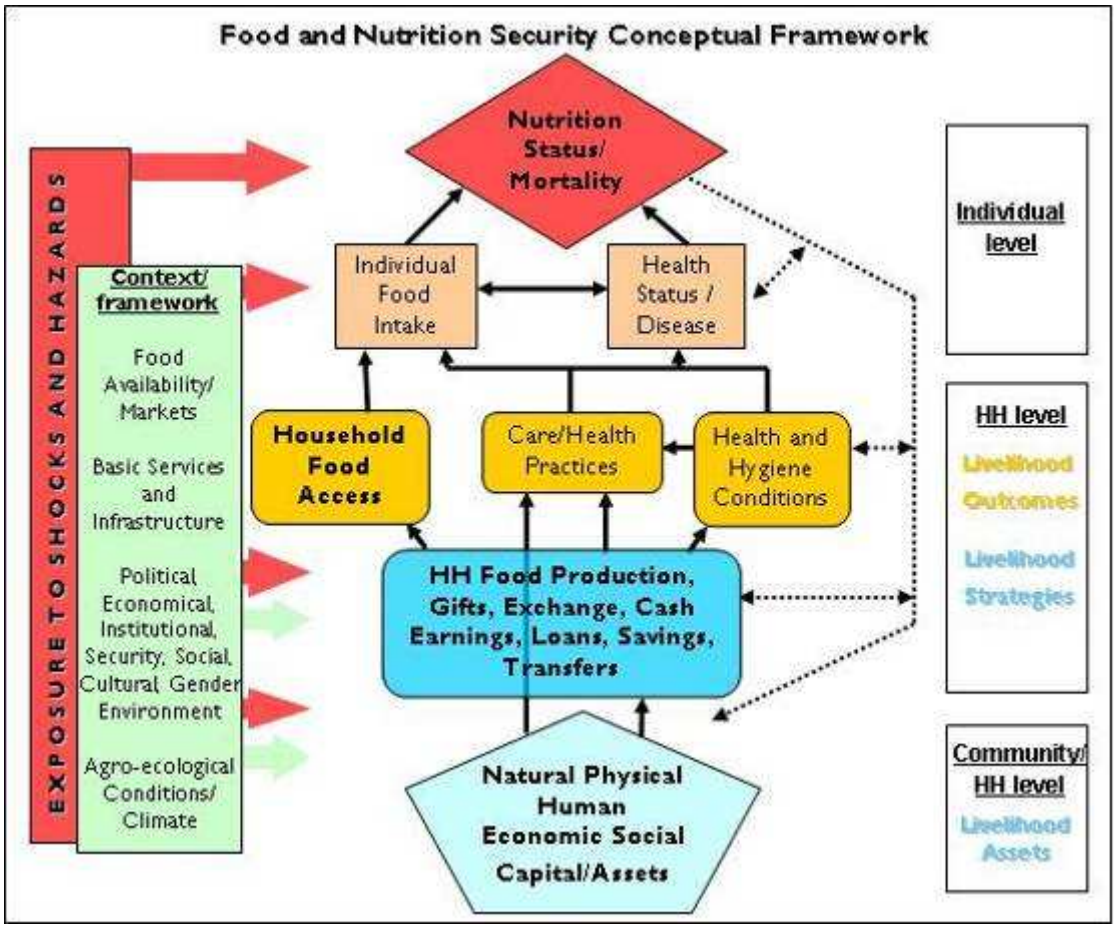
There is no one single indicator that can measure food insecurity. Instead, a number of proxy indicators were applied and triangulated to identify the most vulnerable and vulnerable become food insecure. They most important included:

- Diet diversity and diet frequency
- Wealth (index)
- Coping strategies
- Market dependency
- Education
- Health
- Anthropometry
- Food and non-food expenditures
- Livelihood strategies
- Etc…

The conceptual framework recognizes that a household's food security situation is subject to change and fluctuates. In order to do justice to the dynamic nature of food security, the CFSVA analyses households' vulnerability to future shocks and problems and determines their capacities to withstand them. Capacities to withstand shocks, such as floods, high food prices, and droughts depend on many factors

[7] WFP EFSA Handbook, 2009.

including a solid asset base, the easiness with which households can alternate between and rely on the incomes from different livelihoods, the health and physical strength of individual household members, the political environment, etc. By assessing future risks and their potential detrimental impact on household food security, the level of households and individuals vulnerability is being determined.



The CFSVA involved both, macro- and micro-nutrient malnutrition analyses. Both help to understand the relationship between food security, as measured by consumption, and malnutrition. The purpose is to determine whether prevailing malnutrition is due to consumption or health related reasons.

The **macronutrient malnutrition** analysis assesses the acute and chronic deficiencies of protein and energy among children between 0 to 59 months and women or reproductive age. The following anthropometric indicators were used for this purpose:

Weight-for-height (wasting): A measure of acute malnutrition which is the result of reduced energy intake over a short period of time due to either food shortage or poor health (in the immediate sense). Z-scores are obtained by examining a child's weight and height against the NCHS/CDC/WHO reference growth data and determining how many standard deviations (SD) that child is away from the mean. "Global Acute Malnutrition" (or GAM) is commonly used to refer to a combination of moderate and severe wasting (<-2 SD) and oedema. "Severe Acute Malnutrition" (or SAM) is commonly used to refer to severe wasting (<-3 SD) and oedema.

Height-for-age (stunting): A measure of chronic malnutrition, which reflects longer term, rather than acute nutritional deficiencies. Z-scores are obtained by examining a child's

height and age against the NCHS/CDC/WHO reference growth data and determining how many standard deviations (SD) that child is away from the mean.

Weight for age (underweight): A composite measures of both chronic and acute malnutrition, and thus captures aspects of both stunting and wasting. Z-scores are obtained by examining a child's weight and age against the NCHS/CDC/WHO reference growth data and determining how many standard deviations (SD) that child is away from the mean.

The **micronutrient malnutrition** analysis assesses the deficiencies in key vitamins and minerals. Proxy indicators used in this study included iodated salt testing and the receipt of vitamin a supplementation among children. Iodine and Vitamin A deficiency are two of the most common and preventable micronutrient deficiencies.

Iodine deficiency is the result of insufficient intake of iodated salt and/or seafood. Main symptom is the swelling of the thyroid gland in the neck, goitre. The testing of the salt consumed by households determines the likelihood of goitre being prevalent or not.

Vitamin A deficiency is the result of insufficient consumption of fruits, vegetables, pulses, green-leafy plants and fish oil. Vitamin A is an essential micronutrient necessary for the normal functioning of the eyes, resistance to diseases and proper functioning of the immune system. The survey asks households whether their children between 6 and 59 months had received the biannual national supplementation over the past 6 months. The information is used as a proxy for vitamin a deficiency being prevalent or not.

4.3 CFSVA stakeholders and implementation

A stakeholder group consisting of government partners (Ghana Statistical Service, Ministry of Agriculture, Ministry of Health/Nutrition Unit), other UN agencies (WHO, UNICEF) and NGOs (CARE, Plan International) was set up at the beginning of August 2008. The group met on a regular basis to discuss and agree on what type of information should be collected to best capture the food security situation in the country, to provide technical feedback on draft questionnaires, formulations and general advice.

The Ghana Statistical Service (GSS) drew the sample for the survey, co-facilitated the enumerators training and was heavily involved in the data collection exercise. The enumerators were identified by the GSS, of whom all, but a few, had previous experience in interviewing households and communities for large-scale surveys. The data entry was also organized and led by the GSS.

WHO's Regional Bureau provided financial support for the implementation of the survey. WHO was particularly involved in the design and analysis of the health and nutrition related aspects of the survey[8].

The actual implementation of the CFSVA, starting from the design to the finalization of the report took nine months, from July 2008 to April 2009 as outlined in table 1.

[8] WHO is considering the community questionnaire as a pilot to be used in future analyses on health and emergency preparedness.

Table 1: Timeline of CFSVA implementation

Major activities/Meetings	2008																				2009																			
	Jul		Aug				Sept				Oct				Nov				Dec				Jan				Feb				Mar				April				May			
	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
One-to-one meetings with all partners in Accra																																										
Secondary data analysis																																										
Development of draft analysis & sampling plan																																										
CFSVA stakeholder meetings																																										
Development of survey design & draft tools shared with all partners																																										
First pilot test household questionnaire																																										
Revision of data collection tools by HQ, RB, CO and partners																																										
Preparation for enumerators training and field work																																										
Second pilot test of household and first pilot test of community questionnaire																																										
Enumerators training																																										
Primary data collection/field work																																										
Data entry training and prepration of data entry mask																																										
Data entry and cleaning																																										
Data analysis																																										
Report writing																																										
First stakeholder meeting (Accra)																																										
First stakeholder meeting (Tamale)																																										
Third stakeholder meeting (Accra) - hand out of final report																																										
Final report (shared and posted on WFP website)																																										

4.4 Sources of data

A detailed secondary data analysis (SDA) was carried out prior to the primary data collection exercise in order to consolidate the vast amount of information relevant for a food security analysis. Furthermore, the SDA provided the context, was used to triangulate and offer discussion material for the CFSVA.

4.5 Primary data collection

An eight-day training for enumerators took place from 20 to 28 October 2008 during which eighty-three enumerators were trained in the administration of the data collection tools and measurement of anthropometrics. The questionnaires had been pilot tested prior to the training and were pilot tested again by each of the enumerators as part of the training. Seventy-five trainees were selected for the data collection exercise, based on best performance during the pilot, participation in the class-room training and the result of a one-hour written test.

Fifteen teams were created each of which consisted of one team leader and four enumerators. In each Enumeration Area one community interview was carried out with a maximum of ten and minimum of three randomly selected key informants (i.e. chief, village nurse, extension officer, traditional healers, teachers, etc.) and twelve questionnaires were administered with heads of randomly, pre-selected selected households.

By the end of the data collection exercise, 321 communities and 3,851 households had been interviewed. Anthropometric measurements (weigths, heights) were taken from 2,231 children between 0-59 months and of 4,069 women between 15 to 49 years (reproductive age).

The data collection exercise took place from 30 October until 1 December 2008.

4.6 Sampling procedure

The CFSVA sampling strategy aimed at providing sufficiently precise estimates of several key food security indicators for all rural regions, as well as Urban Accra, and all other urban areas together in one domain.

It was decided to 'piggy-back' on the existing 2-stage cluster sample already drawn for the DHS survey that was ongoing at the time. The clusters used throughout the country are 'Enumeration Areas', or EAs. A sub-sample was taken for the CFSVA where all rural clusters selected for the DHS were maintained, and a sub-set of urban clusters were randomly selected from the DHS sample in each of the regions for inclusion in the CFSVA (thus maintaining the PPS selection of clusters). In each cluster twelve households were selected to allow for sufficient total sample size per domain, while allowing for enumerator teams (consisting of 1 team leader and 4 enumerators) to complete, on average, one cluster per day. This yielded at least 260 households per strata (or just under, and with the exception of rural Accra). As the GSS had previously conducted a complete listing for all EAs for the DHS, it was possible to randomly select twelve households per cluster (with three additional replacement households if one or more of the twelve were unavailable). The enumerator teams were supplied with maps of the EAs, the locations of the households and the names of the household heads.

Additional geographic reporting strata included urban/rural, and agro-ecological zone. For nutrition indicators of children below five years of age, it was determined that the sample size would be too low to yield sufficiently precise estimates. It was therefore decided to aggregate the nutrition estimates at the zonal level and urban/rural for the majority of the analyses.

Map 1: Sampled localities for CFSVA primary data collection

Source: CFSVA 2008

4.7 Survey limitations

Fieldwork

- Twenty-five days for data collection was barely sufficient for the number of questionnaires to be administered. Each team visited either 21 or 22 EAs and all needed an average of 3 days extension. Even with the extension in time, it was generally felt that the data collection took place under too much time pressure. Main reasons included the great distances and rudimentary roads that had to be travelled to the locations and the fact that household heads and/or its members were not always immediately found at home. The ideal target of completing twelve households and one community questionnaire in one day could often not be met.
- In urban areas the main challenge was the administration of the community questionnaire. Key informants were difficult to find and were often unable to make time for the interview. Also, the concept of "community" appeared to be difficult to relate to in an urban setting, which may have made the answers less precise and random.

Information/Data

- The collection of market data would have been highly beneficial to the analysis, especially given the current high food and fuel prices and their impact on household food security and WFP's intention to increase local procurement.
- Qualitative data in the form of focus group discussion would have been very useful for triangulation purposes, but due to the lack of financial and human resource, this was not possible. The next best alternative was a community questionnaire that allowed for some degree of discussion and open ended questions.
- Since the data collection exercise was carried out right after or during the course of the harvest (November), there may be a seasonal bias impacting the levels and prevalence of food insecurity. Households who were identified to be food insecure or vulnerable during this generally favourable time of the year in terms of food availability, can be assumed to be increasingly worse off towards and during the lean season (March – September).

Reporting level

- Analysing the food security situation at district level would have been ideal, but the available budget allowed for regional, agro-ecological, urban and rural reporting levels only.

5 General background on Ghana

5.1 Geography and climate

Ghana is situated on the Atlantic Coast of West Africa and shares borders with Togo to the east, Cote d'Ivoire to the west and Burkina Faso to the north. Its capital is Accra. The country is divided into 10 administrative regions which are further sub-divided into 170 districts[9].

Ghana is predominantly flat and almost half of the country lies at an altitude of below 150m. Its total land area is 239,460 sq km. The coastal areas are characterized by low-lying plains that stretch between 100 to 150 km inland of the Atlantic coastline. In the

[9] The number of districts was increased from 136 to 170 districts during the course of 2008.

centre of the country, the Volta basin is stretching from Tamale to the mouth of the Volta in Ada. The Volta basin is the country's most important drainage system. It is covered by Lake Volta of 8,500 square km, the world's largest artificial body of water and home to Ghana's hydroelectric plant that provides its population and neighboring countries with electricity.

Table 2: Administrative regions by size and percent of total land area

Region	Area (000 sq km)	% of total
Northern	70.38	29.5
Brong-Ahafo	39.56	16.6
Ashanti	24.39	10.2
Western	23.92	10.0
Volta	20.57	8.6
Eastern	19.32	8.1
Upper West	18.48	7.7
Central	9.83	4.1
Upper East	8.84	3.7
Greater Accra	3.24	1.4

Source: FAO

Due to its low altitude and proximity to the Atlantic Ocean, Ghana is characterised by a tropical climate. Nationally, average annual rainfall ranges between 800 to 2400 mm, generally decreasing from south to north and from west to east. There are three agro-ecological zones, Coastal, Forest and Savannah zone, which cut across the ten administrative regional boundaries[10] and which are further divided into sub-zones (see table 3). They differ in terms of average annual rainfall, type of vegetation, agriculture and consequently, livelihoods.

Table 3: Rainfall patterns by agro-ecological zones

Agro-ecological zone (AEZ)	Agro-ecological zone (used for CFSVA)	Mean annual rainfall (mm)	Range (mm)	Major rainy season	Minor rainy season
Coastal Savannah	Coastal Zone	800	600-1 200	Mar-Jul	Sep-Oct
Rain Forest	Forest Zone	2 200	800-2 800	Mar-Jul	Sep-Nov
Deciduous Forest		1 500	1 200-1 600	Mar-Jul	Sep-Nov
Transitional Zone		1 300	1 100-1 400	Mar-Jul	Sep-Oct
Guinea Savannah	Northern Savannah	1 000	800-1 200	May-Sep	
Sudan Savannah		1 000		May-Sep	

Source: FAO

[10] Greater Accra, Central, Western, Brong-Ahafo, Norther, Upper West, Upper East, Volta, Eastern, Ashanti.

Map 2: Ghana's agro-ecological zones and administrative regions

Source: WFP

The southern part of the country has two rainy seasons, from March to July (main season) and from September to November. Highest rainfall is experienced in the south-west of Ghana, mostly Volta region, which is home to high forest that extends over 82,000 sq km and covers 34% of the country.

The northern part of the country has one rainy season between April to September, followed by a long dry season. The vegetation is scarcer and savannah like.

Mean annual temperatures range from 26 to 29 degrees. The northern climate is characterized by wider variations in temperature than the southern coastal areas and is home to the *harmattan* winds that blow south from the Sahara between December to February and leave the air dry and sandy.

Ghana is rich in natural resources including wood, timber, hydroelectric power, minerals such as gold, diamonds, manganese and bauxite, as well as fish and, of course, arable land.

5.2 Historical Context

Ghana is the first Sub-Saharan African country that was granted independence in 1957. Since then the country has been marked by both democratic, multi-party as well as military, totalitarian regimes. Unlike many other West African countries, however, Ghana has never experienced an escalation in widespread ethnic violence resulting in extensive civil wars.

Kwame Nkrumah was the first president of Ghana whose Convention Peoples Party (CPP) was socialist of nature and which lay down the basis of Ghana's current industrial infrastructure (EUI 07). Nine years later, the Nkrumah government was overthrown by a military coup in 1966, which was the first of nine changes in government and four military coups between independence and 1981.

Flight Lieutenant Jerry Rawlings took over power with his newly established Provisional National Defence Council (PNDC) as the only legal party, dedicated to fight corruption and ensuring domestic security. Despite its socialist rhetoric, the government implemented one of Africa's first and longest-running structural adjustment programmes during the 1980s which ranged from macroeconomic stabilization through fiscal, monetary and foreign exchange liberalization, to structural adjustment measures to accelerate growth and decrease poverty.

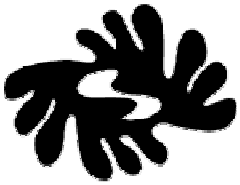
After more than a decade and in response to demands for reform from bilateral donors, Ghana's first presidential and multiparty parliamentary elections were held in 1992. Rawlings became president under the National Democratic Congress (NDC) which kept control of parliament for two four-year terms until 2000. The NDC drew most of its support from the northern regions and the Volta region.

In the 2000 parliamentary and presidential elections, power shifted to the centre-right, private sector oriented National Patriotic Party (NPP) for two four-year terms until December 2008. The party had its strongholds mainly in the southern and central regions of the country. The first Ghana Poverty Reduction Strategy (GPRS) I issued under this administration concentrated mainly on achieving macro-economic stability with considerable success between 2002 and 2004. During the course of the strategy's implementation, increasingly more efforts were to be channeled towards poverty reduction and the protection of the vulnerable and excluded in society. This shift culminated in the second Growth and Poverty Reduction Strategy II (2005-2009) which recognized a stable macroeconomic environment as a platform upon which to generate economic growth as a means to poverty reduction. Emphasis was put on vigorous human resource and social development in parallel with macro-economic stability and accelerated private sector-led growth. Progress was recorded in both sectors at national level, however to limiting degrees and unevenly distributed across the nation.

In December 2008 Ghana's young democracy was tested once again whereby the country saw the opposition party NDC return to power again under President John Atta Mills. Elections were peaceful, underlining the country's fundamental non-violent and democratic nature, despite existing and deep-rooted tribal, regional and party divisions.

BI NKA BI
"None should bite the other"

This *Adinkra* sign stands for peace and harmony.
It cautions against provocation and strife. The image
is based on two fish biting each others tails.



The newly elected social democratic government is dedicated to put increasingly more effort into eradicating persisting poverty in the country, in both urban and rural areas. Specific focus in this regard will be put on providing solutions to the stark regional inequalities that remain by means of establishing a Northern Accelerated Development Authority. The Authority's objective will be to improve and develop the infrastructure, provide quality social services and build on the rich pool of natural resources in the Northern Savannah zone with value-added processing and improved technology. While continued economic growth through the modernization of the agricultural sector and the provision of targeted support to small holder farmers remains the top priority of the new administration, its foundation will be its social policies. Special attention will be given to preventive health care, the improvement of the educational system beyond the primary school level, providing increased training and employment opportunities to adolescent Ghanaians and ensuring access to safe housing, water and sanitation facilities to all, regardless of peoples' location of residence or economic status.

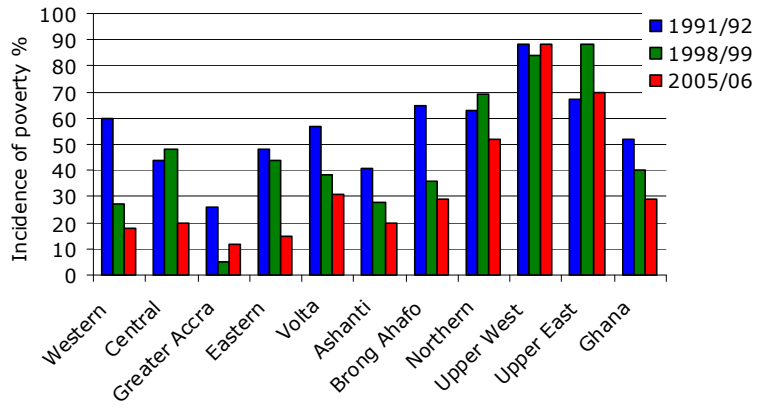
5.3 Setting the scene: poverty and food insecurity in Ghana

More often than not, poverty goes hand in hand with food insecurity. The two tend to be intertwined to create a trap out of which it is difficult to be freed without the help of others.

Ghana is on the right track to achieve the first of the five MDG (having poverty and hunger by 2015), as poverty[11] has dropped from 51% in 1991 to 28.5% in 2005/2006[12]. However, reporting progress at national level clearly hides some crucial details that must not be overlooked and remain un-addressed.

For example, 18.2% of Ghanaians still live in extreme poverty[13] and regional differences in this regard could not be more prominent. Fifty-four percent (54%) of the extreme poor live in the Northern region alone which is home to only 17.2% of the whole population. Looking at Upper West, Upper East and Northern region together, they make up for 70% of the 28.5% of the poor at national level. Farming households were singled out to be the most poor among all other economic activities with almost half of them (46%) falling below the poverty line.

Table 4: Poverty incidence by administrative region, 1992-2005



Source: Ghana Statistical Service (GSS)

The poverty line incorporates both essential food and non food consumption. Individuals consuming at levels below this line, can be considered unable to purchase enough food to meet their nutritional requirements.

The global trend of poverty shifting from rural to urban areas can also be witnessed in Ghana. Although poverty trends have been decreasing in all regions except in Upper West, poverty levels in Accra increased between 1998/99 to 2005/6 (GLSS V). Main reasons of which include the extensive north-south and rural-urban migration that has been on the rise and that have left urban centres increasingly more populous with a growing rate of 2.7% per annum (GPRS II). Migration is expected to continue to rise in response to the high food and fuel prices, while people leave their rural homes in the hope to find more lucrative employment opportunities in towns and cities.

Food is available in the country. It could be argued that Ghana is on the way to reach self-sufficiency for major staple crops[14], except for wheat and rice. Despite food being

[11] A person living on less than USD1 per day is defined as poor OR: According to the GLSSV, the poverty line is anchored on the nutrition needs of the Ghanaian population. The lower poverty line is an income of GHc288 per adult per year or GHc0.78 per day, below which extreme poverty starts. The upper poverty level is GHc371 per adult per year or GHc1.02 per day (including food and non-food consumption), above which the individual is considered able to purchase essential food and non-food needs (GLSSV). For the purpose of this study, these thresholds were inflation adjusted. Please see section 6.6.2 for more info,

[12] Ghana Living Standards Surveys (GLSS 3, 4 and 5)

[13] Extreme poverty is the equivalent of an income of less than GHc288 per adult per year or GHc0.78 per day (GLSSV). See section 6.6.2 for inflation adjusted new thresholds.

[14] Major staple foods include cassava, yam, sorghum, millet and maize.

available, it is not accessible to all. Or else food is not utilized well, the manifestation of which is malnutrition. According to the CFSVA findings, in the entire country almost 12% of children under the age of five are underweight, nearly one quarter of children (22%) are stunted or too short for their age and 7% are wasted or too thin for their height. Although Ghana's malnutrition rates follow a downward trend since the GDHS 2003, the prevalence of stunted and underweight children is poor according to international standards and is the manifestation of deep-rooted, structural problems. Furthermore, mortality rates of infants and children under 5 years of age have substantially worsened between 1999 and 2006 (MICS 2006). The Ghana Health Service (Nutrition priorities for 2007-2011) indicates that malnutrition is estimated to be the underlying cause of 55% of mortality cases in children under the age of five years, in addition to poor care and feeding practices, lack of quality health facilities, limited access to safe drinking water, etc[15].

5.4 Relevant policies and programmes

The second Growth and Poverty Reduction Strategy (2006-2009) is the framework based on which the government addresses prevailing poverty in the country. The GPRS II will build on the progress made under the first GPRS (2002-2004) which saw increased macroeconomic stability with a GDP growth of 5% during that period. Although economic growth will remain the main thrust of GPRS II, it envisages all Ghanaians, including the most vulnerable and poor segments of society, to benefit from it equally. While working towards reaching a middle income status by 2015 with an increase of the average annual income per capita from USD400[16] to USD1000, the government is complementing this endeavour with the implementation of a social protection policy. This policy aims to support and empower those who need it most and who have been left behind during the years of economic development, which disproportionately includes women, children, the unemployed youth. Investing in people's well-being, their health condition, educational level, etc. has been officially acknowledged to be a precondition for continuing to increasing wealth and economic growth.

The GPRS II is driven by internationally agreed upon development objectives addressing poverty reduction. They include the Millenium Development Goals (MDG) and the targets set forth under the New Partnership for African Development (NEPAD), to mention the two most relevant in this respect. National policies[17] have been put in place and are firmly anchored in the country's roadmap to reduce prevailing poverty and to continue strengthening the economy.

The GPRS II is based on the following areas of priorities:

- continued macroeconomic stability and growth;
- accelerated private sector led growth, with a major focus on the rural economy and the modernization of agriculture;
- vigorous human resource development, ensuring access and improved quality of social services (education, health, etc.), safe drinking water and the provision of a clean environment;
- specially designed programmes targeting the poorest and most vulnerable in society, ensuring their access to social services and employment opportunities;
- good governance and civic responsibility, mainly through decentralization and capacity building;

[15] Nutrition priorities for 2007-2011
[16] Current average annual per capita stands at USD661 (UNDAF Mid-Term Review, 2008).
[17] The GPRS II is guided by the Basic Education Improvement Programme, the 2004 White Paper in Education Reform, the Private Sector Development Strategy, Ghana Trade Policy, Food and Agricultural Sector Development Programme and the National Gender and Children's Policy.

Building on the above mentioned priority areas, the United Nations Country Team (UNCT) developed its second United Nations Development Assistance Framework (UNDAF 2006-2010). This framework was set up in close collaboration with governmental stakeholders as well as civic society, and is meant to align the UN's work with national policies, programmes and institutions addressing poverty reduction. It is synchronized with Ghana's national planning cycles of its development agenda. The objective of UNDAF is to ensure maximum harmonization between and complementation of all national programmes to achieve best possible results.

The UNDAF pursues its own targets that the members of the UNCT pledged to achieve by 2010. The strategic areas on which the UNCT will focus include access to health care, increased gross enrolment and gender equity in basic education, support productive capacity for sustainable livelihoods, strengthen the national response to HIV/AIDS and help establish monitoring and evaluation processes supported by an effective data management information system. All activities and programmes target the population living in the most deprived districts in the country. Thematic sector groups consisting of UN agencies, government counterparts and NGOs, have been set up to ensure maximum collaboration among all and to monitor progress made over time.

Collaboration and harmonization of assistance to the government is also ensured by the Multi-Donor Budget Support (MDBS) programme. It involves direct transfers of financial resources from development partners to the GoG against the attainment of policy and programme benchmarks. The MDBS programme was set up with the intention to move away from sectoral, project-driven approach to development assistance[18].

The Government

The most relevant policies and examplatory programmes in relation to food security include the following:

- Ghana launched a **National Social Protection Strategy (NSPS)** in March 2007. Its objective is to provide policy direction regarding the protection of persons living in extreme poverty and who are vulnerable to both expected and unexpected threats to their livelihoods. This should help them in becoming effective participants in the socio-economic development of the country. The main programmes under the NSPS include the Livelihood Empowerment Against Poverty (LEAP), the Ghana School Feeding Programme, the exemptions under the National Health Insurance Scheme, the Capitation Grant, and agricultural supplements. Government has largely self-financed these programmes. Each of these initiatives are described in brief below.

- The second national **Food and Agriculture Sector Development Policy (FASDEPII)** was finalized in 2007. For the first time, the policy officially recognized the centrality of agriculture in the national economy and its crucial role it plays in reducing food insecurity and poverty. It underlines the urgency with which this sector and the people that drive it have to be supported and strengthened. Having understood the constraints and needs of small scale food crop farmers, which clearly differ from those of large-scale high value crop agriculturalists, pro-poor strategies are to be put in place. They include the set up and increased outreach of extension services in all rural areas, particularly in the three northern regions, increased productivity instead of increased expansion of land area under cultivation, provision and maintenance of output market opportunities, etc. The FASDEPII is to be implemented through the **Agriculture Sector Plan 2009-2015** and the **Northern Development Initiative (NDI)**. The NDI is backed by the Northern Ghana Development fund and aims to strengthen the agricultural sector in the three northern regions. The initiative also includes a Food

[18] MDBS Brief.

Assistance and Safety Net component specifically targeting the most vulnerable households in the region.

- The **National Health Policy** launched in 2007 by the Ministry of Health and the Ghana Health Service sets out the different objective and measures to promote health and vitality in the population and to ensure access to quality health, reproduction and nutrition facilities, reaching out to the poorest people in the country. The policy is characterized by an important paradigm shift in that it places increasing importance on measures that promote health and prevent ill-health, instead of focusing on curative actions only. The policy is to be implemented through the five-year Health Sector Programme of Work 2007-2011.

Flagship programmes

- The **LEAP** is meant to be a safety net for the extremely poor in Ghana who represent 20% of the population as identified by the GLSSV (2005/06). To date this government programme through the Department of Social Welfare (DSW) has provided about 8,200 households in 54 districts with a cash transfer of GHc 8 to 15 per household per month depending on the number of vulnerable household members. Most LEAP grants are targeted to women. Furthermore, they are conditional on households (1) sending children to school, (2) not allowing child labour, (3) enrolment of family members on the NHIS and (4) birth registration of all children.

  The first payment was done in April 2008. There is an estimated number of 880,000 extremely poor households in the country (GSS 2007) and the LEAP is intending to reach an estimated 164,379 (or 19%) in 168 districts over a five-year roll-out between 2008 – 2012. The long-term goal is the gradual set up of a strategic and sustainable social welfare system for a pool of registered extremely poor and vulnerable households in the entire country. Future pro-poor programmes by other Ministries, Departments and Agencies (MDAs) are envisaged to build on that pool of eligible households, facilitating increasing linkages among the programmes.

  Following the rise in food prices during 2008, some 15,000 households have been selected for an **emergency LEAP (E-LEAP)**. Eligible households include small-scale crop producers with few productive assets, female headed households without productive income, malnourished pregnant and lactating women and families with malnourished children under five years. They are targeted in the 20 districts in the northern regions that were hardest hit by the droughts and floods in 2007. WFP is complementing this emergency social cash transfer with a monthly household food ration to 3,000 households.

- The **National Health Insurance Scheme (NHIS)** was established in 2003 with the intention to remove financial barriers to access health care, particularly for the poor and vulnerable in society. In 2007 48% of the total population was covered by the scheme and 42% were ID card bearers. Although coverage has seen significant increases, only 2.5% of registrants fell into the destitute category of inscribers. This is partly due to the very narrow criteria used to exempt this group of people from paying the premium. In 2008 the Government announced that children under eighteen would be eligible for NHIS exemptions regardless of the registration status of their parents. The bill to effect this change has been presented to Parliament and still awaits approval. Also, maternal health services have been made free of charge for NHI card holders, which is in response to Ghana's stagnating maternal mortality rate.

- The **Capitation Grant** was introduced in 2004 and is one major initiative to improve access to and participation in basic education, with an emphasis on gender and geographic equity. The grant consists of GHc3.0 per student per year for all basic public school pupils. A new target, which goes beyond the MDG is to achieve universal

access to basic education which includes kindergarten, primary school and Junior High School by 2015.

- One strategy with which to achieve the education related targets is the **Ghana School Feeding Programme** which started off as a pilot in just 10 schools in 2005. Its objective is to enhance school enrolment, encourage attendance, ensure retention and improve the nutritional and health status of children. Most importantly, the food for the programme is produced and procured locally with the aim to provide an output market to poor small holder farmers. In 2008, 1,435 schools and 614,291 pupils in 138 districts have benefited from this programme which the government is financing itself by providing 78% of the overall resources. There are large regional differences between regions: the fewest number of schools catered for are located in Upper East and Upper West with 51 and 57 schools respectively, while the Ashanti region had the highest number of schools with 326 benefiting from the programme.

Box 3: The World Food Programme in Ghana

In line with the demands of WFP's new Strategic Plan (2008-2011), WFP has been an active UNCT member participating in the health, education, sustainable livelihoods and HIV/AIDS UNDAF theme groups[19] since the inception of UNDAF 2006-2010. WFP is eager to ensure synergies between all programmes addressing food security and provide its own expertise in areas in which it has a comparative advantage. This approach is consistent with the Paris Declaration and Accra Agenda on Aid Effectiveness (AAA), the Principles for Good International Engagement in Fragile States & Situations, and the recommendations from the 2007 Triennial Comprehensive Policy Review.

WFP is currently implementing three operations which aim to protect the nutritional status of people who are at risk of becoming food insecure or malnourished, to improve access to education for disadvantaged children and to support refugees and vulnerable populations affected by floods, droughts and high food prices.

External Assistance

Ghana has received significant ODA flows over the last decades, particularly since the 1983 free market economic reforms and structural adjustment programmes formulated by the World Bank and the IMF. In recent years, Ghana has received more than USD50 per capita per year. ODA as a source of foreign exchange to finance imports has declined in relative terms over the years, but in 2006 ODA still amounted to 14% of imports of goods and services. In 2007 about one third of ODA went directly to the government budget (USD378 million), amounting to 20% of government consumption expenditures (OECD, 2008). External assistance to Ghana has averaged about USD770 million between 2001 and 2007, with the highest amount of USD 1.1 billion in 2005. The average flows per year generally represent 25% of budget revenue and 6% of GDP[20].

5.5 Ghana's macro economy in brief

Ghana's economy is informally divided into two: the north and the south. One reason for this division is the climate which favours the south with more and evenly spread rainfall that allows for the production of high-value crops and natural resources such as tree crops and cocoa. Another

[19] UNCT members form part of six UNDAF theme groups (health, education, sustainable livelihoods, HIV/AIDS, Data Management and Governance) each of which would formulate its own action plans and ultimately be responsible for implementing and monitoring progress made in achieving UNDAF targets by 2010.

[20] UNDAF Mid-Term Review 2008

reason includes continuing limited capital investments in the north, poor infrastructure and an inferior educational system that leaves the labour force less educated than its southern counterpart.

Table 5: Key Economic Indicators

	2008	2007	2006
GDP per capita (USD)	1.400	2.700	2.500
GDP growth	6.2	6.3	6.2
Agriculture (share %)	38	34.7	35.8
Agriculture growth	4.9	4.3	4.5
Services (share %)	34	30.6	30
Services growth	6.9	8.2	6.5
Industry (share %)	28	26	25.4
Industry growth	8.3	7.4	9.5
Current account deficit (% of GDP)	-22.3	-16.1	-13.1
Budget deficit (% of GDP)	11.5	8.1	7.8
Inflation	16.5	10.7	10.9
Depreciation of GHc (against US$)	GHc1.09	GHc0.97	GHc0.92

Source: Bank of Ghana, Economics Intelligence Unit

Ghana's economy is largely informal whereby 91% of all economically active people are informally employed, mostly in the private agricultural sector. According to the Human Development Report (2007) "the informal economy tends to be driven by the poorest people in the country and is characterized by the ease of entry and exit, reliance on indigenous resources, small-scale operations, labour intensive and adaptive technology, family ownership of most enterprises and an unregulated market". Further strengthening Ghana's economy cannot take place without addressing the persisting insecurity and vulnerability among its labour force, to a large part made up of women and the youth, and ensuring their social protection. Furthermore, greater linkages with the formal sector should be established to increasingly integrate the informal employees in the national and international market chain.

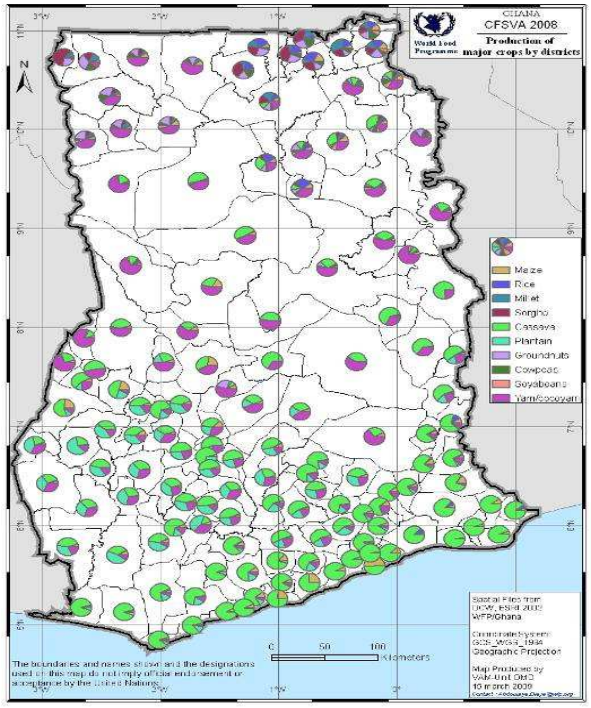
The GPRSII intends to establish a "stable macroeconomic environment as a platform upon which to generate economic growth as a means to poverty reduction" (GPRSII). Specific focus in this regard is put on the strengthening of the private sector in agriculture, which makes up the largest part of the informal economy and which has been the main driver of Ghana's economic success so far.

Ghana has had one of the strongest growth rates in the sub Saharan region. Since 2003 Ghana has grown by more than 5% per year, reaching 6.2% in 2008. Policies and strategies are put in place under GPRS II to sustain the gains already made with regard to macroeconomic stability and to further push annual growth rate up to 8% by 2015. The driving force of Ghana's economy is agriculture, employing more than half of the labour force and contributing approximately 38% of GDP in 2008. Growth within agriculture has been increasing slightly reaching 4.8% at the end of 2008, however, it remained well below the target of 6.7%. Agriculture's contribution to the country's GDP is followed by the services (34%) and industry (28%) sector.

Agriculture's growth over the years (since the 1980s), even if slow, has been largely attributed to the increase in cocoa and timber production. Both, cocoa and timber are high-value export products that have benefited from substantial and most importantly, regular financial and technological support provided by the government. The producer price paid to Ghanaian cocoa farmers, for example, has increased nearly 300% since 2001 amounting to GHc 915 per tonne during the 2006/07 farming season. The food crop and livestock sub-sector, on the other hand, has been largely neglected over the years, left far below its actual potential despite recent cereal increases in 2008.

5.6 Food availability

Map 3: Geographic distribution of the production of major crops by districts



Source: MoFA SRID

According to the 2000 census, more than half of Ghana's workforce are directly engaged in agricultural activities. More than 90% of farm holdings are less than 2 ha in size and are subsistence farms yet they contribute 80% to Ghana's total agricultural output.

Ghanaians' staple foods include yam, cassava, maize, plantain and rice and together with cocoa constitute the largest share of national crop production. While roots and tubers (cassava, yam, cocoyam) are predominantly grown and consumed in the southern regions, grain crops (maize, millet, sorghum, rice) are mostly cultivated in the northern regions. Legumes such as peanuts, cowpeas, and soybeans are also primarily grown in the north and most often used as cash crops. Ghana has also been expanding its production of fruits and vegetables over the last five years and includes pineapple, citrus, banana, cashew pawpaw, mangoes, tomato, pepper, okro, egg plant and onion.

After dwindling cereal production following the production peak in 2002, quantities have picked up again in 2008 and reached roughly 2.3 million MT which constitutes a 37% increase in cereal production compared to 2007, a year that was market by a poor agricultural season due to adverse weather conditions in the north. Cereal production is predominately driven by maize which has seen the largest increase since 2000 (45%), followed by local rice (40%), sorghum (18%) and millet (14%).

Figure 1: Cereal production growth between 2000 and 2008

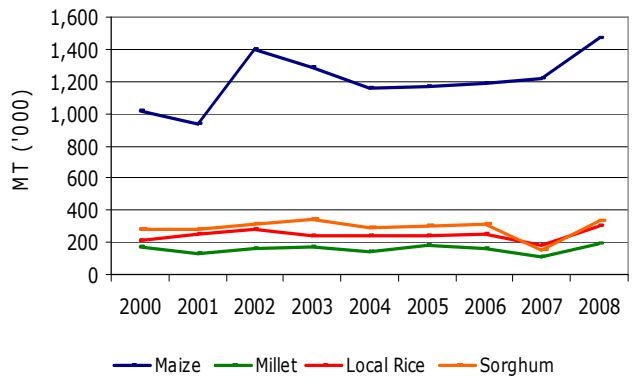
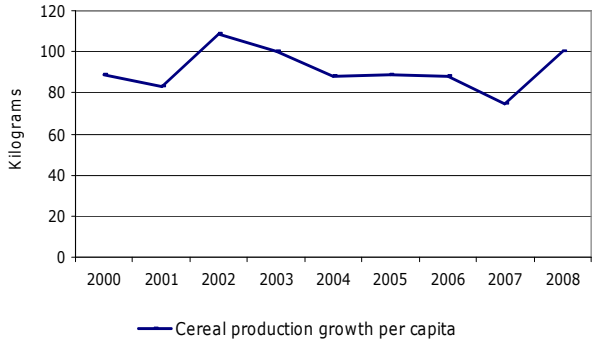


Figure 2: Cereal production growth per capita between 2000 and 2008

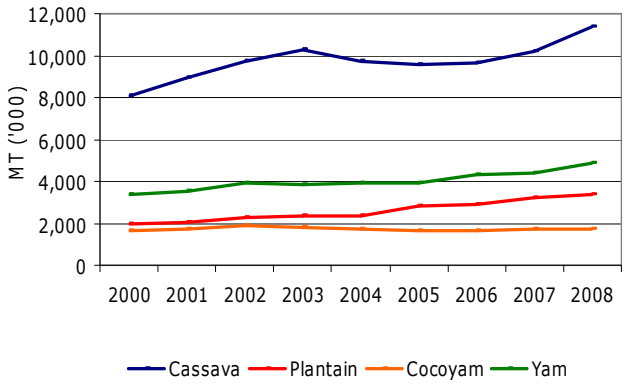


Source: MoFA SRID

Per capita cereal production decreased quite substantially between 2002 and 2008. Since then cereal production increased reaching 100 kg of cereals per person per year compared to 75 kg the previous year.

A similar trend can be seen with the roots and tubers and plantain which have reached a total of 21 million MT in 2008 which is an increase of 9% compared to 2007. The comparatively low percent increase is due to the fact that roots and tuber production was not as badly affected by the droughts and floods in 2007 as were cereals. Since 2000, largest production increases can be seen of plantain (73%), yam (46%), cassava (40%) and cocoyam (4%). In terms of total quantities, cassava is by far the strongest driving force of the roots and tubers in Ghana.

Figure 3: Tuber production growth between 2000 and 2008



Source: MoFA SRID

Most of Ghana's staple food consumption needs are met through domestic food production. The main foods are cereals, roots and tubers, fish and vegetables. Brong-Ahafo, Eastern and Ashanti region are by far the largest food crop producers among the ten regions, with a focus on roots, tubers and plantain. Individually, the three northern regions do not contribute substantially, however, together Northern, Upper East and Upper West could be considered the country's "bread basket", having contributed an annual average of about 752 MT or 39% to Ghana's annual cereal production over the past eight years.

Table 6: Annual average cereal, roots, tuber and plantain production by region 2000-2008

	Total annual average staple food production (MT)	Cereals (MT)	Roots/Tubers/ Plantain (MT)
Brong-Ahafo	5.124.778	327.440	4.797.338
Eastern	4.515.276	260.923	4.254.353
Ashanti	3.019.845	197.649	2.822.196
Central	2.004.307	192.848	1.811.458
Western	1.675.111	101.122	1.573.988
Volta	1.576.357	103.676	1.472.680
Northern	1.511.653	297.144	1.214.509
Upper West	469.810	208.593	261.217
Upper East	245.983	245.983	-
Gt. Accra	65.657	8.014	57.643
Total	**20.208.777**	**1.943.393**	**18.265.383**

Source: MoFA SRID

Annual food consumption per capita is estimated at about 83 kg for cereals and 337 kg for starchy staples, 30 kg for fish and 7 kg for meat (MoFA). The national consumption figures provide energy requirements comparable to the FAO average of 2,300 kcal per capita per day for developing countries. Apart from rice and wheat imports, Ghana is more or less self-sufficient in its food production, despite it being hugely vulnerable to adverse weather conditions. Total domestic food crop production amounted to 24 million MT in 2008 of which 18.5 million MT (77%) were available for human consumption. This quantity far exceeds the estimated national consumption requirements of 9.9 million MT[21].

Table 7: Major food supply and demand analysis 2007/2008

COMMODITY	Total domestic production (MT)	Production available for human consumption (MT)	% for human consumption from domestic production*	Per capita consumption (kg/annum)	Estimated national consumption (MT)	Deficit/Surplus (MT)
MAIZE**	1.470.100	1.090.100	74%	43,80	1.024.500	65.600
RICE (MILLED)	181.100	157.600	87%	24,00	561.400	- 403.800
MILLET	193.800	168.600	87%	1,00	23.400	145.200
SORGHUM	330.900	287.900	87%	0,50	11.700	276.200
CASSAVA	11.351.000	7.945.700	70%	152,90	3.576.300	4.369.400
YAM	4.894.800	3.915.800	80%	41,90	980.000	2.935.800
PLANTAIN	3.337.700	2.837.000	85%	84,80	1.983.500	853.600
COCOYAM	1.688.300	1.603.900	95%	57,10	1.335.600	268.300
Groundnut	470.000	423.000	90%	12,00	280.700	142.300
Cowpea	179.700	152.700	85%	5,00	117.000	35.800
TOTAL	**24.097.400**	**18.582.300**	**77%**	**423,00**	**9.894.100**	**8.688.400**

*remaining accounts for livestock feed and wastage.
** available production of maize includes a 5% carry over from 2007 domestic production (61,000 MT)

Source: MoFA, SRID

Food availability at national level has been adequate and does not contribute to the food insecurity that can still be witnessed in some areas of the country. In 2008, Ghana's cereal production was more than enough for human consumption, while the production of roots and tubers was more than three times as much as what was required. Rice and wheat are the only staple commodities that are not produced in sufficient quantities to supply for national requirements.

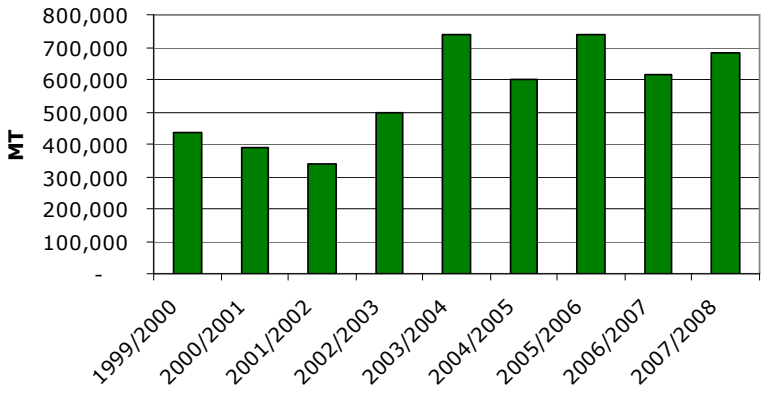
Cash crops vs food crops

Principal industrial or cash crops include cocoa, oil palm, coconut, coffee, cotton, kola and rubber. Particularly rubber, oil palm and coconut are mostly produced on large farms and plantations in the regions of the Forest zone.

The aggregate economic gains made from agriculture have been largely attributed to the government's significant, almost exclusive support to the cocoa sector in the form of new technologies, modern farm inputs and the provision of stable, if not continuously increasing, producer prices, amongst others. The share of government spending on agriculture has increased from 2.8% in 2001 to 9.7% in 2006, however, the largest share has been channeled to the cocoa producing population.

[21] In order to do a proper aggregate food availability analysis, imports, exports and food aid would have to be included.

Figure 4: Cocoa production growth between 2000 and 2008



Source: MoFA, SRID

The total area under permanent crops (cereals, tubers, vegetables) has expanded from an estimated 3 million hectares in 2000 to 3.9 million ha in 2005, declining again to 3.8 million ha in 2008 or 28% of the total land under cultivation. Land under cocoa production stands at 1.4 million ha or 10% of total cultivated land. Cocoa production increased by 55% between 2000 and 2008 (see figure 4). While food crop yields have largely remained below their potential between 2000 and 2008, yields of cocoa increased by 73% (see table 8).

Table 8: Percent change in yields of cereals and cocoa between 2000 and 2008

	Maize (MT/ha)	**Rice** (MT/ha)	**Cocoa** (MT/ha)
2000	1,46	2,16	0,275
2008	1,74	2,27	0,475
% increase 00-08	19%	5%	73%

Source: MoFA, SRID

Cocoa is Ghana's most important cash crop, making the country the world's second largest cocoa producer after Cote d'Ivoire. The government's intention is to raise cocoa outputs to one million tonnes through increased use of fertilizer and disease control programmes by 2010/2011. Yet, only 800,000 farmers who employ many seasonal workers produce most of the country's cocoa plots on fewer than 3 ha in the southern regions of Ghana.

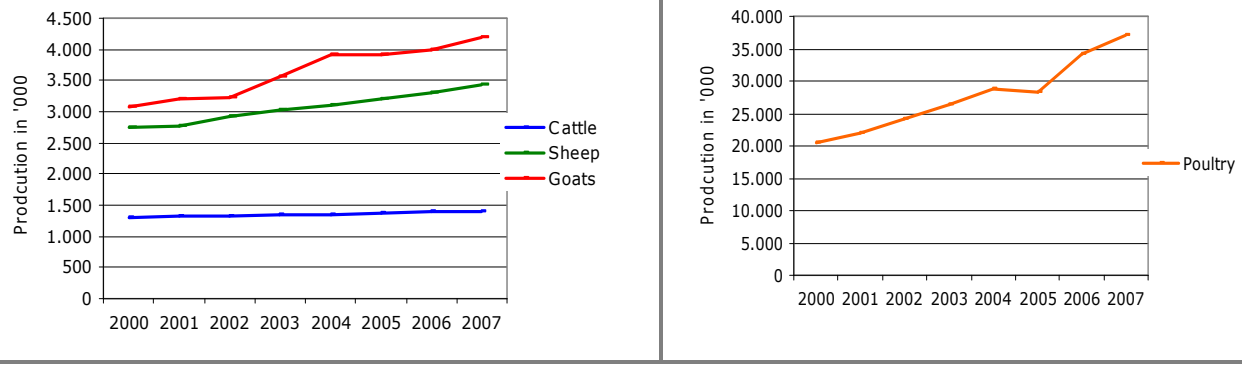
While cocoa has provided more export revenue than gold and timber in 2008, agriculture for the large majority of small scale food crop subsistence farmers remains greatly underdeveloped, its returns unevenly distributed across regions, across crops and sizes of farm holdings.

Livestock

Agro-pastoralism is mainly practiced in the Northern Savannah zone, where livestock, predominately cattle rearing in combination with food crop production is most common in the arid areas of Northern and Upper East region. Ghana's livestock production has been on the rise since 2000, however, that is mostly the result of exponential increases in the poultry sector which is dominant in the southern regions of the country. While cattle

production increased by 8%, poultry production increased by more than 80% between 2000 and 2007. Agro-pastoralists are predominately small holders and face a number of challenges that hinder them to increase productivity. They include poor feeding and health care practices, especially during the dry seasons, traditional, often inadequate, agricultural practices, as well as limited availability of animal feed which is due to extensive bush burning practiced in the area to increase soil fertility. Output markets are non-existent or extremely limited in the rural areas of Northern and Upper East region and extension services mostly focus on food crop farmers, leaving the agro-pastoral community without support and latest technologies, vaccinations, etc.

Figure 5: Livestock production between 2000 - 2007



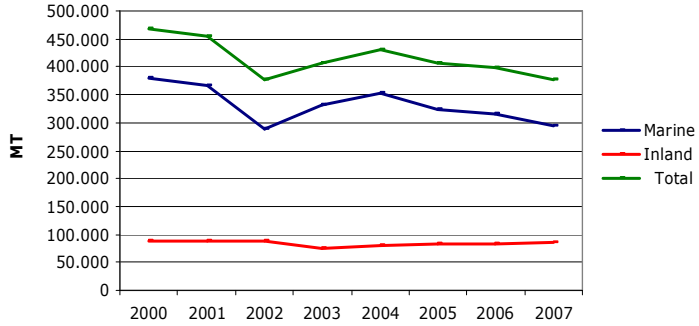
Source: MoFA, SRID

MoFA has developed a livestock policy that aims to increase the supply of meat, animal and dairy products from domestic production from 30% at the current aggregate level to 80% by the year 2015. The objective is to contribute to the reduction of the incidence of poverty among agro-pastoralists from 59% to 30% by the year 2015.

Fishing

Ghana is the biggest fish consumer in the West Africa region, according to FAO, and yet Ghana's fish production has been on a dramatic downward trend since 2000 with an overall 19% decrease in annual fish catch. While inland fishing only decreased by 3%, fish catch in the ocean decreased by 23%. This is mainly due to over-fishing, disrespect of the seasons and foreign trawlers who fish off the shores of Ghana. Other reasons include lack of storage and cooling facilities to prevent rot and glut, and most importantly, increasing pollution.

Table 9: Fish production between 2000 and 2007



Source: MoFA, SRID

The improvement of the fishing sector is also high on the government's agenda. As part of FASDEP II, a fish policy is to address exactly the above constraints and aims to increase fish production of inland water bodies and thereby help the fishing community to sustain their livelihood and increasingly link them to the private sector for marketing purposes.

5.7 Trade

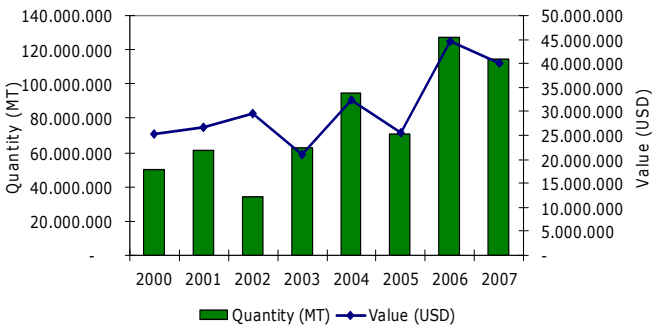
Exports of goods and services accounted for about 40% of GDP in recent years. Approximately 50% of exports are destined for a number of European countries and another third for South Africa[22]

Gold has been Ghana's largest export and foreign exchange earner with sharply increasing world prices since 2007. Gold has accounted for 34% of total exports in 2006, increasing to over 40% in 2008. The global financial crisis led to a decrease in gold prices of 21% in mid 2008 but they have increased again towards the end of the year. Prices are predicted to remain relatively stable during the current global financial crisis, because gold is considered a store of wealth during such uncertain times[23].

Cocoa which is predominately exported in the form of beans accounted for 28% of exports, down from 32% in 2005. And timber increased its share of total exports from 8% in 2005 to 11% in 2008. Together, these three products accounted for 71% of Ghana's exports. This dependency on three export products leaves the country highly vulnerable to world prices and a decline in export volumes.

Initiatives to diversify the country's export base, making it broader and more resilient to future shocks are underway: increasing support to the horticulture sector has led to a 128% increase in the quantity of selected horticultural commodities for exports between 2000 and 2007, most importantly pineapples, mangoes and bananas. Furthermore, the country envisages a shift from solely exporting its raw products such as timber and cocoa beans to increasing its own manufacturing capacity and produce finished and semi-finished products for export, thereby adding value (FASDEP II). In this regard, the government has announced plans to target cassava for domestic processing into starch, for example.

Figure 6: Quantities (MT) and value (USD) of horticultural export commodities between 2000 and 2007



Source: MoFA, SRID

Oil has become a new high value commodity that is predicted to substantially boost Ghana's economy in the future. Large oil reserves, containing an estimated 600m barrels with 90% certainty, were found in the Atlantic ocean offshore Ghana. Production is planned to begin in 2010 and commercial extraction is not envisaged to begin before 2011. Oil exports will provide relief to Ghana's current account deficit.

Ghana's imports have been increasing substantially over the years in tandem with its economic growth, increased urbanization, higher demands. Oil is the largest share of import quantities. Imported foods include mostly wheat and rice and to a smaller extent maize and millet.

Ghana's current account deficit deteriorated from 12.6% of GDP in 2005 to 22.3% in 2008 which is largely due to the food and fuel price hikes in 2007 and 2008. Costs of oil imports for example, on which the country is highly dependent rose quite substantially between

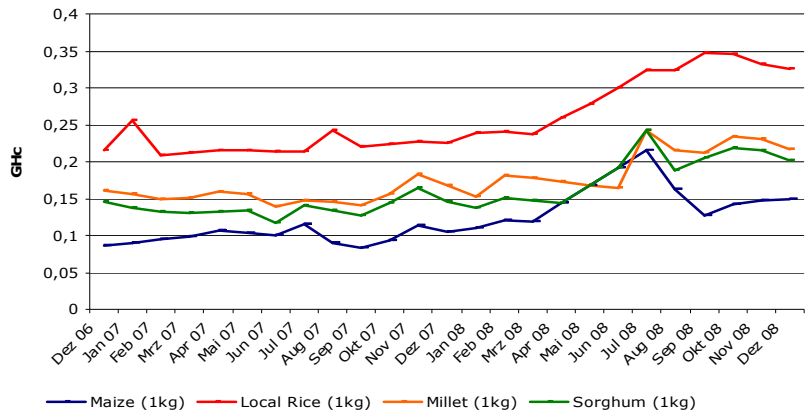
[22] Ghana's trading partners for its exports include the Netherlands, UK, France and the US. Imports, however, mainly come from non-OECD partners, most importantly from Nigeria (oil) and China (textiles, products for infrastructure and construction).
[23] WFP assessment on the impact of the global financial crisis, April 2009

2005 and 2008, thereby contributing to the deficit. The current deficit may in turn lead to increasing debts which are on an upward trend again, after a significant debt decline following the Heavily Indebted Poor Countries Initiative and the Multilateral Debt Relief Initiative, having reached 50% of GDP again at the end of 2007. Additionally, the cedi has lost about 23% of its value against the US$ and 19% against the euro in 2008. A depreciated currency means increasingly higher import costs and higher debt repayments, both of which are expected to put pressure on the government budget and curtail economic growth.

5.8 (High) food prices

Ghana has not been spared from increasing food and fuel prices. The contributing factor has been the steadily increasing inflation rate that has shot up from an annual average of 10.7% in 2007 to 18% in December 2008 and reaching 20.3% in February 2009, the highest peak in more than five years. There are significant regional differences whereby the Volta region recorded a February inflation rate of 14% compared to 28.6% in the Upper East and West. The first two months of the year are normally marked by higher prices before they slowly come down. Current inflation rates are much beyond the GPRSII target of containing inflation within the single-digit band.

Figure 7: National average monthly REAL RETAIL prices (GHc) of staple CEREAL crops December 2006 2008



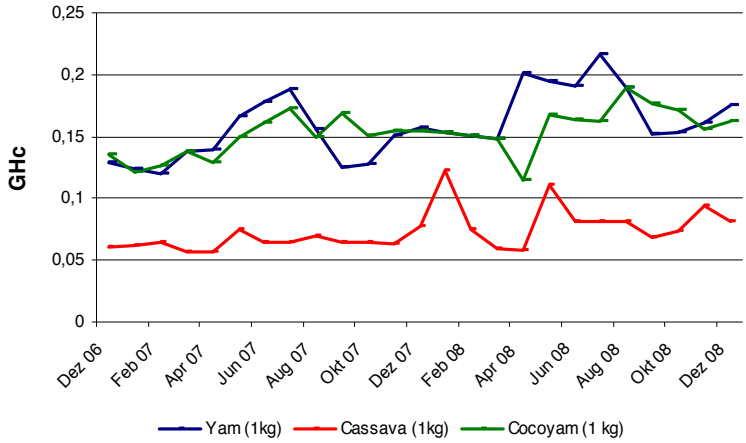
Source: MoFA, SRID

Staple food prices already started to increase slightly at the end of 2007 as a result of adverse weather conditions which led to a decrease in production in Upper East and Northern region of 66% and 24% respectively. Cereal prices continued to increase at the beginning of 2008 with maize, sorghum and local rice prices shooting up from March/April 2008 onwards. Price peaks of maize, millet and sorghum were reached in July. While July is known to be the peak time of the lean season during which food supplies usually decline while demand and prices increase in tandem, cereal prices were substantially higher than usual during that time of the year. In fact, one kilogram of maize in July 2008 was 88% higher compared to the same month the previous year. Real prices of sorghum and millet were 73% and 65% higher. Prices remained high until the end of the year. In December maize real retails prices were 42% higher compared to the same time the year before and 43% compared to the five year average (2006-2002).

Rice retail prices peaked in September/October 2008 and stayed unusually high until the end of December with a 44% increase compared to the same time the year before and 52% compared to the five year average (2002-2006). This price increase of locally produced rice mirrors the trend of imported rice prices which have increased by 247%

between 2002 and 2008. Rice imports are hugely important in Ghana and account for 65% of domestic consumption on average[24]. Imported or milled rice is generally preferred to locally produced rice because of its higher quality. Yet, the country's import dependency on rice has made Ghana highly vulnerable to increases in international food prices.

Figure 8: National average monthly REAL RETAIL prices (GHc) of roots and tubers crops December 2006 2008



Source: MoFA, SRID

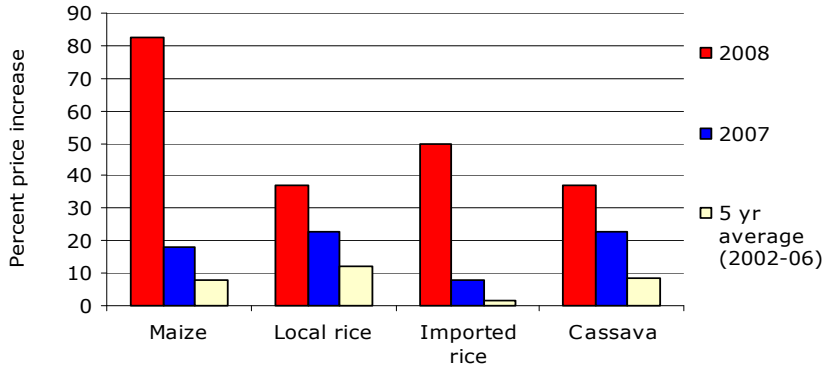
Similarly to cereals, real retail prices of roots and tubers started to rise during the first quarter of 2008. Yam and cocoyam prices reached their peak in July, August but coming down again towards the end of the year. Contrary to cereal prices, by the end of the year yam real retail prices were only 11% higher compared to the same time the year before and 37% higher compared to the five year average (2006-2002). Cassava prices saw their highest peak at the beginning of 2008 and in May after which they gradually fell to relatively normal levels by the end of the year. In fact, cassava prices had increased by only 5% between December 2007 and 2008. Compared to the five year average price (2002 – 2006), cassava prices had actually decreased by 60%.

It is assumed that low stocks in the country following a meager production year in 2007, general low productivity growth as well as the impact of climate change on production are some of the reasons that prices remained high despite a very good harvest, at the national level at least[25]. Furthermore, the significantly higher food crop prices in the northern regions are assumed to be due to higher prices for coarse grains in the Sahel since the 2008 harvest, which may encourage and increase cross-border trading to Ghana's northern neighbors, resulting in shortage and high prices in the Northern Savannah. However, this assumption is to be verified by further research.

Cereal and tuber prices show a strong seasonal pattern with peaks in June, July which corresponds to the peak of the lean season. The price increase during that time of the year was particularly high during 2008. Maize retail prices increased by 83% in real terms between March (the beginning of the lean season) to July/August (the peak of the lean season). This translates into a five-fold increase in maize prices in 2008 compared the same period of the year in 2007 and a ten-fold increase compared to the five year average (see figure 9). This is the timing when households indicated to have experienced most difficulties in accessing enough food (see figure 28 in section 6).

[24] IFPRI (2008), Local impacts of a global crisis: food price transmission and poverty impacts in Ghana.
[25] WFP Assessment April 2009

Figure 9: Percent change of real retail prices of staple food crops between beginning and peak of lean season (March - July/August)



Source: CFSVA 2008

Regional differences in price increases

Cereal price increases have been witnessed throughout Ghana's main markets with the northern regions having been disproportionately hard hit. Given that Ghana's food consumption and expenditure patterns vary quite substantially, with the northern population eating significantly more cereals than roots and tubers compared to their southern countrymen, the impact of high prices on households' purchasing power varies accordingly and will be discussed in the preceding sections.

Actual staple food prices generally tend to be higher in the consuming southern regions of the country than in the producing north (except for rice). However, the percent in price changes since 2007 have been significantly higher in the northern producing areas for all cereals. While real wholesale prices of 100kg of maize increased by 76% in Wa (Upper East) and Tamale (Northern), they increased by 41% and 48% in Mankessim (Central) and Accra (Greater Accra) respectively. Sorghum prices increased by 128% in Tamale's market between 2007 and 2008 compared to a 50% increase in Accra. These regional trends hold true when comparing 2008 prices to the average price increases recorded over the five previous years.

Table 10: Average annual inflation adjusted wholesale prices for maize and local rice by six major markets between 2002 and 2008

Market	Region	Maize (100 kg)			Local Rice (100 kg)		
		2008 average price (GHc)	% change 08-07	% change 5-year average	2008 average price (GHc)	% change 08-07	% change 5-year average
Accra	Greater Accra	14,3	47,6	36,7	23,1	20,2	64,9
Mankessim	Central	15,9	40,7	40,2	24,7	9,7	24,8
Kumasi	Ashanti	12,9	56,4	43,3	25,9	6,6	10,0
Techiman	Brong Ahafo	10,2	62,6	41,3	23,2	40,8	37,0
Tamale	Northern	11,1	75,8	42,5	20,1	44,4	32,8
Wa	Upper West	11,2	76,0	33,5	27,5	43,5	34,3
Overall		12,6	56,9	39,5	24,1	25,0	31,5

Source: CFSVA 2008

Table 11: Average annual inflation adjusted wholesale prices for sorghum and millet by six major markets between 2002 and 2008

Market	Region	Millet (93 kg)			Sorghum (109 kg)		
		2008 average price (GHc)	% change 08-07	% change 5-year average	2008 average price (GHc)	% change 08-07	% change 5-year average
Accra	Greater Accra	18,5	37,9	24,1	18,2	49,3	32,9
Mankessim	Central	18,0	11,7	20,8	20,2	20,7	
Kumasi	Ashanti	17,1	42,4	25,8	15,5	47,1	19,3
Techiman	Brong Ahafo	15,7	65,3	36,2	13,8	67,0	25,2
Tamale	Northern	15,3	76,5	41,0	13,5	128,1	57,3
Wa	Upper West	14,2	62,8	36,5	14,1	73,1	25,9
Overall		16,5	44,4	29,7	15,9	54,2	38,2

Source: CFSVA 2008

The overall percent change of prices of roots and tubers which are predominately produced in the Forest and Coastal zone was less pronounced compared to cereal price. Furthermore, the regional variations were reversed. In Wa (Upper West) yam prices decreased between 2007 and 2008 and so did cassava prices in Tamale. In Accra and Mankessim yam prices increased by 7% and 11% and cassava prices by 32% and 33% respectively over the same period.

Table 12: Average annual inflation adjusted wholesale prices for roots and tubers by six major markets between 2002 and 2008

Market	Region	Yam (100 TUB)			Cassava (91 kg)		
		2008 average price (GHc)	% change 08-07	% change 5-year average	2008 average price (GHc)	% change 08-07	% change 5-year average
Accra	Greater Accra	29,1	7,1	12,3	5,6	32,8	29,3
Mankessim	Central	34,4	11,2	1,8	4,9	31,5	-2,1
Kumasi	Ashanti	26,0	1,3	5,1	2,5	4,0	-6,5
Techiman	Brong Ahafo	24,7	-12,4	18,7	3,4	-19,3	-24,7
Tamale	Northern	28,2	14,3	12,0	4,1	-10,7	-19,2
Wa	Upper West	23,8	-4,2	43,1	0,0	n/a	n/a
Overall		27,7	2,9	13,0	4,1	7,0	-5,1

Source: MoFA, SRID

The Government's reaction to mitigate the impact of high fuel and food prices in 2008

The Government's reaction to mitigate the impact of high fuel and food prices includes a still ongoing export ban of maize and other commodities (May 2008), continued provision of 50% subsidies on fertilizers in 2009 first introduced in 2008, 20% subsidies on tractors, the removal of import duties on rice, wheat, yellow corn and vegetable oil (mid 2008), as well as gas oil and kerosene, and subsidies on electricity.

6 Food Security and Vulnerability Analysis

6.1 Asset Endowments

Households strive to secure sustainable, sufficient and adequate income and resources to meet basic needs, or in other words, to achieve livelihood security. Basic needs include access to food, clean water, health facilities, economic and educational opportunities, ensuring an adequate nutritional status, availability of adequate housing, physical safety and availability of time for community participation and social integration. There are six distinct assets or capitals – human, financial, natural, physical, social and political capitals – that should help to meet these basic needs and determine the level of households' livelihood security. Shedding light on the relative importance of each of those assets and the extent to which they are available, functional, adequate and combined, can highlight opportunities households enjoy and most importantly, point to the constraints that may be experienced with detrimental effects on households' welfare and food security.

6.2 Natural Capital

The natural capital refers to the environment in which people make a living and use the resources that are available to them. Natural capital includes land, water and other natural resources all of which play a major role not only for households' economic production but also in providing resilience in response to a shock, for example. Below is a seasonal calendar that provides a rough seasonal overview of when the rainy seasons take place, when crops are cultivated and harvested, etc.

6.2.1 Seasonal Calendar

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainy season North												
Rainy season South												
Farming				*Clearing of land, sowing, weeding*								
Harvest North								*Maize, Yam*			*Millet Rice Sorghum Yam*	*Yam*
Harvest South	*Yam*	*Yam*					*Maize*				*Rice*	
Lean Season						*Peak of lean season*						
Labor						*Peak for agricultural labor*						
Migration					*Peak for migration*							
High Price Period			*Millet, sorghum*	*Cassava*	*Maize*						*Rice*	
Food insecurity					*Most difficult time to access sufficient, nutritious*							

Source: MoFA, SRID; CFSVA 2008

6.2.2 Agriculture at household level

Types of agricultural activities: Agriculture (including fishing) was found to provide an income to 71% of households in Ghana, rich or poor, farming or non-farming alike. Food crop farming was the most common among the different agricultural activities (49%), followed by cash crop production (12%), agro-pastoralism (7%) and fishing (4%). Food crop production is a common livelihood activity for people across all ten regions, except Greater Accra, which is the most urbanized region in the country. Cash crop production is most prevalent in the Western rural region, which comes to no surprise given that Western is the largest cocoa producer. Cash crops are often difficult to define and do not exclusively include the most common cash crops like cocoa, rubber and cotton. In the northern regions, for example, groundnuts, cowpeas and soyabean are often considered cash crops as well, which may explain the comparatively high share of households (21%) that reported to get an income from them. Livestock production (particularly cattle) is an income source for a large share of households living in Northern rural and Upper East rural and fishing is most common in the Volta region, Greater Accra and Northern due to the availability of the sea and the Volta river.

Table 13: Percent of households citing each agricultural activity as one of the three main livelihood activities of the household by regions

	Food crop production (incl. home gradening) %	Cash crop production %	Livestock production/ Animal husbandry%	Fishing/ fish processing/ fishfarming %
Western Rural	69	66	18	2
Central Rural	52	19	1	4
Greater Accra Rural	20	2	2	10
Volta Rural	73	2	11	15
Eastern Rural	72	17	2	6
Ashanti Rural	64	19	2	2
Brong Ahafo Rural	84	20	3	6
Northern Rural	85	1	48	10
Upper East Rural	90	1	19	1
Upper West Rural	61	21	6	1
Urban (Accra)	3	1	0	2
Urban (Other)	27	5	2	3
TOTAL	**48**	**12**	**7**	**4**

Source: CFSVA 2008

Access to land and cultivation of land: At national level 54% of households interviewed reported to have access to land, of whom almost all referred to have access to proper agricultural land instead of a backyard vegetable garden. The latter were most common in the urban areas and in the Greater Accra region and among the well-off households. The majority of households access their land through their family or community (21%) and about 19% have their own land. Interestingly, ownership of land does not appear to be reserved for the richer regions, but is just as common in the Upper East (53%) and Northern (36%) with the exception of Upper East, where the majority of households access the land of their family or community (74%).

More than half of all households interviewed (54%) said they had cultivated land in 2008. Thirty-nine percent (39%) did soon less than 2 ha and only 15% cultivated on more than 2 ha. This finding is in line with MOFA figures who report 90% of farm holdings in the country to be less than 2 ha in size. In all regions, except in Western and Greater Accra, more than 50% of all households cultivated land on less than 2 ha with the highest share in Upper East rural (73%). In Western regions cultivated land size was found to be biggest among the ten regions with 46% of households cultivating land of more than 2 ha, followed closely by households in Western rural and Northern (37%).

Table 14: Percent of households who cultivated in 2008 by region

	Cultivated in 2008	Cultivated < 2ha	Cultivated > 2 ha
Western Rural	83%	37%	46%
Central Rural	63%	50%	13%
Greater Accra Rural	27%	22%	6%
Volta Rural	77%	66%	11%
Eastern Rural	79%	68%	11%
Ashanti Rural	69%	55%	15%
Brong Ahafo Rural	87%	57%	31%
Northern Rural	85%	49%	37%
Upper East Rural	91%	73%	19%
Upper West Rural	82%	55%	27%
Urban (Accra)	4%	3%	1%
Urban (Other)	34%	26%	7%
Total	**54%**	**39%**	**15%**

Source: CFSVA 2008

Table 15: Percent of households cultivating a selection of crops

Maize	30%
Cocoa	18%
Cassava	16%
Plantain	8%
Yam	8%
Millet & Sorghum	7%
Groundnuts/Peanut	4%
Palmnuts/Oil	3%
Rice	2%
Beans/Peas	1%
Pepper	1%
Tomatoes	1%
Other	3%

Source: CFSVA 2008

Types of crops cultivated: The grand majority of households (71%) cultivated three crops, followed by 21% of households cultivating two and 9% cultivating just one crop. At national level, the main crop cultivated over the previous twelve months for the majority of households included maize, cocoa and cassava. However, as can be seen in the graphs below, there is a stark geographic distribution in which crop is produced in which region. In the northern savannah, the smaller the land, the less diverse is the variety of crops cultivated and most often than not restricted to staple crops. This is less pronounced in the coastal zones, where small farms also cultivate proportionally more high value crops such as vegetables. This is likely to be a reflection of the greater availability of input and output markets acting as incentives and better access to agricultural inputs.

Cereals, in particular maize, was cultivated in all ten regions, however, to varying degrees. The largest share of households cultivating maize lives in Northern (46%), Upper West (39%) and Volta region (35%). Millet, sorghum and rice cultivation is most commonly cultivated in Upper East, Upper West and to a lesser extent in Northern region. Fewest households cultivating any type of cereal as main crop reside in Western region where 60% cultivate cocoa as main crop.

Table 16: Percent of households cultivating main staple foods by region

Region	CEREALS			ROOTS, TUBERS		
	Maize	Millet & Sorghum	Rice	Cassava	Yam	Plantain
Western	4%	0%	1%	14%	1%	9%
Central	36%	0%	0%	27%	1%	6%
Greater Accra	26%	0%	0%	17%	0%	12%
Volta	35%	0%	1%	36%	14%	1%
Eastern	33%	0%	0%	23%	1%	9%
Ashanti	30%	0%	1%	16%	1%	23%
Brong Ahafo	33%	1%	2%	17%	14%	11%
Northern	46%	7%	2%	2%	26%	0%
Upper East	14%	66%	14%	0%	0%	0%
Upper West	39%	25%	5%	0%	4%	0%
Total	**30%**	**7%**	**2%**	**16%**	**8%**	**8%**

Source: CFSVA 2008

Cassava is cultivated as main crop in all regions except in Northern, Upper East and Upper West region. The largest share of households cultivating cassava lives in Volta region (36%), followed by Central (27%) and Eastern (23%). The only tuber cultivated in the Northern Savannah zone is yam in Northern (26%) and to a lesser extent in Upper West region (4%). Plantain is mostly cultivated in Ashanti region (23%).

Table 17: Percent of household cultivating cash crops by region

Region	Pulses, Nuts	Palmnuts/ Oil	Veg	Cocoa
Western	0%	9%	0%	60%
Central	0%	5%	3%	18%
Greater Accra	0%	5%	19%	10%
Volta	2%	2%	1%	4%
Eastern	2%	6%	2%	20%
Ashanti	2%	2%	2%	20%
Brong Ahafo	2%	1%	1%	17%
Northern	15%	0%	0%	0%
Upper East	6%	0%	1%	0%
Upper West	24%	0%	0%	0%
Total	**5%**	**3%**	**1%**	**18%**

Source: CFSVA 2008

Pulses and groundnuts, often considered cash crops, are predominately cultivated in Upper West (24%), Northern region (15%) and to a lesser extent in Upper East (6%). Cultivation of vegetables is popular in the Greater Accra region (19%) and mostly consists of tomatoes. Cocoa production is highly common in Western region (60%) and in Eastern and Ashanti (20%).

Agricultural assets and sources of labour: The most commonly used agricultural tools include hand tools which are owned by almost all households. Other important tools include the tractor (15%) and the donkey/cow plough (11%) however, whenever used, these tools are rented or borrowed rather than owned. Almost half of households in the Northern region reported to rent a tractor (44%) and a plough (46%) for the cultivation of their land.

Irrigation is almost non-existent. Ninety-one percent (91%) of all households who indicated to farm rely on rainwater. The largest share of households with some form of irrigation reside in Volta with 9% of households, urban Accra (9%) and Ashanti (7%).

The most frequently used sources of labour for farmers include the household's members (60%) and temporarily hired labour (52%), followed by male household members (12%) and female household members (10%) and *nnoboa*[26] (9%). While hiring of labour is significantly more common in the central, richer regions such as Brong Ahafo (76%), Ashanti (65%) and Eastern (62%), households in the northern regions refrain from spending money on additional labour and rather use household members and farming working groups. In the rural areas of Northern region, 88% of households use household members to work their land, followed by households in Upper East (74%), Upper West (62%) and Volta (58%). *Nnoboa* is also most common in the Northern region with 32% of households engaged in farming groups, followed by households in Upper East (27%) and Upper West (16%).

Households who reported to have cultivated in 2008, were asked to compare the 2008 harvest to the harvest the year before. Households were almost evenly split: 46% considered the 2008 harvest to be better and 41% considered it to be less, in terms of quantities produced. While more than half of households in both, Northern and Volta region and 63% in Upper West reported the 2008 harvest to have been less, 65% of households in the Upper East region thought the harvest in 2008 to have been better. The latter could be considered a good sign in view of the devastating effects of the floods on harvests in Upper East region the year before.

[26] *Nnoboa* is a working group of farmers who help each other work everyone's land.

Livestock: Livestock ownership is most common in the Northern Savannah zone where 68% of households reported to have some kind of livestock. Largest prevalence of livestock owners live in Upper East (79%), followed by Northern region (69%), Upper West (68%), and Volta region (59%). Most commonly owned types of livestock include goats, poultry, sheep and cattle.

6.2.3 The small-scale farmer and his/her constraints

Main constraints experienced by smallholder agriculturalists across the country are manifold and they all aggravate each other, spinning the vicious circle into heavy motion. Based on a combination of CFSVA findings and secondary data, most importantly from the Ministry of Agriculture, the few most prominent include:

Limited access to credit facilities: Most smallholder farmers rely on informal credit facilities which usually have limited or sporadic funding and the interest rates of which are high. Applying for credits with formal banks is impossible for most of them due to lack of collaterals. Farm assets are often of too poor quality and may not even be owned which is often the case with women farmers. Also, most smallholder farmers would have to apply for medium to long-term credits which formal institutions are unable or unwilling to provide due to lack of warranty. The Agricultural Development Bank (ADB) is responsible for financing agricultural production and investments but most of their credits and loans go to the bigger traders, large farmers and processing units who are in the position to pay back in a short period of time.

Lack of modernization, inefficient farming practices and lack of access to agricultural inputs: Mechanized farming is still rare and mainly operational on the southern large scale cash crop farms. Instead, traditional farming tools such as the hoe and cutlass, as well as bullock farming, remain common throughout the country. Only 10% of farming households can afford to purchase seeds for planting and only 20% use fertilizer (GLSS4). In fact, the CFSVA found that 16% of food crop farmers had taken a loan or borrowed money to purchase agricultural inputs. Almost half of the agro-pastoralists (45%) had debts to pay back for the same reason. With the intention to improve the soils fertility, bush burning is a widely applied strategy by a lot of farming households, however, research has proven for bush-burning to have devastating effects on the environment. In livestock rearing areas, such as in the Northern Savannah, bush burning often destroys livestock's fodder for the dry season.

Table 18: Actual average yield compared to potentially achievable yield of selected crops

Crop	Actual average yield 2007	Potentially achievable yield *with extension support and recommended technologies* (Mt/Ha)	% Yield increased
Cassava	12.8	48.7	280
Plantain	10.6	20.0	89
Yam	13.5	49.0	263
Cocoyam	6.6	8.0	21
Maize	1.5	6.0	300
Rice	1.7	6.5	282
Millet	0.7	2.0	186
Sorghum	0.7	2.0	186

Source: MoFA, SRID

MoFA undertook an interesting study in 2007, measuring the increase in average yields of selected crops under rainfed conditions on the one hand, and under more effective extension services and use of recommended technologies on the other. The results were striking as the table 19 illustrates. This research study reinforces the fact that the obvious and great potential for increased production needs investment.

Soil degradation: Sixty-nine percent (69%) of the total land surface of Ghana is considered prone to severe erosion, particularly in the savannah zone, coming at a cost of 2% of GDP (FASDEPII). Although the problem is in all the agro-ecological zones, the savannah regions are affected the most (FASDEP II). The cost at household level is

gradually decreasing productivity, which in turn has long-lasting effects on the household's welfare.

***Lack of irrigation**:* Less than 1% of arable land is under irrigation (FASDEPII), leaving literally all farmers dependent on rainfall, exposing them to frequent variations in the magnitude of rains during and between growing seasons. In fact, 91% of households indicated to solely rely on rainwater for cultivation. This tendency holds true when singling out the agriculturalists (food and cash crop farmers and agro-pastoralists): only 2% of them have access to irrigation facilities. Four percent (4%) reported to use some form of irrigation of whom the largest share of households live in the Volta region (12%). However, the usage of irrigation facilities in the CFSVA includes watering with buckets which may not be considered the most viable means to irrigate.

Extensive reliance on rainwater renders the country's agriculturalists highly vulnerable to droughts and dry spells, even if short, during crucial times of the cropping season. Furthermore, this endemic lack of irrigation facilities makes dry season farming almost impossible, further constraining farmers to branch out to alternative, more diverse crops. It will be important to better understand the underlying reasons why irrigation is so strikingly rare in Ghana, in order to best decide on potential interventions that could reduce farmers' vulnerability to adverse weather conditions. Underlying reasons could range from lack of resources, to lack of know-how or the terrain may not make it feasible.

***Lack of storage and drying facilities**:* Post harvest losses have been found to be 20-50% for fruits, vegetables, roots and tubers, and about 20-30% for cereals and legumes (FASDEPII). Due to insufficient storage and drying facilities, a lot of farmers are obliged to sell their products at post harvest time when prices are low and re-buy during the lean season when prices are high. The combination of limited income opportunities with high dependence on markets during certain times of the year in the rural areas, households' purchasing power is stretched which in turn is likely to negatively impacts on the quality and quantity of food they consume.

***Unclear land tenure system**:* Land in Ghana is predominately regulated by customary rather that statutory laws which often lead to land demarcations being blurred. Land commonly belongs to the community as a whole, while family heads, chiefs or *tindaanas* (traditional rulers) are often the custodians of that land on behalf of the people. Individual land ownership exists, but is not very widespread. Land ownership by women remains rare. Communal ownership of land and absence of demarcated grazing lands result in over-grazing and conflicts between livestock keeping and crop farming (FASDEP II).

***Female farmers**:* About half of the total female population (48.7%) in Ghana is active in the agricultural sector and yet they remain largely invisible to extension services, formal credit institutions. Women farmers are usually self-employed, with the majority being engaged in food production and trading of food crops. Trading activities, however, are not covered by most official credit programmes. Based on Ghanaian tradition women generally do not enjoy ownership over any significant or valuable assets, specifically productive agricultural assets, which in turn prevents them from applying for any formal credits, unable to offer the valuable collateral (FASDEPII).

Box 4: "… the broad strategy for the attainment of food security …

….is to focus at the national and agro-ecological levels on the development of at most five staple crops (maize, rice, yam, cassava and cowpea). MoFA's support to districts for food security will focus on at most two of the crops. Choice of crops will be based on comparative advantage, importance of the crops to people in the zone and availability of markets. The commodities will receive support in terms of irrigation and sustainable management of land, improved planting materials and appropriate mechanisation, to enhance productivity along the whole value chain…." (FASDEPII, page 25).

6.3 Human capital

The human capital concerns the demographic characteristics (household size, composition, life expectancy, fertility rate, etc.) and educational attainment that influence and determine the amount and quality of work and income available to the individual and household, which in turn influence overall welfare and ultimately food security.

6.3.1 Demographics, population and ethnic groups

The last population and housing census was carried out in 2000 and counted a population of 18.9 million people[27]. The latest population estimate calculates 22.9 million people.

The average population density is estimated at around 52 persons per km2 with the highest densities in the cocoa-producing areas, in the south and in Greater Accra Region. The most populous of the ten regions is Ashanti with approximately 20% of the population, followed by Greater Accra with 18% (2008 est.). The least populated regions include Upper West (3%) and Upper East (4%). More than half of the population (56%) resides in rural areas of the country. Domestic migration from rural to urban areas, and from the northern to the southern regions, has always existed. However, this trend has increased significantly over the past years.

The fertility rate is 4.4 children per woman and in combination with a declining death rate Ghana's population is naturally increasing at an average growth rate of 2.7%.

Table 19: Household characteristics by region

Administrative Regions	2008 est.	% rural	% urban	Average HH size	Married HH heads	Female headed HHs	Dependency %
Western	2.424.139	64%	36%	4.9	62%	27%	40%
Central	1.801.520	63%	38%	3.8	43%	40%	40%
Greater Accra	4.057.434	12%	88%	3.7	52%	33%	28%
Volta	1.822.054	73%	27%	4.6	55%	41%	46%
Eastern	2.267.772	65%	35%	3.8	52%	38%	41%
Ashanti	4.589.377	49%	51%	3.7	44%	41%	36%
Brong Ahafo	2.164.589	63%	37%	4.5	58%	26%	41%
Northern	2.165.606	73%	27%	6.3	84%	9%	44%
Upper East	983.575	84%	16%	5.5	81%	19%	43%
Upper West	624.861	83%	18%	4.7	72%	16%	45%
Total	**22.900.927**	**56%**	**44%**	**4.4**	**57%**	**31%**	**39%**

Source: CFSVA 2008

The country's population is very young: according to the 2000 census, 41.3% of the population is below 15 years of age while 5.3% were aged 65 years and over. According to the CFSVA, thirty-nine percent (39%) of households have dependents, which include children below 15 years and the elderly of 65 years and above. The mean number of dependents at household level is 2.0 with the highest mean in Northern of 3.3 dependents per family. Overall household size stands at 4.4 household members.

Thirty-one percent (31%) of households are headed by women with the largest share of female headed households in Volta and Ashanti (41%) and the lowest prevalence in Northern (9%). This may be influenced by the prevailing patrilineal kinship and inheritance system in the area which is dominant in the Northern Savannah zone.

[27] The next census is planned for 2010 preparations for which are already under way.

The unemployment rate was 11% in 2000 but more recent estimates put it as high as 20%[28]. The new national daily minimum wage rate for unskilled labour now stands at GHc2.65 per capita per day representing an 18% increase from 2007.

There are eight distinct ethnic groups in Ghana, which in turn are divided into smaller sub-ethnic groups coupled with a total of at least 46 languages and 76 dialects spoken. The most prominent ethnic group is the Akans to which almost half of the population belong, followed by the Mole–Dagbon (16.5%) and the Ewe (12.7%). Political and ethnic differentiation significantly contributes to an informal but real division between the northern and the southern regions of the country. Although ethnicity is very important to the Ghanaian population, tensions are contained. Some insecurity concerns exist in Bawku, Upper East region, however they are very localized conflicts, restricted to the area and are a result of chieftancy disputes rather than ethnic rivalries.

6.3.2 Migration

Ghana is well known for its large diaspora. Latest estimates amount to three million Ghanaians or 15% of the population living abroad, the majority in the USA and UK. Large amounts of private transfers from Ghanaians living abroad are common. Between January and September 2008, USD1.22 billion or 18.9% of total private transfers accrued to individuals living outside of Ghana.

Migration within the country is also very common and usually takes place in high numbers during the dry or lean season (between March and September). This is the time when agricultural activities are limited and when additional income sources, mostly sought in the southern regions, become crucial for the welfare of the family left behind in the north and for ensuring access to agricultural inputs for the next cropping season.

The CFSVA asked households whether any member had been away for more than three months continuously over the last 12 months. Fourteen percent (14%) of households indicated members had left. The majority of these households lived in the Upper East Rural, Northern Rural, Volta Rural and Western Rural.

The two most prominent reasons for members to have left included the search for work and education. Interestingly, searching for work, which inherently expresses the need for increased income, was mentioned most often by the poorest households and households living in the three northern regions, Upper East (64%), Northern Rural (42%) and Upper West Rural (45%). Education as a reason for migration, which may indicate households' access to the necessary resources, was the main driving force for migration among wealthy households (38%) and households living in the Coastal zone, predominately in the Accra area (50%). Only 15% of households in the Savannah Rural zone had migrated for educational reasons. Households' needs and opportunities greatly differ between the north and the south, which manifest themselves in people's migration patterns, among others.

In 89% of the communities visited, key informants reported community members to have left over the past 12 months to look for work or work elsewhere for 3 or more months. While out-migration in rural communities (90%) is higher than in urban areas (84%), it is similarly high, underlining the extent of internal movements.

The great majority of people migrating across the different agro-ecological zones, are young men and women between 15 to 29 years and they are mostly from agriculturalists households. In more than 80% of the communities, rural and urban alike, people were reported to have moved to (other) cities and towns. Only 8% of migrants from rural and none from the urban areas moved to a rural village. Migrants from urban areas rather

28 2008 World Fact Book.

travel to another country in search for work. This almost exclusive rural-urban movement shows that the type of work people are searching for is no longer the traditional seasonal, agricultural wage labour. In fact, across the three agro-ecological zones, only 49% of communities in the predominately rural Northern Savannah have reported migrants to have arrived in their community in search for work, compared to 77% of communities in the urban Coastal zone. In two-thirds of the communities visited, migrants were reported to send back support to their families.

6.3.3 Education

Education is an essential ingredient in ensuring the general well-being of a population and in strengthening people's resilience to shocks that could have potentially damaging effects on their livelihoods. Research has proven that a good educational status among all, both men and women, results in an immense decrease in their vulnerability to food insecurity. The CFSVA found that the higher the educational level of the household head, the better the family's food consumption, the lower the prevalence of malnutrition among children under 5 years and the more likely it is for their own children to currently attend school. The latter finding is evidence that the intergenerational cycle is in motion and should be invested in further.

Since enrolment rates are difficult to collect by means of a household survey, the CFSVA asked for children's attendance rate at primary, junior (JHS) and senior high school (SHS) level. Attendance rates should therefore be considered a proxy for formal enrolment. In the analysis, specific attention was given to the dis-aggregation of attendance rates by the ten administrative regions, rural and urban areas, the sex of the child and the wealth status of the household.

The following analyses at each educational level include children who fall into the respective school age range (i.e. net attendance).

Primary School Net Attendance Ratio (6 – 11 years)

National & regional level: At national level the percent of primary school attendance of children between six to eleven years is 73% compared to 75% identified by the MICS 2006. Lowest attendance rates were found in Northern Rural (61%), in Greater Accra Rural (65%) and in Eastern Rural (66%). Upper East Rural and Upper West Rural have surprisingly high attendance rates of 78% and 71% respectively which may be a reflection of extensive advocacy efforts by the government and its DPs to increase universal access to basic education specifically in those areas that used to have significantly lower rates in the past. Highest attendance rates are still found in Accra Urban (86%) and Ashanti (79%), possibly an indication of greater wealth enjoyed by the people and the availability and easier access to primary schools. The Ashanti region also has the highest number of primary schools (326) benefiting from the national school feeding programme, followed by Greater Accra region with 284 schools.

Primary Schools	
Regions	No.
Ashanti	3.084
Eastern	2.300
Northern	1.929
Brong-Ahafo	1.908
Western	1.878
Central	1.746
Volta	1.718
Greater Accra	1.634
Upper East	617
Upper West	501
Total	17.315

Source: Ministry of Education, Science & Sports, Education Statistics 07/08

Twenty-seven percent (27%) of children of primary school age were found not to attend primary school at the time of the survey. Nineteen percent (19%) of whom were still attending preschool and 8% were not attending any school at all. Significant regional differences were found with regards to primary school age children not attending any

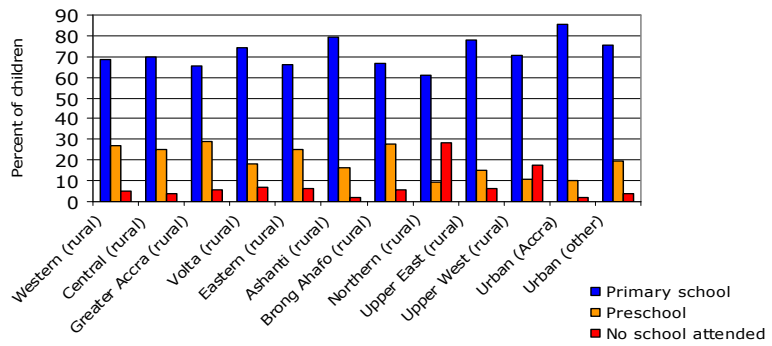
school. The highest rate was in Northern Rural (28%) and Upper West Rural (18%) compared to only 2% in Accra Urban and Ashanti Rural.

Urban and rural areas: In urban areas attendance rates are higher (78%) than in rural areas (70%). The same trend can be seen with regards to the percent of children not attending any school with only 3% in urban areas but 10% in rural areas. The larger prevalence of non-attendance in rural areas may be a reflection of the fewer number of schools available, longer distances to reach them29, bad infrastructure, etc.

Wealth of households[30]: The wealth status of the family of children, continues to influence their primary school attendance, despite the capitation grant that is to provide poor children with the same educational opportunities that rich children enjoy. While only 62% of children from poor, 88% of children from better off households are attending primary school, a rate which is surprisingly low as well. Non-attendance of primary school age children does not exist among the rich households, while 20% of poor children in that age category are not attending any school.

Gender Parity: The same percent of boys and girls of primary school age are attending primary school, meaning that gender disparities, disfavouring girls, have been eliminated at this educational level. The rate of boys and girls remains the same even when further disaggregated by the wealth status of the child's family.

Figure 10: School attendance of children between 6 - 11 years



Source: CFSVA 2008

Junior High School (JHS) Net Attendance Ratio (12 to 14 years):

National & regional level: Overall net JHS attendance of children between 12 and 14 years is 29% while 62% of them are still going to primary school. There are stark regional differences: JHS attendance is lowest (14%) and non-attendance of any school is highest (15%) in the Northern Savannah compared to the Coastal zone where 39% of children attend JHS and only 4% do not. Largest percent of children not attending any school live in the Northern Rural region (30%).

Urban and rural areas: There is also a very significant urban-rural divide regarding JHS attendance. Children in urban areas are more likely to attend (41%) than their fellow students in rural areas (22%). Non attendance is particularly low in the rural areas in the Savannah zone with only 11% of

[29] According to the Ghana Statistical Service (GSS), access to basic education is defined as having a facility within one kilometre radius from ones place of residence.
[30] Wealth is one of the proxy indicators of food insecurity that was created for this specific survey, details of its methodology can be found in the annex

children going to JHS, while 70% are still in primary school and 17% are not attending any school at all.

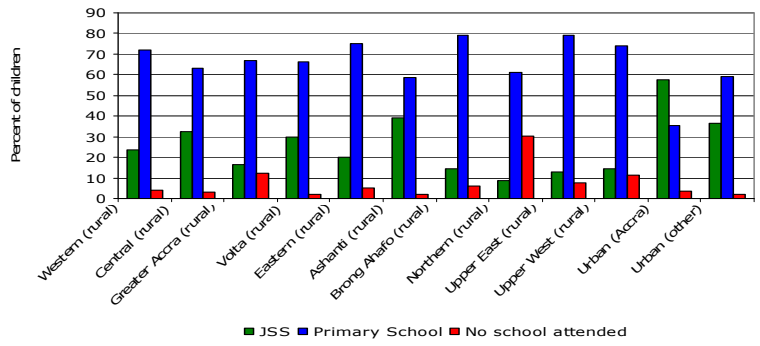
Wealth of household: JHS attendance is lower for children coming from poor households (14%) and increases with the increase of wealth, reaching almost 50% with the richest households. The remaining half of rich children is still attending primary school however, non attendance is significantly low at 2% compared to children from poor households where 14% are not attending any school at all.

Gender Parity: At national level there is no difference in the JHS attendance rate of boys and girls. However, significant differences were found at regional level, but contrary to expectations these findings pin point to higher attendance rates of girls than boys. In Northern Rural, for example, 13% of girls compared to 5% of boys and in Upper East Rural 19% of girls and 7% of boys were attending JHS. Girls' JHS attendance in rural areas was also higher than that of boys.

Junior Secondary School	
Regions	No.
Ashanti	1.828
Eastern	1.348
Central	1.239
Greater Accra	1.214
Western	1.081
Brong-Ahafo	1.019
Volta	963
Northern	486
Upper West	301
Upper East	263
Total	9.742

Source: Ministry of Education, Science & Sports, Education Statistics 07/08

Figure 11: School attendance of children between 12 - 14 years



Source: CFSVA 2008

Senior High School (SHS) Net Attendance Ratio (15 – 17 years):

National & regional level: The attendance ratio at SHS level for children between 15 – 17 years stands at 14% at national level. Almost half of the children (47%) in that age range still attend JHS, 20% attend primary schools and 18% are not attending any school at all. It appears that the higher the educational level, the slower the speed with which children progress through the grades which may be due to frequent repetitions, flaws in the educational system, etc. Highest SHS attendance rates can be found in Accra Urban (34%), the other urban areas (21%) and Western Rural (18%). Lowest SHS attendance rates are in Northern Rural, Eastern Rural and Upper West Rural with less than 5% of children between 15 to 17 years.

Urban and rural areas: SHS attendance is much higher in urban (24%) than rural areas (7%). This is a reflection of the vastly skewed distribution of SHS schools in those areas, increased poverty levels, poor infrastructure, as well as the tendency for qualified secondary teachers to refuse postings to rural areas.

Wealth of household: SHS attendance is closely related to the wealth status of the household: only 3% of children from poor households attend SHS compared to 34% of children from rich households.

Gender Parity: First clear differences between boys and girls school attendance can be seen at the SHS level, although data should be analysed with care, given the rather small sample size. While

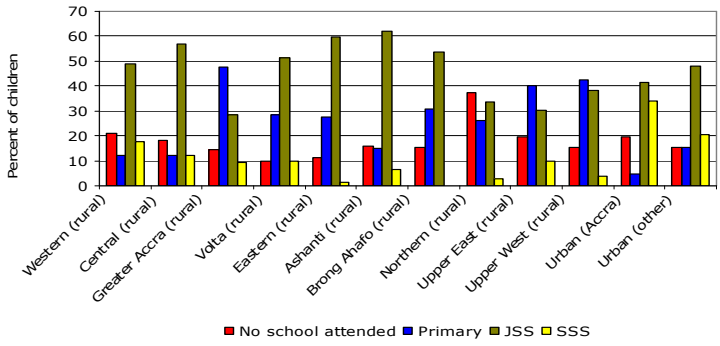
national SHS attendance for both boys and girls stands at 14%, non attendance is more common among girls (22%) than boys (15%). This difference is further pronounced at regional level, whereby 55% of girls living in the Northern Rural region do not attend SHS, compared 25% of their male counterparts in the same region.

It appears that Ghana is gradually moving towards achieving the MDG2 by achieving 100% universal primary education by 2015. According to the CFSVA results, primary school net attendance of children between 6 and 11 years stands at 73% in November 2008 at national level. The rates, however, hide the fact that going to school appears to remain a luxury that predominately well-off families living in the south and in urban areas can afford. It will be important to better understand why a large percent of children still do not go to school despite the successful introduction and recent expansion of the capitation grant which targets primary schools.

Senior Secondary School	
Regions	No.
Ashanti	120
Eastern	97
Volta	86
Central	74
Brong-Ahafo	72
Greater Accra	65
Western	46
Northern	44
Upper East	23
Upper West	19
Total	646

Source: Ministry of Education, Science & Sports, Education Statistics 07/08

Figure 12: School attendance of children between 15 - 17 years



Source: CFSVA 2008

Key informants mentioned the following reasons why children missed school for one month or more continuously during the current school year or are not attending any school at all:

- inability of parents to fund the child's education (66% of communities)
- the child's lack of interest in going to school (98% of communities)
- and the need to use children for work (67% of communities)[31].

Additionally, the three most serious schooling problems in communities included:

- the lack of school buildings (36% of communities)
- lack of books and stationery (32% of communities)
- and insufficient furniture and equipment (32% of communities).

According to the MICS 2006, of all children starting grade one in primary school, the majority (90%) eventually reach grade five. This rate includes children who repeat grades. However, the rate with which children progress through basic education points to serious bottlenecks at both national and household level which hinder the self-fulfilment, personal advancement and capacity development of young people in Ghana. Although the transition from primary to junior high school was made in almost 98% of the cases, only 24% of the children of primary school completion age (i.e. 11 years) were attending the last grade of primary education, the remaining percent were older. The speed with which children complete primary school is very slow, with 19% of children of primary school age (6 – 11 years) still attending kindergarten and 62% of children of junior high school age (12 - 14 years), still attending primary school. The likelihood for a 17 years old child in primary school to advance to secondary, let alone, tertiary education can be assumed to be slim. Furthermore, in rural areas the transition from primary to secondary school is made even harder, if not impossible for most, when only 63% of communities reported to have a JHS, compared to urban communities of which 94% had a JHS.

[31] Results from community interviews and supported by household questionnaires.

Table 20: Non-attendance of children of school going age

	Primary School	Junior Secondary School (JSS)	Senior Secondary School (SSS)
Appropriate school age	(6 – 11 yrs)	(12 – 14 yrs)	(15 – 17 yrs)
Attending appropriate school	73%	29%	14%
Attending previous school	19%	62%	47% JSS 20% Primary
Not attending any school	8%	9%	18%

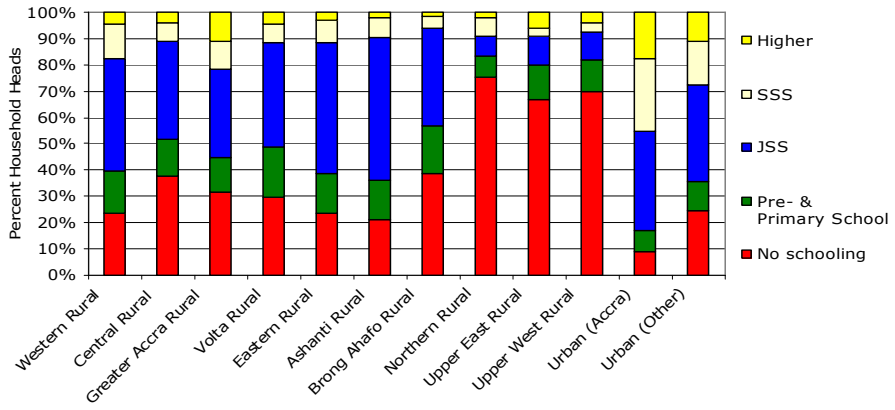
Source: Ministry of Education

Education among women and household heads

The contribution of girls' and women education in the national effort to reduce poverty and ensure food security has been widely acknowledged (at a policy level). As a result, Ghana has made substantial success in promoting gender equality at primary and junior high school levels as a result of extensive advocacy efforts. In fact, the MICS 2006 found the gender parity index for primary and JHS to be high and almost the same for boys and girls (1.00 and 0.99). However, disparities between boys and girls school attendance remain and they become particularly evident at the age of 15 years and above, i.e. at SHS level. For girls this is a delicate age as social expectations to get married, bear children and generally take over more responsibilities in the household conflict with the need and desire to further their educational level.

The CFSVA collected information on the highest educational level attained by the household head. At national level 36% of household heads indicated to have completed JSS, 30% had no schooling at all, 13% completed SSS, 12% completed primary school and 8% had a higher educational background beyond SSS. Similar to the above mentioned literacy levels, geographic differences are striking: in Northern rural 76% of household heads had no schooling at all, followed by Upper West rural with 70%, 67% in Upper East compared to 9% of uneducated household heads residing in urban Accra.

Figure 13: Percent of household heads by highest level of schooling attained and by region



Source: CFSVA 2008

It appears that women heading households are less likely to have received any schooling in their lifetime than men heading households. This is in line with adult literacy levels (15 to 24 years) identified by the MICS (2006) with 68% literate women compared to 75% literate men at a national

level. Large discrepancies appear in the rural areas of the country with just about half of the female population literate (55%) compared to 64% of the men. Literacy levels among women drastically decline with age: while 71% of girls between 15 to 19 years of age are able to read and write, only 64% of women between 20 to 24 years can.

To further underline the close link between education and food security, the CFSVA related the highest educational level attained by the household head to the food security and nutrition status of the household. Food insecure households and malnourished children are more likely to have household heads who have never received any schooling at all. Furthermore, it appears that households engaged in agricultural activities are particularly prone to have household heads who have none or a very limited educational background (see section 6.7.3).

6.3.4 Health

Health and food security are closely intertwined and stand in a bidirectional relationship, influencing each other. While poor health can impair an individual's capacity to contribute to sustaining the livelihood of a household, not consuming sufficient and nutritious food over an extended period of time (being food insecure), increases susceptibility to ill health.

A health vulnerability assessment was part of this survey and explored the areas and livelihoods most vulnerable of adverse health impacts, accessibility to health facilities, prevalence of child disease, maternal health, caring and feeding practices and nutritional status. The findings can be found in section 7.

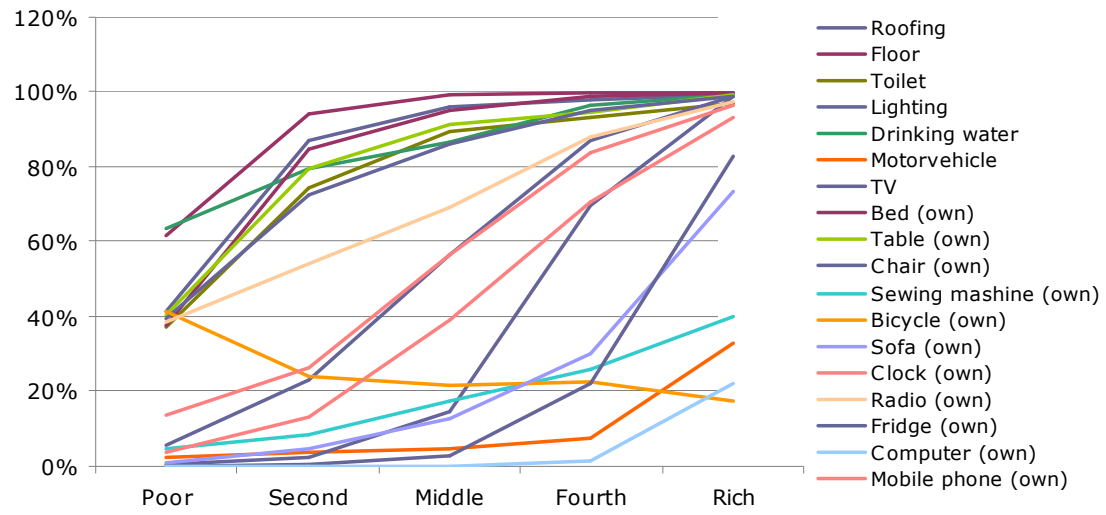
6.4 Physical capital

Physical capital refers to all productive and non-productive assets a household owns. They include the household's shelter, water supplies and sanitation facilities, as well as tools and equipments necessary for the livelihood the household engages in. The more durable and stable these location-specific assets, the thicker the "buffer" that protects household members against shocks, such as high food prices, floods, droughts, the death of a household member, etc. Physical capitals determine households' wealth and wealth is a proxy for households' coping capacities to fend off threats or risks that could have potentially detrimental effects on its welfare and food security status.

Hence, households were asked whether they own a number of different assets. They included 10 productive assets (i.e. agricultural tools and machines such as cutlass, tractor, plough, etc.), 24 non-productive assets (sofa, bed, fridge, etc.), household amenities (i.e. types of water supply, toilet and sanitation facilities, roofing material, etc.) and other assets such as the number of rooms available to the household, land and livestock ownership, etc.

Most common non-productive assets owned by more than half of the sample included a bed (83%), table (81%), chair (78%), radio (69%) and mobile phone (55%). Most common productive assets included the cutlass (72%), hoe (52%), axe (24%) and a sewing machine (19%).

Figure 14: Prevalence of wealth quintile components by wealth quintiles



Source: CFSVA 2008

Naturally, asset ownership varies significantly between regions. Ownership of electronic devices such as a freezer, refrigerator, washing machine as well as cars and trucks are more commonly owned by households residing in the southern, more urbanized and wealthier regions. Agricultural assets, as well as bicycles and scooters are predominately owned by households from the poorer, predominately rural regions of the country.

6.4.1 Household Wealth Index

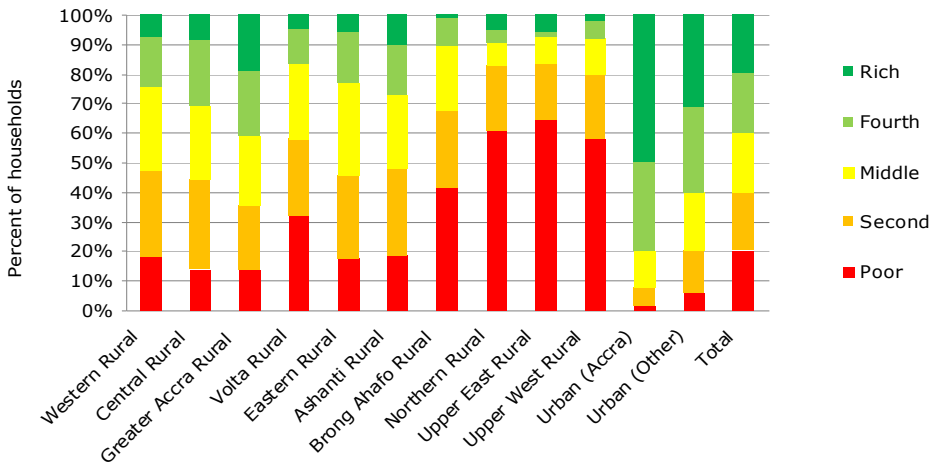
Wealth refers to the value of all natural, physical and financial assets owned by a household. A wealth index was created based on the methodology of the Demography Health Survey (DHS) to ensure comparability between different surveys. The index is not meant to be a measure of the entire wealth of the household (natural and financial assets, for example, are excluded) but rather used as a proxy for it. The components of the wealth index typically include household amenities and non-productive items that, if owned, are assumed to reflect relative wealth independent of the livelihood the household engages in. In other words, agricultural tools and machines, fishing nets and boats, etc. were excluded from the asset list on which the index is based. For the full list of items included and a detailed explanation of the index's calculation, please refer to annex 9.

The distribution of wealth across the ten regions mirrors the levels of poverty identified by the GLSS V (2005/2006) despite the different methodologies used to calculate the indicator. The CFSVA analysis shows that the share of households in the poorest wealth quintile is three times as high in Upper East Rural (64%), Northern Rural (61%) and Upper West Rural (58%) compared to the share at the national level (20%). About 80% of the population in each of the three regions fall into the two lowest wealth quintiles. In Brong-Ahafo (41%) and Volta Rural (32%) more than half of the households fall into the bottom two quintiles. Brong-Ahafo and Volta being on fourth and fifth place is similar to the GLSSV (2005/2006) results as well. Wealthiest regions include Western Rural, Central Rural, Greater Accra Rural, Eastern Rural and Ashanti Rural with less than 20% of households considered poor.

Households living in urban areas are generally much wealthier than their counterparts in the rural areas. While more than half of the rural population (58%) falls into the two lowest wealth quintiles, only 17% of the urban population does. Similarly, 66% of the total urban population is considered rich, while only 20% of the rural population is.

The prevalence of poorest households in Accra Urban is 2% and 6% in all the other urban areas in the country combined. There appear to be indications of regional differences whereby urban areas in the Northern Savannah zone seem to have larger shares of poor households than urban areas in the Forest and Coastal zones. Due to the small sample size in the urban areas, however, these tendencies will have to be verified before drawing any firm conclusions.

Figure 15: Wealth Index Quintiles by regions



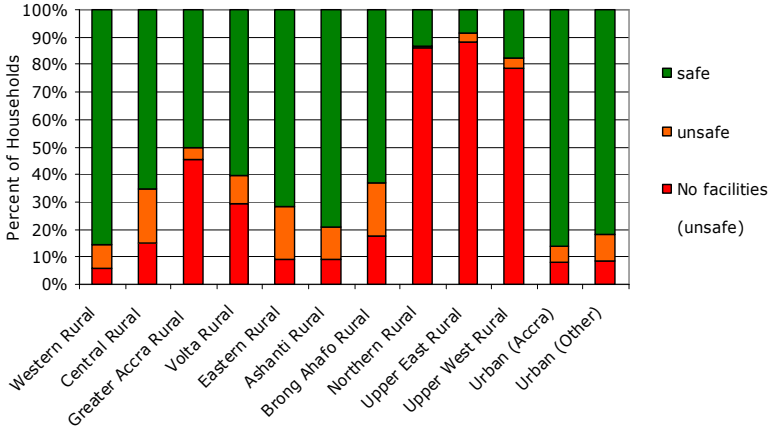
Source: CFSVA 2008

6.4.2 Sanitation facilities and drinking water[32]

Household amenities, including water and sanitation facilities, housing and roofing structures and materials, as well as sources of lighting are crucial components of the wealth index and are important indicators of socio-economic status that can help identifying the most vulnerable in the population. In addition to providing an indication of households' relative wealth, households' ownership patterns of such household assets are essential in a food security analysis as they provide an insight into potential health and nutrition implications.

At national level improved sanitation is accessible to 68% of households, indicating a slight improvement since the MICS 2006 which recorded 61% of the population to have access to safe sanitation facilities. However, discrepancies between wealth groups persist: 91% of the better of households are using improved sanitation facilities, compared to only 33% of poor households. Ten percent (10%) of the latter are still using public or shared latrines, buckets, pans, open pit latrines while 58% of them is not using any facilities at all compared to 3% of the rich population.

Figure 16: Percent of households using safe and unsafe sanitation facilities by region



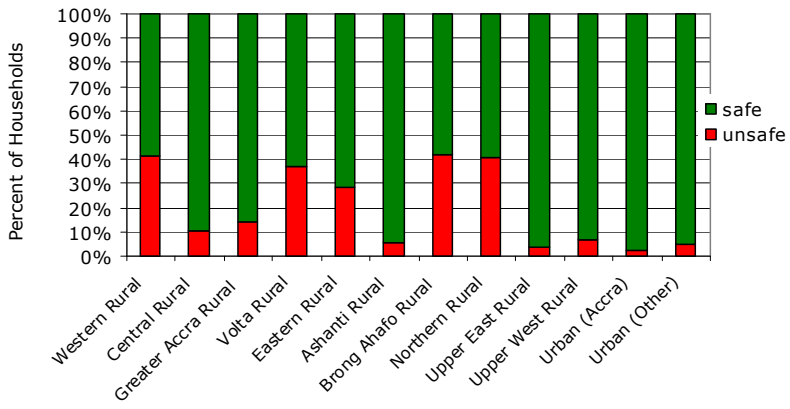
Source: CFSVA 2008

[32] Based on the UNICEF definition of improved and unimproved drinking water sources and sanitation facilities, except bottled water which the CFSVA team classified as improved.

Similar trends can be found between the regions: for example, only 9% of the population in Upper East region is using improved sanitation, compared to 79% in Ashanti. The situation also changes drastically from urban to rural areas across the country whereby even in the wealthier regions such as Greater Accra, 50% of households in the rural areas are using unsafe toilet facilities.

Regarding access to safe drinking water, findings highlight similar differences between wealth groups, regions and locations. Overall, 84% percent of the population is drinking water from sources considered safe. However, almost all of the rich households (98%) have access to improved drinking water sources, while 63% of poor households are still drinking water from unprotected wells, springs, rivers or ponds. The largest share of households with unsafe sources of drinking water were found in the Northern Savannah zone (26%), compared to Forest (15%) and Coastal (10%). See figure 17.

Figure 17: Percent of households using safe and unsafe sources of drinking water by region



Source: CFSVA 2008

The relatively higher prevalence in the Northern Savannah is mainly due to 41% of households in the Northern region using unsafe drinking water. In line with the MICS (2006) findings, Upper East and Upper West are faring extremely well in terms of access to safe drinking water with 96% and 94% of households respectively. Following Northern region, the usage of unsafe sources of drinking water is also relatively high in Brong Ahafo with 42%, Western region with 41% and Volta with 37% of households. Similar to sanitation facilities, there are clear differences between rural and urban households: 96% of urban households drink safe water, compared to only 75% of rural households.

6.4.3 Housing, tenure and source of lighting

At national level, half of Ghanaians (51%) reside in rooms of compound houses which are more common among the rich (48%) than the poor households (32%). Twelve percent (12%) of the population live in detached huts which are characteristic in the rural areas and more common among the poor (32%) than the rich households (2%). Roofing materials also differ between wealth groups. While corrugated iron sheets constitute the roofs of the majority of rich households (76%), poor households' roofs are predominately thatched (49%). Thatched roofs did not exist among the rich households. Cement is the most common floor material among both, the poor (60%) and rich households (49%). However, 37% of poor households have floors made of earth/mud, while 25% of the rich households have woollen or synthetic carpets.

Last but not least, poorer households are more likely to own their homes (63%) which are predominately made of inexpensive non durable materials (i.e. mud or earth) or live for free (31%). Better of households, on the other hand, are more likely to rent (41%) or else own (34%).

Almost all rich households (99%) are using improved lighting sources, while 93% of poor households either have no lighting at all or are using oil, kerosene or gas lanterns, candles or firewood.

Wealth and female headed households

Interestingly, female headed households are less likely to use unsafe sanitation facilities than male headed household. While 61% of male-headed households were found to use unsafe facilities (of whom one-fourth did not use any facilities at all, only 37% of female headed households did.

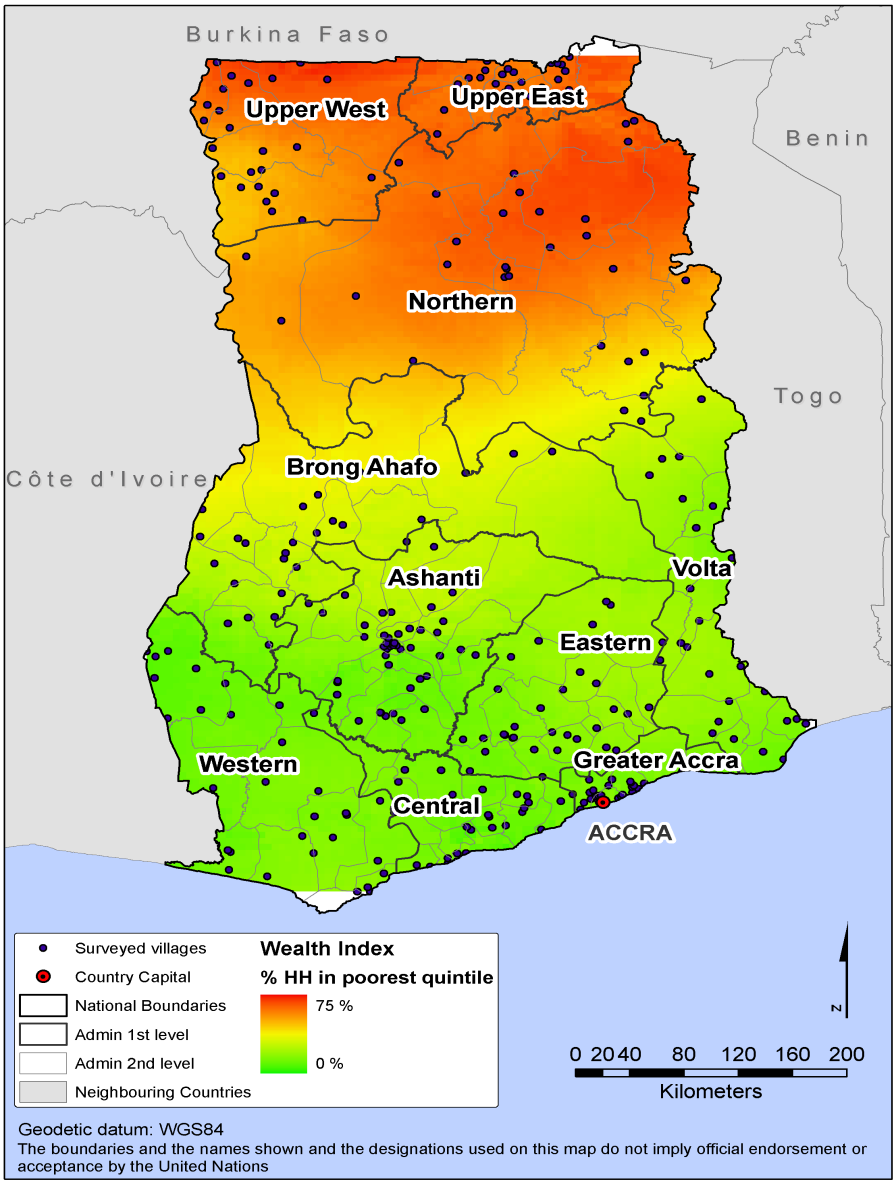
Similar trends favouring female headed households were found with regards to the quality of drinking water. Ninety-percent (90%) of female headed households are drinking from safe sources compared to 81% of male headed households.

Looking at overall asset wealth among male and female headed households as determined by this study, there does not appear to be a difference between them. The same share of poor households (40%) was found among male and female headed households.

The GLSSV 2005/06 already found significant poverty reduction among female headed households from 43% in 1991/92 to 35% in 1998/99 to 19% in 2005/06.

The Wealth Quintile map (map 4) illustrates the geographic distribution of the five wealth quintiles in the country. The northern regions of Ghana contain the largest share of households that fell into the lowest wealth quintile. This share decreases gradually from north to south. The methodology of how this map was created, as well as the "error" map which shows the standard error of the predicted values in the various locations, can be found in annex 8.

Map 4: Wealth Quintile Map



Source: CFSVA 2008

6.5 Economic Capital

Economic capital includes a household's financial flows, such as income and expenses and access to credit which are used to maintain, strengthen or change livelihood strategies.

6.5.1 Household participation in markets

Knowing where households get their food from they consume provides an insight into the level of stability, reliability and sustainability of the access to their food.

Households were asked to indicate the main source for each food item they consumed over the last seven days. Options included own production, hunting/fishing, gathering, borrowed, market purchase (either with credit or cash), exchange labour/items for food, gift, begging or food aid. It is important to note that the following findings are only valid for the time the data was collected, i.e. November 2008. While they provide a general, very informative picture of how people appear to access their food, the specifics may change during different times of the year, for example the lean season when market purchase may increase even further.

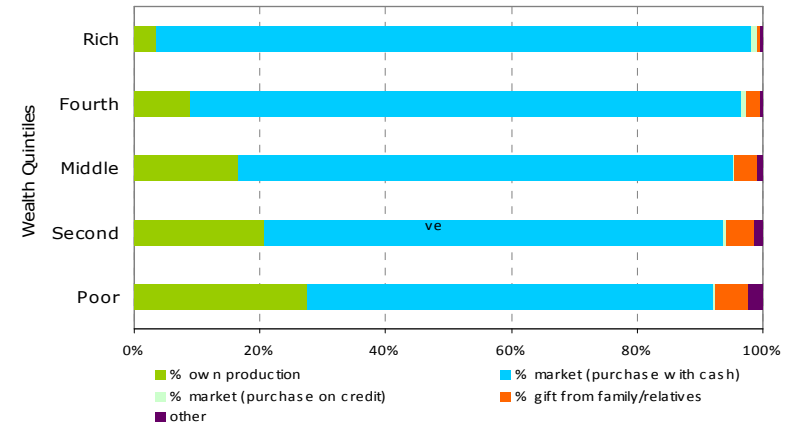
At national level and only at the time of the survey, 80% of households reported to have purchased their food in the market, 15% said it came from their own production and the remaining 5% of households borrowed it or purchased it on credit or received it as gifts or as food aid.

Almost all households in urban Accra and Greater Accra rural are relying on market purchases (99%). Immediately outside of the Accra area, own production as a food source starts to become more prevalent, even in other towns and cities, underlining the importance of food crop production everywhere. The smallest percent of households relying on market purchases was found in Brong Ahafo (54%) which is possibly the result of more efficient farming practices in that region. Since 2000 until today, Brong Ahafo has had the highest annual food crop production of the ten regions with an average of five million MT per year.

The significant role of markets in an analysis of Ghanaians' food security and vulnerability status cannot be overemphasised. Hence, the impact of market and price volatilities can be felt across the country, different livelihoods and by the rich and poor alike. A detailed analysis of the impact of recently increasing food prices is discussed in section 7.

Interestingly, own production is the second most important food source for all households, even if to varying degrees. This finding is in line with the contribution of food crop production to overall household income across all livelihoods. However, it appears that increased reliance on own food production, goes along with increased poverty at the same time.

Figure 18: Percent of households by wealth quintile and sources of food

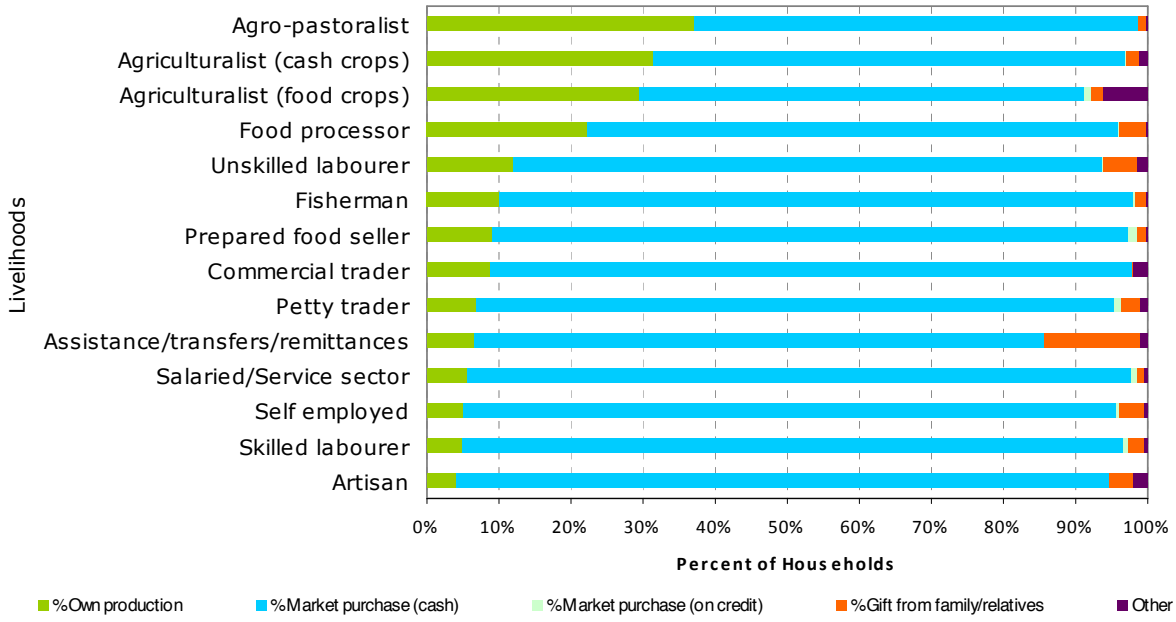


Source: CFSVA 2008

Livelihoods differ in the way they access food. While market purchases are the dominant food source for all, a minimum of 30% households engaged in each of the three farming livelihoods - food crop agriculturalist, cash crop agriculturalist, agro-pastoralist - get their food from their own production, which is surprisingly

low, given that the survey was conducted during the harvest period. It may be that the majority of farming households had already sold their crop or refrain from consuming it to sell at a later stage.

Figure 19: Percent of households by livelihoods and by different sources of food



Source: CFSVA 2008

The third most common source of food is gifts from family and friends followed by begging, exchange of labour for food and food aid. They all gain importance with increased poverty.

Food sources and female headed households
There was no noteworthy difference between the main sources of foods for female- and male-headed households.

Where do people sell their agricultural produce?

Due to insufficient storage and drying facilities and lack of credit, a lot of farmers are obliged to sell their products at post harvest time when prices are low and re-buy during the lean season when prices are high. The combination of limited income opportunities with high dependence on markets for food purchases, rural households' purchasing power is stretched which in turn is likely to negatively impact on the quality and quantity of food they consume.

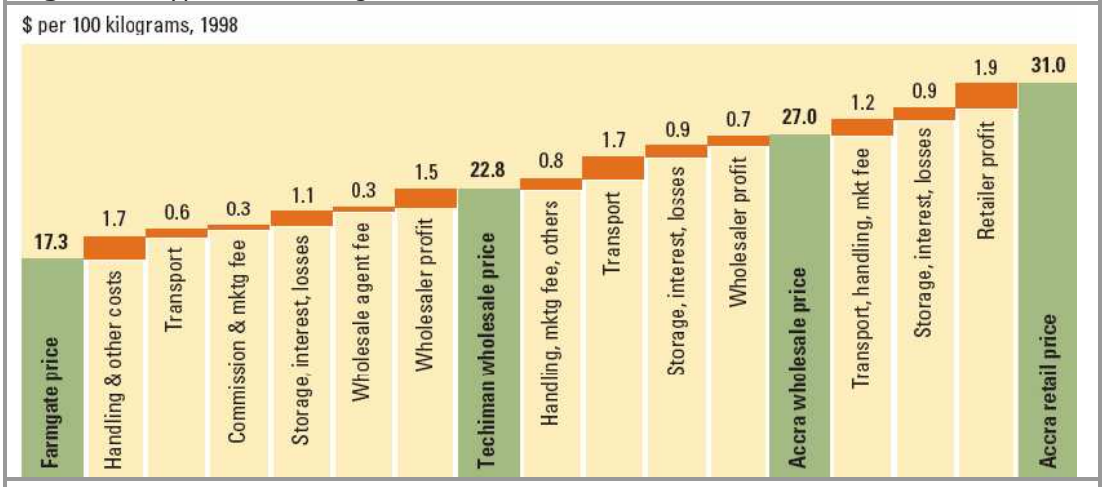
Market centres for food are not well integrated into rural areas because of limited road access, poor road conditions, a one-way trade direction from traders to communities. This one-way trade direction compensates for the communities' limited access to markets but transaction costs tend to be high, which further constrains the already limited purchasing power of the rural population living in remote areas.

At the same time, there appears to be a "remarkable absence of large traders"[33] of food products in Ghana who should provide an output market, as well as storage facilities, for example. Instead, market chains for high value cash crops, such as for cocoa and timber, have been established or expanded. The food crop chain, however, has been largely neglected. Based on qualitative

[33] FAO, Rapid appraisal in response to high food prices (2008).

information, IFPRI (2007) calculated that maize which originates close to a major regional market, transaction costs along the maize chain may be equivalent to 80% of the farmgate price. In other words, consumers in Accra pay almost twice the price that farmers receive. IFPRI recommends strengthening the food crop chain which is large in volume and involves a significant number of smallholders, because it has strong linkages to economic growth and poverty reduction.

Figure 1—Typical marketing costs in the Ghanaian maize value chain



Source: IFPRI, Discussion Brief 3: Personal communication from Natural Resources Institute, 2006, as published in World Bank 2007: 119.

The inefficient market infrastructure which is an endemic problem in the country further supports traditional, low risk farming practices that leaves productivity stagnant. IFPRI argues that even latest technologies, machineries, mass spraying of crops, etc. do not bring the expected high returns if markets are not provided. And these extremely limited opportunities to commercialize farm produce and participate in the market chain are factors that are believed to contribute the higher incidence of poverty among crop farmers (GLSS V).

Unfortunately, the agricultural data did not allow for a detailed analysis on net-buyers and net-sellers and their potentially different socio-economic and food security status, their location, etc. However, on the basis of some very simple analyses, 39% of households indicated to buy more maize than sell it until the next harvest. Only 27% said they were planning on selling more than buying. Regional differences were stark with only 9% of farming households in the Northern region selling more maize, compared to over half of the farmers in Brong Ahafo (56%), Ashanti (55%), followed by Eastern (33%).

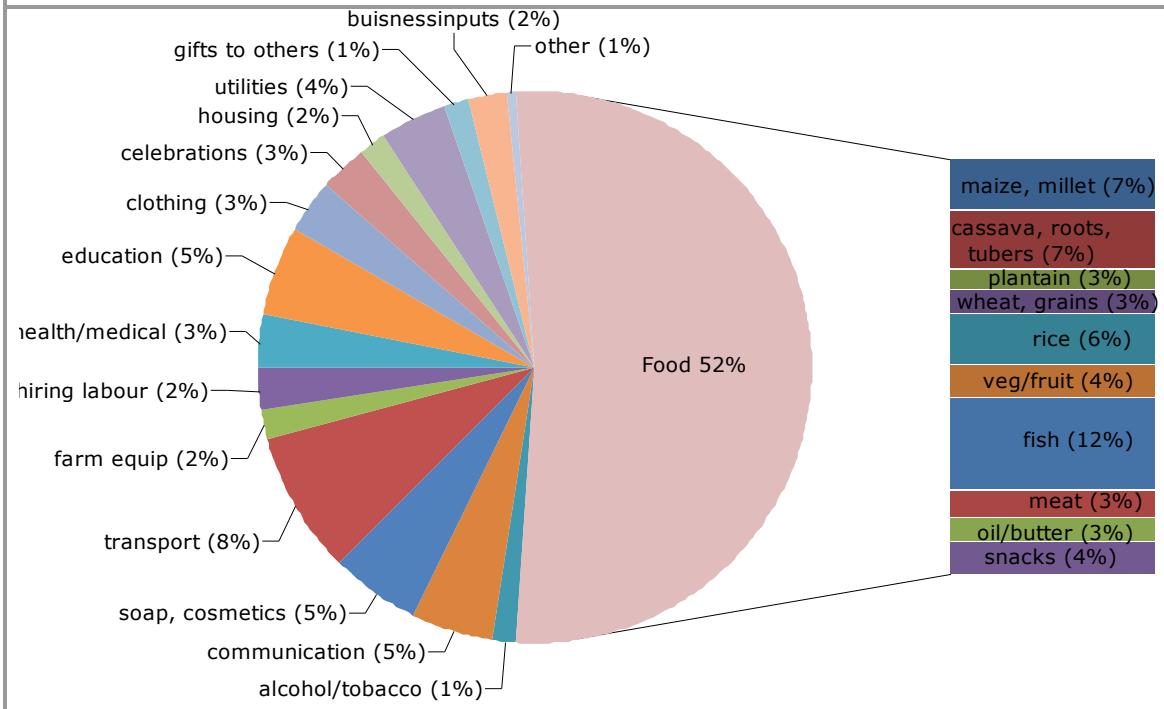
6.5.2 Food and Non-Food Expenditures

Household expenditure patterns reflect relative wealth and they serve as a proxy indicator for households' food access. The CFSVA therefore asked households to provide estimates of recent and medium to long-term expenditures (in the form of cash, credit or both) on a number of food and non-food items and services. Recent expenditures were estimated for a list of eleven food items, as well as meals, snacks and beverages consumed outside of the home. Non food items included communication, transportation and hygienic articles, like soap. The recall period for expenditures on those items was one month, since households were assumed to spend money on those items more frequently. A six months recall period was applied for items and services that households are likely to spend money on less frequently. That list included housing expenditures, health and medical expenses, clothing, farming equipment, etc.

As households expenditures are often over- or underestimated, all absolute values provided in this section are only indicative and should be treated with care.

At national level, 52% of households income is spent on food and 48% spent on non-food items in one month. Fish is the largest food expenditure (12%) followed by maize and millet (7%), roots and tubers (7%) and rice (6%). This is in line with Ghana being known as the largest fish consumer in the West Africa region (FAO) and may speak for a good quality, protein rich diet. People spend least on oil, meat, wheat and plantain.

Figure 20: Average monthly food and non-food expenditures at household level

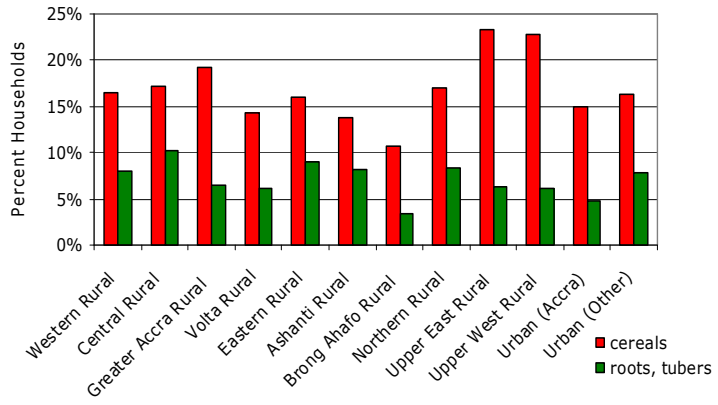


Source: CFSVA 2008

Cereals34, roots and tubers35 account for 23% of total monthly food expenditures (excluding own production) for an average Ghanaian36 with the larger share on cereals (16%). There are, however, quite substantial regional differences as illustrated in the graph below. Households living in Upper West and Upper East spend the largest share on cereals (23%), followed closely by Greater Accra (19%).

[34] Maize, millet, wheat, rice and other grains
[35] Cassava and other roots and tubers
[36] The GLSSV 2005/06 calculated 28% as share of total food expenditures on cereals, roots and tubers, however, their analysis included the consumption of own production.

Figure 21: Percent of total monthly food expenditures on cereals and tubers by region



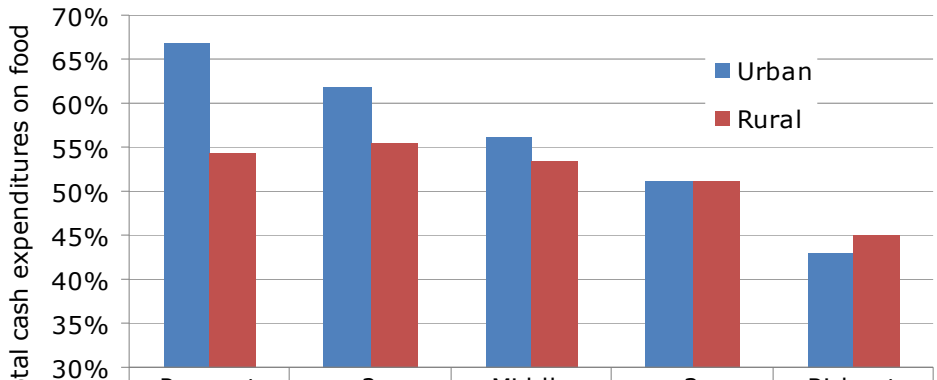
Source: CFSVA 2008

Largest non-food expenditures are on transportation (8%), followed by education (5%), soap and cosmetics (5%) and communication (5%).

As usual, the national average commonly hides important findings when disaggregated. Poor households were found to spend a larger share of their income on food (55%) than rich households (43%). However, this does not mean that the actual cash amount spent by poor households is higher, in fact, the contrary can confidently be assumed. Overall, there is no striking difference in the types of food rich and poor households spend money on. However, there does appear to be a tendency for the poor to spend more on maize and millet (9%), predominately consumed in the northern regions, compared to their rich counterparts (4%). Interestingly, expenditures on fish remain high among the poor households (13%), in fact, they are higher than among the rich (8%).

Similar differences were found between households living in urban and rural areas: Combining a poor standard of living with an urban environment immediately shoots up a household's share of expenditures on food to 67%. Part of the reason is the lack of "buffer" or "safety-net" that own food production provides for the poor households in rural areas, even if minimal, seasonal and not sufficient for an entire year. This is a very important finding that needs to be kept in mind when analysing the potential impact of high food prices on the level of food security among households living in towns or cities.

Figure 22: Food Expenditures by Wealth Group and Urban/Rural



	Poorest	2	Middle	3	Richest
Urban	67%	62%	56%	51%	43%
Rural	54%	55%	53%	51%	45%

Source: CFSVA 2008

There are no significant differences in the share of food expenditures across livelihoods, although a few tendencies were found that are worth mentioning and may call for further research. Comparatively speaking, highest shares of expenditure on fish (up to 15%) are found among the group of livelihoods that were previously identified as having very low GDP per capita: the

agriculturalists, unskilled labourers, food processors and households dependent on external assistance/remittances.

Regarding non-food expenditures, it also appears that livelihoods considered more rich with stable salaries, have lower shares of expenditures on health (2%) than livelihoods that are poorer and with unstable salaries (up to 4%), i.e. the agriculturalists, households depending on external assistance/remittances, agro-pastoralists. It could be the case that households in the former group are less prone to illnesses due to higher standards of living, etc. or, even if sick, can draw from the benefits of the National Health Insurance System (NHIS). In fact, registration with the National Health Insurance System (NHIS) was much more prevalent among the better off (70%) then the poorer households (32%).

Similar tendencies were found with regard to shares of expenditures on education. While agriculturalists, food processors and unskilled labourers barely spend 3% of their income on education, households with stable salaries and commercial traders spend more than double (8%) on education.

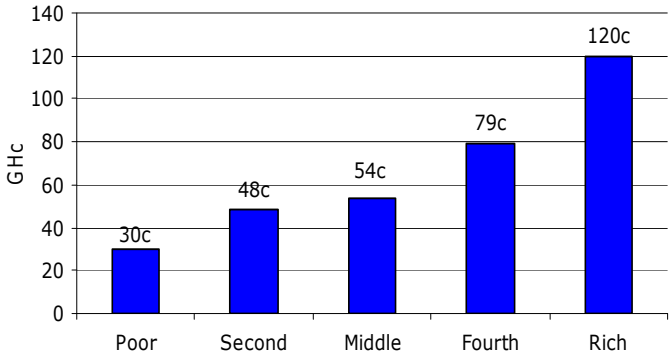
In order to get an indication of household's cash availability, households estimated absolute cash expenditures on food and non-food were analysed. Due to the difficulty in recalling household expenditures over a one and six months period, as well as the tendency to over- or underestimate certain expenditures, the following values mentioned in this section should be considered trends only, rather than exact values. Also, given that data collection took place during the harvest season, food expenditures, especially among the agriculturalists, are expected to be lower because the majority of them may have been living off their own produce.

The median per capita food and non-food expenditures per month[37] totalled GHc169.

Drastic differences were found as soon as data was disaggregated by wealth, by regions and between male and female headed households. While the below graphs are common sensical (i.e. poorer households spend less), they are meant to illustrate the magnitude that lies between the extremes, i.e. the rich and the poor, the northern and the southern regions, an ago-pastoral and a commercial trading lifestyle, a male and a female-headed household.

Households that fell into the poorest wealth quintile appear to have monthly median per capita expenditures of GHc 30 which is four times less the amount of what their rich countrymen spent (GHc120). Per capita expenditures gradually increase with wealth.

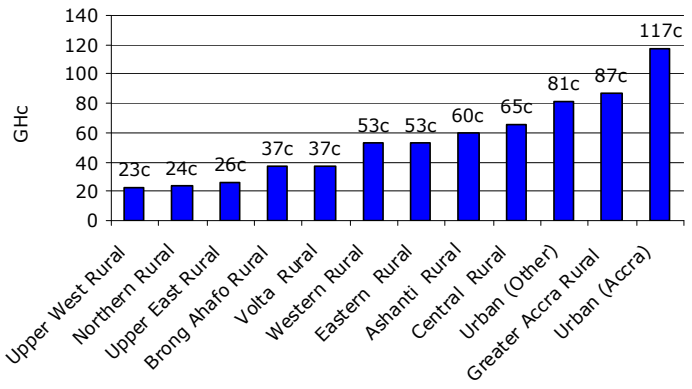
Figure 23: Total monthly median per capita food and non-food expenditures (GHc) by Wealth Quintiles



Source: CFSVA 2008

[37] The median was considered more appropriate than the mean per capita expenditures as the median is immune to extreme outliers.

Figure 24: Total monthly median per capita food and non-food expenditures (GHc) by Regions



Source: CFSVA 2008

Lowest monthly per capita expenditures were found among households living in the three northern regions with GHc23 in Upper West rural, GHc 24 in Upper East rural and GH26 in Northern rural. They are followed by Brong-Ahafo rural and Volta rural with monthly per capita expenditures of GHc37. Highest expenditures were recorded in urban Accra with GHc117.

Female headed households were found to have higher monthly per capita expenditures than male headed households, the reason for this difference is not clear. It could be that less female headed household are involved in agriculture and therefore purchase a larger share of foods in the market.

In an environment of rising food and fuel prices, households were asked whether their expenditures had changed over the last 12 months, i.e. between November 2007 and November 2008. Eighty-five percent of households reported some change in expenditures.

While 10% of households said expenditures had decreased, 75% of households thought they had increased. This finding could indeed be a reflection of the extensive price increases that had been witnessed in Ghana. In fact, when asked what expenditures had increased, 83% of households mentioned food expenditures, followed by transportation (76%), health (51%), education (49%) and housing (22%). These patterns were more or less the same across the different livelihood groups and across regions. However, increased food expenditures were more frequently mentioned by households living in urban areas (90%) than in rural areas (77%).

Expenditures and female headed households

Female headed households were found to spend a larger share of their income on food (53%) compared to male headed households (46%). Highest food expenditures are on cereals (14%) and meat (14%) and largest shares of non-food expenditures are for farming equipment (8%) and transportation (6%).

Their total monthly per capita expenditures were 19% higher than those of male headed households.

For almost three-forth of them, expenditures had increased during the course of 2008.

6.5.3 Receiving and providing support

BOA ME NA ME MMOA WO
"Help me and let me help you"

This *Adinkra* sign is Ghana's symbol of cooperation and interdependence.

Remittances are hugely important to households' income. Equally important, internal and international remittances have been found to reduce the level, depth and severity of poverty in Ghana[38].

Evidence of falling remittances and expectations that global remittances will decline in 2009 as a result of the global financial crisis makes it likely that international remittances to Ghana will continue to decrease. Households were asked whether any of their members had received any cash or food support from relatives and/or friends over the past 6 months, i.e. between May and November 2008. Overall, 44% of households indicated to have received such support.

Interestingly, the wealth status of a household or the location in which they live does not appear to have a significant impact on whether support is received or not. Whether rich or poor or living in the countryside or in the city, a minimum of 40% of households in these two groups reported to have received support from friends and/or relatives over the last six months. There is no systematic pattern between the regions. The share of households receiving support ranges between 40 to 45% across all regions. The only outliers are Ashanti rural with the largest percent of 57% of households and Northern rural with the lowest of 28% of households receiving support.

Half of the sampled households (51%) indicated to currently support relatives and/or friends with food or cash themselves. It is striking to note that even among the poorest households in the sample, a large share (39%) is currently providing support themselves, compared to the percent of rich households (65%).

These findings further underline the extreme importance of such support systems in Ghana and how deeply anchored they are in society, crossing administrative borders and different socio-economic groups. The prevalence of traditional sharing among friends and family also poses a critical question regarding best targeting strategies of assistance. A case could be made to argue that assistance (in what form) should not always single out the most needy by default, with the objective to further stimulate and support the traditional system of sharing between the better off and the worst off.

Sources of remittances

When the sources of support are looked at in more details, differences start appearing between the wealth groups, the administrative regions, etc. Of the 44% of households that indicated to have received support, 93% reported the support to have come from within and 16% from outside Ghana. While 43% of rich households are being supported by friends and/or family living outside of Ghana, only 2% of poor households are. The majority of rich households still receive support from within the country (78%) however, the share is substantially lower than that of poor households of whom almost all receive support from friends and/or family living in Ghana (99%). For urban households it is also much more common to receive support from outside the country (25%) than it

[38] World Bank Policy Research Working Paper 3838: Remittances and poverty in Ghana, February 2006.

is for rural households (9%). Most likely the latter is also due to the greater prevalence of rich households in towns and cities.

Receiving support from outside the country could almost be an indication of a family's wealth, since the necessary financial means for members to leave Ghana must have been available and accessible. In fact, households with stable salaries and the self-employed, i.e. the more well-off livelihoods, were found to have the highest shares of households receiving support from outside of Ghana. In the light of the current world's economic and financial crisis, this finding could suggest that more rich than poor households are directly impacted by the dwindling remittances flowing into the country. In fact, the IMF Ghana predicts Ghana to be hit by even lower growth in international remittances in 2009 which were already flat in the second half of 2008.

Further analyses may be required to quantify the impact on rich household's coping potential in the long run and their ability and willingness to continue providing support themselves. The share from them is substantial, after all, sixty-five percent (65%) of the richest households reported to have provided cash and/or food to friends and/or family over the past six months. Decreasing purchasing powers as a result of increasing food and fuel prices, as well as costs of living, will leave a large number of households without an essential source of support which may in turn have devastating effects on people's food security status.

Remittances and female headed households

Female headed households make up 70% of this "livelihood", the income of which comes to 85% from assistance provided by friends and family. Sixty-two percent (62%) of female headed households indicated to have received cash and/or food support over the pervious six months compared to only 36% of male headed households. Most likely this is the side-effect of the extensive migration movements of young men, leaving their families behind but financially supporting them from a distance. Almost all support received by female headed households was received from within Ghana while 16% were international remittances.

6.6 Livelihoods

Livelihoods are "the capacities, assets and activities required for a means of living linked to survival and future well-being[39]" (SPHERE standards).

[39] The description of livelihoods presented in this section is based on the Sustainable Livelihoods Approach (SLA). See www.livelihoods.org/info/info_guidancesheets.html for more details.

6.6.1 Livelihood activities

Households' livelihood activities determine food access and therefore impact on the level of food security. This section first describes the most commonly reported activities, explains who engages in them and where and reports on any changes in the household labour force over the preceding twelve months.

Households were asked to name the three main activities that sustain them in order of importance and roughly estimate the cash value (in Ghana cedis) each activity has contributed to the total household's income over the preceding twelve months. The consumption of home produced foods was to be included in these estimations by converting them into cash.

Table 21: Most frequently mentioned livelihood activities as main income source (% HHs)

Food crop production (incl. home gradening)	48%
Petty trade, street vending	22%
Receving support from family/friends in Ghana	20%
Self-employed (taxi driver, carpenter, etc.)	13%
Cash crop production	12%
Government employment	9%
Employment in private/public	8%
Livestock production/Animal husbandry	7%
Sales of prepared meals/"fast food"	7%
Unskilled/casual labour (e.g. construction, housemaid work)	5%
Fishing/fish processing/selling of fish	4%
Receiving support from family/friends outside Ghana	4%
Skilled labour	4%
Food processing (shea butter, milling, etc.)	3%
Tailor	3%
Commecial trading	3%
Shop owner	2%
Selling of firewood/charcoal	2%
Service Sector (waiter/waitress, sales men/woman)	2%
Hairdressing	2%
Asrtisanry (basked weaving, batik making, etc.)	2%
Local Brewery (Pito, Akpeteshie, etc.)	1%
Pension	1%
Baker (bread, pastry)	1%
Sales of fruits, vegetable	1%
Agricultural wage labour	1%
Religious (preacher, Imam, ect.)	1%
Mining (gold, diamond, etc.)	1%
Renting rooms/apartments/houses (owner)	1%

Source: CFSVA 2008

Engaging in two livelihood activities is most common (45%), followed by just one (30%). Having three livelihood activities was mentioned by one-fourth of households only (25%), however, large regional differences were found. The large majority in Western region (62% HHs) is engaged in three livelihood activities, followed by households in the Upper West region (14%) after Accra (11%). In the Upper West this may be an indication of limited job opportunities, while in Accra a larger share of households can be assumed to receive an income from one regular stable job that provides sufficient resources for the household.

A large number of people in a household earning an income may be an indication of its underlying vulnerability and the need to have as many sources of income as possible as a form of insurance against difficult times in the future. Similarly, the more income activities a household has at its disposal, the more resilient and most likely less vulnerable the household may be. The average number of household members engaged in income earning activities is 1.7 individuals at national level. The number of income earning family members increases from the south to the north of the country, with 1.5 people in the Coastal zone and 2.3 people on average in the Northern Savannah. The highest number was found in Northern rural with 2.7 people and lowest Accra urban and Greater Accra rural with 1.4 people on average. The number of people also varies between livelihoods whereby farming households tend to have the highest number with 2.7 people earning an income on average in agro-pastoralist households.

The number of people earning an income at household level did not change between November 2007 and November 2008, possibly indicating that there was no significant shock or problem that demanded increased labour. On the downside, it may underline persisting lack of labour.

Also, some activities are more prevalent among the poor than the rich. Activities most prevalent among the poor include farming, (including food and cash crops, as well as livestock), food

processing, selling of firewood and unskilled labour. Activities typical among the richer households include regular salaried employment, commercial trading, skilled labourers, etc.

There appear to be tendencies that suggest for a set of activities to be more common among female- than male-headed households. For example, a comparatively larger share of female-headed households engages in petty trading, the selling of prepared meals, and in receiving support from family/friends living inside Ghana.

6.6.2 Livelihood profiles and incomes

Using principal component analysis (PCA) and cluster analysis, fourteen relatively homogenous livelihood profiles were created based on the contribution of each livelihood activity to households' annual income. One additional livelihood was formed but due to the very rare and random activities it included, and the very small number of households it is based on, this group is discarded from the proceeding analyses.

Table 23 lists the fourteen livelihood groups in order of their average annual per capita income and shows the contribution of the three most important activities that characterize each livelihood group.

Table 22: Livelihood groups Source: CFSVA 08		**N**	**% HHs**	**Annual income per capita (GHc)** GHc1,15=USD1		**Annual income per capita (USD)***		**Most important income** (% contribution to total income)		**Second most important income** (% contribution to total income)		**Third most important income** (% contribution to total income)	
				Mean c	Median c	Mean $	Median $						
1	Agriculturalist (food crops)	1119	25%	441	250	383	217	Food crop production	84%	Petty trade	4%	Assistance, remittances	3%
2	Unskilled Labourer	103	3%	503	321	437	279	Unskilled, casual wage labor Incl. agriculture, construction, assistance in housework, sweeping, etc.	79%	Food crop production	8%	Assistance, remittances	6%
3	Food Processor	133	3%	512	267	445	232	Food processing Incl. local brewing, milling, shea butter production	65%	Food crop production	19%	Assistance, remittances	4%
4	Agro-pastoralist	101	2%	593	222	516	193	Livestock production/ Animal husbandry	63%	Food crop production	32%	Petty trade	1%
5	Agriculturalist (cash crops)	354	8%	644	378	560	329	Cash crop production	67%	Food crop production	20%	Assistance, remittances	2%
6	Petty Trader	384	11%	736	409	640	356	Petty trading	78%	Food crop production	7%	Assistance, remittances	5%
7	Assistance/ Remittances	289	9%	742	538	645	468	External support Incl. family/friends inside or outside of Ghana, remittances, formal assistance, begging	85%	Food crop production	6%	Petty trade	3%
8	Prepared Food Seller	117	3%	754	340	656	296	Sales of prepared food, "street food"	76%	Food crop production	8%	Assistance, remittances	6%
9	Fisherman	93	2%	757	265	658	230	Fishing	81%	Food crop production	7%	Assistance, remittances	5%
10	Self-employed	299	9%	1,070	601	930	523	Self-employed Incl. shop owner	81%	Petty trade	5%	Food crop production	4%
11	Artisan	91	3%	1,106	476	962	414	Creative Incl. weaving, tailoring, hairdressing	79%	Food crop production	7%	Assistance, remittances	6%
12	Commercial Trader	52	2%	1,178	767	1,024	667	Commercial trading	79%	Food crop production	6%	Formal employment	4%
13	Skilled Labourer	104	3%	1,506	675	1,310	587	Skilled labor e.g. carpentry, mining	78%	Food crop production	6%	Petty trade	6%
14	Salaried & Service sector	515	16%	1,655	952	1,439	828	Formal employment In service sector, private or public company, organization, incl. receipt of pension	83%	Food crop production	5%	Petty trade	4%

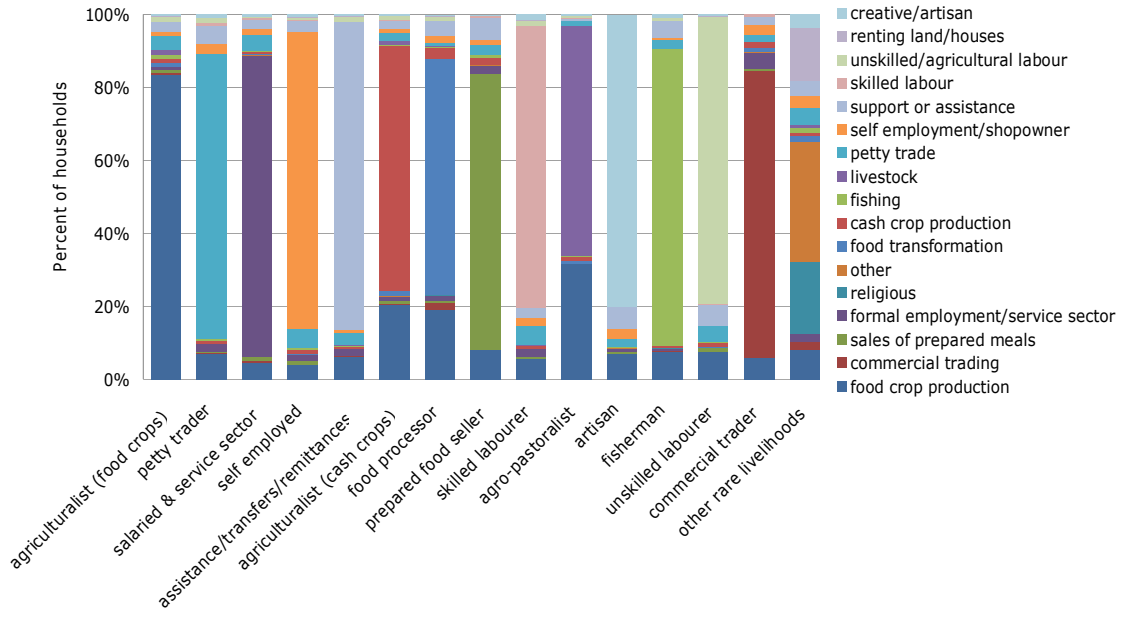
The **first most important income source** for all livelihood groups provides at least two-thirds of the households' average annual income.

The **second most important income source** for 12 out of 15 livelihoods was found to be food crop production, underlining the incredible importance of agriculture in Ghanaians lives. The exceptions include the food crop farmers whose number one income source is food crop farming and the self-employed whose second most important income source is petty trading.

The **third most dominant income source** for 8 out of 15 livelihoods is assistance and/or remittances, which can include financial or in-kind support from families and friends living in- or outside of Ghana, formal assistance from the government, UN agencies or NGOs and even from begging in the street. Although there is a difference in the level of vulnerability between these sources of assistance (i.e. begging in the street being the most vulnerable), the common denominator of all is the dependency on a form of income that the household cannot control, which is remote and cannot be influenced directly. Out of the overall sample, 20% households reported the receipt of support from friends and family living in Ghana and 4% the support from family and friends living outside of Ghana as one of their main livelihood "activities". No households mentioned begging in the street or formal external assistance from humanitarian organizations. Receiving support is not commonly viewed as a livelihood as such. When asked separately about the receipt of remittances or food from friends and family, the share of households sharply increases to 44%.

Figure 25[40] complements table 22 in that it illustrates the contribution share of each of the different activities to each livelihood group.

Figure 25: Contribution of livelihood activities (in %) to overall livelihood by livelihood group



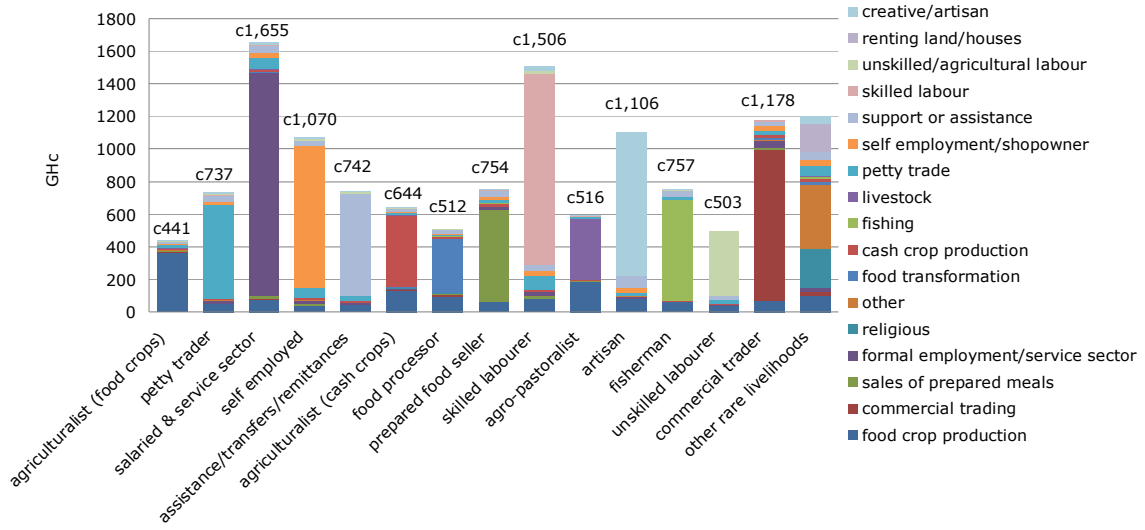
Source: CFSVA 2008

Figure 26[41] accounts for the actual income households reported to have earned between November 2007 and November 2008 from each of the three main livelihood activities.

[40] Calculation of figure 25: The sum of the income from each of the three activities makes a household's total annual income. For every household the percent contribution of each activity to the total income was calculated. The percentage mean of each activity in each livelihood group was calculated and makes the figure.

[41] Calculation of figure 26: Mean cash value of households' income in each livelihood group was calculated which was multiplied by the mean percent contribution of each activity, the overall income for each

Figure 26: Contributions of activities to overall livelihood by livelihood group and average annual income per capita per year (GHc)



Source: CFSVA 2008

The GPRSII target for GDP per capita in 2007 was USD584. Ghana exceeded this target by 13% to reach USD661. However, the GDP per capita increase at national level hides striking divergences at regional level and among the different livelihoods in Ghana. Although annual GDP per capita and average annual income per capita cannot be equated, comparing the two may give some indication as to the wealth of a household.

As figure 26 illustrates above, food crop farmers, unskilled labourers, food processors, agro-pastoralists and cash crop farmers, who represent 41% of the population, do not reach the initial GDP per capita target of USD584 with their annual per capita income. Sixty-six percent (66%) of the population, including the petty traders, households dependent on assistance or remittances, prepared food sellers and fishermen, earn an annual income that still falls below the national GDP per capita of USD661. Interestingly, there is a sudden large increase in capita income from those categories of livelihoods who have neither reached the initial target nor the current GDP per capita level, to the next group of livelihoods who represent 34% of the population. They include the self-employed, artisans, commercial traders, skilled labourers, households with stable salaries and other rare livelihoods.

The GLSSV developed two nutritionally based poverty thresholds that have been adjusted for inflation for the purpose of this study: **the lower poverty line of GHc 420 per adult per year** focuses on what is needed to meet the nutritional requirements of household members. If total expenditures fall below this line, individuals would be considered extremely poor because even if they allocate their entire budget on food they would not be able to meet their minimum nutrition requirements. It appears that a food crop farmer's average annual income of GHc 441 falls just above that threshold. However, looking at the median per capita incomes, food crop farmers, unskilled labourers, food processors, agro-pastoralists, cash crop farmers, fishermen, prepared food ("fast food") sellers and petty traders would all be considered extremely poor. This amounts to 57% of the population. For the purpose of this study, it is considered more meaningful to use the median rather than the mean annual per capita income as it does more justice to the majority of the households in each of the livelihoods that one would be concerned about.

The **upper poverty line of GHc540 per capita per year** incorporates both essential food and non-food consumption. Individuals consuming above this level can be considered able to

livelihoods was then divided by the average household size (average household size for each livelihood group) as the number of equivalent adults.

purchase enough food to meet their nutritional requirements as well as their basic non-food needs. Looking at the median annual per capita income in table 22, the only livelihoods that would not be considered poor according to this definition are the self-employed, the commercial traders, the skilled labourer and the salaried workers. They make up about 30% of the population, the remaining livelihoods would be considered poor.

It is commonly agreed that the more income activities a household engages in, the more resilient they are considered to be because they have the possibility to alternate between them in times of need. This is particularly true for poor households whose main income activity is largely seasonal, the returns of which are irregular, unpredictable or are dependent on external factors, such as the climate or dwindling remittances as a result of the world's economic crisis. Food crop farmers and households reliant on external support are the two livelihood groups of the fifteen that are most reliant on one single income activity with their main income source contributing up to 85% to their overall annual income. This dependency makes them vulnerable in their own right.

Table 23 shows that the largest share of poorest households can be found among the agro-pastoralists with 63%, which is three times as high a share as at the national level. They are followed by the fishermen (34%), food processors (32%), unskilled labourers (28%) and cash crop farmers (22%). This trend is very similar to the one identified by the GLSSV 2005/2006, which found the highest poverty incidence of 46% of households among the food crop farmers[42]. In the case of the CFSVA this category would include the agro-pastoralists, food and cash crop farmers.

Table 23: Livelihoods by lowest wealth quintile

Livelihood groups	N	% HHs	% in poorest wealth quintile
1. Agro-pastoralist	101	2%	63%
2. Agriculturalist (food crops)	1119	25%	40%
3. Fisherman	93	2%	34%
4. Food processor	133	3%	32%
5. Unskilled labourer	103	3%	28%
6. Agriculturalist (cash crops)	354	8%	22%
7. Assistance/remittances	289	9%	17%
8. Artisan	91	3%	15%
9. Petty trader	384	11%	12%
10. Prepared food seller	117	3%	10%
11. Commercial trader	52	2%	8%
12. Skilled labourer	104	3%	8%
13. Self-employed	299	9%	3%
14. Salaried & Service sector	515	16%	2%

Source: CFSVA 2008

Poverty incidences gradually decrease with the stabilization and predictability of the returns of livelihood activities, with increased work regulations, most importantly with the entrance into the formal economy. This would include the commercial traders, skilled labourers, self-employed and salaried workers/employees.

A detailed overview of all 15 livelihoods with some selected household characteristics can be found in annex 15.

[42] The GLSSV 2005/2006 did not make a distinction between food and cash crop farming.

6.7 Household food consumption: Diet diversity & frequency of food consumed

The CFSVA is the first nationwide household food consumption survey in Ghana since 1977. It describes households' consumption patterns of different food items, shows the extent to which food is purchased or home produced, and categorizes households on the basis of similar dietary patterns.

Food consumption is a crucial element in a food security analysis because the types of foods people consume and how often they are consumed is an outcome of people's livelihoods. Food consumption is a reflection of food availability and food access at the household level and is used as one proxy indicator for food security.

Food consumption, according to WFP's standard methodology, is made up of the diversity of the diet and the frequency staple and non-staple foods are consumed. Together, diet diversity and frequency of food consumption are considered reliable proxy indicators of the access dimension of food security and nutrition intake. Research has demonstrated that diet diversity is highly correlated with caloric and protein adequacy, percentage of protein from animal sources (high quality protein) and household income.

Diet diversity is measured by the number of different foods from different food groups consumed in the household and the frequency by the number of days in a week those items were eaten. The quantities of the foods items are not considered. Households were asked how many days over the past seven days prior to the data collection they had eaten seventeen different food items[43]. The individual food items included:

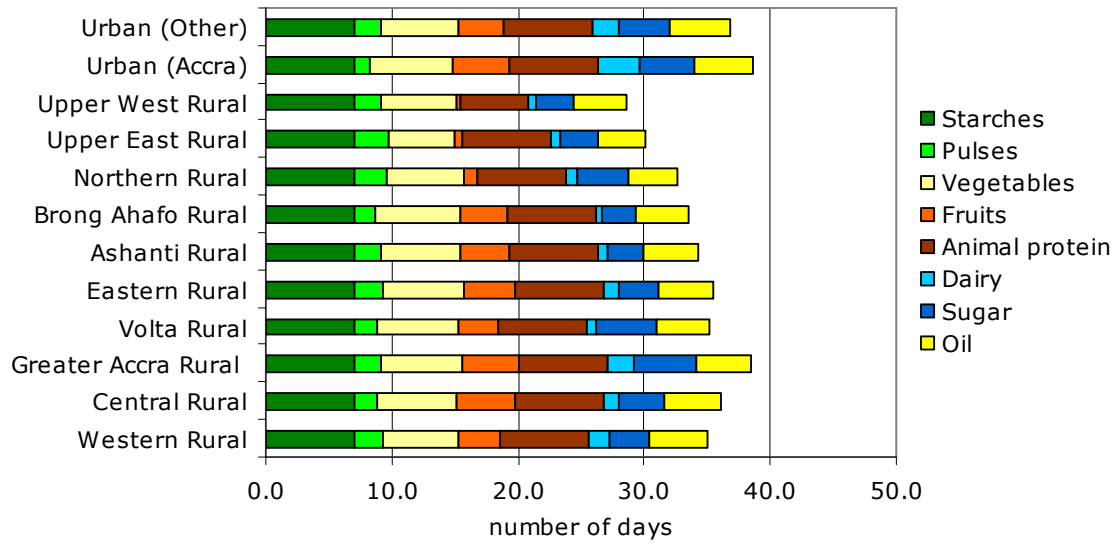
Maize, Millet	Red meat	Sugar, honey	Oil, Butter, Shea
Rice, rice water	Plantain	Fruits	Vegetables
Wheat flour, bread	Fish/Seafood	Eggs	Condiments
Cassava	Poultry	Pulses, Beans, Nuts	
Other roots/tubers	Wild meat	Milk, diary	

At national level, the Ghanaian diet can be considered very healthy and varied with nearly daily vegetable and fish/seafood consumption. Maize and millet are the cereals most frequently consumed at an average of 4.2 days followed by wheat/bread (3 days) and rice (2.8 days). Cassava is eaten more often (3.7 days) than other roots and tubers, such as cocoyam and yam (2.6 days). Meat consumption, including animal products such as eggs and diary, is very low with less than 2 days a week: red meat is only eaten about 1.2 days and poultry just about 0.8 days.

While the consumption of cereals and tubers remains seven days across all wealth groups, regions and livelihood groups, fish, meat and fruit consumption - important sources of protein and vitamins - vary substantially. For example, people living in the coastal zone eat fish more frequently (6.5 days) than in the northern savannah (5.4 days). This may not come as a surprise due to the vicinity of the ocean in the south, yet in a similar vein, meat consumption could be expected to be more frequent in the north due to extensive livestock production in that area, however, meat is consumed about 2 days on average only. Similarly, milk/dairy products and eggs are also eaten much less frequently in the north (0.9 days) than in the south (~2 days). And the same holds true for the consumption of fruits with 1.6 days in the northern savannah compared to 4.2 days in the Coastal zone.

[43] The CFSVA data collection took place during the harvest which may have influenced the types of foods people reported to have consumed and inflated the number of days they consumed them. The picture is likely to look less encouraging during the lean seasons.

Figure 27: Consumption of food groups (in days) by regions and locations (rural/urban) over last seven days



Source: CFSVA 2008

The frequency of meat and fruit consumption also varies with wealth, in fact it appears to double from poor to rich households. Rich households eat meat approximately 3.2 days and fruits 4.2 days per week, while poor households eat meat 1.4 days and fruits 1.6 days.

The impact of wealth is somewhat mirrored in the frequency with which meat, fruits and oil are consumed by households across the different livelihoods. Households who are self-employed or have a stable salary are found to eat meat (3.1 days), fruits (4.1 days) and oil (5 days) much more frequently than farming households or households engaged in unskilled labour who on average eat meat 1.8 days, fruits 1 day and oil 3.8 days per week.

The average number of meals consumed by the adult household members (18 years and above) the day preceding the survey was 2.7. Three meals were eaten by 69%, 2 meals by 28% and one meal by 2% of households. The average number of meals consumed by the children in the households (5 – 18 years) was slightly higher with 2.9 meals. Four meals or more were eaten by 6%, three meals by 81%, two meals by 11% and one meal by only 1%. Intra-household consumption patterns were not studied in details. Households were asked whether all members, distinguishing between women, men and children, eat roughly the same diet and it appears that they do. However, further analyses on this issue are strongly recommended.

Foods consumed and female headed households

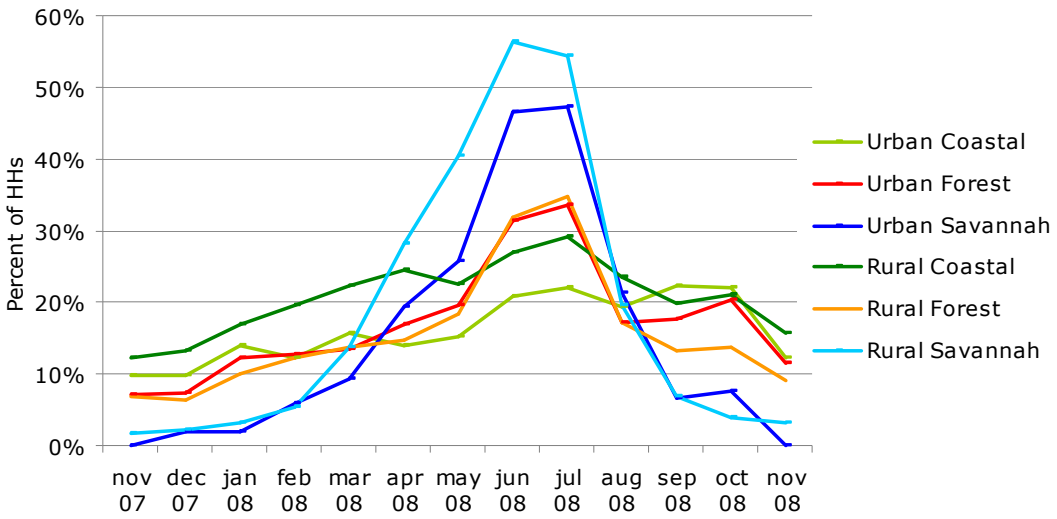
There was no difference between male and female headed households in the number of days and the types of foods consumed.

Seasonality of food consumption

The potential impact of seasonality needs to be kept in mind when analysing consumption patterns as they are likely to fluctuate at different times of the year. Households were asked whether they experienced any difficulties in getting enough food to eat over the last 12 months and when.

As can be seen in figure 28, most households reported difficulties in getting enough food between March and August with a peak in June, July. The period was strikingly pronounced for households from the Northern Savannah, rural and urban areas alike.

Figure 28: Percent of households reported to have experienced "difficulties" accessing enough food over the past 12 months by months



Source: CFSVA 2008

Their perception exactly corresponds with the timing of the lean season in the area. The further south one travels, fewer households appear to have such a distinct "difficult" period in their minds. The reason being the second rainy season in the Coastal and the southern parts of the Forest zone which alleviates temporal difficulties and rather "spreads" them over the year. Although smaller shares of urban households indicated to have experienced difficulties in getting enough food, especially in the Northern Savannah and Coastal zone, those who did, reported the same time span as their rural counterparts. These tendencies were found to match with what key informants discussed during the community interviews. Although qualitative in nature, the findings are highly useful for determining best timing of potential food based interventions.

6.7.1 Household food consumption groups

Food consumption groups are created on the basis of similar household food consumption characteristics and patterns. For the grouping, food consumption scores (FCS) were computed to distinguish between those different consumption groups. Reported dietary diversity and the frequency with which staples and non-staple foods had been consumed (number of days per week) were used for this analysis (see box 5). The rationale being that diet diversity is proven to be correlated to nutrient adequacy, children's and women's anthropometry and socio-economic status.[44] It is therefore a good proxy indicator for the access dimension of food security and nutrition intake. The detailed methodology can be found in annex 4.

The FCS is computed by grouping together the food items for which consumption was assessed over a seven-day recall period. For each food group the frequency represents the number of days an item from the food group was consumed, with a range from 0 (never) to 7 (every day). A weight is assigned to each food group, representing the nutritional importance of the

[44] Ruel M. (2003): Operationalizing Dietary Diversity: A Review of Measurement Issues and Research Priorities. *Journal of Nutrition* 133 (11 suppl. 2) 3911S-3926S

food group. The FCS is the sum across food groups of the product of the frequency by the weight. See annex 4 for more information and the weights assigned to each food group.

Box 5: Justification for four Food Consumption Groups

WFP's standard Food Consumption Groups include *poor*, *borderline* and *acceptable*. In the case of Ghana, a fourth group (*acceptable LOW*) was added, the justification of which is as follows:

Fish/seafood is reported as being consumed across the country on a very frequent basis. However, it is believed that the consumption of fish as a MEAL rather than as a CONDIMENT is less frequent than the data actually reflect.

Enumerators, despite careful training, may have included fish eaten as a condiment (which is quite common throughout Ghana). Nevertheless, there are still areas where fish is a common food. Therefore, the potential bias may not be measurable or equal. The Food Consumption Score (FCS) is thus likely biased upwards, and the prevalence of the FCS is lower than is the case on the ground. This is in part the justification for choosing the higher thresholds, and the addition of the third threshold (splitting 'acceptable' into 'acceptable (low)' and 'acceptable (high)'). Exploratory analysis removing fish from the consumption analysis produces higher prevalences, although households maintain in general the same rankings, indicating that the potential bias, if present, is relatively equal throughout the population.

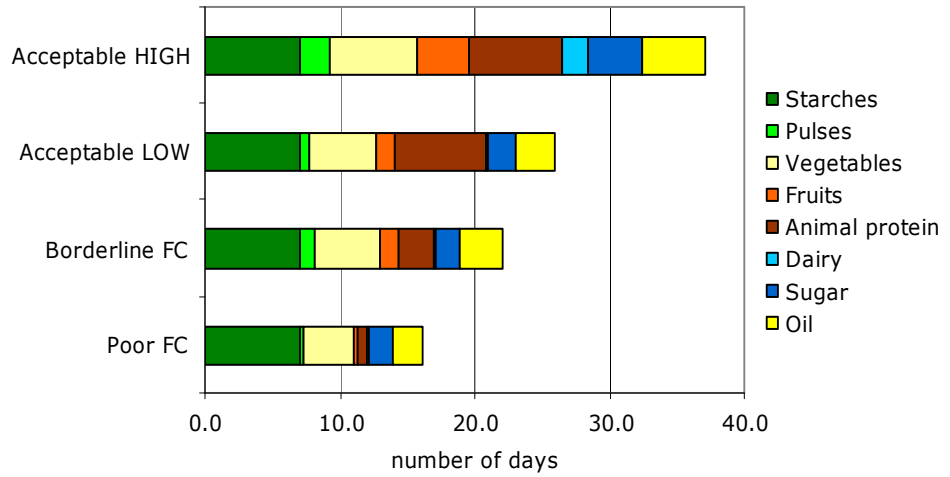
Poor food consumption (0 to 28) in Ghana corresponds to a diet that is dominated by starches eaten on an almost daily basis, complemented by vegetables three to four days per week. Sugar and oil is eaten about 2 days per week. Meat, fish, pulses and fruits, essential source of protein and vitamins, are very rare with a consumption of less than one day per week. Dairy products are hardly ever consumed. The mean food consumption score at national for the poor food consumption group is 23.

Borderline food consumption (29 – 42) remains similar to poor food consumption with a focus on starches, vegetables and oil remains however, there is a slight increase in the total number of days these foods are consumed. The mean food consumption score at national level for the borderline food consumption group is 37.

Acceptable LOW consumption group (43 – 52) is characterized by a very slow increase in protein consumption in the form of meat/fish with an average of 4 days per week. The mean food consumption score at national level for the acceptable low food consumption group is 49.

Acceptable HIGH consumption group (53 +) consists of a diet with daily consumption of starches, meat and vegetable. Pulses, beans and nuts as essential sources of protein and fats and diary are seldom consumed and only gradually increase at the higher end of the acceptable HIGH consumption group. The mean food consumption score at national level for the acceptable high food consumption group is 70.

Figure 29: Consumption of food groups (in days) by food consumption groups over last seven days



Source: CFSVA 2008

Nationally, 2% of the population can be considered to have a poor and 4% a borderline food consumption. Their diet is not considered diverse enough, nor are essential food groups consumed sufficiently often to guarantee a healthy and active life. Additionally, given that the survey was conducted during a favourable time of the year, i.e. during and/or right after the harvest, households who fall into those two consumption groups are considered food insecure. They are the households who ought to be prioritized for any immediate interventions deemed most appropriate and feasible, especially during the lean season which starts in March through September. The objective in those cases would be to, broadly speaking, prevent households from having to resort to negative coping strategies in accessing enough food, supporting their livelihoods to increase their resilience, as well as to alleviate any acute signs of food insecurity, such as malnutrition among children.

Nine percent (9%) of the population have a diet that the survey considers barely acceptable, or acceptable LOW. Although households with acceptable low food consumption patterns were not food insecure at the time of the survey (November 2008), they are nevertheless vulnerable to a significant deterioration of their diet during the lean season (March to September) or if affected by a shock. Additionally, their low quality diet may have long-lasting impacts particularly on childrens' growth and mental development. It is on those grounds that this group is advised to be monitored on a regular basis, particularly during the lean season.

The majority of the population (86%) have an adequate diet or acceptable HIGH food consumption. However, the national prevalence tends to hide striking regional differences which are highlighted in the preceding sections.

6.7.2 Geographic distribution of the four food consumption groups

As can be seen in the table and map 5 below, the largest share of households with poor (11%) and borderline (23%) food consumption live in Upper West rural. Second in line is Upper East rural with 6% of households with poor and 9% with borderline food consumption. This trend remains the same when the share of households with borderline consumption is added, with 34% of households in Upper West rural, followed by 15% in Upper East rural and 10% in Northern rural. Against expectations, relatively large shares of households with poor and borderline food consumption could also be found in Ashanti rural (7%).

Table 24: Prevalence of the four food consumption groups by strata

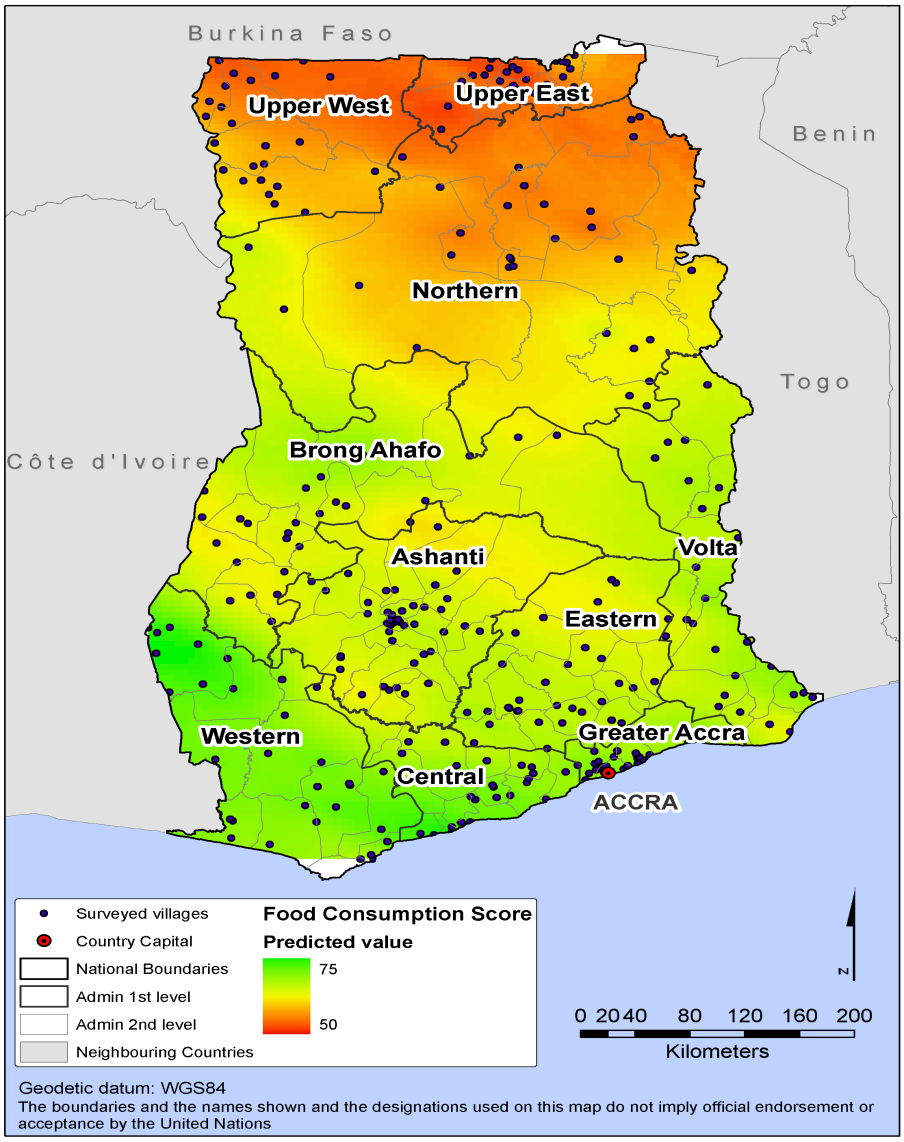
Regions/Locations	Food Insecure		Vulnerable to food insecurity	Food secure
	Poor FC	Borderline FC	Acceptable LOW FC	Acceptable HIGH
Western Rural	0.0%	0.8%	6.0%	93.2%
Central Rural	1.5%	2.0%	5.0%	91.6%
Greater Accra Rural	0.0%	1.4%	2.7%	*95.9%*
Volta Rural	1.6%	1.6%	6.6%	90.1%
Eastern Rural	1.1%	2.8%	7.8%	88.3%
Ashanti Rural	0.8%	6.4%	9.7%	83.0%
Brong Ahafo Rural	1.7%	1.7%	11.2%	85.3%
Northern Rural	3.3%	6.3%	17.3%	73.2%
Upper East Rural	5.7%	9.5%	19.6%	65.2%
Upper West Rural	11.3%	22.7%	13.4%	52.6%
Urban (Accra)	0.8%	1.2%	4.4%	93.6%
Urban (Other)	1.0%	3.3%	8.4%	87.3%
Total	**1.6%**	**3.8%**	**8.8%**	**85.9%**
Urban (all)	0.9%	2.4%	6.5%	90.2%
Rural (all)	2.7%	5.8%	10.6%	80.9%

Source: CFSVA 2008

Acceptable low food consumption appears to be very wide-spread across the country and affects regions beyond the Northern Savannah zone. Apart from the three northern regions where nearly half of the households in Upper West rural were found to have poor, borderline and acceptable low food consumption (47%), a significant percent of households with an inadequate diet were also found in Brong Ahafo rural (15%), Ashanti rural (17%), Eastern rural (12%) and Volta rural (19%).

The share of households with poor and borderline food consumption is almost three times as high in rural (8%) as in urban areas (3%). Acceptable low consumption patterns increase those prevalence's to 19% of households in rural and 10% in urban areas, underlining how common inadequate diets are in Ghana.

Map 5: Food Consumption in Ghana



Source: 2008

The Food Consumption Score map illustrates the geographic distribution of the four food consumption groups. Similar to the Wealth Index Quintiles, the northern areas have higher prevalence of households with poor food consumption, gradually decreasing towards the south. The methodology of how this map was created, as well as the "error" map which shows the standard error of the predicted values in the various locations, can be found in annex 8.

The validation of the food consumption score as a proxy indicator for food security can be found in annex 6.

6.7.3 Underlying causes of poor and borderline food consumption

To statistically explore some underlying factors related to poor and borderline food consumption, a series of multivariate regression analyses were run[45]. The outcome variable used was the Food Consumption Score (FCS).

Key independent indicators explored include:

- Wealth Index Quintiles
- Livelihood group
- Education level of the head of household
- Amount of agricultural land the HH has access to (groups)
- Strata (rural regions, urban Accra, urban other)
- Sex of the head of the household

The observed results show the degree of influence these indicators have on household food consumption. They all point to households' limited or constrained access to food.

Wealth Index Quintiles

Household wealth is the strongest driving factor associated with the FCS in any model. Increased wealth correlates with increased FCS when controlling for other factors.

Livelihood Group

This indicator is strongly associated with FCS when analyzed independently. This means that there is a very clear difference between the fifteen livelihood groups and their respective food consumption patterns. When controlling for both wealth and strata, this indicator is no longer significantly associated with FCS. In other words, a household's location and level of poverty together are stronger predictors of the quality of food consumption than is the livelihood it engages is. Hence, agriculturalists cannot be considered food insecure or vulnerable to become so by default. There are plenty of farming households who are doing very well. However, agriculturalists who are poor and reside in the Northern Savannah zone, the likelihood of the household being food insecure or vulnerable is very high.

Amount of agricultural land for cultivation

This categorical variable was used as the relationship between FCS and agricultural land access is not linear. The indicator remains significantly associated with FCS in all models, although the pattern varies. Analyzed independently against FCS, households who did not cultivate at all had the best FCS. Households with >0ha of land and <2ha of land cultivated have the worse food consumption, followed by households with between 2 ha and 5ha of land cultivated. Those with >5ha of land cultivated have the best FCS, similar to those who did not cultivate at all.

However, when controlling for other factors such as wealth the relationship changes. Households with 0 ha are now associated with lower FCS (similar to those with >0ha and <2ha). This is likely due to the fact that households with no land access are often richer households, living in urban rather than rural areas and that are engaged in non-agricultural livelihood activities. But if wealth and the other indicators are controlled for, then having land is better in terms of household food consumption than not having land, and having more land is also associated with improved FCS.

Education of Household Head

Increased education of the household head is strongly and robustly associated with food consumption score independently and also when controlled for other indicators. However, the

[45] Probability weights not used in the regression analysis, cluster sample design not accounted for.

strength of the association is weaker when controlling for wealth, due to the strong correlation of wealth and household head education. A small (non-significant) improvement in FCS is seen between households with heads having completed primary and those having completed secondary. The households whose heads have completed a level beyond secondary have a significantly higher FCS than all other households[46]. Inherent consequences of level of education of household head on food insecurity at household level include:

Strata (Location)

The geographical location of households is, after the WI quintiles, the strongest predictor of food consumption score. This means that there is a very clear difference between the ten regions, rural and urban locations and their respective food consumption patterns. When observed independently, the Upper West (rural) has the lowest FCS levels, and the urban areas have the best. The Upper West (rural) remains significantly and largely worse in terms of FCS than other areas in all models.

However, the differences between the other regions are less pronounced when controlling for the other factors, and the urban areas are no longer associated with improved FCS. It is likely that in a perfect causal model, region or urban/rural would no longer be significant. Location is not a 'causal' factor of poor food consumption. Rather the factors associated with the location are the 'causes' , including the climate, availability and access to health facilities, schools and markets, quality of land, security, etc. The urban areas generally are characterized by more wealthy people who have better food consumption. Including wealth in the model decreases the association between regions, urban areas and improved FCS, indicating that wealth is the underlying factor rather than just living in an urban area or in a particular region. Inherent factors of the location of households likely to cause food insecurity at household level:

Sex of Household Head

The sex of the head of the household has no significant relationship with FCS in any of the models. In fact, in all models, female headed households have slightly, however not significantly higher FCS than male headed households.

The output tables of the above analyses can be found in annex 7.

6.7.4 Household food security profiling

Food consumption is the proxy for food security. This section explores indicative characteristics associated with households falling into the poor, borderline and acceptable LOW food consumption groups, juxtaposing them to those that have an acceptable diet (acceptable high), and provides an overview of their geographic distribution. Additionally, potential underlying causes of food insecurity i.e. poor and borderline food consumption are discussed.

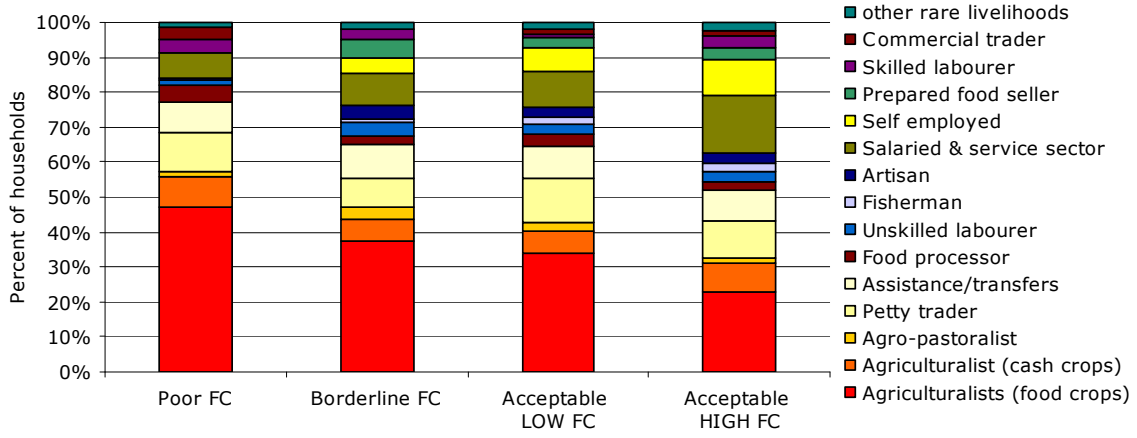
The following characteristics of the poor and borderline food consumption groups are not meant to conclude on causal relationships. Instead they are indications, tendencies and could be used as targeting criteria for interventions, be they food or non-food interventions. The list of characteristics provided is not exhaustive, nor should each one of them be given equal weight across different situations and locations. They are rather a stepping stone towards the development of more refined geographic- and situation-specific targeting tools. Additionally, they can already pinpoint towards to potential response options that could reduce peoples' vulnerability to food insecurity.

[46] Household heads with pre-school only are not considered here, as their n = 10 hhs.

LIVELIHOODS

Food consumption scores differ between livelihoods. For example, of all the households that were found to have poor food consumption, more than half of them were food or cash crop farmers and agro-pastoralists. Only about 14% of the richer livelihoods, including the skilled labourers, salaried workers and commercial traders were represented in this group. In other words, if the household is food insecure, the chances for it to engage in agricultural activities are very high. However, a household engaged in agricultural activities cannot be assumed to have poor food consumption by default, after all 33% of agriculturalists still had acceptable high food consumption. However, the largest shares of households with acceptable high food consumption are engaged in economically richer livelihood activities.

Figure 30: Share of livelihood by food consumption groups



In **rural areas**, the most common livelihood characteristics of households with poor and borderline food consumption include farming, be they food or cash crops and livestock, unskilled agricultural wage labour, as well as the processing of food.

The share of households with poor and borderline food consumption was less among cash crop farming households (5%) compared to food crop farming (8%) and livestock rearing (8%). Comparatively speaking, cash crop farmers appear to be the best off among the three types of agriculturalists in terms of wealth as well as their food consumption patterns. This may be the outcome of their greater market orientation that pushes up their income and therefore also their food consumption.

Food processing is an additional typical rural livelihood very closely related to agriculture whereby it involves the transformation of agricultural products, such as milling grains, processing shea nuts, brewing. As expected, households whose major income stems from food processing were found to have similar food consumption patterns as the above mentioned farming households. Food processing is a very common livelihood for women and extensively done during the lean season.

Against common allegations, the share of fishing households with poor and borderline food consumption is surprisingly low. Fishermen were found to belong to the poorest households in Ghana with one of the lowest median annual per capita income, but in terms of food consumption they appear to be better off than their farming counterparts.

Table 25: Share of households by livelihood, by location (rural/urban) and by food consumption groups

Livelihood group	N	% HHs	% HHs in RURAL	% HHs in URBAN	% poor + borderline food consumption	% acceptable LOW food consumption
1. Agriculturalist (food crops)	1119	25%	84%	16%	8%	12%
2. Agro-pastoralist	101	2%	97%	3%	8%	12%
3. Assistance/transfers/remittances	289	9%	43%	57%	6%	10%
4. Food processor	133	3%	82%	18%	6%	11%
5. Agriculturalist (cash crops)	354	8%	88%	12%	5%	7%
6. Unskilled labourer	103	3%	49%	51%	5%	9%
7. Prepared food seller	117	3%	47%	53%	5%	7%
8. Skilled labourer	104	3%	43%	57%	5%	3%
9. Artisan	91	3%	32%	68%	5%	9%
10. Petty trader	384	11%	44%	56%	4%	10%
11. Salaried & Service sector	515	16%	32%	68%	3%	6%
12. Commercial trader	52	2%	30%	70%	3%	9%
13. Fisherman	93	2%	62%	38%	2%	8%
14. Self-employed	299	9%	32%	68%	2%	6%

Source: CFSVA 2008

In **urban areas**, underlying common livelihood characteristics of households with poor and borderline food consumption are more varied but predominately include selling and trading activities and the provision of casual labour.

Households whose primary source of income is remittances and support from family and friends are also very high on the list of the poor and borderline food consumption group and are, against expectations, mostly but not exclusively based in urban areas. Their income can be assumed to be of a volatile and uncertain nature in most instances, which greatly constrains their budgets, forcing them to carefully balance between essential food and non-food expenditures. In fact, this livelihood group was found to have the highest share of expenditures on food (61%), which is a proxy indicator for household food access. The greater the share of income spent on food, the more likely it is for the household to be poor and food insecure. A significantly larger share of female (19%) than male headed households (4%) seem to solely rely on remittances as a source of income.

Acceptable low food consumption is highly common among all livelihood groups. Greatest shares were found among the food crop farmers (12%), the agro-pastoralists (12%) and the food processors (11%).

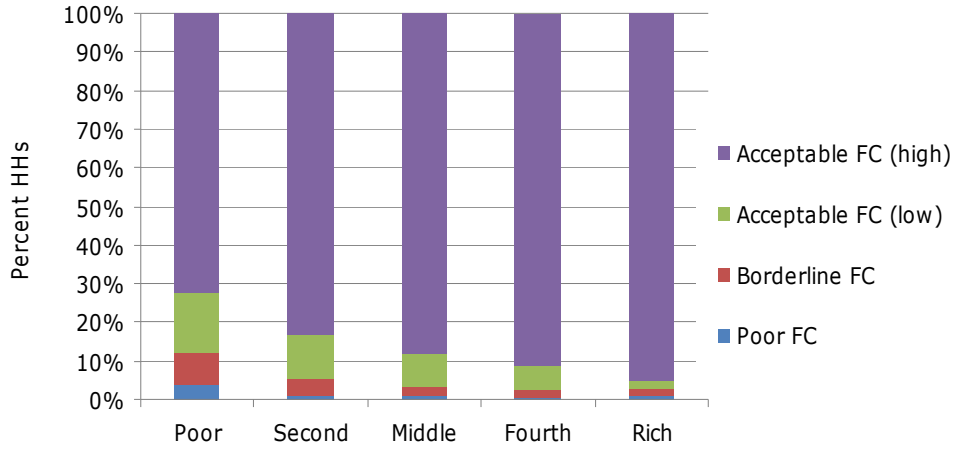
Number of income activities: It appears that the fewer income activities a household engages in, the more likely its food consumption to be poor. While half of the households with poor food consumption (50%) either engage in one or no livelihood activity, only 28% of households with acceptable high food consumption were engaged in one or no livelihood activity. This finding may be particularly true in the rural areas and among the poorer segments of society.

WEALTH, ASSETS AND EXPENDITURES

Wealth: Households' wealth is very strongly related to food consumption. It is wrong to assume that a poor household automatically has poor or borderline food consumption, after all, 72% of poor households were found to have a very good diet.

Similarly, wealth is not automatically a shield against poor food consumption: 5% of the richest households were found to have an inadequate diet. However, what can be said with certainty is that a household who has poor or borderline food consumption, is more likely to be worse or best of: more than half of the households with poor food consumption were found to fall into the lowest wealth quintile (52%) compared to 13% who were found to be rich. The strong relation between poor wealth and poor food consumption is highlighted in figure 31.

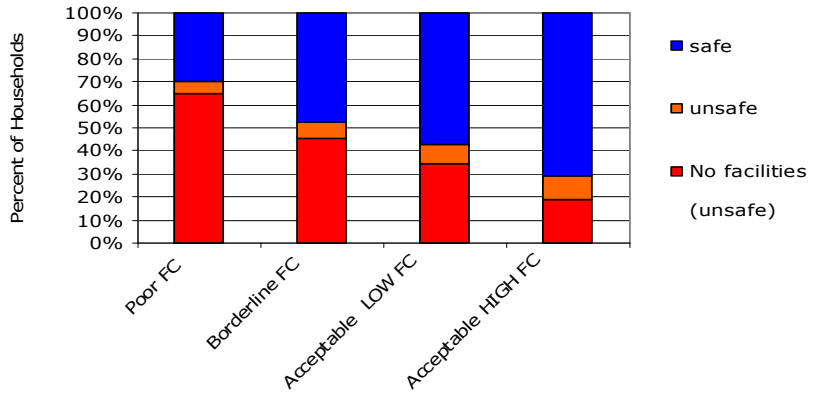
Figure 31: Percent HHs by wealth quintiles and food consumption



Source: CFSVA 2008

Safe and unsafe household amenities: Household amenities such as water and sanitation facilities form part of the wealth index. In other words, households' access to those amenities can be considered a proxy for their wealth in addition to potential underlying factors of their health status. Food consumption is found to be very strongly related to the types of sanitation facilities the household uses.

Figure 32: Shares of households using safe and unsafe sanitation facilities by food consumption groups



Source: CFSVA 2008

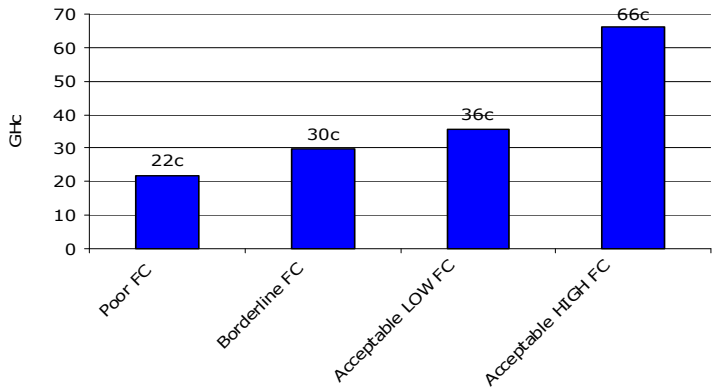
While 70% of households with poor food consumption use open pit latrines, buckets or no facilities at all, only about 29% of households with acceptable high food consumption do.

Such clear differences were not found with regards to safe and unsafe sources of drinking water. The large majority of households with both poor (86%) and acceptable high food consumption (85%) were found to drink water from safe sources.

Nationally, the two most common sources of lighting are an electric company (53%) and oil or kerosene (35%). While the former is the most common among households with an acceptable food consumption (57%), the latter is predominately used by those with poor food consumption (51%).

The dominant roofing material of households with poor and acceptable high food consumption is corrugated iron or metal sheets, followed by thatched roofs. The latter, however, is more common among households with poor (19%) than with acceptable high food consumption (12%). Similarly, 6% of households with poor food consumption use mud or earth as roofing material, compared to 1% of those households who had acceptable high food consumption patterns.

Figure 33: Total monthly median per capita food and non-food expenditures (GHc) by FCG



Source: CFSVA 2008

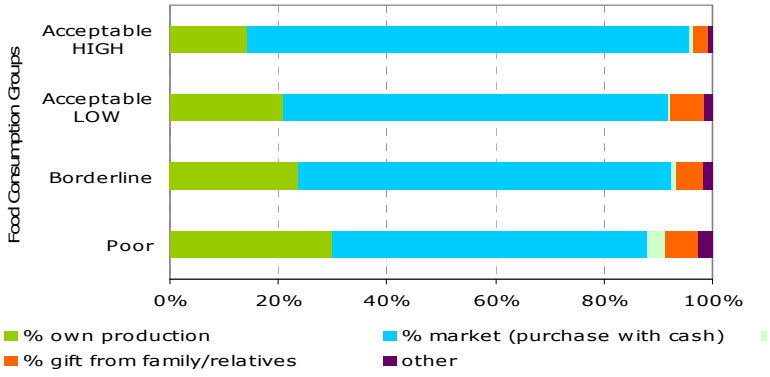
Food and non-food expenditures: There does not appear to be a striking difference in the share of food expenditures of households with poor (57%) and acceptable high food consumption (53%). However, in terms of absolute value, the difference of overall monthly per capita expenditures on food and non-food items between the food consumption groups is striking: while households with poor food consumption patters spent approximately GHc22 per capita per month, households with acceptable high food consumption patters spent three times as much (GHc66).

Market dependency: While markets are the main source of food for all households regardless of their food consumption, a significantly larger share of those with a very good diet purchase their foods with cash (81%) compared to those who have poor food consumption (58%). The latter's second most important food source is their own production (30%), compared to 14% of households with acceptable high food consumption. Although purchasing food on credit does not appear to be very common, the few cases recorded were predominately reported by households with poor food consumption patterns. Food as gifts from family and friends is another important source for all, but least among households with acceptable high food consumption.

AGRICULTURE AND MARKET PARTICIPATION

Access to land for cultivation: In line with many other studies, the CFSVA confirms the hightened vulnerability that the farming population in Ghana is exposed to. While access to land for cultivation is clearly an asset and potentially a sign of wealth, it appears that farming is predominately engaged in by the poorer segments of Ghanaian society. While 81% of households with poor food consumption have access to land for cultivation (agricultural and vegetable garden alike), 57% of households with an adequate diet have. Clearly, access to land does not mean much in itself: what matters is the way that land is accessed, its size, available inputs and source of labour, the level of market participation that influences the cultivator's wealth and food security status. For both, households with poor and acceptable high food consumption, the primary source of access to land is the extended family or community, followed by outright ownership of the land. However, comparatively speaking, a much larger share of households with both poor and borderline food consumption cultivate the land of their family or that of the community (42%) than cultivating their own land (13%). This is most likely a reflection of their level of poverty which in turn impacts on their household's diet. Among households with adequate diets both sources of access to land were equally common (19%).

Figure 34: Percent of households by FCGs and main sources of foods



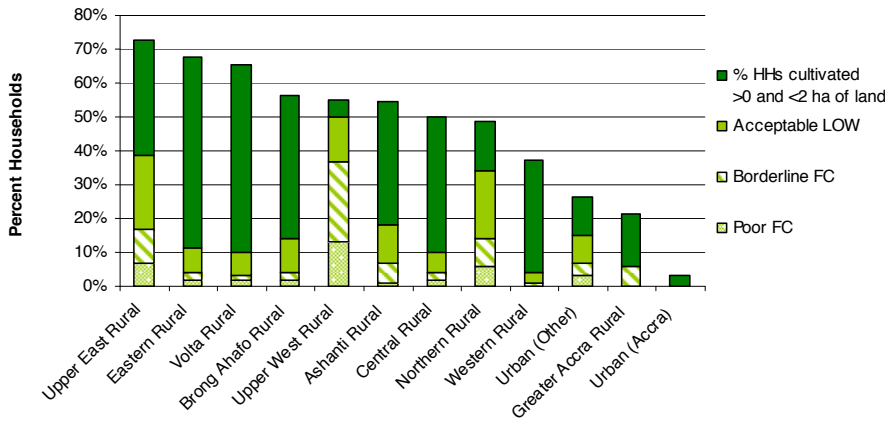
Source: CFSVA 2008

Future surveys are advised to split the option "extended family/community land" into two separate options 1) extended family and 2) community land. The rationale being that cultivating the land of the extended family is conceptionally very close to ownership (since it is in the family). Cultivating communal land, on the other hand, is not and could potentially be predominant among the poorer farming households. Separating the two options would allow to further finetune the analysis of the different sources of access to land that are common among the different food consumption groups.

Size of land cultivated in 2008: Of all households with poor food consumption, 73% of them cultivated land in 2008 compared to 53% of households who had acceptable diets. This finding may be another indication that farmers are generally worse off than households who do not farm. The size of the land cultivated appears to be positively associated with the quality of a household's food consumption patterns: in other words, the smaller the size of land used for cultivation, the more likely it is for the quality of the diet to deteriorate. Seventy percent (70%) of households with poor food consumption cultivated, but on less than 2 ha of land, compared to 38% of households with adequate diets. Similarly, only 3% of the cultivating households with poor food consumption cultivated land that was larger than 2 ha, while 15% of households with adequate diets did. It appears that the cut-off of 2 ha can be safely used as one criterion for targeting the most vulnerable smallholders. However, simple measures of landholdings should be used in conjunction with other criteria and, most importantly, at household level. Using average land size as an indicator of geographical patterns of food consumption will be misleading. Average holding sizes

are smallest in the densely populated southeastern regions47, even below 2 ha, and yet those are the regions where the population is least affected by inadequate food consumption.

Figure 35: Percent of households cultivating > 0 and < 2 ha of land by region and their share of households with poor, borderline and acceptable food consumption



Source: CFSVA 2008

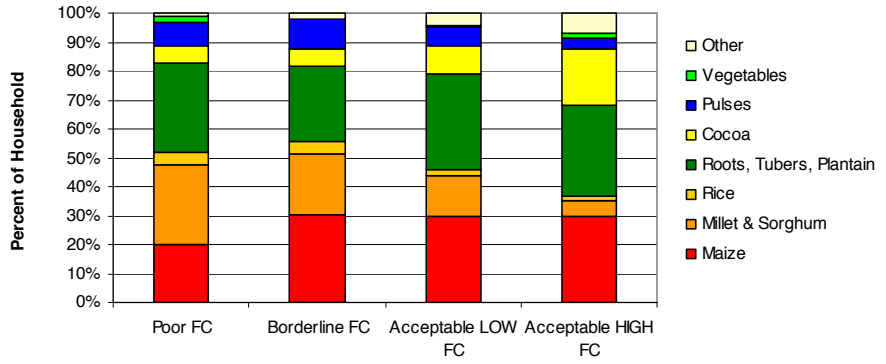
In 2008, the average size of land that households cultivated was 2.1 ha. Average sizes differ significantly between the food consumption groups whereby households with poor and borderline food consumption cultivated on average 1.0 and 1.5 ha respectively, while the average size of land cultivated by households with an acceptable diet was 2.2 ha, i.e. more than double the land size of those with poor food consumption.

Market participation: Households were asked whether they foresee to buy or sell maize until the next harvest. Overall speaking, larger shares of households are buying more maize than sell. This is particularly the case for households with poor food consumption patterns (65%) but less so for those with acceptable diets (37%). The latter indicated to sell more maize (29%) while none of the households with poor food consumption did. More detailed analyses are required to determine whether there is a difference in the food security status of net-buyers and net-sellers of foods. If this trend holds true, it would further underline the need for making the farming population active participants in the market chain to help reduce not just poverty but the prevalence of food insecurity among them.

Main crop grown: Cereals and tubers make up the largest share of crops cultivated among all households regardless of their food consumption patterns. It appears, however, that the share of cereals cultivated is higher among households with poor and borderline food consumption than among households that have acceptable diets. Those who eat well on the other hand seem to be more involved in cocoa production with 20% of household cultivating that cash crop, compared to only 6% of households with poor and borderline food consumption.

[47] IFPRI: *Defining smallholder agriculture in Ghana: Who are smallholders, what do they do and how are they linked with markets?* August 2007.

Figure 36: Percent of households by first main crop cultivated in 2008 and by food consumption group



Source: CFSVA 2008

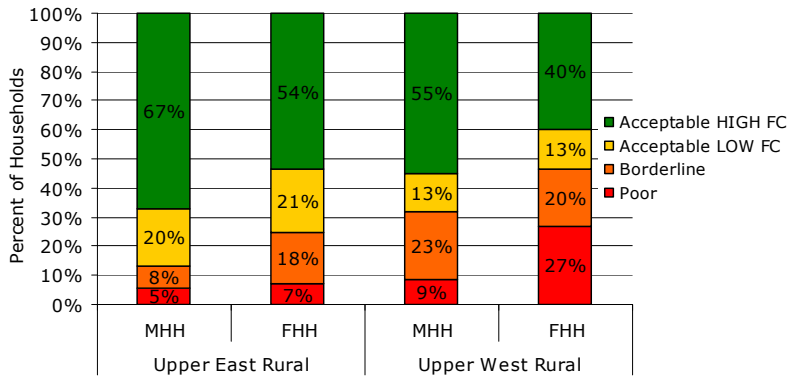
HOUSEHOLD CHARACTERISTICS

Dependency percent and ratio: Overall mean household size are 4,4 members. The dependency ratio at national level was found to be 44.7%. The ratio is lower compared to the MICS 2006 and this would be expected in terms of trends.

Dependents include children below 15 years and elderly people above 64 years of age. It appears that the dependency percent for households with poor food consumption is larger (44%) than for households with adequate diets (39%).

Sex of household head: Female and male headed households do not differ in their food consumption patterns, refuting common allegations that female-headed households are more likely to be food insecure than male-headed households. However, differences seem to appear when disaggregated by region: in Upper East rural and Upper West rural a larger share of female headed households were found with poor and borderline food consumption than male headed households. It should not be assumed that female headed households have worse consumption patterns by default. The two northern regions seem to be an exception whereby a household with poor or borderline food consumption is more likely headed by women than by a man.

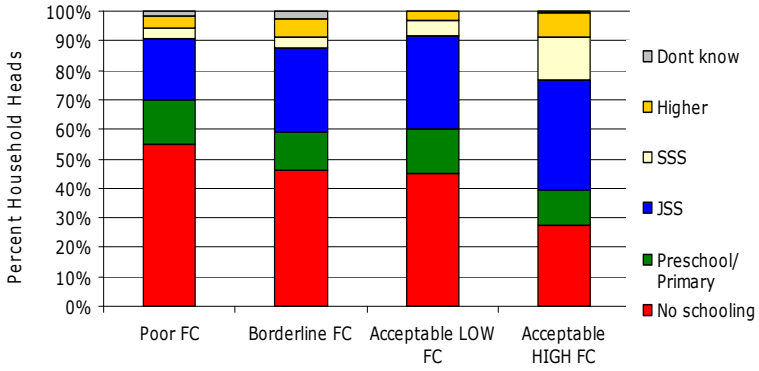
Figure 37: Share of female- and male-headed households by food consumption groups and by rural areas in Upper East and Upper West



Source: CFSVA 2008

Education of household head: Interestingly, and in line with previous extensive research, the educational background of the household head is positively associated with food consumption. In other words, the more educated the household head, the better is the household's food consumption. Thirty percent (30%) of the sampled households had a head without any schooling at all. In more than half of the households with poor food consumption their heads had never been to school (55%) compared to 28% of households with an adequate diet. Clearly, there were households with poor food consumption whose head had attained junior secondary school (21%) and senior secondary school (4%), however, the share of households with an acceptable food consumption whose heads' have attained junior secondary (37%) and senior secondary school (14%) is significantly higher. Heads of households engaged in agro-pastoral and food crop farming activities, who were also identified to have poorest food consumption patterns, had received least education: 84% of household heads of agro-pastoralists and almost half of those working as food crop farmers (48%) had never been to school.

Figure 38: Share of household heads by food consumption groups and by highest level of education attained



Source: CFSVA 2008

School attendance: Non-school attendance of primary school aged children (6 – 11 years), Junior High School aged children (11 – 14 years) and Senior High School aged children (15 – 17 years) appears to be more prevalent among households whose consumption is poor and borderline than for those with acceptable high diets. This trend is particularly evident for primary and Junior High School aged children. Non-attendance of Senior High School aged children from households with good diets is still the lowest, however, surprisingly high with 17% of children not attending. This finding further underlines that education in Ghana beyond the basic level is still and exception rather than the norm.

Table 26: Summary of household food security profiles

	Region (highest prevalence)	Migrating HH members > 3 months	Remittances from abroad	Lowest wealth quintile	Use of safe sanitation	Use of safe drinking water
Poor FC	11% UW rural	22%	7%	53%	30%	86%
Borderline FC	23% UW rural	16%	10%	44%	47%	85%
Acceptable LOW FC	20% UW rural	12%	12%	35%	57%	77%
Acceptable HIGH FC	94% Accra urban	14%	17%	17%	71%	85%

	Dependency Ratio	Female HHH	No schooling of HHH	Non Attendance Primary	Non Attendance JHS	Non attendance SSS
Poor FC	44%	26%	55%	16%	14%	27%
Borderline FC	37%	28%	46%	16%	12%	18%
Acceptable LOW FC	40%	32%	45%	13%	13%	24%
Acceptable HIGH FC	39%	32%	28%	7%	5%	17%

	Agriculturalists	Access to land	Land cultivated in 08	Cultivated >0 <2 ha	Main crop grown	Markets as main source of food source
Poor FC	57%	81%	73%	70%	Maize 20%	58%
Borderline FC	47%	72%	62%	48%	Maize 30%	69%
Acceptable LOW FC	43%	65%	61%	45%	Maize 30%	71%
Acceptable HIGH FC	33%	57%	53%	38%	Cocoa 30%	81%

7 Health and Nutrition

As a primary component of the 2008/2009 CFSVA, WFP/ WHO conducted a health vulnerability assessment in Ghana, which explored the areas most at risk of adverse health impacts. This involved an assessment of both secondary data sources (including previous survey based data) as well as a primary data collection exercise which included a comprehensive household and community survey. Specifics on the CFSVA survey methodology are detailed in previous chapters.

This chapter reports on the results of this assessment, beginning with a brief discussion on the importance of exploring health vulnerabilities alongside food insecurity. The following sections report on health data derived from the 2008/2009 CFSVA, while the final section shows the results of a comprehensive health vulnerability analysis. This assessment explored region specific vulnerability to poor health outcomes using a composite indicator, termed a "vulnerability index", which is created by compiling a combination of 2008/2009 CFSVA indicators and a set of geographic and health indicators from secondary data sources.

Some data collected during the CFSVA has not been reported as sample sizes were too small to report reliable results. In certain instances, data has been mapped by region. In these cases, the displayed categories were devised using natural breaks[48].

7.1 Health and food security: Conceptual framework

WHO states that "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."[49] Food security is defined by whether "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."[50] As these definitions implicitly and explicitly suggest, good health and food security status are inter related constructs, with changes in one likely to affect the other.

A convergence of causal factors, at the community, household and individual level define nutritional status and disability, which in turn impact levels of mortality. Food security status, as a function of a complex interaction between livelihoods and socioeconomic well-being, is both a key determinant and outcome of health throughout this process. The bidirectional relationship between food security and health works through the following pathways:

i) Households experiencing food insecurity will not be able to access adequate amounts and varieties of food. Less food leads to inadequate diets and increased susceptibility to illness. Less food can also indirectly impact health as households adopt certain coping strategies to deal with shortages that weaken the economic well-being and resilience of household. As a result the overall physical, mental and social health of all family members in the household are affected.

ii) Poor health in turn impacts food security by reducing productivity of household members and impairing their ability to access food.

Links between food insecurity and health are discussed in more detail below.

[48] Natural breaks are breaks in the spread of the data (which occur naturally within the data). These provide logical cutoffs for categorizing information.
[49] Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representative of 61 States (Official Records of the World Health Organization, no 2, p. 100) and entered into force on 7 April 1948.
[50] World Food Summit (1996). November 13-17, Rome, Italy.

7.1.1 Food insecurity, poverty and health

Chronic inability to access food (either through production or purchase) can impact health by impoverishing the household. Food insecurity impacts socioeconomic well-being by forcing households at times to rely on negative coping mechanisms, such as selling of livestock or eating seed stocks. While these coping mechanisms enable the household to survive this period of food stress, they lower long term productivity and resiliency (in the case of future shocks). As long term productivity suffers, standard of living decreases and household poverty level increase.

Links between poverty and health are well established. As pointed out in the joint World Bank/ WHO report "Dying for Change", poverty affects health by forcing people to live in unsafe conditions, without access to improved water, sanitation and even proper shelter. While forcing people to live in unhealthy environments, poverty also denies people access to health care, including low cost, highly efficacious routine health services such as maternal prenatal/ birthing care or childhood vaccinations. Poverty also denies people access to the institutions, such as schools, that could provide them opportunities to higher paying jobs. Poor maternal education is also one of the most important determinants of child health and particularly child malnutrition, which alongside poor living conditions, leads to sicker, developmentally impaired children with less opportunities for success later in life. Poor health among working age adults, in turn, reduces their ability to contribute to the well being of the household, whether it be economically or in terms of child care, leaving all members more vulnerable to both food insecurity and poor health, further perpetuating this downward cycle.[51,52,53,54]

7.1.2 Food insecurity, nutrition and health

Poor food security status, or the inability of the household to access necessary foods, can lead to nutritional deficiency amongst household members. It is widely accepted that nutritional deficiency impacts health by impairing the body's natural immune responses.[55,56] Community and hospital based studies, as well as a the WHO Quantification of Health Risk Project have consistently demonstrated an increased risk of mortality from diarrhea, acute respiratory infections and malaria amongst malnourished children.[57,58,59] Most studies show a dose response relationship between malnutrition and elevated mortality rates, with severely malnourished children at greater risk of mortality than mildly or moderately malnourished children, though mortality risks are significantly elevated even among mildly malnourished children.[60,61,62] Decreases in the range of food eaten can also lead to micronutrient

[51] Beegle, K. Labor Effects of Adult Mortality in Tanzanian Households. *World Bank Policy Research Paper*. Washington, DC: Development Research Group, 2003.
[52] Yamano, T. and Jayne, T. Measuring the Impacts of Working-age Adult Mortality on Small-scale Farm Households in Kenya. *World Development*. 2003; 32(1): 91-119.
[53] Yamano, T. and Jayne, T. *Measuring the Impacts of Prime-age Adult Death on Rural Households in Kenya* [Tegemeo working paper]; 2002.
[54] Mather, D., Donovan, C., Weber, M., Marrule, H., and Alage, A. Household Responses to Prime-age Adult Mortality in Rural Mozambique: Implications for HIV/AIDS Mitigation Efforts and Rural Economic Development Policies. Paper presented at the Center for the Study of African Economies Conference; 2004.
[55] Rivera J and Martorell R. Nutrition, Infection and Growth Part II: Effects of malnutrition on infection and general conclusions. *Journal of Clinical Nutrition*; 1988; 7: 163-167.
[56] Scrimshaw N and SanGiovanni J. Synergism of Nutrition, Infection and Immunity: An Overview. *American Journal of Clinical Nutrition*. 1997; 66: 464s-77s.
[57] Man W et al. Nutritional Status of Children Admitted to the Hospital with Different Diseases and its Relationship to Outcome in the Gambia, West Africa. *Tropical Medicine and International Health*. 1998; 3: 678-686.
[58] Yoon P et al. The Effect of Malnutrition of the Risk of Diarrheal and Respiratory Mortality in Children <2 year of age in Cebu, Philippines. *American Journal of Clinical Nutrition*; 1997.
[59] Majid Ezzati, Alan Lopez, Anthony Rodgers and Christopher Murray.WHO. *Comparative Quantification of Health Risks: Global Burden of Disease Attributable to Selected Major Risk Factors*. Volume 1. Geneva, Switzerland: World Health Organization, 2004.
[60] Victora S et al. Risk Factors for Death due to Respiratory Infections Among Brazilian Infants. *International Journal of Epidemiology*. 1998; 18: 918-925.
[61] Fawzi W. A Prospective Study of Malnutrition in Relation to Child Mortality in Sudan. *American Journal of Clinical Nutrition*.1997; 65: 1062-109.

deficiencies, particularly Vitamin A, which is the leading cause of pediatric blindness and a significant contributor to mortality among pre school age children. Numerous studies have shown that Vitamin A deficient children that suffer from diarrhea or measles are significantly more likely to die than non Vitamin A deficient children.[63,64,65] Other micronutrient deficiencies such as zinc deficiency are also thought to place children at greater risk of mortality, though evidence is less conclusive at this stage.

7.1.3 Why assess health and food security vulnerabilities?

Given these links, examining patterns in poor health alongside food insecurity results in a better understanding of current and future, health and livelihood vulnerabilities, helping more clearly define the specific challenges facing communities. In turn, this enables programmers to focus resources on the most appropriate and needed interventions and facilitates an integrated, cross-sectoral approach to alleviating health and food security concerns.

7.2 Current Health Situation in Ghana

7.2.1 Place of delivery

In Ghana, home births under the supervision of either skilled or unskilled birth attendants are common. Giving birth under medical supervision and in clean, sterile environments, however, can help reduce the risks associated with childbirth, increasing the chances that mother and child will have better health outcomes. In order to assess the extent to which women are giving birth under these circumstances, the CFSVA asked women who are the biological mothers of children 0-59 months of age to state where they gave birth to their child; their home, another home, a government hospital, a private hospital or another private medical facility.

National CFSVA data indicated that 54% of respondents reported giving birth in a health facility versus 46% who reported giving birth in a home. Table 27 shows national and sub national trends in place of delivery over time. Examined in relation to previous surveys, the CFSVA finding that 54% of women gave birth in a health facility represents a 12% increase in the percentage of women doing so since 1993, with the most substantial improvements seen in rural areas.

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[62] Pelletier D. The Relationship Between Child Anthropometry and Mortality in Developing Countries: Implications for Policy, Programs and Future Research. *Journal of Nutrition*. 1994; 124: 2047S-2081S.
[63] Beaton et al. Effectiveness of Vitamin A Supplementation in the Control of Young Child Morbidity and Mortality in Developing Countries*. ACC/SCN State-of-the-art series*. Nutrition Policy Discussion Paper #13; 1993.
[64] Fawzi WW, Chalmers TC, Herrera MG, Mosteller F. Vitamin A Supplementation and Child Mortality: A Meta-analysis. *JAMA.* February, 1993; 17;269(7):898–903.
[65] Chowdhury S, Kumar R, Ganguly NK, Kumar L, Walia BN. Effect of Vitamin A Supplementation on Childhood Morbidity and Mortality. *Indian Journal of Medical Science.* 2002;56:259-64.

Table 27: Trends in place of delivery from 1993 to 2008

	1993 DHS		1998 DHS		2003 DHS		2008 CFSVA	
	Health facility	Home	Health facility	Home	Health facility	Home	Health facility	Home
Place of residence								
Urban	79.3	20.5	75.7	22.7	77.6	20.4	80.0	20.1
Rural	28.0	70.9	33.1	66.2	29.3	69.7	38.7	61.3
Regions								
Western	36.3	63.7	43.2	56.2	35.4	63.9	49.6	50.4
Central	34.8	63.8	38.1	50.6	38.8	61.6	60.4	39.5
Greater Accra	79.6	20.4	73.7	24.2	79.6	19.6	84.3	15.6
Eastern	33.3	65.8	35.4	63.5	44.9	54.6	37.4	62.6
Volta	55.3	43.9	47.3	51.3	44.2	54.1	46.5	53.6
Ashanti	53.2	45.3	56.7	43.3	60.0	38.8	64.1	35.9
Brong Ahafo	53.6	45.0	50.9	48.2	56.0	42.6	58.8	41.2
Northern	14.6	85.4	9.2	89.9	16.4	83.1	23.2	76.8
Upper West	22.1	75.3	22.7	75.9	25.7	73.3	40.2	59.8
Upper East	16.9	82.4	15.2	84.8	33.6	65.0	43.7	56.3
Total	**42.2**	**56.9**	**43.4**	**55.7**	**45.7**	**53.4**	**54.0**	**46.0**

Source: DHS 1993, 1998, and 2003; CFSVA, 2008

Despite these improvements in rural areas, CFSVA findings indicated that rural women remain far more likely to give birth at home than urban women, reflecting the continued difficulties accessing health services in rural areas.

Table 28: Place of delivery by place of residence

	Your home	***Other home***	***Public hospital***	***Private hospital***	***Other private***
Urban	17.8	2.3	64.7	13.5	1.8
Rural	56.8	4.5	32.8	5.3	0.6
Total	42.3	3.7	44.6	8.3	1.1

Source: CFSVA, 2008

The patterns in place of delivery by region. Home births remain most prevalent in the northern part of the country (Northern, Upper East and Upper West Regions), with over 70% of women in Northern region and between 50 and 60% of women in Upper East and Upper West reporting a home birth. Women in Volta were also quite likely to report giving birth at home, with close to 60% doing so. Not surprisingly, women in Greater Accra, where access to public and private health facilities is better than in the rest of the country, were the least likely to given birth at home with fewer than 20% of women reporting having done so.

Assessed by agro ecological zone, home births were more common in savannah than in either the forest or coastal zones. By contrast, hospital births were more common in the coastal zone than in either Savannah or Forests zones. Notably, births in private hospitals were equally common in both Forest and Coastal zones, while very few women in the Savannah reported using such facilities. As households are largely responsible private health facility costs, this might reflect the socioeconomic realities.

7.2.2 Health interventions: ITN usage, Vitamin A supplementation and de-worming

Maternal and child health has long been emphasized in Ghana with the Ministry of Health orchestrating two 5 year Programs of Work (POW) during the mid 1990's as well as a POW in 2007 that has led to substantial improvements throughout the health sector. As an integral component of these programs, the MoH has employed the Expanded Programme on Immunization (EPI) in all regions of the country and successive Integrated Maternal and Child Health (IMCH) campaigns (conducted in 2006, 2007 and 2008), focusing on provision of immunizations, insecticide treated bednet (ITN) distribution and usage, twice yearly vitamin A supplementation and de-worming interventions.[66,67,68] As a complement to these interventions, child welfare clinics conduct periodic outreach sessions which include immunizations, growth measurements and monitoring, ITN distribution, vitamin A distribution and birth registry services. To raise awareness of maternal and child health issues, the MoH has also created an annual Child Health Week in which children and their mothers are once again targeted for similar interventions, in the hope that this will spur them to seek these services on a regular basis.

With such efforts and resources devoted to maternal and child health, it is expected that there has been substantial improvements in these key health indicators. The CFSVA which collected information on ITN usage, vitamin A supplementation and de-worming coverage can help measure progress in these areas. The following sections look at these factors in depth.

The IMCH campaigns, utilizing UNICEF's Accelerated Child Survival and Development Strategy (ACSD), have focused on cost efficient and highly effective interventions for improving child health and nutrition. [69] Distributing and encouraging use of ITN's remains one major way children and pregnant women can protect themselves from malaria. According to the Roll Back Malaria Initiative, malaria is the leading cause of under 5 mortality in Africa, responsible for close to 20% of deaths in this age range.[70] Vitamin A deficiency is a serious deficiency that affects child development (particularly development in eyesight). In areas where vitamin A deficiency is a problem, it is a significant of cause of mortality. High dose vitamin A supplementation, a component of the campaign in Ghana, is associated with an over 20% reduction in all cause mortality. De-worming, like Vitamin A supplementation and ITN usage, is considered a safe and cost effective way to improve the health of children. Intestinal parasitic infections affect up to 2 billion people at any given time and can result in persistent disease and inhibited development, especially among children. Through de-worming children can be free of these parasites and enjoy better nutrition, growth and ultimately a healthier and more successful future.

The CFSVA collected information on all three of these factors, using the following indicators: 1) ITN usage the night previous to the survey; 2) receipt of vitamin A supplementation in the 6 months preceding the survey; and 3) receipt of de-worming tablets in the 6 months preceding the survey.

As table 29 shows, over half of all children under 5 (54.5%) reported having used an ITN the night preceding the survey while 90% and close to 70% of children reportedly received a Vitamin A supplement and de-worming tablets in the six months prior to the survey. In the

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[66] Ministry of Health, Ghana Statistical Service. Ghana's Expanded Program on Immunization 2004 National Survey. A Document of the EPI Coverage Survey Steering Committee; 2004.
[67] Ghana Health Service, World Health Organization, UNICEF. Integrated Maternal and Child Health Campaign. November, 2007.
[68] Integrated Maternal and Child Health Campaign 16-18 October 2008: Supervisory visit to Brong Ahafo region; 2008.
[69] Ghana is a one of the four countries where UNICEF's Accelerated Child Survival and Development Strategy (ACSD) is being pilot tested. In Ghana, this strategy (which utilize the following interventions: ITN usage among children and pregnant women, twice yearly vitamin A supplements, deworming of children and increasing the proportion of supervised deliveries) is referred to as High Impact Rapid Delivery (HIRD).
[70] Roll Back Malaria, Malaria in Africa, *InfoSheet*. http://www.rbm.who.int/cmc_upload/0/000/015/370/RBMInfosheet_3.htm, Accessed April, 2009.

case of vitamin A supplementation and ITN usage (where there are comparable survey results of previous years) these results show a marked improvement from the 2003 DHS and 2006 MICS data. In 2006, for instance, MICS estimated ITN usage and receipt of vitamin A supplementation was reported only 22% and 60% of the time. The lack of historical data regarding de-worming makes it impossible to determine comparable improvements.

Table 29: Percent of children using ITNs or receiving Vitamin A supplements and de-worming medicines from 2003 to 2008

	2003 DHS		2006 MICS		2008 CFSVA		
	ITN	*Vitamin A*	*ITN*	*Vitamin A*	*ITN*	*Vitamin A*	*Deworming tablets*
Place of residence							
Urban	9.0	80.6	16.4	55.1	46.6	90.6	77.9
Rural	17.5	77.2	24.8	62.9	59.8	89.8	64.9
Regions							
Western	1.0	80.1	11.5	63.2	43.4	89.9	73.6
Central	0.7	66.8	19.8	53.5	51.9	93.0	82.2
Greater Accra	3.1	74.3	16.3	33.4	42.7	88.2	83.9
Eastern	2.2	82.2	21.5	62.7	55.9	92.0	51.1
Volta	0.3	78.4	24.9	63.0	54.4	89.4	74.0
Ashanti	1.2	82.0	21.8	70.7	54.7	93.4	76.6
Brong Ahafo	2.1	75.1	25.7	75.9	72.4	79.9	65.6
Northern	7.0	78.3	21.9	60.8	50.2	85.0	29.1
Upper West	21.0	85.5	39.3	58.1	72.8	98.7	77.3
Upper East	1.9	84.8	37.1	66.8	85.8	100.0	77.1
Total	14.7	78.4	21.8	60.2	54.9	90.1	69.8

Source: DHS, 2003; MICS, 2006; CFSVA, 2008

7.2.3 Sub national patterns in receipt of health interventions

As figure 40 indicates, there is no difference in the percentage of children in urban and rural areas who received a vitamin A supplements in the 6 months preceding the survey, but there is a noticeable difference between the percentage of children that sleep under an ITN. Children in urban areas appears less likely to sleep under an ITN with only 47% reportedly doing so, while in rural areas close to 60% of children do so. This is significant as malaria is endemic throughout Ghana and precautions should be taken throughout the country.[71] Receipt of de-worming tablets appeared slightly more common in urban areas versus rural areas.

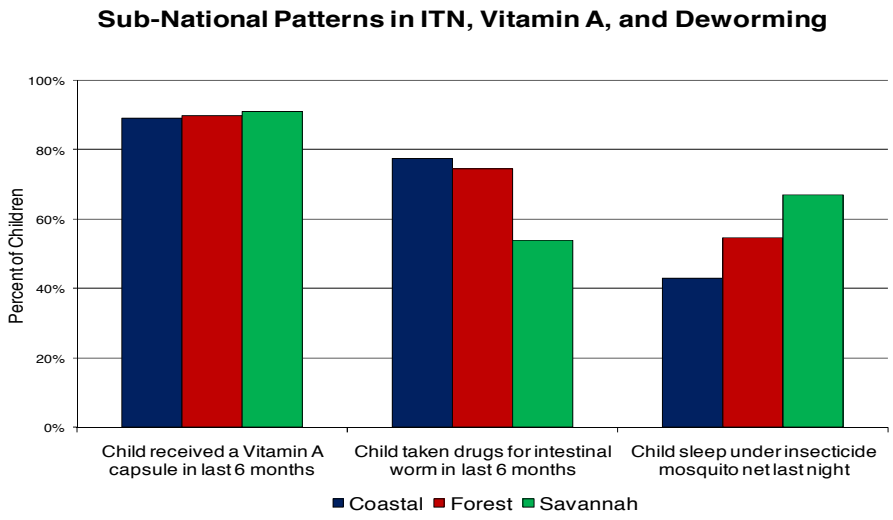
Figure 40 assesses differences by agro ecological zone. As this figure indicates, the percent of children that received vitamin A supplements did not differ by agro ecological zone but there were substantial differences in terms of both ITN usage and receipt of de-worming tablets. Children in the savannah zone reported being most likely to sleep under an ITN but the least likely to have received de-worming medications. Children in the coastal region were least likely to sleep under an ITN while children in the forest zone were most likely to have received de-worming tablets.

The percent of children using ITNs, or having received either vitamin A supplements or de-worming medicines are mapped by region in annex 14. As table 29 indicates, vitamin A

[71] Mapping Malaria Risk in Africa (MARA) [map homepage]. http://www.mara.org.za/mapsdownltab_pdf.htm. Accessed April, 2009.

supplementation coverage was lowest in Northern and Brong Ahafo, and highest in the northernmost regions of the country, including Upper East and Upper West. Coverage of deworming programs was lowest in the middle part of the country with Northern, Brong Ahafo and Volta showing the lowest coverage rates. Ashanti and Upper West reported the highest coverage rates. ITN bednet usage was generally least common in Western, Greater Accra and Northern regions and most common in Upper West, Upper East and Brong Ahafo regions.

Figure 39: ITN usage, vitamin A supplementation and de-worming coverage by agro ecological zone



Source: CFSVA, 2008

To examine more closely the effect of the successive integrated child health campaigns on the percent of children who used ITNs, a further assessment was done looking at trends of bednet usage over time. Throughout the country the percent of children using bednets has increased dramatically since 2003, with the largest rise occurring between 2006 and 2008 (when bednet awareness campaign was conducted). However, there remain some noticeable differences in the magnitude of improvement over this period by region.

In the regions of Central, Western and Greater Accra, fewer than 5% of children reported sleeping under an ITN the night preceding the 2003 survey, while in 2008 that amount rose to between 40% and 50%. Similar findings were seen in the central part of the country, with these regions improving from fewer than 5% in 2003 to over 50% in all cases, with the percentage of children sleeping under an ITN in Brong Ahafo increasing to over 70%. For Eastern, Volta and Ashanti this represents more than a 1000% increase in the numbers of kids sleeping under ITNs. In Brong Ahafo, this is a 1400% increase in the number of children sleeping under ITNs.

Finally in the northern regions of the country, a similar jump in the percent of children sleeping under ITNs was seen. Upper West appeared to improve the most, from fewer than 5% reporting ITN usage in 2003 to more than 80% reporting usage by 2008. This surpasses even the improvements in Brong Ahafo and represents a 1600% increase in the number of children using ITNs. Upper East showed significant improvement as well, but with 20% of children reporting ITN usage in 2003, the net increase was less striking. Lastly, Northern showed a 40+ percentage point improvement from 2003 to 2008.

Maps illustrating the geographic distribution of ITN usage, receipt of de-worming medications and vitamin a supplements can be found in annex 14.

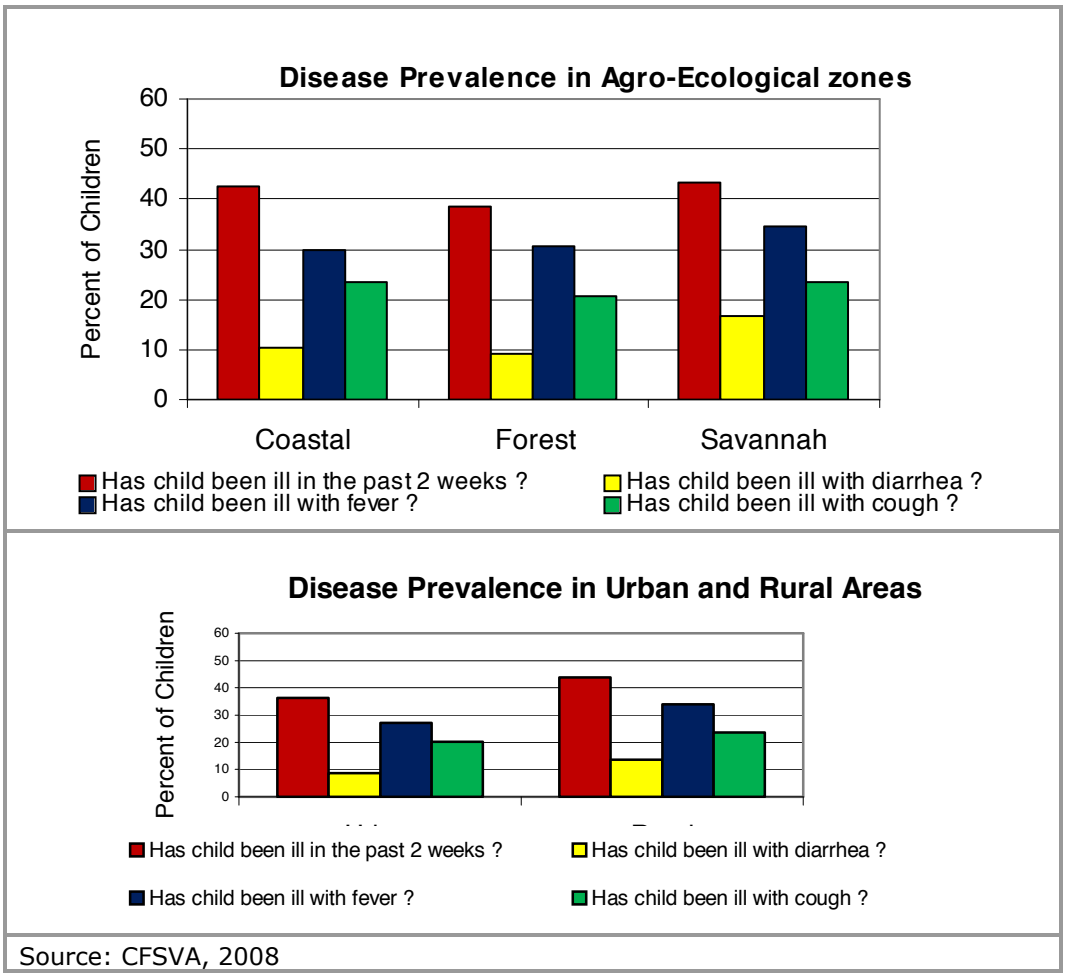
7.2.4 Disease prevalence among children

The CFSVA survey asked respondents whether their children under 5 experienced diarrhea, fever (a proxy for malaria) or cough (a proxy for acute respiratory disease- ARI) in the two week period preceding the survey. It should be noted that the question on cough did not include the important follow up question on whether the child had a cough with difficulty breathing, making this indicator a weak proxy of ARI. Thus, care should be taken when interpreting findings on cough.

Results from the CFSVA indicated that almost 12% of children experienced diarrhea in the two weeks preceding the survey while over 22% reported having a cough. Fever was the most common symptom reported with close to 32% of children reporting an episode. Symptom prevalence was almost identical among male and female children.

Figure 41 shows the percent of children experiencing these symptoms in both urban and rural areas. As this figure shows, all three symptoms were reported more often in rural rather than urban areas, though the differences were relatively small. Figure 41 shows the findings by agro ecological zone. Generally, children in the forest and coastal agro ecological zones experienced these symptoms in similar numbers, with the only differences in prevalence of coughs (which was higher in the coastal zone). Children in the savannah region however had the highest symptom burdens, showing consistently higher diarrheal and fever prevalence.

Figure 40: Child disease prevalence by agro-ecological zones and urban/rural areas



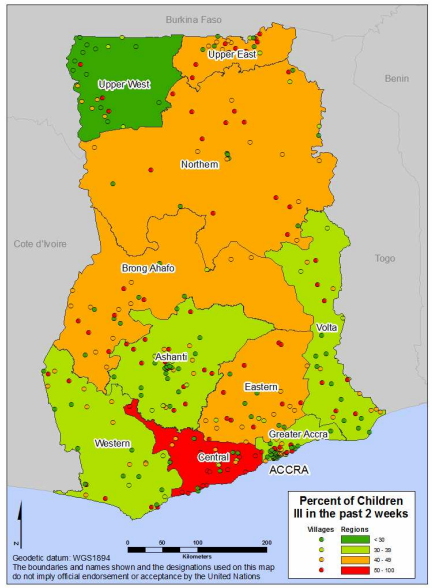
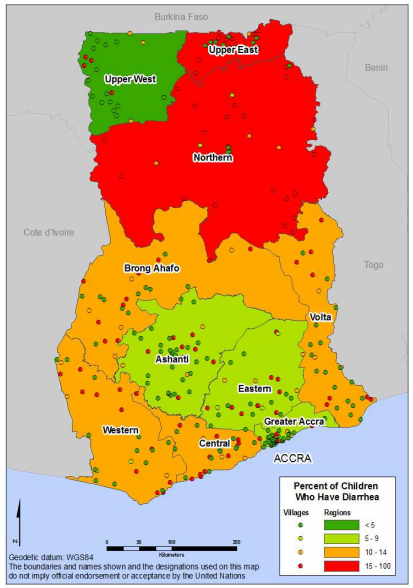
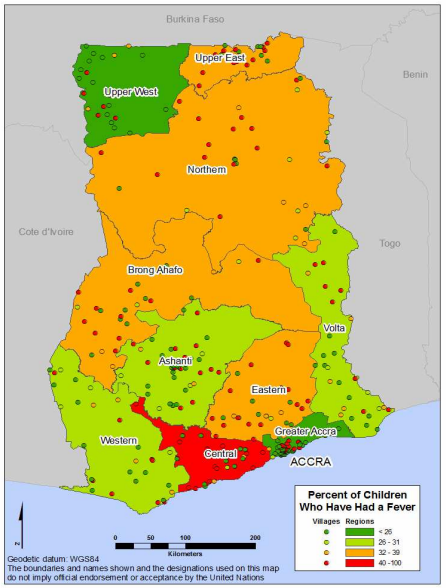
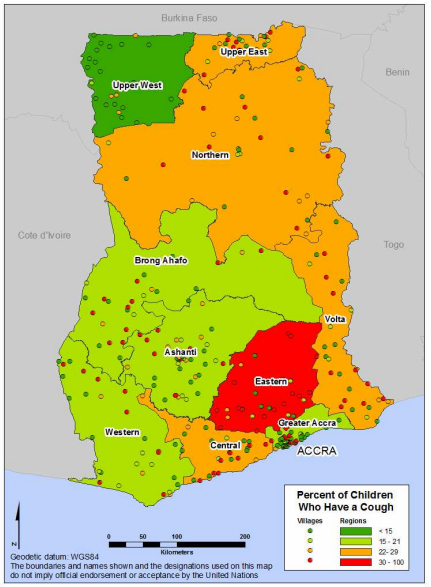
Source: CFSVA, 2008

7.2.5 Regional patterns of childhood disease

Figure 41 shows the regional patterns in the symptoms experienced. Overall, children in the Central region reported being sick most often, with similarly elevated prevalence of illness in Northern, Upper East and Eastern regions. Examining the distribution of diarrhea by region, children in Northern region appeared most affected followed closely by children in Central, Brong Ahafo and Upper East. Fever showed a similar pattern with the highest percentage reported in Central, followed by Eastern, Brong Ahafo, Northern and Upper East. The pattern for cough, differed, however, showing elevated prevalence everywhere except Ashanti and Upper West.

Notably, Upper West had the lowest percent of children that reported being ill as well as the lowest percent of children that reported any of the three symptoms. Reasons for this are unknown.

Map 6: Regional patterns of child diseases

Percent of children by region reporting an **illness** in the two weeks preceding the survey	Percent of children by region reporting an episode of **diarrhea** in the two weeks preceding the survey	Percent of children by region reporting an episode of **fever** in the two weeks preceding the survey	Percent of children by region reporting a **cough** in the two weeks preceding the survey
			
Source: CFSVA 2008			

7.2.6 Access to health care

As access to health care is a critical component of maternal and child health, the CFSVA collected information on whether children received medical care for the symptoms (diarrhea, fever or cough) they reported experiencing. The CFSVA also requested information on where they child received care, and, in cases where the child did not seek care, what were the reasons for not doing so. The findings on all three are discussed below.
When asked if the children received care for the diarrhea, fever or cough that they reportedly experienced in the two weeks preceding the survey, over 90% of respondents indicated that they did in fact seek treatment. Thus there was little variation by region, place of residence or agro ecological zone.

Why is no treatment sought?

For those few respondents that indicated care was not sought, the primary reasons given were either "No money" or "Child not sick enough". However, the number of children not seeking care was so low (and the responses to why they did not even fewer), it was not possible to conduct any sort of analysis on this data or to even produce reliable national estimates. All told there were only 48 respondents who indicated that they did not seek treatment when their child was sick and of these respondents, only 38 provided a reason for not doing so.

Preferred health facility for treatment of childhood illness

With respondents indicating that they almost always sought treatment for their recently ill children, the next step was to ascertain where treatment was commonly received. National CFSVA estimates indicated that government hospitals and health centers were utilized most frequently (by 39% of respondents) with pharmacies utilized by 29% of respondents and 14% of respondents indicating they went to private health centers. As table 30 shows, similar patterns emerged when looking at urban and rural areas, though people in rural areas were less likely than those in urban areas to access pharmacies and private health centers. Here, utilizing drug peddlers and home treatment was reported over the use of private health facilities.

Table 30 indicates the differences in types of treatment sought between agro ecological zones. Notably, respondents in forest and coastal agro ecological zones reported similar patterns. Respondents in Savannah however indicated a much higher reliance on government hospitals and health centers, mobile clinics and home treatment. At the same time, these respondents reported less use of pharmacies and private health centers.

Table 30: Access to health care by place of residence and agro ecological zone

Healthcare	Urban	Rural	Coastal	Forest	Savannah	Total
Government hospital health centre	37.4	39.4	37.2	31.3	49.6	38.8
Mobile clinic	--	2.1	--	1.2	3.0	1.4
Public fieldworker	1.3	1.1	2.2	0.8	0.8	1.2
Private hospital, clinic	17.9	11.5	17.8	16.6	5.9	13.5
Doctor	0.9	0.6	1.1	1.0	--	0.7
Pharmacy	38.5	25.5	35.1	36.8	15.8	29.6
Maternity home	1.0	1.2	--	1.5	1.6	1.1
Shop/market	1.8	4.6	--	4.7	5.7	3.7
Traditional practitioner	--	1.6	1.3	0.6	1.6	1.1
Drug peddler	0.4	12.5	4.0	9.6	11.7	8.7
Home treatment	8.9	13.6	12.1	8.5	16.6	12.1
Other	0.9	1.5	--	1.6	2.1	1.3

Source: CFSVA, 2008

Table 31 shows patterns of health facility use by region. The most important findings were that government hospitals or health centers were most commonly utilized by respondents in Northern, Upper West, Central and Eastern regions and least commonly utilized by respondents in Upper West and Ashanti regions. Respondents in Upper West indicated the strongest reliance on mobile clinics of any region, likely reflecting the distribution of mobile clinics throughout the country. Private health facilities were not commonly utilized in the northern regions of the country (Northern, Upper East and Upper West) nor in eastern parts of the country (Volta). Respondents in Ashanti and Central most commonly reported using private health facilities. Finally, pharmacies were least often accessed in Northern, Upper East and Volta; and most often accessed in Greater Accra and Ashanti. Please see annex 12 for illustrations of the type of health facilities people have access to by region.

Table 31: Access to health care by region

	West.	Centr.	Great Accra	Volta	East.	Ashan.	Brong Ahafo	North	Upper East	Upper West
Government hospital, health center	34.4	41.9	34.8	38.8	42.4	27.9	36.8	54.7	45.1	31.9
Mobile clinic	1.9	0.0	0.0	0.0	1.9	0.9	0.9	1.0	1.4	23.4
Public fieldworker	0.0	0.0	3.5	2.2	1.9	0.0	0.9	0.0	0.0	10.6
Private hospital, clinic	12.8	23.7	16.3	5.6	10.4	23.6	12.3	0.5	13.1	6.4
Doctor	0.9	1.2	0.0	2.2	0.0	0.0	2.9	0.0	0.0	0.0
Pharmacy	26.7	29.7	44.2	21.3	24.6	40.0	50.0	4.3	15.8	29.8
Maternity home	0.0	0.0	0.0	4.5	0.9	3.0	0.0	0.5	1.4	0.0
Shop/market	0.0	0.0	0.0	6.7	7.5	3.8	2.9	6.2	8.2	2.1
Traditional practitioner	0.0	5.9	0.0	0.0	0.0	0.0	0.0	1.0	2.7	10.6
Drug peddler	24.4	3.5	1.1	3.4	4.7	6.6	1.9	19.9	15.0	12.8
Home treatment	3.7	14.0	3.5	33.6	9.5	9.6	2.8	29.0	2.7	12.8
Other	0.0	0.0	0.0	2.2	2.8	0.0	2.9	2.9	1.4	2.1

Source: CFSVA, 2008

7.2.7 Child feeding practices

The WHO/ UNICEF's Global Strategy for Infant and Young Child Feeding provides the standards for new mothers to follow when feeding their child.[72] This strategy calls for exclusive breastfeeding from birth to six months of age. Breast milk is a natural first food, comprising all the energy and nutrients necessary for newborn children as well as important maternal antibodies that enhance the child's natural immune defences. When the child reaches six months of age, however, the mother is recommended to introduce safe and appropriate complementary foods to ensure the child receives all the nutrients required. Unlike the period of exclusive breastfeeding (where children are generally protected from infectious disease), the introduction of complementary foods is an enhanced period of vulnerability for the child, potentially exposing them to natural pathogens. Thus, the Global Strategy for Infant and Young Child Feeding stresses that while complementary foods are integral for proper development among young children, it is crucial that complementary foods meet the following criteria. They must be:

- Timely—meaning foods should only be introduced when the energy requirements of the child can no longer by met by breastmilk alone.

[72] WHO and UNICEF. *Global Strategy for Infant and Young Child Feeding*. Geneva, Switzerland; 2003.

- Adequate—meaning that these foods provide the required nutrients for proper growth and development of the child
- Safe—meaning that food is hygienic and clean

The consequences of improper feeding practices can be severe. Children in the first months of life are particularly vulnerable to illness. The introduction of unsafe water can cause diarrheal illness, threatening the child's development, growth and even life. Generally, children fed improperly have higher disease burdens throughout childhood and often higher levels of malnutrition. Thus, understanding child feeding practices is fundamental in determining the causes of poor health and malnutrition.

To assess the extent of proper and improper feeding practices in Ghana, respondents were asked what types of food each child (including only children 0-24 months of age) had been given in the past 24 hours. Responses were then classified into the following consumption groups (used as proxies of typical consumption):

1) Exclusively breastfed
2) Breastfed and other liquids (including other milk/ formula and water)[73]
3) Breastfed and complementary food
4) Weaned (not breastfed)

Please note that the patterns displayed for urban and rural areas are based on low sample sizes and thus results should be interpreted carefully.

Disclaimer on breastfeeding patterns!

Exclusive breastfeeding rates for children under 6 months of age were lower than expected given results from recent studies, including both the draft DHS report (2009) and MICS surveys (2006). This discrepancy could not be easily explained, but it needs to be taken into account when interpreting these results.

All women start off breastfeeding but only a little over 60% of women exclusively breastfeeding at birth. About 5 percent of women introduced some sort of soft or semi solid food immediately while the remaining 30% provide other milks or liquids such as water. The percent exclusively breastfeeding then drops quite rapidly until six months. Notably, between 6 months and 2 years of age, as many as one-fifth to one-third of all children reportedly received only breastmilk and other liquids during the 24 hours preceding the survey. Please refer to the figure in 47 for a visual demonstration. This finding is significant as it illustrates that a substantial percentage of mothers are not providing the complementary foods needed by their children. Reasons for this often include either lack of knowledge of proper feeding recommendations, difficulty getting children to accept the complementary foods being offered or the inability to access the necessary food. By 2 years of age almost 80% of children have been weaned

[73] Typically the categories "breastfeeding and plain water only" and "breastfeeding and other mild/ formula" are looked at separately as recommended by UNICEF but in this case the sample sizes were too low to separate these categories

Table 32: Percent of children under 6 months of age exclusively breastfed by place of residence and agro ecological zone

	Percent exclusively breastfed	Number of cases
Place of residence		
Urban	37.7	82
Rural	36.8	133
Agro ecological zone		
Coastal	44.4	80
Forest	15.6	71
Savannah	52.2	63
Total	**37.1**	**214**

Source: CFSVA, 2008

As figure 34 shows, feeding patterns in urban and rural areas differ quite dramatically, with exclusively breastfeeding much more common during the first few months of life in urban rather than rural areas. For instance, close to 90% of urban mothers exclusively breastfeed at birth versus fewer than 50% of rural mothers. Exclusive breastfeeding, however, appeared to persist longer in rural areas, leading to relative parity in exclusive breastfeeding rates between urban and rural areas between 4 and 6 months of age. This difference between early and late exclusive breastfeeding is illustrated by the finding that a similar percentage of urban and rural children under 6 months of age are exclusively breastfeed (see table 32).

To better understand differences in feeding patterns by agro ecological zone, exclusive breastfeeding rates for children under 6 months of age were assessed. As table 32 indicates, exclusive breastfeeding rates were substantially lower in forest versus savannah or coastal zones. Overall, only 16% of new mothers in forest reported exclusive breastfeeding, while 44.4 and 52.2% did so in coastal and savannah zone.

7.3 Maternal and child nutrition

7.3.1 BMI of women 15 – 49 years of age

Box 6: How is BMI calculated?

BMI is calculated by the following formula:

BMI= weight in kilograms/ height in meters^2

The cutoffs used to determine underweight status include:

- Overweight=> 25
- Normal= 18.5-24.99
- Mild thinness= 17-18.49
- Moderate thinness= 16-16.99
- Severe thinness= <16

The CFSVA collected the height and weight of all women 15-49 years of age in the sampled households in order to assess their Body Mass Index (BMI). In total, the CFSVA measured 4.069 women but data was either missing or flagged for 984 women. Thus findings are based on 3085 women.

BMI is a measure of maternal underweight which can impact both maternal and infant mortality rates as well as the trajectory of a child's growth in early childhood. As Table 33 indicates, the prevalence of low BMI among women 15-49 years of age was 8.3 nationwide. When examined by place of residence, rural women were found to have almost 3 times the prevalence of urban women (11.5 versus 4.5). Looked at by agro ecological zones, there is a very obvious north-south trend, with the southern coastal areas of the country have the lowest prevalence of low BMI, the middle part of the country having a slightly higher prevalence and the northernmost part of the country have the highest prevalence.

Table 33: Percent of women with low BMI

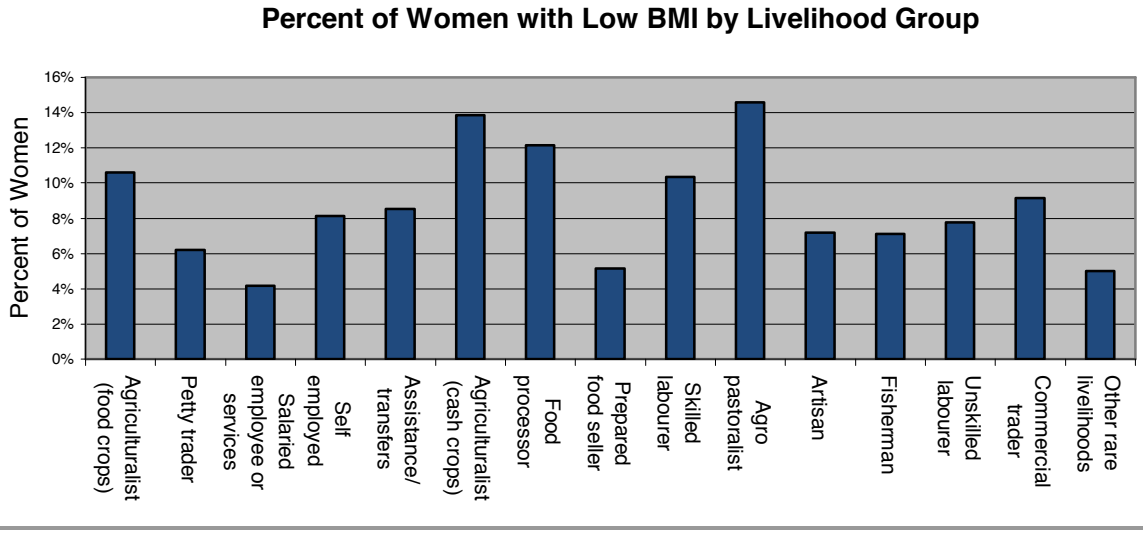
Characteristics	Low BMI <18.5 (women 15-49, non pregnant) [95% CI]	Number of cases
Place of residence		
Urban	**4,6** [3.4, 6.3]	935
Rural	**11,3** [9.9, 13.0]	2150
Agro ecological zone		
Coastal	**6,1** [4.4, 8.3]	908
Forest	**8,2** [6.6, 10.1]	1118
Savannah	**11,5** [9.4, 13.8]	1059
Regions		
Western	**7,7** [4.7, 12.6]	319
Central	**8,9** [5.6, 13.8]	200
Greater Accra	**4,9** [3.0, 7.9]	478
Volta	**11,8** [8.4, 16.1]	289
Eastern	**10,1** [7.4, 13.8]	256
Ashanti	**6,2** [4.2, 9.1]	435
Brong Ahafo	**6,7** [3.8, 11.6]	271
Northern	**12,1** [8.8, 16.5]	357
Upper East	**12,0** [7.4, 19.0]	272
Upper West	**9,7** [6.5, 14.2]	208
Total	**8,3** [7.2, 9.5]	3085

Source: CFSVA, 2008

Examined by region, the north-south pattern just discussed is even more clearly seen. As Table 33 demonstrates, the highest prevalence (between 11 and 14%) are seen in Northern and Upper East. Upper West has only a slightly lower prevalence, as does Volta and Eastern and Coastal (in the south). Greater Accra has the lowest prevalence at 5%.

7.3.2 Socio economic correlated of maternal malnutrition

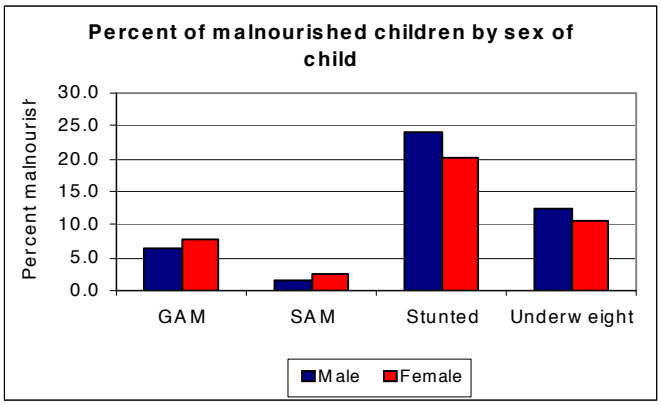
To better understand the relationship between low BMI and various socio economic indicators, the percent of women with low BMI were assessed by wealth quintile, livelihood group and food consumption group. In terms of wealth, the percentage of women with low BMI increased stepwise from wealthier to poorer quintiles, showing a clear association between poverty and low BMI. This association persisted even when looking within agro ecological zones. When BMI was assessed by livelihood group, women from households with more rural livelihoods like "agriculturalists" or "agro pastoralists" had a higher prevalence of low BMI than women in households with typically urban livelihoods like "petty trader" or "salaried employees or services sector".



Source: CFSVA, 2008

The association between low BMI and food consumption was not very clear. As figure 35 indicates, the percent of women with low BMI was similar between the poor food consumption group and the adequate consumption categories.

7.3.3 Child Nutrition



Child nutritional status is measured by anthropometry. These measurements assess both linear growth and/ or thinness. The main anthropometric indicators include weight-for-height, height-for-age, and weight-for-age.

In order to measure these indicators, the CFSVA measured the weights, heights and ages of all children 0-59 months within each sampled household. In total, 2.231 children were sampled, however, WHZ data was missing or flagged for 277 children, HAZ data was missing or flagged for 357 children and WAZ data was missing or flagged for 347 children.

Table 34 shows the acute and chronic malnutrition rates for Ghana overall and by sex of child, place of residence, agro ecological zone and region. Overall, 7.1% of children were wasted (2% severely wasted) and 22.1% were stunted. Close to 12% of children were considered underweight. The above figure examines child nutrition status by sex of the child. As the figure illustrates, male children are shorter and generally more underweight on average than female children. On the other hand, female children appear slightly thinner than male children and appear to have a higher rate of severe wasting.

Examined by place of residence, rates of chronic malnutrition were more prevalent in rural areas than in urban areas while rates of acute malnutrition were similar. An assessment by agro ecological zone revealed elevated chronic and acute malnutrition rates in the Savannah zone. Elevated stunting and wasting rates suggest persistent nutritional deficiencies among children that on occasion become so severe as to result in substantial weight loss and thinness. This combined burden of high acute and chronic malnutrition rates is reflected in the percent of children underweight in the zone, which at over 14% is the highest percentage of children in any zone.

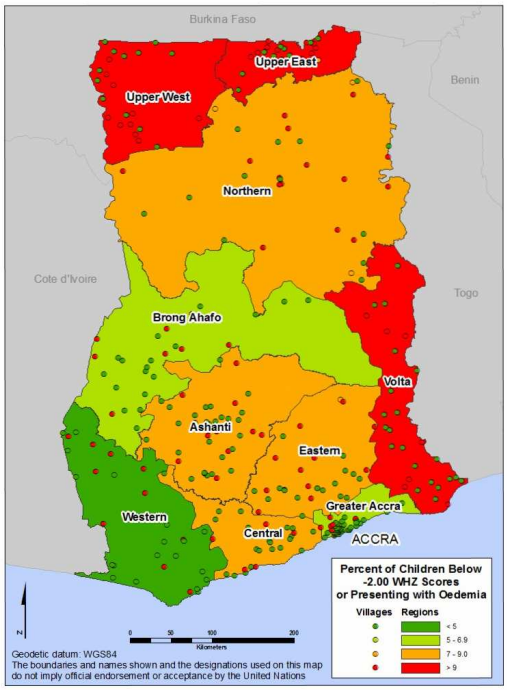
Children in forest agro ecological zone had the highest rates of chronic malnutrition but relatively low acute malnutrition rates, on par with children in the coastal zone. This is indicative of sustained nutritional deficiency as well.

Table 34: Malnutrition rates for children 0-59 months of age

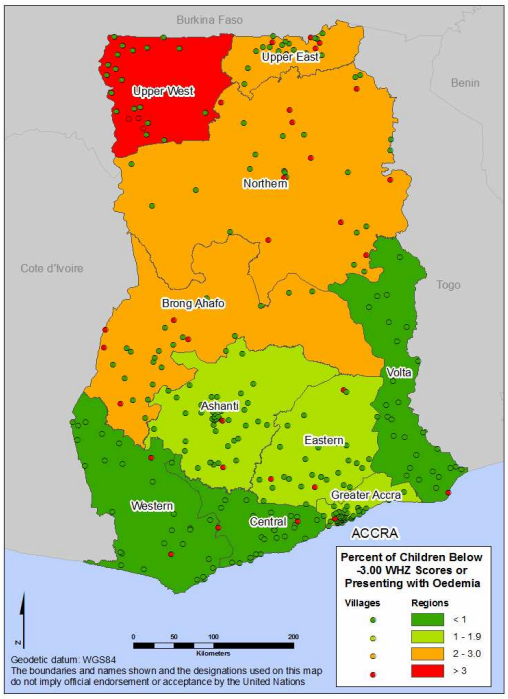
Characteristics	Global Acute Malnutrition [95% CI]	Severe Acute Malnutrition [95% CI]	Number of cases	Stunting [95% CI]	Number of cases	Underweight [95% CI]	Number of cases
Sex							
Male	**6.4** [4.8, 8.5]	**1.5** [0.9, 2.6]	977	**24.1** [21.2, 27.3]	938	**12.5** [10.3, 15.1]	944
Female	**7.8** [6.2, 9.8]	**2.5** [1.5, 4.1]	977	**20.1** [17.6, 22.9]	936	**10.7** [8.7, 13.0]	940
Place of residence							
Urban	**6.5** [4.4, 9.7]	**2.5** [1.4, 4.7]	343	**14.6** [11.3, 18.7]	334	**8.6** [6.1, 12.1]	337
Rural	**7.4** [6.2, 8.9]	**1.7** [1.2, 2.5]	1611	**26.5** [24.2, 28.8]	1540	**13.3** [11.6, 15.2]	1547
Agro ecological zone							
Coastal	**6** [4.0, 8.9]	**1.5** [0.7, 2.9]	400	**13.6** [10.5, 17.6]	388	**7.4** [5.1, 10.7]	390
Forest	**6.5** [4.7, 9.0]	**1.9** [0.9, 3.6]	690	**26.3** [23.1, 29.8]	671	**12.6** [10.1, 15.5]	674
Savannah	**9.1** [7.3, 11.3]	**2.8** [1.8, 4.4]	864	**24.2** [21.3, 27.5]	815	**14.2** [11.9, 16.9]	820
Regions							
Western	**4.9** [2.8, 8.3]	**0.8** [0.2, 3.0]	217	**23.2** [17.8, 29.6]	215	**8.8** [5.5, 13.8]	215
Central	**6.7** [3.1, 13.9]	**1.3** [0.3, 5.1]	121	**21.9** [14.9, 31.0]	117	**14.9** [9.5, 22.7]	118
Greater Accra	**5.8** [3.3, 9.9]	**1.9** [1.0, 3.7]	168	**10.6** [6.9, 16.0]	162	**6.6** [3.7, 11.4]	164
Volta	**8.6** [4.8, 14.8]	**1.1** [0.2, 7.7]	205	**18.3** [13,5, 24.5]	199	**10.1** [6.4, 15.7]	199
Eastern	**7.0** [4.3, 11.1]	**1.7** [0.7, 4.6]	176	**18.6** [14.5, 23.7]	167	**7.7** [4.9, 11.9]	167
Ashanti	**6.7** [3.8, 11.5]	**1.8** [0.5, 5.8]	227	**27.6** [22.1, 33.9]	217	**13.8** [9.6, 19.3]	219
Brong Ahafo	**6.1** [3.3, 10.9]	**3.0** [1.1, 8.1]	184	**21.7** [15.7, 29.1]	182	**10.6** [6.6, 16.7]	182
Northern	**8.3** [5.8, 11.7]	**3.3** [1.9, 5.8]	376	**30.3** [25.4, 35.7]	353	**17.5** [13.5, 22.3]	355
Upper East	**11.0** [7.1, 16.8]	**3.1** [1.3, 7.2]	149	**26.8** [19.2, 36.1]	137	**15.8** [10.9, 22.3]	138
Upper West	**12.3** [6.3, 22.7]	**4.8** [1.1, 18.8]	131	**25.5** [17.3, 36.0]	125	**16.8** [9.9, 27.2]	127
Total	**7.1** [5.9, 8.5]	**2.0** [1.4, 2.9]	1954	**22.1** [20.2, 24.1]	1874	**11.6** [10.1, 13.2]	1884

Source: CVFSA, 2008

Map 7: Geographic distribution of **Global Acute Malnutrition** (GAM) among children < 5 years of age

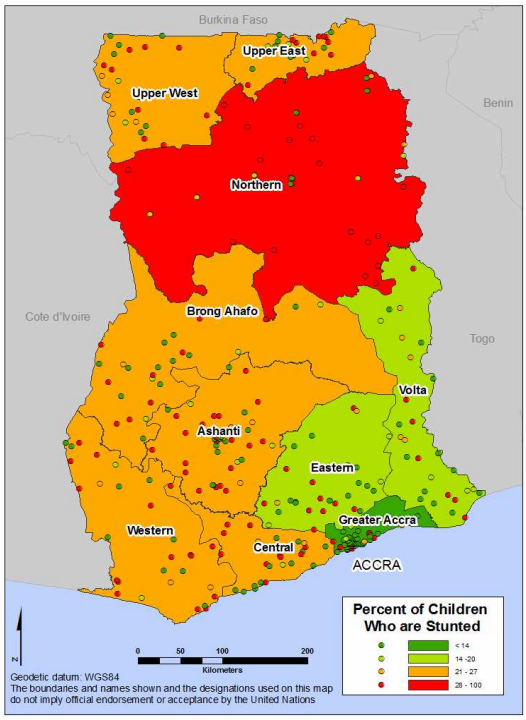


Map 8: Geographic distribution of **Severe Acute Malnutrition** (SAM) among children <5 years of age

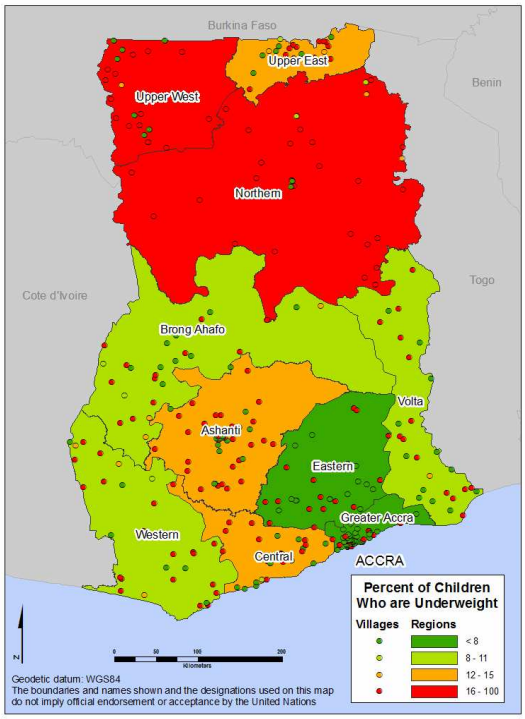


Source: CFSVA 2008

Map 9: Geographic distribution of **stunted** children < 5 years of age (Height for Age)



Map 10: Prevalence of **underweight** children < 5 years of age (Weight for Age)



Source: CFSVA 2008

Examining malnutrition rates by region, children in the northern part of the country (Northern, Upper East and Upper West) appear to be thinner (with higher GAM and SAM prevalence) as well as shorter (with higher stunting prevalence) than children in the southern, coastal areas. This is the same north-south pattern seen in relation to low BMI among reproductive age women. The southern, coastal regions of the country appeared to have lowest malnutrition burden whether be in terms of chronic or acute malnutrition.

7.3.4 Socio economic correlates of child nutrition

To better understand the relationship between childhood malnutrition and various socio economic indicators, HAZ and WHZ scores were assessed by wealth quintile and food consumption group. HAZ scores appeared to be strongly correlated with wealth but showed little correlation with food consumption. Overall, mean HAZ scores improved consistently from poorer to richer wealth quintiles, while showing no discernible pattern in terms of food consumption. WHZ scores, on the other hand, appeared strongly related with food consumption, rather than wealth. In this case, mean WHZ scores improved by approximately 0.25 to 0.4 z-scores from the poor to adequate food consumption categories. There was, however, almost no difference between the mean WHZ scores in the poorest and wealthiest quintiles. In most cases, the general patterns seen in the national data (or lack thereof) were reflected in each agro ecological zone as well. One notable exception was mean HAZ scores and food consumption in the Savannah zone. In this case, HAZ scores appear loosely associated with food consumption patterns, as mean z-scores improve across food consumption categories.

7.3.5 Child growth patterns by age group

In order to better understand the observed growth failure among children, malnutrition rates (and mean z-scores) were examined by age category. This analysis was first carried out at the national level and then by place of residence. Again, given small sample sizes associated with the specific age categories (especially among urban data) there is a need for caution in interpreting these results.

Nationally, growth patterns indicate that the mean z-scores are lowest, on average, from 6-11 months of age. From this point forward, there is general improvement (with some fluctuation) until the child reaches 5 years of age. When looking at low HAZ or stunting, on the other hand, children seem to go through a prolonged period of deterioration from between birth and 3 years of age. Then nutritional status stabilizes but shows little improvement (or catch up growth) from 3-5 years of age. The WAZ curve or the prevalence of underweight tends to show an accurate combination of the stunting and wasting trends.

When looking at growth patterns in urban and rural areas however, some interesting patterns emerge. First, urban and rural patterns in WHZ are similar. As seen in nationwide data, children with the lowest mean HAZ are between 6-11 months of age and there is general improvement from that point forward. In contrast, trends in stunting show a much larger deterioration among rural children during the first few years of life followed by no significant catch up growth at all, with an indication of even some further deterioration. Urban children, on the other hand, show a less dramatic deterioration in the first few years of life, followed by a general flattening out (which is actually characterized by periods of improvement and deterioration). The end result, however, is that the larger deterioration in the first few years of life among rural children is enough to leave them significantly more stunted than urban children by the time they reach the age of five.

7.3.6 Underlying and immediate causes of malnutrition

A chief concern of the CFSVA was to assess potential causes of child malnutrition. In the case of Ghana, the causes of malnutrition were deemed too varied, depending on the region of the country, to conduct one, accurate countrywide assessment. Instead, it was determined that three separate analyses (of both acute and chronic malnutrition) were necessary, one for each agro ecological zone. Then regressions (taking into account the cluster based sampling approach) were conducted, with the dependent variables being WHZ and HAZ. Models were built iteratively, looking at one potential determinant at a time and step by step adding potential control variables, which included child age (and Age-squared), place of residence (urban/ rural), wealth index and crowding. The independent variables assed in each regression were the following:

- Source of drinking water
- Type of toilet
- Receipt of deworming tablets in preceding six months
- Receipt of vitamin A supplement in preceding six months
- Fever
- Diarrhea
- Food consumption score
- Diarrhea experienced in last two weeks
- Fever experienced in last two weeks
- Cough experienced in last two weeks

Findings are discussed below, by agro ecological zone.

Coastal

In the coastal region, regressions assessing WHZ indicated that poor socioeconomic status, high disease burdens, inadequate toilet and poor food consumption scores were all associated with low WHZ. When all factors were included in the model, inadequate toilets and poor food consumption appeared to be the variables most strongly associated with low WHZ. These findings persisted when taking into account child age and place of residence.

In terms of HAZ, regressions, controlling for place of residence and child age indicated that only wealth was associated with low HAZ. In contrast to findings from regressions on children's WHZ, disease burdens and poor water and sanitation did not seem to play a role distinct from the general socio economic status of the household. Likewise various other indicators, like receipt of deworming medication or vitamin A supplements did not seem to play any role.

Forest

In forest agro ecological zone, low WHZ among children appeared to be driven by primarily by whether a child had a fever in the two weeks preceding the survey or whether the household had access to improved sources of drinking water. This was true controlling for socioeconomic status, place of residence and child age.

In terms of HAZ, regressions indicated that stunting was associated with disease burdens as well but here low HAZ was associated with whether a child had an episode of diarrhea in the two weeks preceding the survey. As was seen in coastal as well, low HAZ also appeared to be associated with lower household asset wealth, as defined by the wealth index.

Savannah

In the Savannah agro ecological zone, wasting (or low WHZ) was associated primarily with disease burden, as children who experienced an episode of diarrhea or fever in the two weeks preceding survey were the worst off. These variables remained significant when taking into account wealth status of the household, place of residence and age of the children.

Low HAZ appeared to be associated with diarrhea in the last two weeks, poor food consumption, no receipt of deworming medication and access to inadequate toilets. When the full model was examined low food consumption scores was most strongly associated with low HAZ.

7.4 Geographic distribution of vulnerability to poor health outcomes

A major objective of the health section in the CFSVA was to geographically assess the distribution of people vulnerable to poor health outcomes in Ghana. Health status, as elucidated by WHO, is determined by physical and social well-being as well the absence of illness. Thus to measure health and health vulnerabilities a holistic approach was required. To fully capture the various aspects of health, a vulnerability index was created from a set of composite indicators or sub indices that assessed socioeconomic well-being, current health condition and accessibility/availability of health facilities. The idea behind this exercise was not attach a quantitative vulnerability figure to each region but to look at the relative differences which exist among regions through the use of a qualitative index. To construct these sub-indices, region level estimates were obtained for the following variables[74]:

Socio-economic sub-index

- % of population with primary school or less (CSFVA 2008)
- % of population with secondary school or more (CSFVA 2008)
- % of households in the lowest wealth quintiles (CSFVA 2008)

Health condition sub-index

- Under 5 mortality rate (from the 2003 DHS survey)
- Change (in percentage points) of under 5 mortality from 1993 to 2003 (estimated from DHS mortality rates)
- % of children experiencing diarrheal in the two weeks preceding the survey (CSFAV 2008)
- % of children experiencing fever in the two weeks preceding the survey (CSFVA 2008)
- % of children underweight (below -2 SDs)

Combined availability/accessibility sub index

- Nbr of inpatient beds per 10,000 people (SAM 2005)
- Nbr of doctors per 10'000 people (SAM 2005)
- Nbr of nurses (all type) per 10'000 people (SAM 2005)
- Health facility accessibility index based on:
    - Population density
    - Density of the road network (GIS data)
    - Density of the vegetation (GIS data)

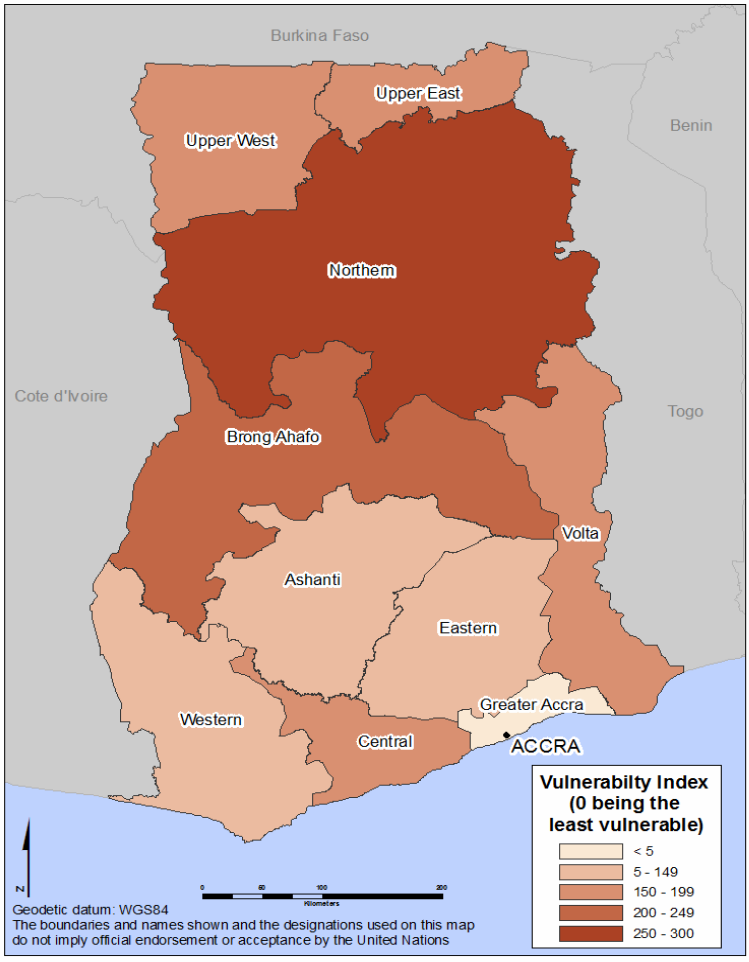
Maps of each sub-index can be found in annex 13.

[74] Certain of these variables were derived from information collected in the 2008/2009 CFSVA while others were taken from secondary data sources, including both survey data (like DHS or the SAM) and geographic information (like the distribution of the road network).

Once compiled, regional values for each of these indicators were then normalized into a comparable scale (between 1-100), with higher values representing higher vulnerability. Then for each sub index, regional normalized values for each variables were combined, by summing them, to obtain the sub index. Regions were then ranked according to vulnerability in each sub index. Regions with a higher sub index vulnerability score were considered most vulnerable.

Then, in the final stage, all the normalized sub-indices were combined, again by summing them, to obtain the final vulnerability index. This index was intended to capture the aggregate vulnerability for the populations within these regions (see table 34) for each aspect of health vulnerability assessed. Regions were then ranked by total vulnerability score, with higher scores indicative of greater vulnerability. Map 11 show the regions considered most vulnerable to poor health outcomes.

Map 11: Health vulnerability index by region



Source: CFSVA, 2009

The results of this analysis indicated the populations most vulnerable to poor health outcomes are those in Northern, Upper East and Brong Ahafos. The Northern region is ranked the most vulnerable. By contrast, the least vulnerable areas include Greater Accra followed closely by Western an Ashanti. The other region typically considered worse off in Ghana, Upper West, has an elevated vulnerability ranking but do not fall within the two highest vulnerability classes.

An overview of key food security and nutrition indicators by all ten regions can be found in annex 1.

8 Risks and Vulnerabilities

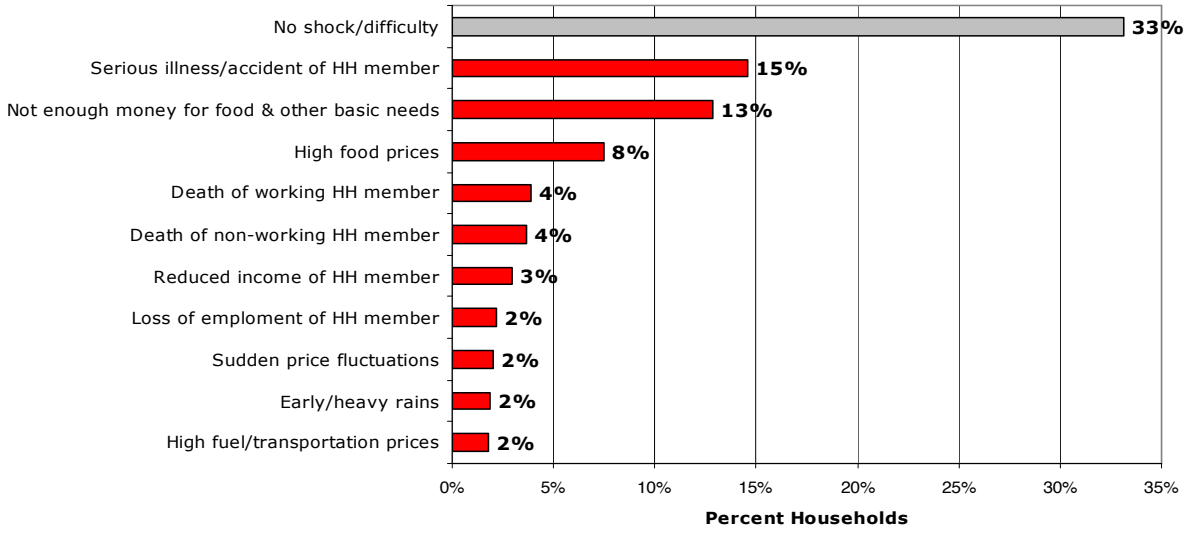
Household food security is determined by the external environment in which people live. Within the external environment, critical trends (e.g. population growth, national and international economic trends, governance and technological changes), seasonal cycles (of prices, production, livelihood strategies), and shocks (natural and man-made) frame the vulnerability context. Within that vulnerability context, the risk to food insecurity is defined as the interaction between the probability of a given hazard of a certain intensity, the vulnerability of the population to the hazard and the size of the population.

The following section provides an insight into the general vulnerability context, difficulties experienced and households' capacities to withstand them. However, not only should more focused impact assessments be conducted after potentially damaging events (either natural or man-made), but also longitudinal studies are advised to be carried out to improve our understanding of shocks and coping mechanisms at different times of the year.

8.1 Exposure to risks and shocks

In the CFSVA households were asked whether they had experienced any "difficulties" over the last 12 months. The wording of the question was deliberately unspecific in order to avoid any pre-empting of the answer. A maximum of two difficulties could be mentioned which were recorded in order of importance. Sixty-six percent (66%) of the households reported to have had difficulties, the most frequently mentioned out of a total of twenty different shocks are listed in graph 41:

Figure 41: Most frequently mentioned "difficulties" experienced between November 2007 and November 2008



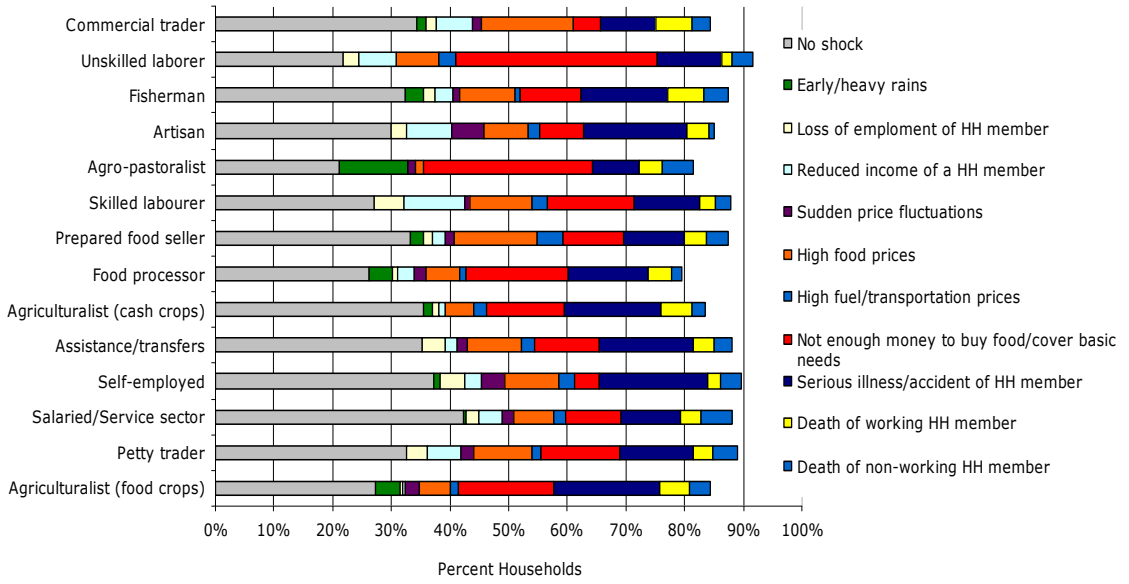
Source: CFSVA 2008

Interestingly, compared to the findings of the baseline survey carried out in March 2004, climate related "difficulties" were very rarely mentioned with only 3% of households at national level having cited drought or early/heavy rains. Back in 2004, drought was the shock that over 30% of households in Upper West, Upper East and Northern region had to cope with, followed by floods with a minimum of 15% of households in each of these regions. It may be argued that the types of shocks households have to deal with have somewhat shifted to more financially related constraints.

Shocks by livelihood

Shocks experienced vary by the livelihood a household engages in. The majority of salaried workers and commercial traders reported not to have experienced any difficulties over the past 12 months. The largest share of households that did were agro-pastoralists and unskilled laborers. For both of them the most frequently mentioned difficulty was not having had enough money to buy food or other basic needs. High food prices were mentioned by all livelihoods. The agro-pastoralists suffered disproportionately of heavy or early rains (12%) as well as by animal disease (5%).

Figure 42: Percent of households having experienced different types of "difficulties" over the last 12 months by livelihoods

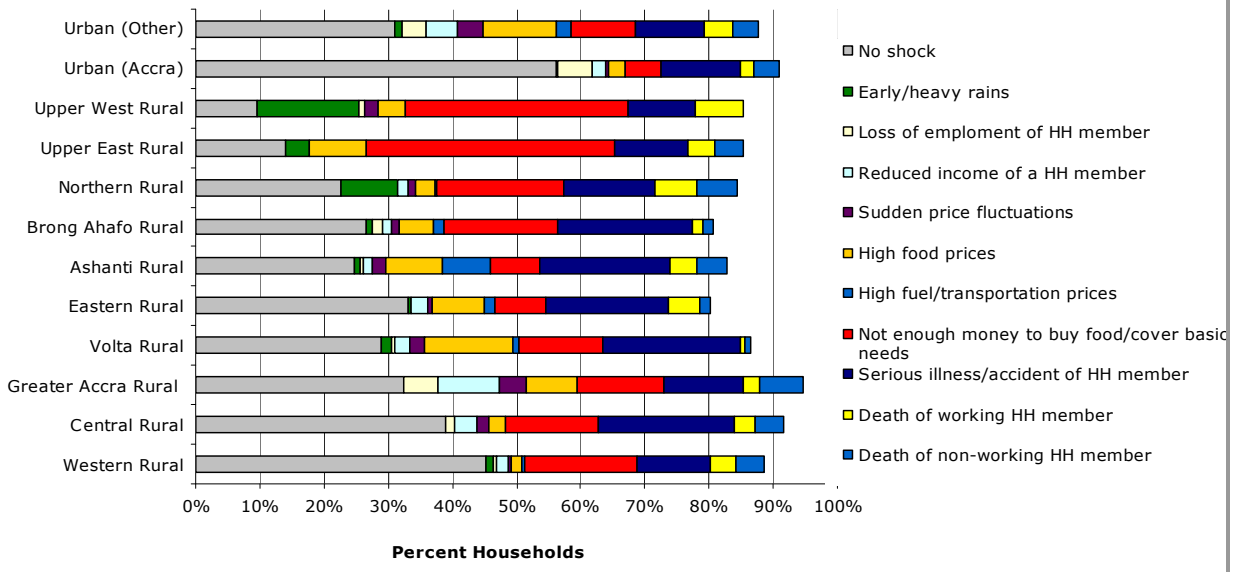


Source: CFSVA 2008

Shocks by region and rural and urban areas

Similar to livelihoods, shocks also differ depending on the location of the country. Households living in urban Accra experienced fewest shocks over the year. The largest share of households that did, live in the rural areas of Upper West region (90%), followed by Upper East (86%) and Northern region (77%). Not having had enough money to buy food or other essential needs was mostly mentioned in those three northern regions, least so in urban Accra or the wealthier regions like Ashanti and Eastern region. Loss of employment was mostly mentioned by households residing in more urbanized areas like Greater Accra (5%), urban Accra (5%) and other urban areas (4%). Ten percent (10%) of households living in Greater Accra region also mentioned reduced income of a household member as a difficulty. High food prices were particularly often mentioned by households living in rural Volta (14%) and early or heavy rains were predominately experienced by households in the rural areas of Upper West (16%) and Northern region (9%). Unavailability of food was mentioned as a shock by 6% of households in the Upper West and Upper East regions.

Figure 43: Percent of households having experienced different types of "difficulties" over the last 12 months by region



Source: CFSVA 2008

Shocks and female headed households

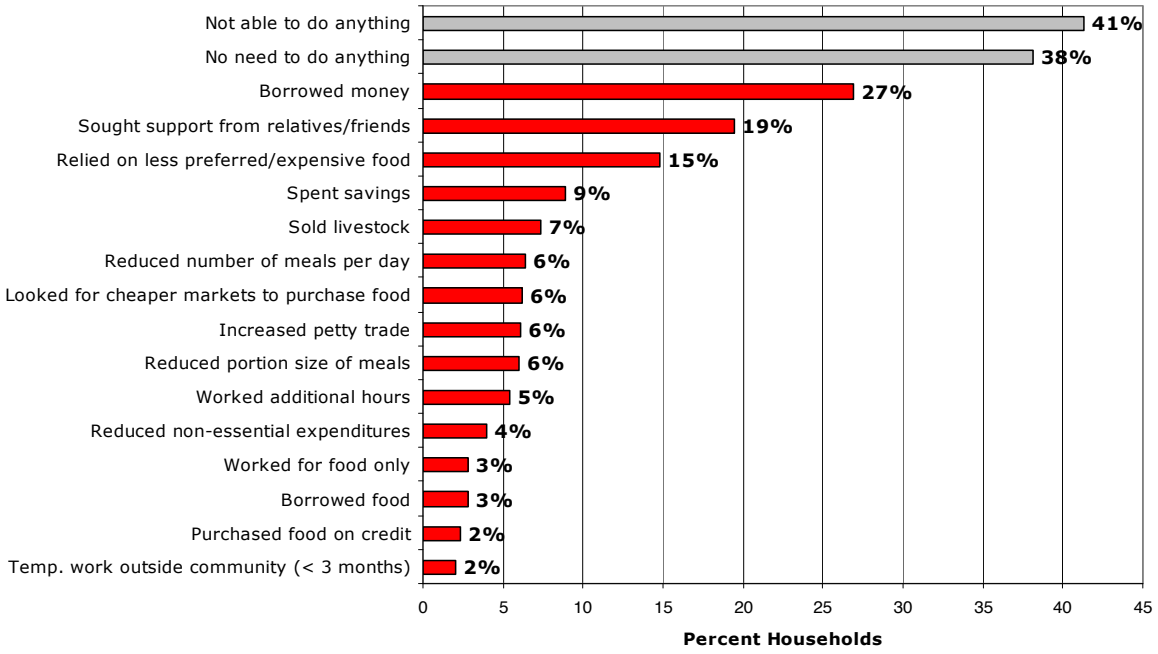
The three most often cited difficulties experienced by female headed households included serious illness or accident of a household member (14%), followed by not having enough money to buy food (11%) and high food prices (10%). In comparison to male headed households, high food and fuel prices were more frequently mentioned by women. This may be due to their greater responsibility to purchase food in the market, thereby being confronted with price developments on a frequent and regular basis. Six percent (6%) of female headed households reported having lost a working household member which may be the reason for them being the head of the household now.

8.2 Capacities to cope

Food insecurity is not static but can change over time. More importantly, people make use of their own capacities and abilities to offset any threats to their well-being and access to food and economic resources. This section is meant to add this important dynamic aspect of food insecurity to the snapshot analysis up to this point, by looking at the shocks that households have been confronted with, the strategies they have adopted to cope with them and the initiatives they have taken (if any) to prevent a similar shock from having the same deteriorating impact in the future.

Households explained what they did in response to the one or two main difficulties they encountered over the last twelve months. Coping strategies have the objective to fend off any potentially negative impact on the household's welfare, however, certain types of coping strategies have the potential to be damaging in themselves, increasing vulnerability. Examples include the selling of productive assets for additional cash, or a rationing of the amounts of foods consumed to make them last longer.

Figure 44: Most frequently mentioned coping strategies used in response to "difficulties" experienced between November 2007 and November 2008



Source: CFSVA 2008

A large percent of households (41%) indicated not to have been able to do anything in response to the shock. Especially, households who were confronted with the death of a working household member and who reported recent sudden price fluctuations as main difficulty, provided that response.

Thirty-eight percent (38%) of households claimed there was no need to do anything in response, implying that the difficulty encountered cannot have been too damaging to the households' welfare.

Below is a list of the most commonly cited coping strategies by households who have indicated to have been confronted with one or two shocks over the past twelve months. It also indicates in response to which specific shock each of these coping means were used.

Borrowing money, the most frequently mentioned coping strategy, can have damaging effects on the household, especially when debts accumulate over time and interest rates are high while the household's financial and natural resources gradually decline. Twenty-nine percent (29%) of poor households resorted to borrowing money compared to 22% of the richer households did. Borrowing money also appears to be a more common strategy in rural (29%) rather than urban areas (23%) with the largest share of households living in the rural areas of Upper East region (44%).

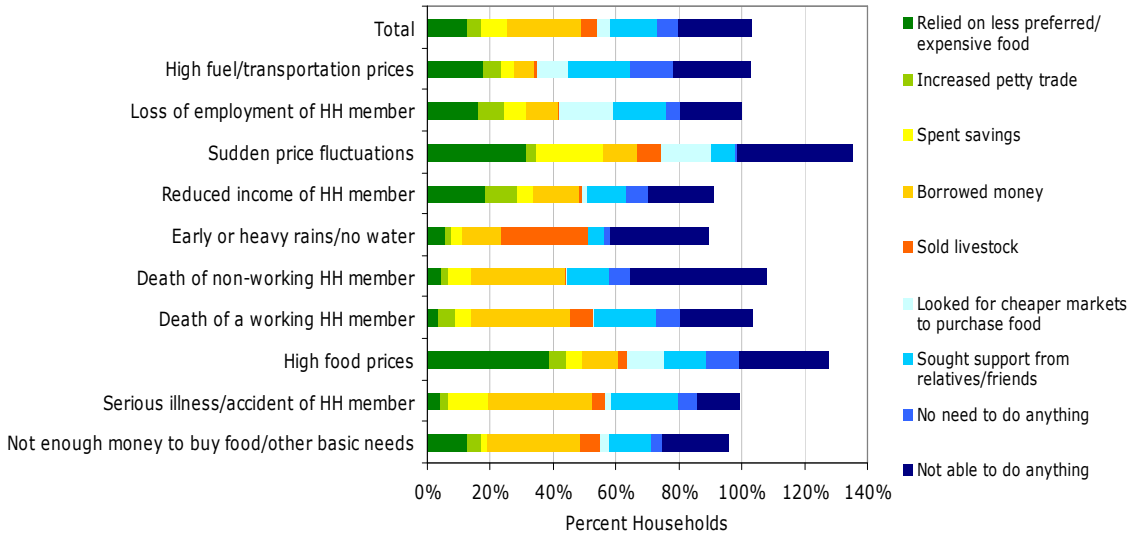
Borrowing money is particularly common in response to a serious illness of a household member (33%), the death of a working household member (31%), and during times of insufficient financial resources for the purchase of food and other basic needs (30%).

Seeking support from family and friends has been an option for all households, regardless of relative wealth or location. It was mostly cited by households living in Upper East (29%) and Ashanti (29%), followed by households living in Accra (25%) and the Greater Accra region (25%). Comparatively speaking, a much larger share of

female headed households opted to seek the support from friends and family (29%) than male headed households (19%).

The support from family and friends was sought in response to a serious illness or accident of a household member (21%), to high fuel and transportation costs (19%) and following the loss of employment of a household member (17%).

Figure 45: Most common coping strategies in response to specific "difficulties" experienced between November 2007 - 2008



Source: CFSVA 2008

Spending savings was particularly common among the richest households (19%) compared to the poorest (4%), possibly reflecting the formers' available financial "buffer" that can be tapped on in times of need. The percent of households that spent parts of their savings are more likely to live in urban (12%) than rural areas (7%) which may be an indication of limited saving facilities available and accessible to the population in the countryside.

Households tended to spend their savings mostly to cope with sudden price fluctuations (21%) and it seems to be a common means to cope with a serious illness or of an accident of a household member (13%).

Selling livestock, which can be considered a type of spending of savings, was most common among the poor and rural population living in the Northern Savannah zone (21%) with the largest household share in Upper West (39%), Upper East (38%) and Northern (27%). The potential impact of selling productive assets such as cattle can be highly damaging to the household's overall welfare, especially if the household's starting capital is already low. It will be useful in future surveys to better define the type of livestock that was predominately sold in response to a shock, because the selling of some poultry and that of a female cow are likely to have very different impacts on households' asset base. Also, it will be important to better understand at what time of the year, such assets are sold.

Selling livestock was particularly common for households who indicated heavy or early rains as one of the main shocks over the past twelve months (28%) and for households who indicated sudden price fluctuations to have been a problem (7%).

Leaving the community in search for work (< 3 months) was mostly used as coping by the poor households and households living in the Upper East region (64%),

followed by Upper West (45%) and Northern (42%). Migrating for work was most prominent among the unskilled labourers (5%) who are involved in agricultural activities. The leaving of a household member over a long period of time can mean a loss of an important source of labour for the farming household left behind. And although the migrant is likely to continue supporting the family from afar, this support is not guaranteed and is likely to fluctuate substantially. In other words, the reduced income of the rural household as a result, can be assumed to negatively impact on the its overall welfare and further on its food consumption patterns.

Migration in search for work was most common as a result of the loss of employment of a household member (13%).

Looking for cheaper markets to buy food was a coping strategy mostly applied by households living in the Greater Accra region (16%) compared to only 1% of households in the Northern region. There appears to be a tendency for richer and urban households to look for cheaper markets as a means to cope which may reflect their greater accessibility to a range of markets they can choose from. This greater accessibility allows them to make the most economic choices that poor and rural households may not have. In fact, large shares of households engaged in livelihoods that were previously identified to be economically better off, indicated to have looked for cheaper markets to purchase their food as a means to cope.

Households looked for cheaper markets to purchase their food following the loss of employment of a household member (17%) and in response to sudden price fluctuations (16%).

Increased petty trading was predominately undertaken by households living in the Upper East (10%), Central (10%) and particularly in the urban areas of then Northern Savannah zone (13%). Increased engagement in petty trading was particularly common among the commercial traders (18%), the prepared food sellers (13%) and the self-employed (12%). There also appears to be a indication that suggests increased petty trading to be more common among female headed (8%) than male headed households (5%).

Increased petty trading was particularly common among households who had to deal with a reduction in a household member's income and employment loss.

Relying on less preferred or cheaper food was the most frequently used food related coping strategy with 15% of households at national level. The majority of households who did rely on less preferred or cheaper foods predominately resided in the forest zone of the country with the highest shares in the rural areas of Brong Ahafo (27%) and Ashanti (24%). It also appears that households living in urban areas are more likely to rely on less preferred or cheaper foods (18%) than rural households (13%). Similar to looking for cheaper markets to purchase food, this may be a reflection of urban households having greater accessibility to a range of markets that allows them to make the most economic choices which rural households may not have.

Reliance on less preferred food was particularly common for households who cited high food prices to have been the main problem over the year (39%), as well as sudden price fluctuations (31%) and the reduction of a household member's income (19%).

Reducing the number of meals per day and other food consumption coping strategies were not very common at a national level, however, once the data was disaggregated, regional difference appeared. For example, households who have resorted to reducing the number of meals per day predominately live in the rural areas of Upper East (23%), Upper West (10%) and Brong Ahafo (14%). The reduction of the number of meals eaten per day is a more common coping strategy among poor

households (10%) than richer households (4%) and households with poor food consumption patterns (11%) than with acceptable diets (6%).

The reduction of the number of meals was mostly done by households who experienced a reduction of a household member's income (11%), in response to the high food prices (6%) and in times of shortages of money (6%).

Spending days without eating was reported by 13% of households living in the rural areas of Upper East compared to just 1% of households at national level and by 4% of poor households compared to none of the richer households.

Whenever households opted for spending days without eating, it was done so because of unavailability of food.

Food assistance received: Thirty-three percent (33%) of households indicated to have received some form of food assistance over the past 12 months with half of the population (50%) in the rural areas of Upper East and 48% in Upper West. Least percent of households having received food assistance live in Western region (23%).

8.3 Impact of shocks on households' access to food

Households were asked whether any of the main difficulties they cited led to a decrease in their household's ability to produce or purchase enough food to eat for a period of time. For all the shocks that were cited almost all households indicated that they had indeed led to a decline in access to food. This may be a reflection of the leading nature of the question, however, it appears **a serious illness or accident of a household member** and **high food prices** had the largest impact for the majority of households.

The most frequently mentioned shocks across regions and livelihoods refer to limited or stretched purchasing power which is ultimately lack of access (lack of money, high food and fuel prices, reduced income, etc.). IFPRI (2008) carried out a very interesting simulation study[75] estimating the impact of rising staple food prices on households' consumption across the different regions and between rural and urban areas. Change in consumption in this case is the percent change in food expenditures[76].

In line with the CFSVA findings, it points out that the severity of the impact of high food prices on households' welfare (and therefore food security status) depends on the location where the household lives and its socio-economic status. Both, location and socio-economic status, determine a household's food expenditures, food consumption patterns and food production.

Both studies find that the urban poor population is likely to be worst affected by high food prices given their large share of their income they spend on food and the lack of the "safety-net" of own production that cushions their poor countrymen in the rural areas against the impact of high food prices, at least temporarily.

Given that the diet in the northern regions mainly consists of cereals and larger shares of income are spent on them compared to the south, the impact of high cereal prices can be assumed to have had the greatest impact on the poor households living in the urban areas in the northern regions.

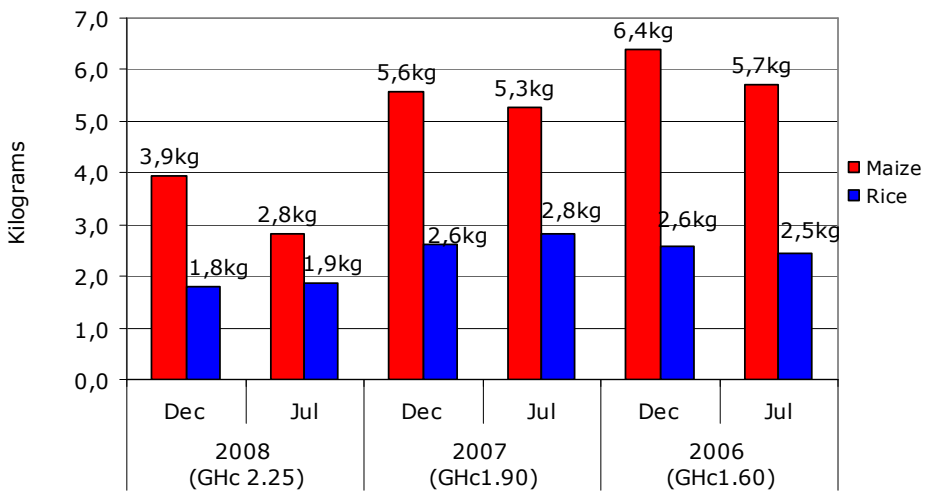
The study found that while rural households in the Southern Savannah experience a 3.4% decline in grain and root consumption, the consumption decline in the Northern

[75] IFPRI (2008); Local impact of a global crisis: Food price transmission and poverty impacts in Ghana.
[76] It is based on households' staple food consumption collected by the GLSSV (2005/2006) combined with data on staple food price increases between 2007 and 2008.

Savannah rises to 9.4%. The negative change in consumption is particularly high for urban households in both regions, where staple food consumption is reduced by 15.6% in the Northern and 7.1% in the Southern Savannah. Furthermore, extremely poor households are significantly worse off in urban compared to rural areas. Poor households living in urban areas across the four zones, consume an average of 19.8% less staple foods, with a 30% decline in the Forest zone, a 20% decline in the Northern Savannah and 15.6% decline in the Coastal zone.

The terms of trade simulation below illustrates the drastic decrease in kilograms of staple foods the national daily minimum wage rate could buy in 2008. In December 2008, the daily minimum wage of GHc 2.25 could buy 3.9 kg compared to 5.6 kg at the same time the year before with a minimum wage of GHc1.90. In July 2008, quantities had dropped by almost half from 5.3kg in 2007 to 2.8 kg in 2008.

Figure 46: How many kilograms of maize and rice could the minimum daily dage rate buy over the past three years?



Source: CFSVA 2008

Although prices have been gradually coming down since their peak in mid 2008, except rice prices, lasting effects of the crisis are very likely, having left households more vulnerable and poorer than before. Seventy-five percent (75%) of households reported expenditures to have gone up over the past twelve months, of whom 83% singled out expenditures on food to have been most significant. Higher expenditures on food are likely to have left less room for the purchase of essential productive non-food assets, such as agricultural tools, seeds and fertilizer. In fact, as already discussed above, price hikes were most pronounced during the middle of the year, when most and critical investments into agricultural land have to be made. High food prices may have forced farmers to make fewer investments into their land, their main livelihood source, which in turn could have impacted on their agricultural returns. Although at national level the 2008 agricultural season is considered to have been better than the year before, 41% of households reported the 2008 harvest to have been worse. The largest share of households saying so lived in the rural areas of Upper West (63%), Volta (55%) and Northern region (50%).

Coping strategies and female headed households

The most prominent coping strategies female headed households resorted to include seeking support from relatives and friends (29%), compared to 15% of male headed households, borrowing money (24%), increasing petty trade (8%) and spending savings (8%). Seven percent (7%) indicated to have reduced the portion size of meals.

8.4 Critical risk related trends

High food prices and global financial crisis

As already discussed in the previous sections Ghana has been confronted with high food prices since 2007, with dramatic price hikes in mid 2008. Additionally, the global economic and financial crisis continues having its toll on the country's already weakened macro-economy marked by a high budget and current account deficit, a decline in exports (particularly pineapples, shea nuts, timber), and decreasing international remittances. According to an assessment on the impact of high food prices and the global financial crisis on household food security in April 2009, the direct impact of the global economic and financial crisis on Ghana as of April is small, but potentially large.

Assessment findings show several channels through which these new price and market related developments can impact, in fact reverse, recent gains and progress made with regards to poverty reduction, hunger and malnutrition should prices remain high and markets volatile. For example:

- Households engaged in export oriented production could be affected by lower export volumes and lower export prices, due to a decreasing global demand in the wake of this financial crisis. Affected are farmers producing cocoa or horticultural products, collectors of shea nuts, workers employed in the timber industry or in gold mining;
- Declining international remittances will negatively impact households that rely on them as one of their sources of income. The majority of international remittances are received by the better off households in the country. However, their contribution to Ghana's domestic informal support system of providing support to friends and family can be assumed to drastically decrease. This chain reaction from a decrease in international remittances to a decrease in the support distributed within the country, can be assumed to further decrease the purchasing power of a large number of households who rely on the support from their friends and families as one essential income source;
- Expected cuts of ODA will reduce the government's resources to expand ongoing and implement planned social safety net initiatives and other such programmes that should lead to the achievement of the MDGs.
- With the depreciating cedi, food and fuel imports are likely to become more expensive; in fact, food prices are expected to increase again during the course of 2009.

Box 7: The Economic Shock and Hunger Index (ESHI)

WFP conducted a global risk analysis and created an in early 2009 to identify the nations most vulnerable to the unfolding global financial crisis. The analysis included 40 low-income food deficit countries with more than 20% of the population undernourished and more than 20% of children under five underweight. It yielded a list of 40 countries that were deemed vulnerable. Ghana is one of them because the country:

- receives high levels of remittances from abroad
- is heavily reliant on trade
- has low international reserves
- has enjoyed high Foreign Direct Investment (FDI)
- has weakened exchange rates
- has high current account deficits
- is dependent on Official Development Assistance
- has low GDP per capita

Natural hazards

Ghana is particularly prone to droughts and flooding. WFP's contingency plan (2008) considers floods to have the highest probability of occurring with potentially severe consequences, especially between August and September. Often, these floods are preceded by a lack of rain or dry spells during the most crucial time of the cropping season.

In fact, over the past four years, Ghana has experienced two major natural disasters that have rendered affected populations acutely food-insecure and made the provision of food assistance a necessity. These disasters have been both of a slow onset (metrological and agricultural drought) and rapid onset (flash flooding) nature and struck the Northern Savannah zone the most.

In 2004, eight districts in the three northern regions experienced a drought during the critical stages of the planting season. This led to a marked reduction in food production of an estimated 35% and significant increases in cereal prices. To cope with the crisis, an impact assessment immediately after the shock found that most households engaged in adverse food and non-food coping strategies such as sale of productive assets, a reduction in intake of meals to once a day and consumption of seeds intended for the next planting season.

In 2007, a series of multiple-hazard events interactively culminated in extensive flooding in Upper West, the Upper East and the Northern region. The abnormally hazardous rainfall in August and river flooding was combined with episodes of drought. Combined with the high level of vulnerability of the population, these adverse weather conditions led to extensive damage of farm land, losses in the regional economy with the annual food production reduced by 66% in the Upper East and 24% in the Northern region and widespread food insecurity. According to the Emergency Food Security Assessment (EFSA) conducted in 2007, 70.600 people were identified to be vulnerable to loss of life, 195,400 were vulnerable to a significant deterioration of their livelihoods. Most prominent coping strategies at household level included the reduction of the amount of food and the number of meals eaten, the consumption of hunger foods like bush yams, bitter leaves and waste products from milled cereals, taking children out of school, the selling of livestock and increased migration away from the affected areas to urban centres.

Underdevelopment of the agricultural sector

Due to the underdevelopment of the agricultural sector, low returns and limited alternative job opportunities in the rural areas, Ghana's rural-urban and north-south migration of young people in search of work is on the rise. This increasing trend poses a vulnerability threat at several fronts: at the family's level, the migrant's personal level and the national level. Migrants' families, especially those engaged in farming, are left behind with a weakened labour base to work the land due to the lack of capacity and technical knowledge required to ensure sufficient agricultural returns. Limited labour can trigger the well-known and wide-spread vicious circle leading to decreased income, to a damaged asset base, increased poverty and difficulties in accessing sufficient nutritious food.

The drainage of young people from rural areas, not only negatively impacts the household but the country's economy at large. Food crop farming had to give way to the substantive financial support provided to high value crop agriculture over the years, leaving food crop farmers with dwindling opportunities and incentives, driving (young) people out of the sector to take their chances elsewhere. Extensive effort needs to be made at governmental level to make the farming sector more attractive and a lucrative income source. The FASDEPII is clearly a commendable policy in this regard.

Last but not least, the influx of people to urban areas has already resulted in high incidence of unemployment and underemployment of young people in towns and cities, overcrowding, etc. The situation is compounded by the limited capacities of and financial support provided by the municipalities. Seventy-five percent (75%) of all employed persons in the urban areas work in the informal economy which does not provide any insurances, safety-nets, nor pension schemes. In Greater Accra region alone 71% of all employed persons aged 15 years and older are active in the informal sector (HDR 2007). The GLSSV found that poverty in Accra has increased from 5% in 1998 to 12% in 2005/2006 which is believed to be the result of extensive internal migration to the city.

9 Conclusions

9.1 Underlying factors of food insecurity

The CFSVA indicated that 5% of households (a total of 1.2 million people) in Ghana were food insecure. This national average, however, obscures significant regional differences, with the most affected households being those in rural areas of the Northern Savannah zone. In total, 34% of households in Upper West, 15% in Upper East and 10% in Northern region were determined to be food insecure.

An additional 2 million people were found to be vulnerable to food insecurity, as their diets were barely adequate at the time of the survey. Any deterioration in diet, given seasonal factors (such as the lean period) or shocks (food price increases, poor harvest, etc), would result in food insecurity. Again, the most affected areas were the regions in the Northern Savannah zone, however, this appears to be a phenomenon that is also prevalent in the rural areas of Brong Ahafo, Ashanti, Eastern and Volta region.

With over 3 million people affected or vulnerable to food insecurity, it is important to address the root causes of this problem. This requires both an understanding of macro as well as micro-level factors that affect households' access to food.

Table 35: Key indicators for regions with the highest prevalence of food insecurity

	Upper West	Upper East	Northern	Volta	National Average
Population size	625.000	984.000	2.166.000	1.822.000	22.901.000
Main livelihood groups					
Agriculturalists (food crops)	38%	54%	52%	27%	25%
Agriculturalists (cash crops)	14%	0%	2%	1%	8%
Agro-pastoralists	2%	9%	12%	2%	2%
Food Processors	10%	3%	1%	6%	3%
Unskilled laborers	4%	4%	1%	2%	3%
Lowest wealth quintile	58%	64%	61%	32%	20%
Food insecurity					
Food insecure	34%	15%	10%	3%	5%
Vulnerable to become food insecure	14%	20%	17%	7%	9%
Child malnutrition (0-59 months)					
Wasting	12%	11%	8%	9%	7%
Stunting	26%	27%	30%	18%	22%
Underweight	17%	16%	18%	10%	12%
Maternal malnutrition (BMI <18.5)	10%	12%	12%	12%	8%

Source: CFSVA 2008

Macro level factors

High food prices have been a problem since 2007. At their peak in July 2008, the inflation adjusted real price of maize had increased by 88% compared to the same month the year before. In December 2008, the daily minimum wage of GHc 2.25 could buy 3.9 kg compared to 5.6 kg at the same time the year before. With markets being the main source of food for 80% of households, the majority of the population is highly vulnerable to such market upheavals.

The impact of the global financial crisis, as identified by WFP's assessment in April 2009, has manifested itself in the decline of agricultural export crops such timber, cocoa, shea nut and horticultural products, and a decrease in remittances coming from abroad. Smallholder farmers engaged in the cultivation or production of exported cash crops, have already seen their income decline. The same is true for the 16% of households for whom remittances from friends and family is one of their major income sources. Furthermore, the global financial crisis is likely to result in the decline of ODA which will greatly constrain the governments' resources earmarked for the maintenance of ongoing social safety net programmes and new future initiatives that are meant to pave the way to achieve the MDGs.

Natural hazards, such as floods and droughts disproportionately impact the poorer populations in the northern regions of Ghana. Floods, in particular, have destroyed large areas of cultivated land at crucial times during past cropping seasons, leaving the farming population with reduced harvests to sustain them throughout the year and a damaged asset base that takes a long time to replenish, if at all. Reduced resilience is likely to trigger a chain reaction, resulting in which has been found to be limited access to sufficient and nutritious food.

Household and community level factors

Alongside these societal and community level pressures, certain household factors are important determinants of food security status. These include access to essential assets like education and markets, livelihood strategies and socioeconomic well-being.

Lack of education was associated with food insecurity. Amongst households that were headed by an individual who had never received any schooling, more than half were food insecure. Likewise, the majority of children who were not attending school at the time of the survey were from food insecure households. Lack of education will hamper their potential to escape from the food insecurity-poverty trap in the future.

School infrastructure is deficient in the Northern Savannah Zone, one the reasons why school-feeding might not be able to reach the most food insecure households in this region.

Lack of road infrastructure and **access to markets** is highly common in the Northern Savannah zone, leading to high transaction costs that further stretch households' purchasing power and limits their potential for marketing their agricultural products. Eighty-percent (80%) of gravel roads in Upper West and 66% of gravel roads in Upper East region are of fair or poor condition77. Poorly developed road networks pose a barrier and discouraging households to produce beyond their subsistence needs.

The survey identified fifteen distinct livelihoods. **Livelihoods** related to agriculture had the largest shares of food insecure and vulnerable households. These included food crop farmers, cash crop farmers, agro-pastoralists, unskilled labourers, and food

[77] Ghana Road Surface Condition Report 2007, Ghana Statistical Service.

processors. The underlying reasons these livelihoods were disproportionately affected are as follows:

Most farming households in Ghana make use of traditional, often inefficient practices, rely entirely on rainwater for irrigation and cultivates land that is less than 2 ha in size. These factors contribute to strikingly **low agricultural production**, insufficient to sustain the household during the course of the agricultural cycle. Additionally, most food crop farmers do not have the necessary storage and drying facilities that would allow them to keep their produce for commercialization at favorable times of the year (i.e. not during the harvest when prices are low). Extension services that provide agricultural support and advice to remote farming households are greatly limited. All these factors prevent the farming population from producing beyond their immediate needs, and keep them at a subsistence level. This lack of incentives makes the young population leave the rural areas and find more lucrative jobs in Ghana's towns and cities, which in turn strips the farming population of essential agricultural labor further increasing their vulnerability.

In absolute terms, households engaged in these farming livelihoods had the lowest average annual per capita income of all livelihoods. That of food crop farmers falls below the national poverty threshold which further highlights their **constrained purchasing power** resulting in large shares spent on food. In fact, food expenditures are particularly high for the unskilled laborers with 61% of their income spent on food compared to the national average of 52%. Lack of purchasing power is of course a burden for other livelihoods as well, including those that are most common in urban areas. The urban poor were found to spend up to 67% of their income on food. Their disadvantage is the lack of an agricultural "buffer" that their poor counterparts in the rural areas have, at least temporarily.

Lack of purchasing power translates into minimal or no investment into the household's livelihood strategies. Maximizing or at least maintaining the returns of the household's livelihood strategies - which could include the building of storage and drying facilities, buying agricultural inputs such as fertilizers - becomes difficult when financial resources are exhausted by purchases of food.

Negative coping was found to be the response. Eighteen percent (18%) of the urban population were found to rely on less preferred or cheaper foods in response to shocks experienced over the last twelve months. Fifty-one percent (51%) of agro-pastoralists were found to have sold some of their livestock mostly in response to early or heavy rains experienced during 2008. Selling productive livelihood assets in turn damages the already vulnerable livelihoods of households which is likely to lead to food insecurity.

Remittances or assistance (money and food) from friends and relatives is a major livelihood in Ghana. For eight out of the fifteen livelihoods, remittances represent the third most important income source and for 9% of it is the first most important income source, contributing 85% to their overall income. While international rather than domestic remittances have been declining as a result of the global financial crisis, those 16% of households that receive them will in turn be less likely to provide assistance to friends and family within the country themselves. This is a chain reaction that not only leads to the erosion of an informal, yet well-established, support system but that can have devastating impacts on a large share of households who depend on this type of support. Furthermore, reduced international remittances can also be expected to negatively impact the purchasing power and wellbeing of those households who receive them, especially if the declining trend is going to continue over a long period of time.

9.2 Underlying factors of malnutrition

The CFSVA assessed the nutritional status of children (0 and 59 months) and women (15 to 49 years of age). At a national level, child malnutrition rates are classified as "poor" according to WHO nutrition thresholds78. Wasting, a manifestation of acute malnutrition, stood at 7%. Stunting, a reflection of chronic deficiencies, was 22%. Underweight, a composite measure of acute and chronic deficiency, was seen amongst 11% of the children. Compared to the last nutritional survey (MICS 2006), the percent of underweight children has declined, indicating general improvements in nutritional status.

National averages hide significant regional variation. High wasting and stunting prevalence was observed among children in the Northern Savannah zone (9.1 and 24.2% respectively). Stunting prevalence was also high in the Forest zone. Here, 26.3% of children were stunted.

Below is a list of most prominent underlying factors of acute and chronic malnutrition in Ghana which greatly vary depending on the location.

Child feeding: A detailed analysis of child feeding for children <23 months of age was not conducted. However, an observational assessment of differences in child growth and feeding patterns revealed some possible correlations between the two. Young child growth patterns indicate large increases in stunting between birth and 3 years of age. The most rapid deterioration was seen between 6 and 23 months of age, which is when children are supposed to be receiving breastmilk and proper complementary foods. An analysis of child feeding patterns indicated, however, that one-fifth to one-quarter of children during these months did not receive any complementary foods in the 24 hours preceding the survey. Inadequate receipt of solid foods over a longer period of time, as recommended, could be a major factor in the rapid increase stunting among children. This link should be more closely examined in future assessments.

Poor asset wealth, a proxy of purchasing power, is typically strongly associated with the nutritional status of populations. This was seen in Ghana as well, at least in terms of chronic malnutrition for children and underweight among women. Chronic childhood malnutrition, low BMI among women and asset poverty were strongly correlated, particularly in the Northern Savannah zone where all three factors are most prevalent. Acute malnutrition among children, by contrast, was not associated with household purchasing power.

Intergenerational cycle of malnutrition occurs as underweight mothers give birth to small babies that then continue to be small throughout childhood and into adulthood. Findings from the CFSVA suggest this may be a problem in Ghana. An observational assessment of regional estimates indicated that the northern regions of Upper West, Upper East and Northern had the highest prevalence of underweight mothers, as well as the highest prevalence of malnourished children. This link and ways to disrupt it should be examined more closely in future assessments.

9.3 Household food insecurity as a cause for malnutrition

At national level, lack of access to food was only significantly associated with wasting, which is an outcome of acute reduced energy intake either because of a worsening diet or inability to absorb the nutrients ingested. Stunting, which reflects chronic malnutrition, was more strongly associated with wealth of the household. However, depending on the location, causal factors changed.

[78] WHO, Management of nutrition in major emergencies, IFRC/UNHCR/WFP/WHO, Geneva 2000

In the coastal zone, lack of access to food was associated with wasting (acute malnutrition). Since wasting is an outcome of reduced energy intake/absorption over a short period of time, this finding suggests a worsening in households' food consumption patterns or to increased disease burdens shortly prior to the data collection in November 2008. It may be that households had not yet harvested and were confronted with a shortage of food. Other factors for wasting in the coastal zone included poverty, high disease burden in the form of fever and diarrhea, as well as unsafe sanitation facilities. Stunting in the coastal areas was related to poverty only.

In the savannah zone, disease (diarrhea and fever) was the determining factor of wasting. Stunting however, was caused by a lack of access to food at household level (poor and borderline food consumption). Stunting is generally the result of long-term, structural shortcomings at the household and community level. Given the link, this finding suggests inadequate diets, common among the poor population in that part of the country, has long lasting and irreversible effects on childrens' mental and physical developments. Other factors significantly associated with stunting levels included diarrhea, the lack of de-worming medication as well as unsafe sanitation facilities.

In the forest zone, lack of access to food was not an underlying determining factor of the nutritional status of the child. Instead, underlying factors of wasting included fever in the last two weeks preceding the survey and access to safe sources of drinking water. Stunting was closely linked to an episode of diarrhea two weeks preceding the survey and the poverty level of the household.

10 What needs to be done?

Programmatic recommendations

One of the main objectives of a CFSVA is to provide recommendations as to what type of assistance, food and non-food assistance alike, may be most appropriate and effective in supporting the poor and vulnerable people in accessing sufficient and nutritious food all year round.

Two CFSVA stakeholder meetings with government counterparts, UN agencies and NGOs were held in Accra (February 2009) and Tamale (April 2009) to share initial ideas and discuss potential response options, following the presentation of CFSVA findings. The discussions and recommendations made were meant to give an impetus for further exchange and collaboration between all stakeholders whose mandate is to provide solutions to persistent food insecurity in the country.

Recommended response options include immediate interventions to address current malnutrition and ill-health among children and women, medium- to long-term support to people's livelihoods, with a particular focus on agriculturalists, to help them gradually build up their asset base that guarantees greater resilience in the future. Additionally, recommendations include the improvement and strengthening of already existing monitoring and preparedness measures that can detect a deterioration in people's welfare and food security status at an early enough stage to allow for interventions that prevent the situation from spiraling out of control. Recommendations of food security interventions fell into the following broad domains and the specific response options are summarised in tables below.

- Livelihood support
- Safety nets
- Nutrition and Health
- Education
- Monitoring and preparedness

Most importantly, a number of preconditions for the success of any assistance were extensively highlighted and concern the approach of implementation:

- Any food security intervention should be built on already existing programmes and initiatives and should aim to improve and/or expand them. New, stand alone activities should be avoided.
- Coordination among all stakeholders is the key. Effective communication channels ought to be established and existing ones strengthened, responsibilities of each should be clear and known to everyone;
- As part of the Government's decentralization process, districts and their assemblies should be increasingly more involved in and be responsible for the decision making progress regarding most appropriate and feasible response options to address food insecurity and malnutrition;
- Surveys such as the CFSVA should feed into government policies and provide the basis for strategies that aim to address persistent food insecurity at the central level which in turn provide clear guidance for implementing partners at the grass-root level.

LIVELIHOOD SUPPORT

According to the CFSVA findings, food insecurity is particularly prevalent among the farming and agro-pastoral population and in the rural areas of the Northern Savannah zone. In sum, they include the widespread use of traditional farming systems that hamper productivity, lack of access to markets to commercialize agricultural surplus, limited purchasing power at household level, dependency on rainwater for cultivation all year round, etc.

The recommended response options below are considered to help break the cycle of subsistence farming, make farmers active participants of a food market chain and support them in cultivating horticultural crops and creating alternative reliable and sustainable income sources, particularly during the lean season. The government's agricultural policy FASDEP II (2007) provides the ideal framework within which food security interventions within the agricultural sector should be implemented. The policy provides very clear and concrete, pro poor strategies targeted at the district, community and household level and to which future projects should be linked, whenever feasible and appropriate. For example, MoFA's support to districts for food security will focus on at most two food crops. Choice of crops will be based on comparative advantage, importance of the crops to people in the zone and availability of markets. Farmers cultivating these crops will receive support in terms of irrigation and sustainable management of land, improved planting materials, and appropriate mechanisation, to enhance productivity along the whole value chain. Targets for productivity and production growth of selected commodities will be set annually.

As highlighted in the GPRSII, increasing effort is needed to facilitate in-country processing of agricultural and forestry produce. Increasing the country's manufacturing capacities will reduce Ghana's vulnerability to global price fluctuations of export crops, such as coconut, timber, shea nut, pineapples and bananas and add value, in addition to creating job opportunities.

LIVELIHOODS SUPPORT & ASSET CREATION		
Type of Intervention	**Who?**	**Geographic location**
Supply of agricultural inputs (i.e. fertilizers, tools, seeds…)	Food, cash crop farmers and agro-pastoralists in food insecure areas	Nationwide but with particular focus on Northern, Upper East, Upper West, north Volta
Provision of high breed animals, improved veterinary services with	Agro-pastoralists	Upper East

LIVELIHOODS SUPPORT & ASSET CREATION		
Type of Intervention	**Who?**	**Geographic location**
increasing contact hours		
Construction of irrigation facilities and provision of improved farming technologies	Farming households and agro-pastoralists living in drought prone areas and high soil degradation	Northern, Upper East, Upper West, north Volta
Building of storage and processing facilities at household and community level	Agriculturalists	Nationwide but with particular focus on Northern, Upper East, Upper West, north Volta
Creation of market outputs for farmers and agro-pastoralists; link to industry and private sector; Purchase for Progress	Agriculturalists with the potential to produce more than what is required for household consumption and with marketing potential	Nationwide but with particular focus on Northern, Upper East, Upper West, north Volta; districts with relatively high productivity and with highest staple food price increases as identified by the FSMS and MoFA's price monitoring system should be prioritized
Training in improved agricultural practices for soil rehabilitation, soil fertility, use of improved seeds, etc.	Food and cash crop farmers in food insecure areas; special focus on women farmers	Upper East, Northern, Upper West, north Volta with specific focus on areas prone to droughts and/or floods
Agricultural training of women farmers and adolescents	Women and adolescents from poor small scale farming households with migrating household members	Rural areas especially in Upper East, Northern, Upper West
Promotion of dry season horticulture farming by improved watershed management and rainwater harvesting coupled with formation of Water User Associations	Small scale farming households and agro-pastoralists living in drought prone areas, with limited access to markets and high malnutrition prevalence among children below 5 years; schools with gardens	Drought prone areas with long dry season in Upper East, Upper West, Northern and north Volta; areas with high micro-nutrient deficiencies and limited job opportunities other than within the agriculture sector
Provision of access to affordable grants and loans to agriculturalists	Small-scale agriculturalists and agro-pastoralists	Nationwide but particularly in Northern, Upper East, Upper West, north Volta
Geographic expansion of MoFA's extension services coupled with increased contact hours with farming population, especially agro-pastoralists	Poor, small scale agriculturalists, with particular focus on women farmers and agro-pastoralists	Specific focus on remote rural areas in Northern, Upper East, Upper West, north Volta
Alternative livelihoods and micro-finance projects to allow for diversification of income (e.g. village cereal banking, salt packaging)	Women; widows; widowers, the elderly as well as other small-holder farmers solely relying on cereal and tuber crop production	Northern, Upper East, Upper West, north Volta; rural and urban areas with high rural-urban, north-south migration
Community based initiatives to increase community assets (i.e. construction of latrines, storage and drying facilities, school buildings, etc.)	Poor communities with lack of basic infrastructures, sanitation facilities and high malnutrition rates	Nationwide
Promote processing, good agricultural practices (hygiene, proper use of pesticides, packaging, etc.) and storage to increase value addition to all commodities	Agriculturalists with the potential to produce more than what is required for household consumption and with marketing potential	Nationwide

LIVELIHOODS SUPPORT & ASSET CREATION		
Type of Intervention	**Who?**	**Geographic location**
Scale up of credit/microcredit programmes		Poor, smallholder farmers in the remote areas of Upper West, Upper East and Northern

SOCIAL PROTECTION & SAFETY-NETS

The flagship safety-net project in Ghana is the LEAP that targets the extremely poor households in the country with a bi-monthly cash transfer. Although still limited in size, the LEAP is meant to increase from 26,200 in 2008 to 164,370 beneficiaries by 2012. The project makes use of a Single Register which keeps record of approximately 50,000 extremely poor households, which includes households with orphans and vulnerable children, persons with severe disabilities and the extremely poor above 65 years.

A Social Protection and Livelihoods Technical Committee (SPLIT) has been formed as the national technical working group on social protection charged with coordinating complementary services in line with Ghana's National Social Protection Strategy (NSPS) among all MDAs. The objective should be to ensure that food security interventions target those most in need and work in a complementary fashion with other ongoing social protection initiatives and services, specifically the LEAP, to reinforce the benefits they each bring.

SOCIAL PROTECTION & SAFETY-NETS		
Type of Intervention	**Who?**	**Geographic location**
Expansion of regular LEAP	Elderly, widows/widowers, chronically sick people	Upper East, Upper West, Northern, including both, rural and urban areas
Complementary food transfers to emergency LEAP beneficiaries	Elderly, widows/widowers, chronically sick people (PLHA)	Upper East, Upper West, Northern, including both, rural and urban areas and in districts with highest price increases
Promote urban agriculture as safety net for poor migrants, slum dwellers	Unemployed migrants	Urban areas nationwide

NUTRITION & HEALTH

Maternal and child health in Ghana has received a lot of attention and resources over the past two decades which has resulted in striking improvements of childrens' and mothers' nutritional and health status. The various and most recent campaigns and initiatives that have been carried out by the Ministry of Health are spelled out in details in section 7. The country's five year Programme of Work 2007 – 2011 "Creating wealth through health" has the objective to move from ad-hoc to preventive health care, to which ongoing and future interventions should be aligned.

Shortcomings still exist in the health sector and national malnutrition rates remain poor, reaching serious levels in the northern parts of the country. Short term interventions, in this regard, should include the expansion of targeted supplementary and vulnerable group feeding programs in order to address acute nutritional needs of children, young women and of chronically ill people, including ART patients. Areas with high prevalence of malnutrition as identified by this survey should be prioritized for the promotion of appropriate feeding practices in health centres to all pregnant women. Also, active case finding of malnourished children and women, mostly done by the Child Welfare Clinics should be improved.

Most prominent underlying factors of malnutrition among children include disease, particularly fever and diarrhea, poor sanitation, unsafe drinking water and lack of deworming medication, inadequate feeding practices. Depending on the needs and shortcomings of the regions, interventions will have to include 1) the distribution of insecticide treated bednets to decrease the prevalence of malaria and fever, 2) a nationwide, powerful campaign on the benefits of safe sanitation facilities and 3) the treatment of drinking water. Information on the underlying causes of malnutrition and preventive measures should be shared with women during ante-natal care visits at health facilities as much as possible.

One of the biggest challenges to address will involve ensuring equal geographic coverage of quality, accessible health care facilities in all regions and rural and urban areas and ensuring manageable nurse and doctor to population ratios everywhere. The continuation of mobile clinics, especially in Upper West, is strongly advised.

The continued expansion of the NHIS has greatly increased the demand for health services in Ghana, which is a positive development likely to contribute to the further reduction of malnutrition and ill-health in the country. However, at the same time, increased demand has led to significant shortages of staff which will need to be addressed urgently.

NUTRITION & HEALTH		
Type of Intervention	**Who?**	**Geographic location**
Targeted supplementary feeding programmes	Pregnant and lactating women and women with BMI < 18.5; children under 5 months	Areas with high wasting rates, particularly in Upper East and Upper West
Support to complementary feeding	children between 6 – 23 months (6–9 months is critical)	Nationwide
Scale up of vulnerable group feeding	Children under 5; mothers with BMI < 18.5; ART patients	Nationwide
Provision of nutrition related information/training during women's regular ante natal visits	Pregnant and lactating women	Nationwide
Provision of nutrition rehabilitation centres as well as increased access to health facilities of improved quality		Areas with endemic lack of health facilities
Scale up of government's salt iodization programme	Entire population	Nationwide
Micro-nutrient fortification through the scaling up of community based milling and fortification centres	Women; widows; widowers, the elderly	Communities in the Northern Savannah zone with high micro-nutrient and malnutrition rates
Breast-feeding campaigns and dissemination of information during ante natal visits with major focus on its benefits in particular during the first year of the child's life	Pregnant and lactating women and women	Nationwide with great focus on rural areas
Campaign/education on benefits of clean drinking water, techniques in how to make/keep water clean, rehabilitation in areas with low access to safe drinking water	Communities in areas with limited access to safe sources of drinking water, high prevalence of diarrhea	Specific focus on rural areas in Brong-Ahafo, Northern, Central, Western, Upper East and Volta region
Campaign/education on benefits of safe sanitation facilities	Communities in areas with low access to safe sanitation facilities, with high prevalence of diarrhea	Rural areas in Northern, Upper East, Upper West
Provision/Campaign of insecticide treated mosquito nets	Areas with high malaria and fever prevalence	Nationwide but with particular emphasis on Central, Western, Greater Accra and

NUTRITION & HEALTH		
Type of Intervention	**Who?**	**Geographic location**
		urban areas
Provision/Campaign Deworming medication		Nationwide but with particularly focus on Northern, Brong Ahafo, Volta especially rural areas;
Provision/Campaign Vitamin A supplements		Northern, Brong Ahafo

MONITORING SYSTEMS

One of the CFSVA's purpose is to recommend key indicators related to food and nutrition security for regular monitoring, ideally as part of the already operational FSMS. Its objective is to detect a deterioration in peoples' food security status at an early enough stage for timely interventions, if deemed necessary. Currently, the FSMS collects information on a monthly basis. This may not be necessary for some of the recommended indicators (i.e. food consumption, expenditures, wealth index, etc.) for which bi-monthly or quarterly monitoring would be sufficient. Monitoring may be recommended to be more frequent during the lean season, depending on the concerns and needs of the areas. While efforts at this stage should be channeled to improving and strengthening the current system, it is recommended to geographically expand its coverage to include the northern parts of Volta region. Should the system be expanded, both geographically and thematically, the active involvement of other relevant development partners, in addition to MoFA and MoH, is highly recommended in order to ensure its relevance in other food security related sectors.

MONITORING		
Dimension	**Indicators**	**Level**
Availability	Food production	National and sub-national (ideally district)
Access	Market prices of staple crops	Community
	Food consumption and diversity	Household
	Household food and non-food expenditures	Household
	Remittances	Household, macro
	Trends of agricultural exports	Macro
	Cross border trade	National, regional, community
	Wealth	Household
Utilization	Child nutrition and BMI	Individual
	Morbidity	Individual
Risks/Shocks and coping	Migration	Household, Community
	School (non-)attendance	Household, Community
	Livelihood change	Household, Community
	Climate/forecasting	Regional
	Agricultural constraints	Household, Community

EMERGENCY PREPAREDNESS

Preparedness measures are advised to be established in the districts and communities, as close to the vulnerable people as possible in order to minimize and mitigate potentially negative impacts of natural shocks on households' welfare and food security status. In fact, any such emergency preparedness measure should be focusing on those areas in the country that are most prone to adverse weather conditions such as floods and droughts. While droughts tend to be more expansive, covering larger areas, floods are generally more confined and localized. In the same

vein, it was recommended that buffer stocks of food be set up at regional, if not district level, in order to ensure easy and timely access in times of need.

EMERGENCY PREPAREDNESS MEASURES		
Type of Intervention	**Who?**	**Geographic location**
Development and rehabilitation of dams, reforestation along river banks	Farmers affected by 2007 floods and other communities living close to river banks	Upper East, Northern, Upper West, north Volta with a focus on those areas prone to adverse weather conditions
Public works: construction of (feeder) roads	Communities in rural, particularly remote areas with market access problems	Northern, Upper East, Upper West, north Volta
Development of Emergency Preparedness Plans and Disaster Risk Reduction strategies at district and community level	Communities in rural, particularly remote and poor areas with frequent occurrences of natural disasters	Northern Savannah zone with particular focus on areas prone to droughts and floods
Training of Community Relief Committees in the early detection of early warning signals	Communities in rural, particularly remote and poor areas with frequent occurrences of natural disasters	Northern Savannah zone with particular focus on areas prone to droughts and floods
Establishment of buffer staple food stocks at community level		Northern, Upper East, Upper West, north Volta, focusing on disaster prone areas
Strengthen management capacity of MoFA, GHS, Meteo Service and establish clear communication channels among them; set up of joint organizational forum with focus on emergency preparedness mechanisms		Nationwide and at regional, district and community level

EDUCATION

Education is key in ensuring food security as highlighted by this survey. Ghana has made significant progress in providing universal access to primary school which has been partly achieved through the country's school feeding programme, in addition to the capitation grant which provides free basic education to every child between 6 and 14 years. One big challenge of Ghana's School Feeding programme concerns the unequal distribution of schools benefiting from it. Additionally, the general school infrastructure beyond primary school level is recommended to be expanded, particularly in the rural areas of Northern Savannah zone.

EDUCATION		
Type of Intervention	**Who?**	**Geographic location**
Geographic expansion of Ghana's School Feeding programme	Primary school aged children	Particular focus on Upper East, Upper West, Northern, north of Volta
Take home food rations for girls of JSS and SSS age and awareness programmes to prevent early drop-outs	Female students of JSS and SSS school going age in areas with large gender gaps	Regions with high poverty and food insecurity prevalence; Districts/communities with large gender gap and early drop outs
Construction of more primary, junior high and senior high schools in order to match demands, and improve accessibility and pupil-teacher ratios	School children between 6 – 15 years	Northern Savannah zone

Training and recruitment of teachers and provision of incentives to teach in the rural remote areas.		Remote rural areas in Northern Savannah zone
Literacy programmes	Women in areas with high gender gaps and high illiteracy	Both urban and rural locations in Northern Savannah

Annex 1: Overview of selected indicators by region

	Upper West	Upper East	Northern	Volta	Western	Central	Greater Accra	Eastern	Ashanti	Brong Ahafo	National Average
Population size	625.000	984.000	2.166.000	1.822.000	2.424.000	1.802.000	4.057.000	2.268.000	4.589.000	2.165.000	22.901.000
Main livelihood groups											
Agriculturalists (food crops)	38%	54%	52%	27%	7%	25%	2%	29%	19%	36%	25%
Agriculturalists (cash crops)	14%	0%	2%	1%	33%	8%	0%	8%	7%	9%	8%
Agro-pastoralists	2%	9%	12%	2%	1%	0%	0%	0%	0%	1%	2%
Food Processors	10%	3%	1%	6%	3%	1%	1%	4%	1%	2%	3%
Unskilled labourers	4%	4%	1%	2%	4%	4%	3%	2%	3%	3%	3%
Lowest wealth quintile	58%	64%	61%	32%	18%	14%	14%	17%	18%	41%	20%
Food insecurity											
Food insecure	34%	15%	10%	3%	1%	3%	1%	4%	7%	3%	5%
Vulnerable to become food insecure	14%	20%	17%	7%	6%	5%	3%	8%	10%	11%	9%
Child malnutrition (0-59 months)											
Wasting (-2SD)	12%	11%	8%	9%	5%	7%	6%	7%	7%	6%	7%
Stunting (-2SD)	26%	27%	30%	18%	23%	22%	11%	19%	28%	22%	22%
Underweight (-2SD)	17%	16%	18%	10%	9%	15%	7%	8%	14%	11%	12%
Maternal malnutrition (BMI <18.5)	10%	12%	12%	12%	8%	9%	5%	10%	6%	7%	8%

Annex 2: Sampling Strategy

The CFSVA sampling strategy aimed at providing sufficiently precise estimates of several key food security indicators for all rural regions, as well as Urban Accra, and all other urban areas together in one domain.

As a CFSVA aims to provide estimates of many different indicators, no single indicator can guide sample size requirements. Therefore, when calculating minimal sample size, an assumed prevalence of 50% was used, this yields the largest sample sized for a required precision. A design effect of 2 was assumed (food security indicators typically used in similar CFSVAs usually have design effects ranging from near 1 to 4). 95% confidence is always used, with intervals of +/- 8%. Following the standard sample size calculation for estimating prevalences, this yields a sample of approximately 260 households per domain. Where possible, larger samples were taken to increase precision.

Due to the time and cost limitations of drawing a new accurate sample, it was decided to 'piggy-back' on the existing sample already drawn for the on-going DHS survey. The DHS sample is a 2-stage cluster sample, with the following sample distribution:

Ghana DHS 2008 cluster numbers by region (urban and rural)

Region	Urban	Rural	Total
Western	15	24	39
Central	13	21	34
Gt. Accra	53	7	60
Volta	10	25	35
Eastern	16	27	43
Ashanti	36	31	67
Brong Ahafo	16	22	38
Northern	11	27	38
Upper East	5	23	28
Upper West	7	23	30
Total	**182**	**230**	**412**

The clusters used throughout the country are 'Enumeration Areas', or EAs. At the time of the CFSVA, Ghana Statistical Services had already recently drawn up this sample, complete with household listings for each selected EA (cluster). Rather than draw a new sample, a sub-sample of this was taken for the CFSVA. In this sub-sample, all rural clusters selected for the DHS were maintained in the CFSVA sample, and a sub-set of urban clusters were randomly selected from the DHS sample in each of the regions for inclusion in the CFSVA (thus maintaining the PPS selection of clusters). This resulted in a non-self-weighting sample, so probability weights were used in analysis to account for this.

Once the clusters were selected this way, it was decided to select 12 households per cluster to allow for sufficient total sample size per domain, while allowing for enumerator teams (consisting of 1 team leader and 4 enumerators) to complete, on average, one cluster per day. This also yielded at least 260 households per strata (or just under, and with the exception of rural Accra). As GSS has previously conducted a complete listing for all EAs in the DHS, they were able to randomly select 12 households per cluster (with 3 additional replacement households if one or more of the 12 were unavailable). The enumerator teams were supplied with maps of the EAs and the locations of the households and the names of the household heads.

This resulted in the final sample, by domain:

Domain	Clusters	Households (planned)	Households (actually sampled)	Number of these that were replacement households
Western Rural	24	288	288	38
Central Rural	21	252	252	37
Gt. Accra Rural	7	84	84	19
Volta rural	25	300	299	56
Eastern rural	27	324	324	55
Ashanti rural	31	372	372	59
Brong Ahafo rural	22	264	264	38
Northern rural	27	324	324	43
Upper East rural	23	276	276	27
Upper West rural	23	276	276	17
Urban Accra	42	504	504	129
Urban Other	49	588	588	103
Total	**321**	**3852**	3851	621

It should be noted here that Rural Accra has well below the goal of 260 households for that strata. Due to the very small rural population in that Region, and the fact that the DHS only had 7 rural clusters selected, it was decided that a sample yielding very low precision would be acceptable for that region.

In each cluster, an attempt to give the households an advance notice was made wherever possible, particularly in urban areas. Additionally, enumerators were instructed to make multiple re-visits (within the same day of visit to the EA) in order to try to capture the selected households. However, as can be noted from the table above, there was a high number of replacement households (overall, 16% of the sample) particularly in urban areas (21% of urban households and 14% of rural households). This could result in some bias if the absent/unreachable households were different than the randomly selected replacements.

Additional geographic reporting strata included urban/rural, and ecological zone. A probability weights were used in the analysis to compensate for the unequal selection probabilities throughout the country, the sample was representative for any geographic division, and the sample size allowed for sufficient precision within these alternative stratifications.

For nutrition indicators of children under 5, it was determined that the sample size would be too low to yield sufficiently precise estimates. Therefore, it was decided to aggregate the nutrition estimates at the zonal level and urban/rural for the majority of the analyses. In all households selected, all children under 5 were selected to be weighted and measured, as well as all women between 15 to 49 years old (pregnant women were not weighed and measured). Further discussion of the nutrition sample is presented in the nutrition data annex. For the community questionnaire, one questionnaire was administered in each EA (cluster).

Annex 3: Data Entry and Analysis

The data entry masque (CSPRO) for both, the household and community questionnaire, were developed by the GSS and reviewed by the WFP RB and WHO. Data entry started one week before the completion of the data collection. GSS data entry clerks double entered every household and community questionnaire. Qualitative data from the community questionnaire were directly inputted into the database which was then shared with WHO for coding. Data entry took 30 days. The GSS carried out some preliminary data cleaning, transferred the data into SPSS and shared the database with WFP RB for analysis.

Analysis was carried out primarily with SPSS 16. Addawin was used for the livelihood cluster analysis. Excel was primarily used for data output management and graphing. ArcGIS was used in the creation of the maps.

Probability weights were used in analysis to compensate for unequal selection probabilities. At the household level, these weights were based on the 2000 census population data. For the child and mother data, specific weights were calculated based on the 2000 census data for these populations. All analysis is weighted unless otherwise specified. All reported sample sizes are unweighted.
For the calculation of CIs, the cluster sample design was also taken into account using SPSS complex samples. However, other tests of significance do not take the cluster sample design into effect unless otherwise noted. This could have the potential bias of overestimating precision, so marginally significant tests of significance should be interpreted with caution.

Annex 4: Food Consumption Analysis

The methodology for the analysis of the food consumption data follows the standard WFP methodology[79]. The cited document outlines the general strengths and weaknesses of the indicator both as a proxy for food consumption and as a proxy for food security.

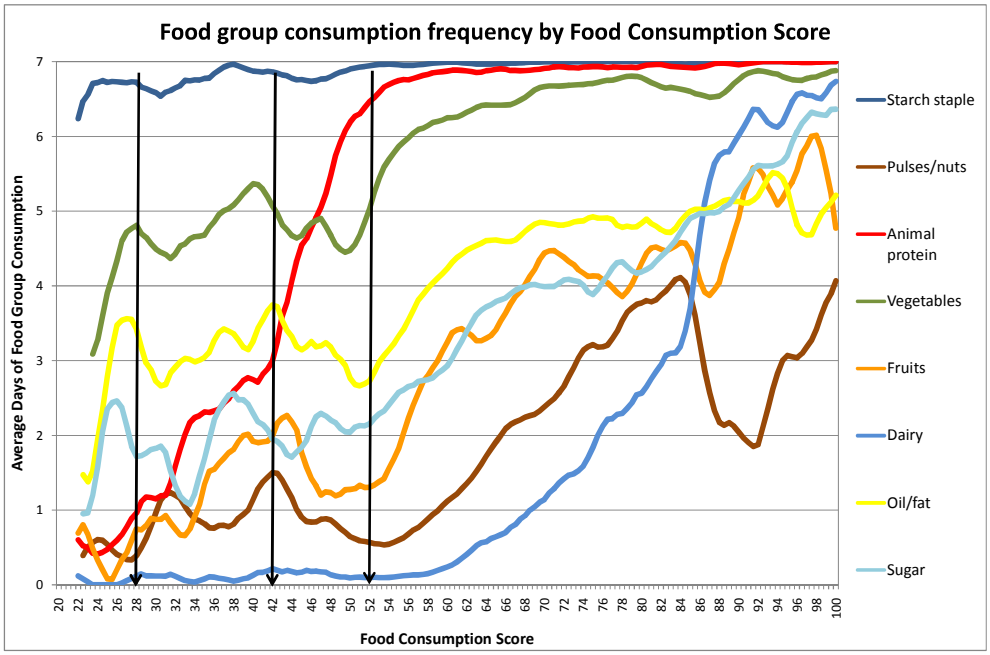
Construction of the score and groups

Seven- day food frequency recall data (how many days in the last 7 days did your household consume x food?) were used to create the composite food consumption score (FCS). 18 food items/groups were surveyed. These data were combined into 8 food groups (plus condiments) through a summed frequency, with a maximum value capped at 7 days. Then, each of the 9 food groups household consumption frequencies were multiplied by the standard weight (see table) and the weighted sum gives the FCS for the household.

Food items (from the questionnaire)	**Food group** (summed & capped at 7 days)	**weight**
Maize/millet and maize millet preparations, rice, wheat and wheat preparations, cassava and cassava preparations, other roots and tubers, plantain	Staple starches	2
Pulses/beans/nuts	Pulses/vegetable proteins	3
Vegatables/green leaves	Vegetables	1
Fruits	Fruits	1
Fish/aquatic animals, poultry, red meat, wild meat, eggs	Animal protein	4
Milk/milk products	Dairy	4
Sugar/honey/sweets	Sugar	0.5
Oil/butter/shea butter	Oil	0.5
Magi, small fish for flavor, spices, etc.	Condiments	0

Standard cut-offs exist for the FCS to create Food Consumption Groups (FCGs). However, some initial analysis of the consumption patters, particularly the consumption of oil and sugar, is necessary to pinpoint these cut-offs. Due to a relatively high frequency of oil and sugar, even among the households with a lower food consumption score, the higher thresholds of 28 and 42 were chosen. This delineates the 'poor' and 'borderline' food consumption groups. Additionally, a third (non-standard) threshold was introduced at a score of 52. This score reflects the point at which animal protein has entered the diet (which mainly consists of fish), but the frequency of consumption of the other food groups has yet to rise.

[79] http://documents.wfp.org/stellent/groups/public/documents/manual_guide_proced/wfp197216.pdf



Note on fish consumption in Ghana

Fish/seafood is reported as being consumed across the country on a very frequent basis. However, it is believed that the consumption of fish as a MEAL rather than as a CONDIMENT is less frequent that the data actually reflect.

Fish/seafood Number of days eaten in past 7 days

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not eaten	189	4.9	4.9	4.9
	1 day	54	1.4	1.4	6.3
	2 days	111	2.9	2.9	9.2
	3 days	150	3.9	3.9	13.1
	4 days	162	4.2	4.2	17.3
	5 days	99	2.6	2.6	19.9
	6 days	144	3.7	3.7	23.6
	7 days	2944	76.4	76.4	100.0
	Total	3854	100.0	100.0	

Enumerators, despite careful training, may have included fish eaten as a condiment (which is quite common throughout Ghana). However, there are still areas where fish is a common food. Therefore, the potential bias may not be measurable or equal. The FCS is thus likely biased upwards, and the prevalence of the FCGs is lower than is probably the actual situation. This is in part the justification for choosing the higher thresholds, and the addition of the 3rd threshold (splitting 'acceptable' into 'acceptable (low)' and 'acceptable (high)'. Exploratory analysis removing fish from the consumption analysis produces higher prevalences, although households maintain in general the same rankings, indicating that the potential bias, if present, is relatively equal throughout the population.

Annex 5: Cluster analysis for the identification of dietary patterns and validation of the FCS/FCGs

In order to provide a validation of the classification of FCGs, a cluster analysis was run on the food groups to identify different dietary patterns within Ghana. Twelve clusters were created, having the following food group consumption characteristics:

	Mean days of consumption (out of past 7 days)							
Cluster Number	starches	pulses	meat	veg	fruits	diary	oil	sugar
1	6.8	1.1	6.1	2.5	1.8	0.5	2.5	1.7
2	7.0	2.7	6.9	6.8	2.0	0.5	6.3	1.5
3	6.9	1.6	1.4	4.8	1.4	0.9	4.5	5.0
4	6.7	1.5	2.2	5.8	0.9	0.1	3.2	0.6
5	7.0	1.4	6.8	6.2	1.6	0.6	2.7	6.0
6	6.9	1.6	6.9	6.8	1.3	0.4	2.2	1.2
7	7.0	1.8	6.7	6.2	3.8	6.3	2.3	6.4
8	7.0	2.8	7.0	6.7	6.5	0.8	5.5	6.3
9	7.0	1.7	6.8	6.5	6.4	0.6	4.2	1.4
10	7.0	2.5	6.9	6.6	4.3	4.6	4.8	2.7
11	7.0	2.3	6.9	6.5	1.6	0.6	6.6	6.5
12	7.0	2.3	7.0	6.8	5.2	6.6	6.6	6.8
Total	7.0	2.0	6.6	6.3	3.4	1.6	4.4	3.8

Clusters were subjectively (according to the analyst) grouped into four dietary pattern groups:

- Clusters 3 and 4 were identified as those having a poorer quality diet than the others, due to their less frequent consumption of meat, as well as relatively low consumption of other food groups. (poor consumption)
- Cluster 1 was also considered to be relatively poor/borderline, with a higher consumption of meat but low consumption of other food groups. (borderline consumption)
- Clusters 2, 5, 6, 8, 9, 11 are all considered to have acceptable consumption. (acceptable low)
- Clusters 7, 10, and 12 are observed to have a relatively high frequency of all food groups, with cluster 12 having the most diverse diet and consumption frequencies, and were thus classified as having the highest (best) consumption patterns. (acceptable high)

These clusters were then grouped according to the above descriptions and compared to the FCGs. The following results are observed:

		Food Consumption Groups (28, 42, 52 cut-offs)				
		poor food consumption	borderline food consumption	acceptable food consumption (low)	acceptable food consumption (high)	Total
Grouped Food consumption **clusters**	poor consumption	1%	3%	1%	0%	5%
	borderline	0%	1%	3%	3%	7%
	acc. Low	0%	0%	5%	63%	68%
	acc high	0%	0%	0%	20%	20%
	Total	2%	4%	9%	86%	100%

Good match total	27%
close match total	69%
poor match total	4%
Mismatch total	0%

Note that the analysis of dietary patterns vs. the food consumption score/groups only yields 4% of households with a poor match (that is, classified very differently between the analyses) and 0% mismatched (those households being classified complete oppositely between the analyses). The large amount of close match (rather than good match) results mainly from households classified as acceptable-low by the cluster analysis, and acceptable-high by the FCS/FCG analysis. If more of the acceptable-low clusters were classified as acceptable-high, then the percentage of 'good match' would increase. This simply reflects the subjective nature of the food consumption cluster grouping, and the fact that the FCS/FCG analysis employed a lower threshold for classification into acceptable-high.

Annex 6: Validation of the food consumption score as a proxy for food security

The food consumption score was validated against other proxies of food security. Several validating cross tabulations are present in the body of the report. Here, a correlation analysis is presented.

Spearman's rho correlation matrix		FCS	Wealth Index	Total Income (livelihood value) per adult equiv.	Total cash expenditures per adult equi.	Percent of cash expenditures on food
FCS	Correlation Coefficient	1.00	0.42	0.31	0.39	-0.09
	Sig. (2-tailed)	.	0.00	0.00	0.00	0.00
	N	3851	3851	3830	3842	3839
Wealth Index	Correlation Coefficient	0.42	1.00	0.44	0.54	-0.20
	Sig. (2-tailed)	0.00	.	0.00	0.00	0.00
	N	3851	3851	3830	3842	3839
Total Income (livelihood value)per Adult Equivalent	Correlation Coefficient	0.31	0.44	1.00	0.60	-0.16
	Sig. (2-tailed)	0.00	0.00	.	0.00	0.00
	N	3830	3830	3830	3824	3822
Total cash expenditures per adult equivalent	Correlation Coefficient	0.39	0.54	0.60	1.00	-0.08
	Sig. (2-tailed)	0.00	0.00	0.00	.	0.00
	N	3842	3842	3824	3842	3839
Percent of cash expenditures on food	Correlation Coefficient	-0.09	-0.20	-0.16	-0.08	1.00
	Sig. (2-tailed)	0.00	0.00	0.00	0.00	.
	N	3839	3839	3822	3839	3839

Although all correlations are significant, the relationship between FCS and the percent of cash expenditures on food is weak (similar to the relationship of % cash expenditures to the other indicators presented here). As discussed in the WI annex, the % cash expenditures on food does not take into account the cash value of production consumed within the household, and it also displays a non-linear relationship with wealth, so the correlation is thus less strong.
It should be noted that while the FCS is validated as a proxy for food security, it fails to take into certain aspects, such as reliability of food sources or seasonality, so results should be interpreted with caution and triangulated with other information and secondary data.

Annex 7: Underlying causes of food insecurity – A regression analysis

To statistically explore the relationship between some of the key underlying factors related to food insecurity as identified in this report, a series of multivariate regression analyses were run[80]. The outcome variable used was the Food Consumption Score (FCS).

Key independent indicators explored include:

- Wealth Index Quintiles
- Livelihood group
- Education level of the head of household
- Amount of agricultural land the HH has access to (groups)
- Strata (rural regions, urban Accra, urban other)
- Sex of the head of the household

Below are the output tables of the regression analysis:

Dependent Variable: FCS

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	213370.962(b)	42	5080.261	24.765	.000
Intercept	1082910.607	1	1082910.607	5278.865	.000
Livelihood	3590.990	14	256.499	1.250	.231
STRATA	30250.498	11	2750.045	13.406	.000
HH head Education	5430.884	5	1086.177	5.295	.000
LandCultivatedCATEG	5888.248	7	841.178	4.100	.000
FHH	516.294	1	516.294	2.517	.113
WI_quintiles	42780.067	4	10695.017	52.135	.000
Error	764149.434	3725	205.141		
Total	16902065.750	3768			
Corrected Total	977520.396	3767			

a Computed using alpha = .05
b R Squared = .218 (**Adjusted R Squared = .209**)

[80] Probability weights not used in the regression analysis, cluster sample design not accounted for.

Dependent Variable: FCS

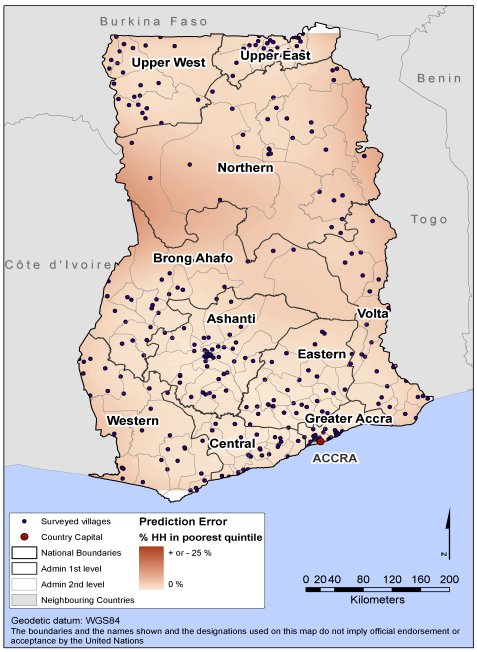
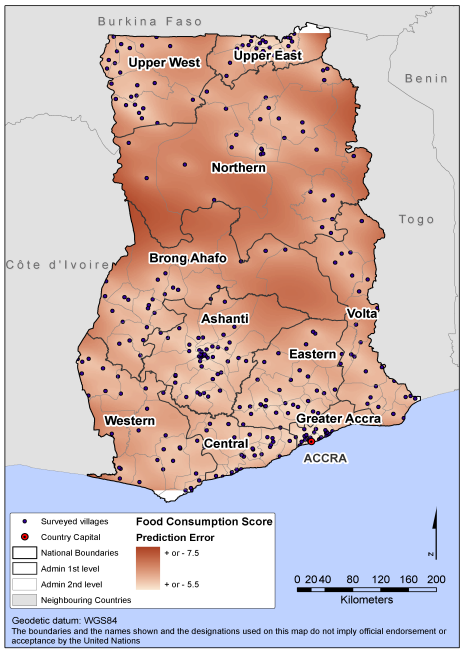
Parameter	B	Std. Error	t	Sig.	95% Confidence Interval		N in this category
Intercept	82.723	2.589	31.950	.000	77.647	87.800	.
agriculturalist (food crops)	.606	1.826	.332	.740	-2.974	4.187	1102
petty trader	1.260	1.862	.677	.499	-2.391	4.911	378
salary (employed) & service sector	.743	1.836	.405	.686	-2.857	4.343	505
self employed	1.137	1.891	.601	.548	-2.571	4.845	293
assistance/transfers	-.482	1.928	-.250	.803	-4.262	3.299	285
agriculturalist (cash crops)	.375	1.958	.192	.848	-3.463	4.214	350
food processor	-.561	2.162	-.259	.795	-4.800	3.679	130
prepared food seller	1.690	2.180	.775	.438	-2.584	5.964	116
skilled labourer	.719	2.217	.324	.746	-3.627	5.065	101
agro-pastoralist	3.945	2.337	1.689	.091	-.636	8.526	100
artisan	-1.536	2.277	-.675	.500	-6.001	2.928	90
fisherman	3.864	2.294	1.685	.092	-.633	8.362	92
unskilled labourer	.377	2.228	.169	.866	-3.991	4.745	102
commercial trader	-2.061	2.617	-.788	.431	-7.193	3.070	52
other rare livelihoods	0(b)	.	.	.	.	.	72
Western Rural	2.044	1.168	1.750	.080	-.246	4.335	281
Central Rural	.604	1.125	.536	.592	-1.603	2.810	245
Greater Accra Rural	3.804	1.694	2.245	.025	.483	7.126	83
Volta Rural	-1.037	1.097	-.945	.345	-3.187	1.114	297
Eastern Rural	.985	1.068	.922	.357	-1.110	3.079	318
Ashanti Rural	-2.404	1.010	-2.379	.017	-4.385	-.423	360
Brong Ahafo Rural	-2.011	1.169	-1.720	.086	-4.303	.282	258
Northern Rural	-2.607	1.186	-2.197	.028	-4.933	-.281	318
Upper East Rural	-3.937	1.206	-3.265	.001	-6.302	-1.573	271
Upper West Rural	-10.864	1.201	-9.046	.000	-13.218	-8.509	265
Urban (Accra)	1.776	.911	1.950	.051	-.010	3.562	493
Urban (Other)	0(b)	.	.	.	.	.	579
No schooling	-5.155	1.233	-4.181	.000	-7.571	-2.738	1312
Preschool	2.662	4.681	.569	.570	-6.515	11.839	10
Primary	-5.192	1.308	-3.971	.000	-7.756	-2.629	485
Middle/JSS/JHS	-5.005	1.135	-4.409	.000	-7.231	-2.779	1293
Secondary/SSS/SHS/Tech/Voc	-2.684	1.205	-2.227	.026	-5.046	-.321	418
Higher	0(b)	.	.	.	.	.	250
No land cultivated in 2008	-4.162	1.548	-2.689	.007	-7.197	-1.127	1439
.01 - .5 Ha cultivated in 2008	-5.599	1.534	-3.649	.000	-8.607	-2.591	554
.5 to 1 Ha cultivated in 2008	-3.731	1.521	-2.452	.014	-6.714	-.748	518
1 to 2 Ha cultivated in 2008	-4.176	1.487	-2.809	.005	-7.091	-1.262	600
2 to 3 Ha cultivated in 2008	-1.687	1.550	-1.088	.277	-4.726	1.352	354
3 to 4 Ha cultivated in 2008	.715	2.064	.346	.729	-3.332	4.762	85
4 to 5 Ha cultivated in 2008	-2.722	1.957	-1.391	.164	-6.559	1.114	100
>5 Ha cultivated in 2008	0(b)	.	.	.	.	.	118
Male Headed Households	-.943	.594	-1.586	.113	-2.108	.222	2669
Female Headed Household	0(b)	.	.	.	.	.	1099
poorest wealth index quintile	-14.244	1.025	-13.893	.000	-16.255	-12.234	978
second	-10.787	.956	-11.285	.000	-12.662	-8.913	807
middle wealth index quintile	-7.441	.918	-8.103	.000	-9.242	-5.641	742
third	-5.010	.860	-5.825	.000	-6.696	-3.324	645
wealthiest wealth index quintile	0(b)	.	.	.	.	.	596

Annex 8: Methodology for geographical distribution of Food Consumption Score and poorest wealth quintile

The two maps below predict the spatial distribution of Food Consumption Score and Wealth Index as observed at the sampled locations. The methodology used for this spatial distribution is known as *kriging*, which is traditionally considered the most reliable tool from the geo-statistical toolset for non-deterministic prediction of an auto-correlated indicator. Kriging is a surface estimator that fits a mathematical function to a number of points within a specified radius, to predict the value for each location in a space. In doing so it assumes that the distance or direction between sample points reflects a spatial correlation that can be used to explain the variation in the values under observation.

A standard output from kriging prediction is a standard error map for the Food Consumption Score and Wealth Index predictions respectively. This error map is a surface whose value quantifies the uncertainty of the prediction for each indicator, expressed in the same units as those of the indicator itself.

The applicability of such a predictive tool in geostatistics is based on the assumption that the spatial variation in the phenomenon being observed is statistically homogeneous and that the random errors in the observed samples have an overall mean of zero. Clearly both natural and human made geographic features make this not the case and therefore we must consider these products as approximations both with regards to the predicted values as well as to the calculated standard errors for the predictions.

Kriging ERROR Map: **Food Consumption Score**	Kriging ERROR Map: **Poorest wealth quintile**
	
Source: CFSVA 2008	

Annex 9: Wealth Index

The wealth index (WI) was created using a similar methodology to the DHS[81] or MICS surveys. The process and indicators specific to this survey are outlined below.
The wealth index is a relative proxy indicator of wealth, constructed using appropriate house construction data, household assets, access to water, sanitation, electricity, and other such non-livelihood specific indicators. It is a proxy for economic wealth, but is not meant or able to substitute poverty statistics such as poverty line computation. As it is a comparative indicator, it can indicate who (according to this proxy) is 'wealthier' or 'poorer', but not who is 'wealth' or 'poor' in absolute terms. This fact should be kept in mind when interpreting the results.
All non livelihood-specific assets were considered for use in the wealth index, along with access to safe drinking water, access to adequate sanitation, house construction materials (Roofing and floor), lighting source, and crowding. All biviariate indicators with very low or very high frequencies were excluded or combined (for example, all motorized vehicles were combined into a 'motorized vehicle' asset ownership indicator, as motorcycle, boat with motor, and car were all relatively rarely owned). Indicators such as land ownership, livestock ownership, and ownership of productive agriculture assets were excluded from the analysis, as they are livelihood specific. Such livelihood specific assets may be correlated with wealth among households sharing a similar livelihood, but the nature of the sample, covering a wide variety of livelihoods and urban and rural areas necessitated more 'generalized' assets be used.

Other assets were dropped based on the following criteria:

- Similar and highly correlated assets in the dataset- for example, television, VCR, DVD player were all highly correlated. The risk here is that such related indicators would drive the WI, so only TV was chosen.
- Assets that appeared to better identify the very poor were given slight priority for inclusion. Many assets were, in the exploratory analysis, were associated with only 'richer' status, and fewer assets whose ownership/non-ownerhsip associated with the 'poorer' and 'less poor' differentiation.
- Certain variables, in the exploratory analysis, had little or no relationship to the wealth proxy. For example, crowding was excluded as it showed nearly no association.
- Certain variables, in the exploratory analysis, had a counter-intuitive relationship with wealth index. One example is bicycle, which was owned slightly more often by poorer households than richer households. There may be a certain logic to this (richer hhs have mopeds or cars), however the exclusion of this somewhat counterintuitive variable had little impact on the final WI, so it was excluded.

The final Wealth Index took into account the following indicators:

- Roofing material (palm, thatch, bamboo, mud, earth grouped = 0, all other materials =1)
- Floor material (sand, dung, palm = 0, all else = 1)
- Sanitation (unimproved sanitation =0, improved =1 following DHS definition)
- Drinking water source (unsafe =0, safe =1 following DHS definition (bottled/sached included in safe))
- Lighting source (electric company, generator, solar =1, all else =0)
- Motorized vehicle (car, truck, motorbike, and/or boat with motor =1)
- TV (black and white and/or color TV = 1)

The remaining variables were included as 1=owned, 0=not owned straight from the questionnaire without combining:

- Bed
- Table
- Chair
- Sewing machine
- Sofa
- Clock

[81] http://www.measuredhs.com/pubs/pub_details.cfm?ID=470

- Radio
- Refrigerator
- Computer
- Mobile phone

These indicators were entered into a principle component analysis in SPSS, using no rotation, and no probability weights. The first component has an eigenvalue of 5.095 and accounts for 29.97% of the variance in the included variables. This first component was saved as the continuous WI variable.

Variables used to create the Wealth Index	Unstandardized Coefficients (Beta)
(Constant)	-2.0821
Roofing- bivariate variable	0.2537
Floor Bivariate good bad	0.2686
Toilet- bivariate	0.2024
lighting bivariate	0.2745
Water, drinking bivariate	0.1647
Motorveh	0.2361
TV	0.3246
Does household own bed (A) ?	0.2781
Does household own table (B) ?	0.2590
Does household own chair (C) ?	0.2444
Does household own sewing machine (E) ?	0.1802
Does household own sofa (L) ?	0.2880
Does household own clock (M) ?	0.2743
Does household own radio (N) ?	0.2027
Does household own refrigerator (R) ?	0.3393
Does household own computer (U) ?	0.3907
Does household own mobile phone (AA) ?	0.2532

A regression analysis was conducted using all the WI component variables as independent variables, and the WI as the dependant variable. This anslysis gives a regression with an r2 of 1. The following unstandardized beta values are reported in the following table:

All of the component variables are coded as 1/0 (improved/unimproved or owned/not owned) as described above. Therefore, the following equation using the constant and the beta values reported above will re-create the continuous WI variable for any household:

Wealth Index = (-2.0821)+(Roofing*0.2537)+((Floor*0.2686)+(Toilet*0.2024)+(lighting *0.2745)+(Water*0.1647)+(Motorveh*0.2361)+(TV*0.3246)+(bed *0.2781)+(table *0.2590)+(chair*0.2444)+(sewing machine *0.1802)+(sofa *0.2880)+(clock *0.2743)+(radio *0.2027)+(refrigerator *0.3393)+(computer *0.3907)+(mobile phone *0.2532)

The Wealth Index Quintiles (WIQ) were calculated as the quintiles of the WI variable, taking into account household probability weights (household size was not accounted for). This results in 5 quintiles that each represent 20% of the households in Ghana.

The cut-off values of the WI to give the WIQ are:

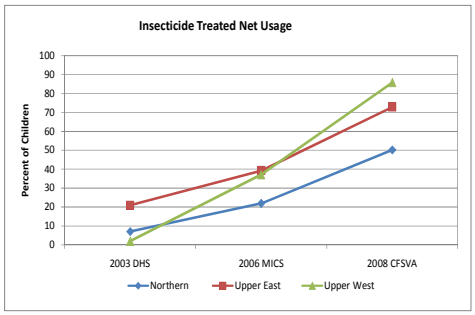
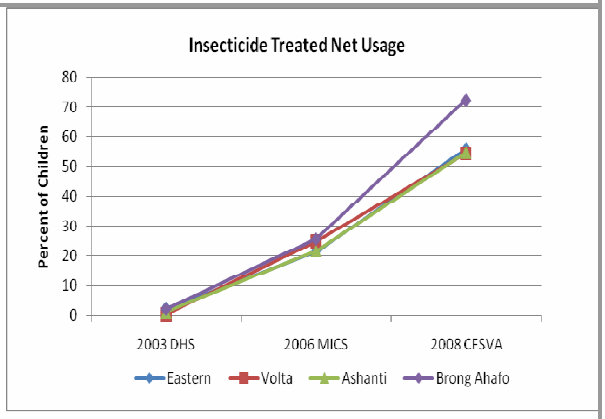
- -0.868 and -0.867 (cut-of between WIQ 1 (poorest) and 2)
- -0.301 and -0.299 (cut-off between WIQ 2 and 3)
- 0.249 and 0.250 (cut-ff between WIQ 3 and 4)
- 1.005 and 1.009 (cut-off between WIQ 4 and 5)

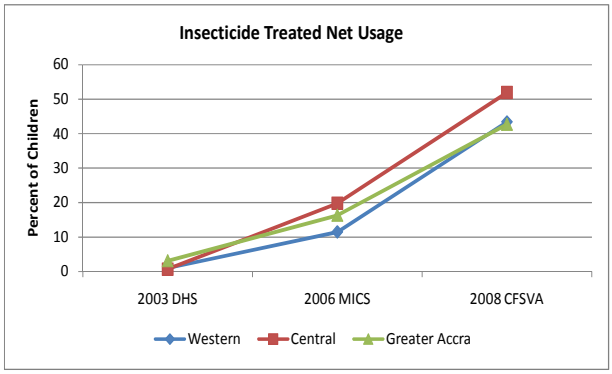
Next, to illustrate the components of the WI, the prevalence of all the indicators used in the calculation of the WI by WIQ were calculated, and plotted on the following graph. Note that bicycle was also added to the graph to illustrate the counter-intuitive relationship mentioned above, although it was not included in the WI calculation. Note in the graph that physical assets are in solid lines, other indicators are in dotted lines.

Finally, a brief analysis of the WI against other proxies of wealth (cash value of livelihoods, expenditures) to validate it internally was conducted. (The relationship with FCS is discussed in the food consumption score annex). Due to the non-normal distribution of the expenditure and income variables, non-parametric correlations were run. As can be noted from the table below, the WI is highly correlated with the total income (expressed as the cash value of the livelihood activities) and with the total cash expenditures per capita. The relationship with percent of total cash expenditures on food is likely clouded by the fact that non-cash expenditures were excluded from the calculation of that indicator, and that a non-linear relationship between the WI and percent expenditures on food is observed (displaying properties of an Engle curve).

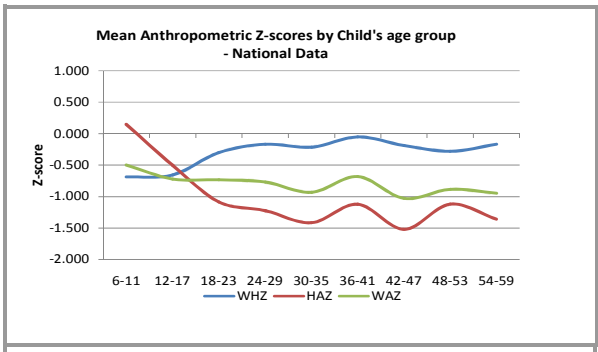
Spearman's rho Correlation matrix		Wealth Index	Percent of total cash expenditure on food	Total income per adult equivalent	Total cash expenditure per adult equivalent
Wealth Index	Correlation Coefficient	1.000	-0.198	0.441	0.536
	Sig. (2-tailed)	.	0.000	0.000	0.000
	N	3851	3839	3830	3842
percent expenditures on food	Correlation Coefficient	-0.198	1.000	-0.158	-0.082
	Sig. (2-tailed)	0.000	.	0.000	0.000
	N	3839	3839	3822	3839
Total Income per Adult Equivalent	Correlation Coefficient	0.441	-0.158	1.000	0.601
	Sig. (2-tailed)	0.000	0.000	.	0.000
	N	3830	3822	3830	3824
totExppercap	Correlation Coefficient	0.536	-0.082	0.601	1.000
	Sig. (2-tailed)	0.000	0.000	0.000	.
	N	3842	3839	3824	3842

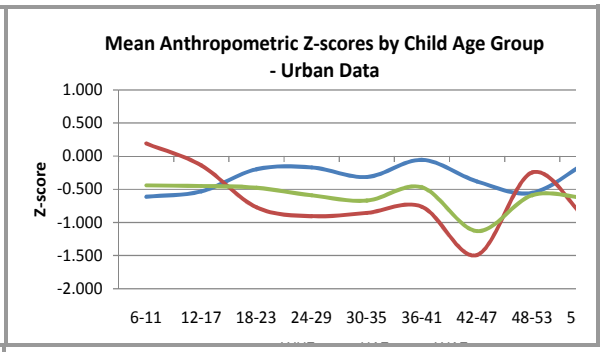
Annex 10: Regional trends in ITN usage

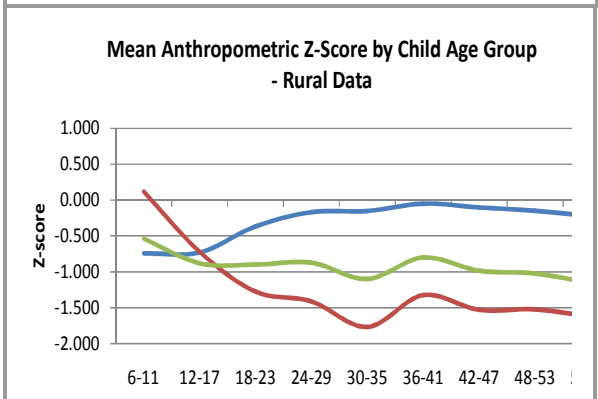
Regional trends in ITN usage from 2003 to 2008	Regional trends in ITN usage from 2003 to 2008
	
Source: DHS, 2003; MICS, 2006; CFSVA, 2008	

Regional trends in ITN usage from 2003 to 2008

Source: DHS, 2003; MICS, 2006; CFSVA, 2008

Annex 11: Child malnutrition at national level and in urban and rural locations

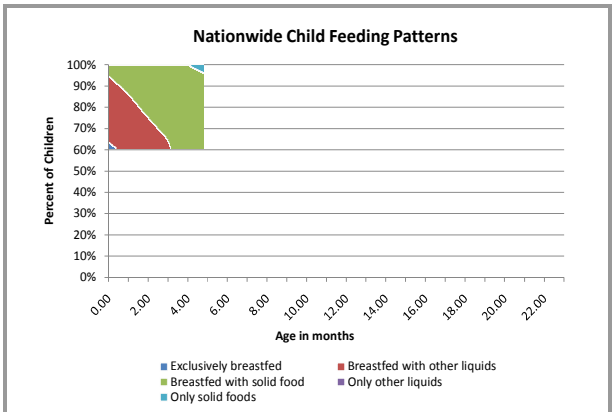


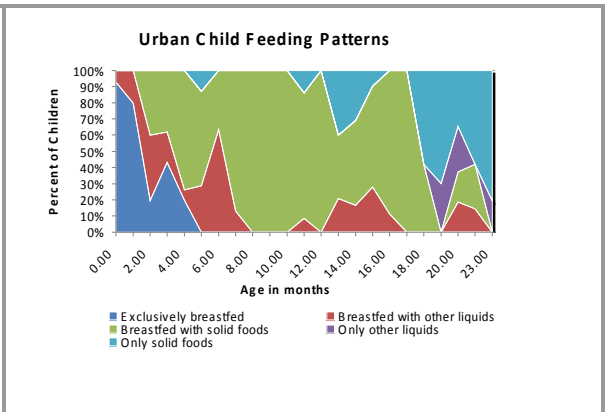




Source: CFSVA 2008

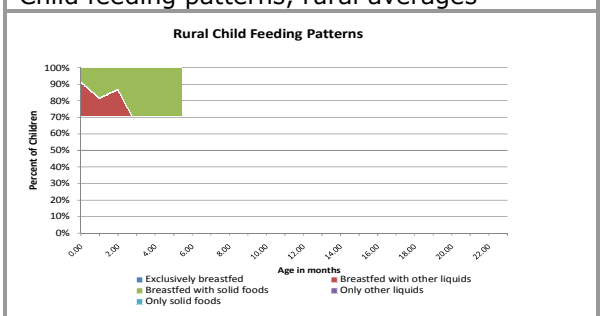
Figure 47: Child feeding patterns at national level and in urban and rural locations





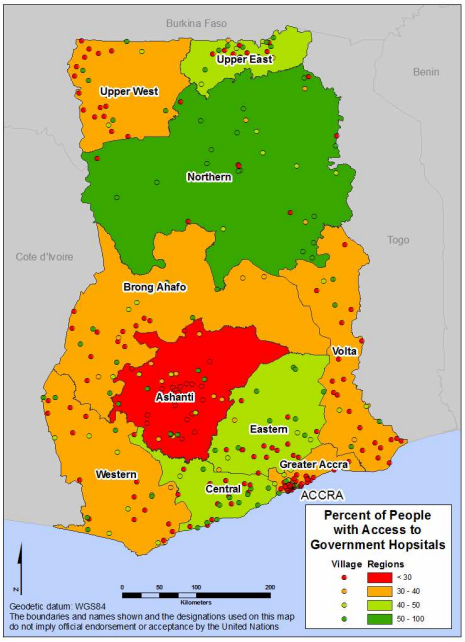
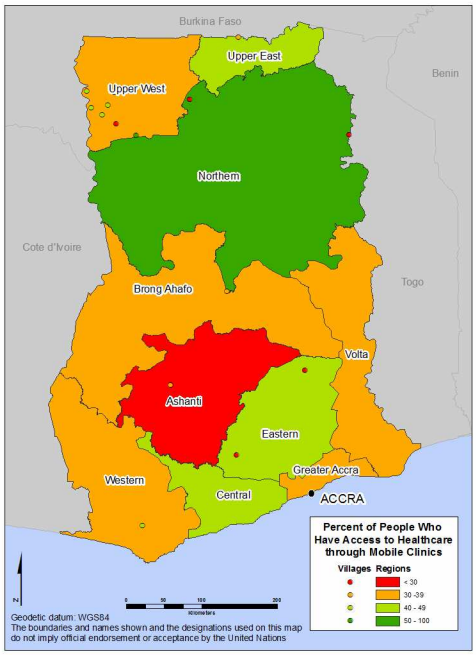
Source: CFSVA 2008

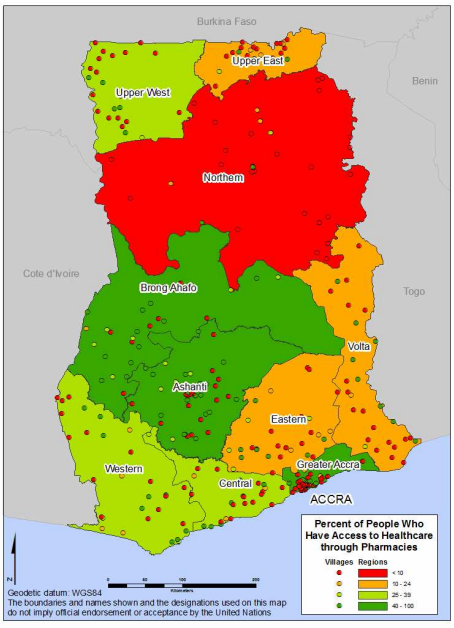
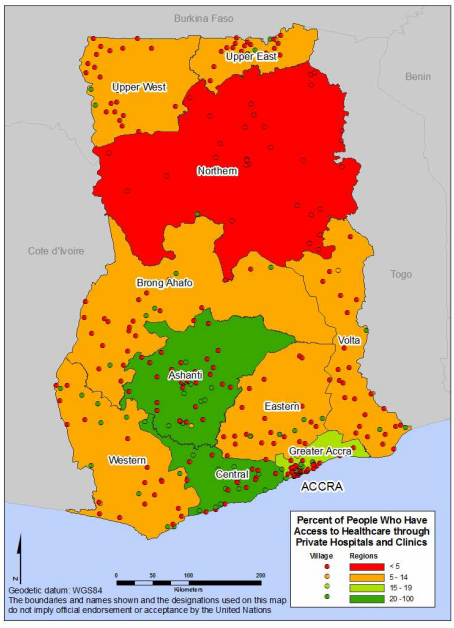
Child feeding patterns, rural averages



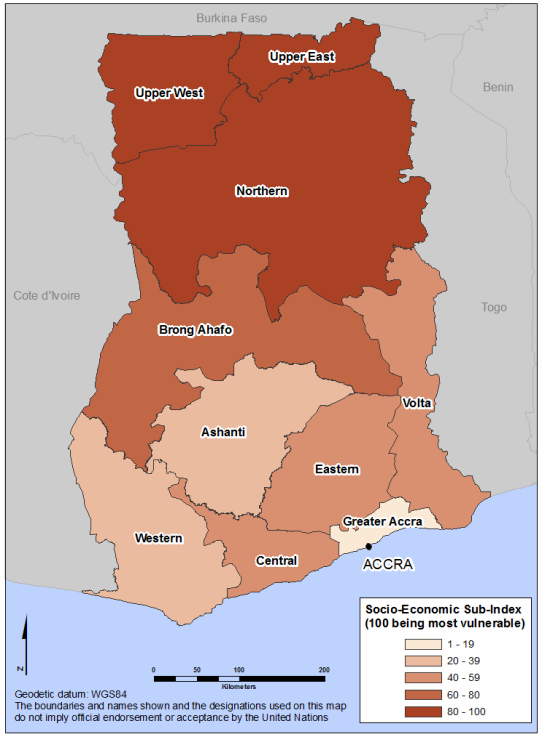
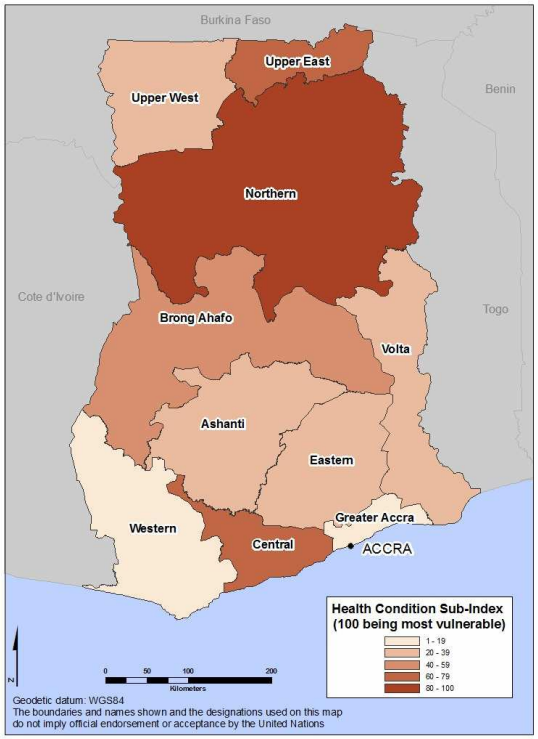
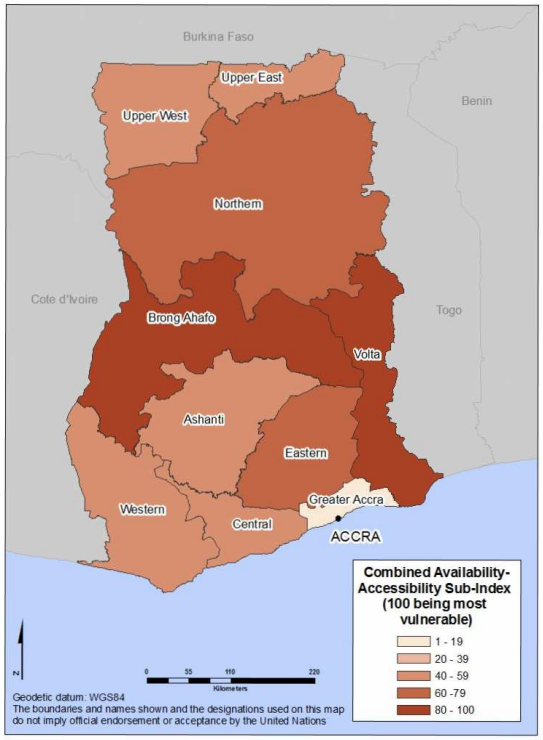
Source: CFSVA 2008

Annex 12: Access to health care by regions

Percent of people with access to health care through **Government Hospitals**	Percent of people with access to health care through **Mobile Clinics**
	
Source: CFSVA 2008	

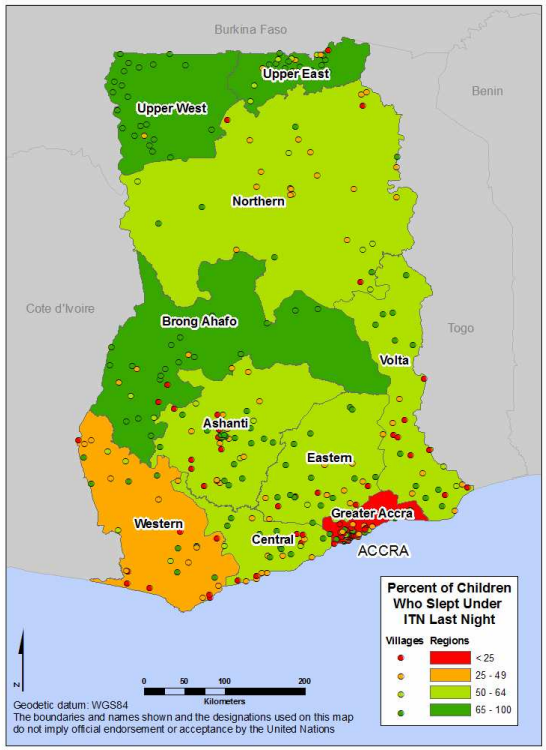
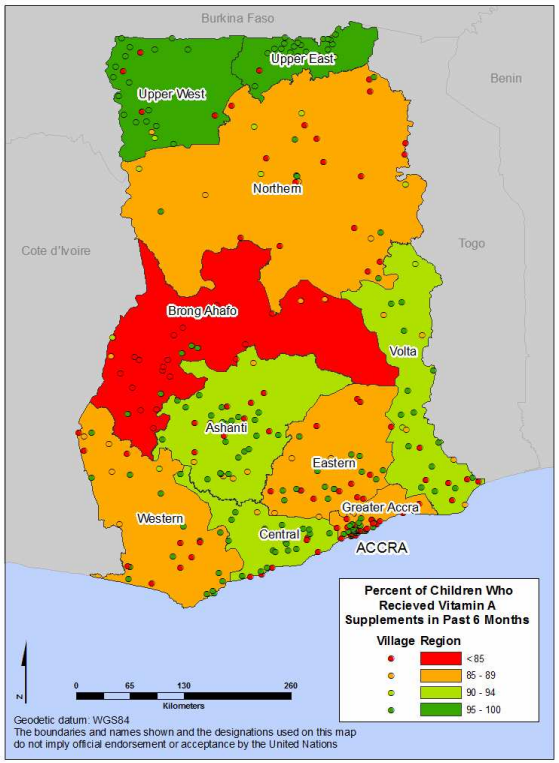
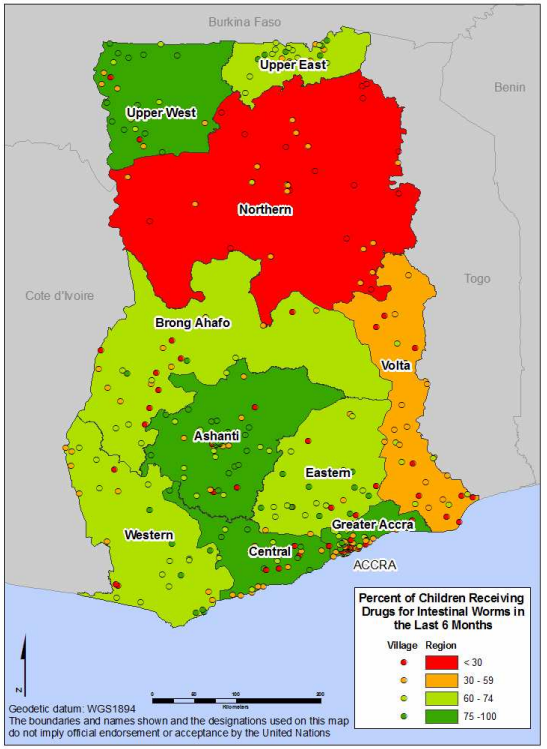
Percent of people with access to health care through **Pharmacies**	Percent of people with access to health care through **Private Hospitals**
	
Source: CFSVA 2008	

Annex 13: Maps of sub-indices of socio-economic well-being, current health condition and accessibility and availability of health facilities

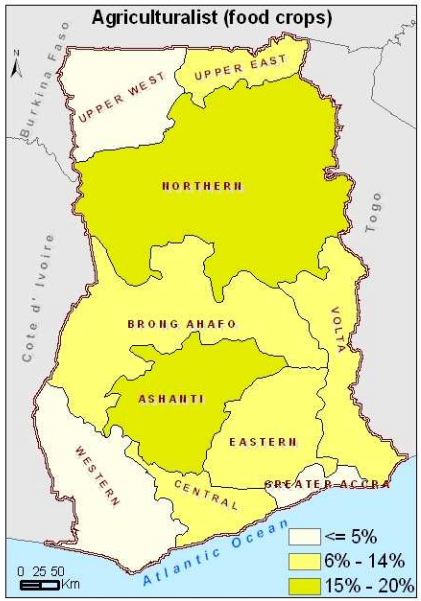
Socio-Economic Sub-Index Map	**Health Condition** Sub-Index Map	**Combined Availability – Accessibility** Sub Index Map
		

Source: CFSVA 2008

Annex 14: Maps illustrating the geographic distribution of the usage of ITN and receipts of vitamin A supplements and drugs for intestinal worms

Geographic distribution of the usage of **insecticide treated bednets** (ITN) the night previous to the survey	Geographic distribution of the receipt of **vitamin A supplements** during the six months preceding the survey	Geographic distribution of the receipt of **drugs for intestinal worms** during the six months preceding the survey
		
Source: CFSVA 2008		

Annex 15: Overview of 15 Livelihood Groups



Agriculturalists (food crop)

% of population	25%
% urban	16%
% rural	84%

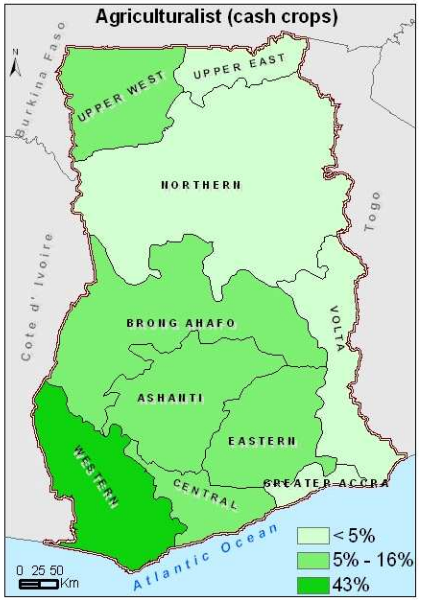
Of all food insecure/vuln./poor

% food insecure	40%
% vulnerable	34%
% two lowest WQ	49%

Of agriculturalists (food crops)

% food insecure	8%
% vulnerable	12%
% two lowest WQ	68%

The majority of food crop farmers are living in the rural areas of Northern (20%) and Ashanti (15%). However, it is important to point out that they represent 59% of the total population in Upper East, 55% of Northern, 49% of Brong Ahafo and 44% of Upper West region. Food crop farming is characterized by the lowest annual per capita income, falling below the national poverty threshold[82] of GHc1.47 per capita per day and the recently agreed upon minimum daily wage rate of GHc2.65. Almost three-quarter of them (72%) cultivate land less than 2 ha in size and almost all are entirely reliant on rainwater for cultivation (98%). Nearly half (48%) of the households have family heads without any educational background and 13% of their primary school aged children are not attending school. Twenty-two percent (22%) of households were found to be female headed.



Agriculturalists (cash crops)

% of population	8%
% urban	12%
% rural	88%

Of all food insecure/vuln./poor

% food insecure	7%
% vulnerable	6%
% two lowest WQ	9%

Of agriculturalists (cash crops)

% food insecure	5%
% vulnerable	7%
% two lowest WQ	52%

Although the large majority of cash crop farmers live in the Forest zone, making up 15% of the zone's overall population, the most vulnerable cash crop farmers are living in the rural areas of Upper West region representing 14% of the population there. Their share of income from cash cropping (67%) is complemented by food crop farming as the second most important income source (20%). Cocoa is the main crop cultivated for 72% of households, followed by maize (8%) as the main food crop. Among the agriculturalists, cash crop farmers have the highest annual per capita income with an average of GHc644. Nevertheless, more than half (52%) fell into the two bottom wealth quintiles. Forty-three percent (43%) cultivate land that is less than 2 ha in size. Eighteen percent (18%) of them are female headed households.

Agro-pastoralist

% of population	2%
% urban	3%
% rural	97%

Of all food insecure/vuln./poor

% food insecure	3%
% vulnerable	3%
% two lowest WQ	6%

Of agro-pastoralists

% food insecure	8%
% vulnerable	12%
% two lowest WQ	88%

Sixty percent (60%) of agro-pastoralists live in Northern and 21% in Upper East region. While 63% of their average income is derived from livestock and animal husbandry (63%), one-fifth of their income is covered by food crop production. Sixty-three percent (63%) cultivate land that is less than 2 ha in size. The most common livestock are cattle and poultry. Mean number of the different types of livestock are 6.8 poultry, 6.3 cattle, 5.7 goats, 5.3 sheep. More than half of them (51%) sold livestock between November 2007 and 2008, mainly in response to the "shock" of early or heavy rains. Lack of education among household heads was most pronounced among the agro-pastoralists with 83% of them not having received any schooling at all. Similarly, agro-pastoral households were found to have the highest percentages of children of primary and junior secondary school age not attending school with 24% and 22%. respectively. Four out of five households (88%) were identified as poor and 9% are female headed, the lowest of all livelihoods. Eighty-nine percent (89%) made use of unsafe sanitation facilities,

Unskilled laborer

% of population	3%
% urban	51%
% rural	49%

Of all food insecure/vuln./poor

% food insecure	3%
% vulnerable	3%
% two lowest WQ	4%

Of unskilled laborers

% food insecure	5%
% vulnerable	9%
% two lowest WQ	47%

Unskilled labourers are mostly involved in casual wage labour, includi live in urban areas. However, the 6% living in the Upper East region population who was found to spend up to 67% of their income on food labourer's lives in the rural areas spread across the country with the l source of income comes from food crop production. The average ar lowest among all livelihoods. In fact, they had the largest share of ho as one of their major schocks experienced over the year. Household heads of households (33%). Twenty-two percent (22%) were headed b of all livelihoods. Eighty-nine percent (89%) made use of unsafe sanit wered heads of households (33%). Twenty-two percent (22%) of hous

the highest of all.

Food processors

% of population	3%
% urban	18%
% rural	82%

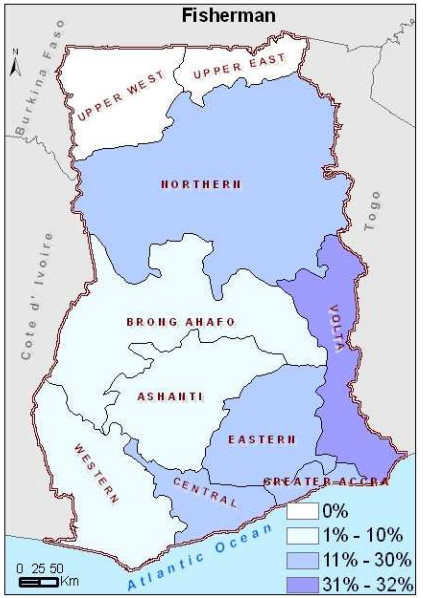
Of all food insecure/vuln./poor

% food insecure	3%
% vulnerable	3%
% two lowest WQ	4%

Of food processors

% food insecur	6%
% vulnerable	11%
% two lowest WQ	56%

Food processors include millers, brewers and shea nut collectors and producers. Twenty-one percent (21%) of them live in the Volta region, followed by Eastern (19%) and Upper West (11%). After the processing of agricultural products, their second most important income source is food crop production which adds approximately 19% to their overall income. Food processors have one of the highest shares of poor households (56%) with the third lowest average annual per capita income of USD445. Forty six percent (46%) of household indicated to have loans and/or debts to pay back at the time of the survey which was found to be the largest share among all livelihoods. Female headed households constituted 41% of the food processing households.



Fishermen

% of population	2%
% urban	38%
% rural	62%

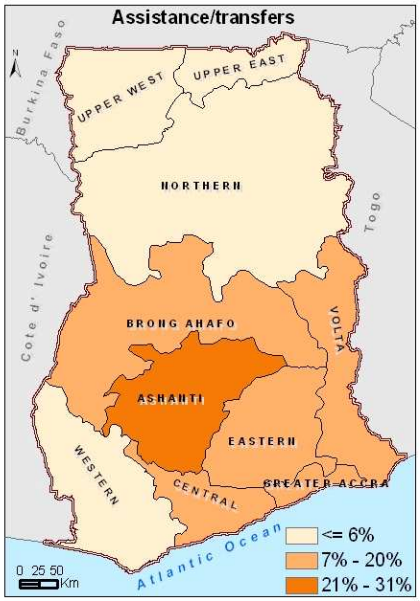
Of all food insecure/van./poor

% food insecure	1%
% vulnerable	2%
% two lowest WQ	4%

Of fishermen

% food insecure	2%
% vulnerable	7%
% two lowest WQ	60%

The large majority of fishermen (32%) live in Volta, 16% in Northern and 15% in Eastern. Their income from fishing is complemented by the production of food crop. Fishermen had one of the highest shares of household heads who had never received any schooling at all (40%). After agro-pastoral households, households engaged in fishing had the highest percent of children between 6 to 11 years not attending primary school (13%). Forty-eight percent (48%) are using unsafe sanitation facilities and 46% are drinking water from unsafe sources, the highest household share of all livelihoods.



Assistance/Transfers

% of population	9%
% urban	57%
% rural	43%

Of all food insecure/vuln./poor

% food insecure	10%
% vulnerable	9%
% two lowest WQ	8%

Of assistance/transfers

% food insecure	6%
% vulnerable	10%
% two lowest WQ	43%

The largest share of households living of assistances and transfers (remittances), live in Ashanti (31%), Eastern (16%) and Greater Accra region (16%). Food crop production is a complementary income source, contributing with 6%. They have one of the largest shares of single headed households (31%) and 29% of them all are widows and widowers. Eleven percent of households had members who migrated for more than three months, the main reason for which was "own business" (26%). Households relying on assistance and transfers have the largest share of female headed households of all livelihoods (70%). Heads of households had the highest average age with 52 years. Along with the unskilled labourers, households relying on assistance have the highest shares of food expenditures with 61% of their income. Last but not least, they were found to have the highest dependency ratio with 51% of households having dependants (persons below 15 and above 64 years).

Commercial Trader

% of population	2%
% urban	70%
% rural	30%

Of all food insecure/van./poor

% food insecure	1%
% vulnerable	2%
% two lowest WQ	1%

Of commercial traders

% food insecure	3%
% vulnerable	9%
% two lowest WQ	19%

Commercial traders are spread across the entire country. The majority of them live in Ashanti (23%), Greater Accra (21%) and Western (17%). Seventy-nine percent (79%) of their income is derived from commercial trading, while 6% comes from food crop production. They have the third highest average annual per capita income of all livelihoods with GHc1,178. They also spend the lowest share of their income on food (43%) compared to the other livelihoods. The most frequently mentioned shock experienced over the previous 12 months were the high food prices, in response to which 62% said there was no need to do anything. The largest share of households with migrating household member (27%) and almost half of them (47%) are female headed households, one of the largest of all livelihoods.

Petty Trader

% of population	11%
% urban	56%
% rural	44%

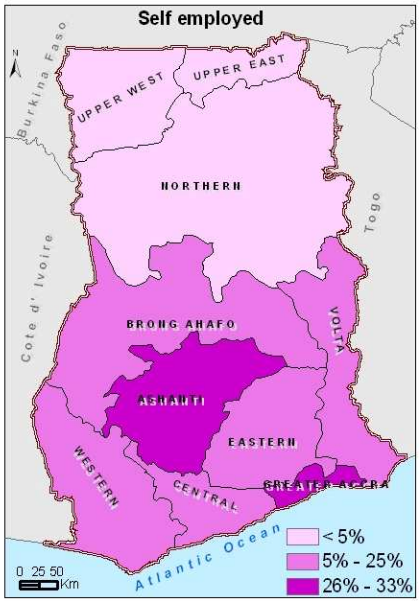
Of all food insecure/vuln./poor

% food insecure	9%
% vulnerable	12%
% two lowest WQ	7%

Of petty traders

% food insecure	4%
% vulnerable	10%
% two lowest WQ	32%

Petty trading includes street vending, selling of firewood and charcoal, the sales of fruits and vegetables and *kayaye*. Petty traders predominately live in the urban areas mainly in Greater Accra (23%), Ashanti (16%) and Central (14%). Their income from petty trading (78%) is complemented by food crop production which contributes 7% to their total income. Thirty-one percent (31%) of household heads had never been to school. Yet school attendance of primary school and junior high school aged children was high with almost all in each category attending. School attendance drastically decreases starting with senior high school. Petty traders have the third largest share of female headed households with 55%.



Self-employed

% of population	9%
% urban	68%
% rural	32%

Of all food insecure/vuln./poor

% food insecure	3%
% vulnerable	7%
% two lowest WQ	1%

Of self-employed

% food insecure	2%
% vulnerable	6%
% two lowest WQ	14%

Self employed households are mostly shop owners, as well as, for example, taxi drivers owning their taxis. Their second most important income source is petty trading which contributes 5% to overall income. Self employed households predominately live in the southern parts of Ghana with the majority in Ashanti (33%), Greater Accra (27%), Western and Central (9%). Sixty-eight percent (68%) reside in urban areas. They can generally be considered well-off. Thirteen percent (13%) of households had members who migrated for more than three months, the main reason for which was indicated to be education (36%), the highest among all livelihoods. Compared to the other livelihoods, self employed households have the least female headed households with only (15%).

Artisan

% of population	3%
% urban	68%
% rural	32%

Of all food insecure/vuln./poor

% food insecure	3%
% vulnerable	3%
% two lowest WQ	2%

Of artisans

% food insecure	5%
% vulnerable	9%
% two lowest WQ	29%

Artisan households are engaged in basked weaving, batik making, tailoring and hairdressing. The majority of them live in Greater Accra (25%), Ashanti (19%), Volta and Brong Ahafo (14%) and in urban areas (68%). Artisanry is mostly complemented by food crop production, adding 6% of their overall income. They can be considered a better off livelihood with an average annual per capita income of GHc1,106, however, their shares spent on food is on the higher side compared to the other livelihoods with 57%. Artisan households have the largest share of single-headed households compared to the other livelihoods, and the lowest dependency ratio with only 31% of households having any dependents. They also have one of the largest shares of households whose heads attained JHS and/or SHS (68%). Forty-three percent (43%) of the households are headed by women.

Prepared Food Seller

% of population	3%
% urban	53%
% rural	47%

Of all food insecure/vuln./poor

% food insecure	4%
% vulnerable	3%
% two lowest WQ	2%

Of prepared food sellers

% food insecure	6%
% vulnerable	7%
% two lowest WQ	30%

Sellers of prepared foods include the selling on *kenkey*, fast food, street food, etc. They mainly live in Ashanti (23%) and Greater Accra (18%), almost equally split between rural (47%) and urban (53%) areas. Their second most important income source is food crop production contributing 8% to their average annual per capita income of GHc754. Fifty-seven (57%) of their income is generally being spent on food. Their most important non-food expenditure is for transportation. Sellers of prepared food had the second largest share of households who indicated to have debts to pay back in November 2008. Thirty-seven percent (37%) of household heads had not received any schooling, however, they had one of the best school attendance rates for primary and junior high school aged children. However, 22% of children aged 12 – 14 years, did not attend SSS. Prepared food sellers have the second largest share of female headed households with 68%.

Salaried/Service Sector

% of population	16%
% urban	32%
% rural	68%

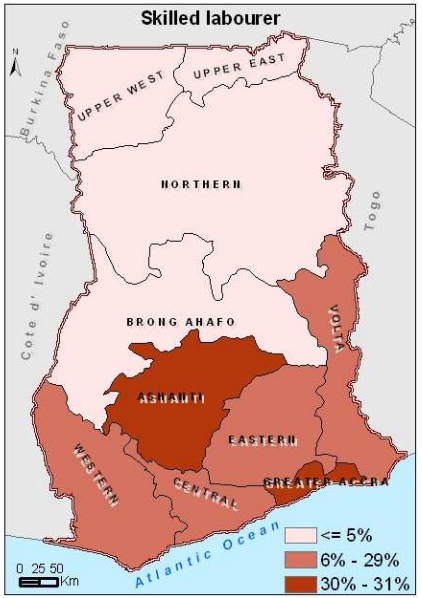
Of all food insecure/vuln./poor

% food insecure	9%
% vulnerable	10%
% two lowest WQ	1%

Of salaried/service sector

% food insecure	3%
% vulnerable	6%
% two lowest WQ	10%

Households receiving regular salaries are formally employed working in either the private or public sector, for the government or they are engaged in the service sector (waitressing, sales). Households who rely on regular pension are also included. They predominately live in Greater Accra (26%), Western (15%) and Ashanti (17%) with 68% in the urban areas. Their second main income source is food crop production, contributing 5% to their overall annual per capita income which is the highest among the fifteen livelihoods (GHc1,655). They have the highest share of educated household heads with 35% of them having attained schooling beyond Secondary High School. All of their primary school aged children and 98% of their junior high school aged children are attending school. Among all livelihoods, households with regular salaries were the least to have experienced a shock between November 2007 and 2008.



Skilled laborer

% of population	3%
% urban	43%
% rural	57%

Of all food insecure/vuln./poor

% food insecure	3%
% vulnerable	1%
% two lowest WQ	1%

Of skilled laborers

% food insecure	5%
% vulnerable	3%
% two lowest WQ	19%

Skilled labour includes activities such as carpentry, mining, etc. The majority of skilled labourers live in Greater Accra (30%), Ashanti (30%), Central (10%) and Western (10%) with 57% in urban areas. After households with regular salaries, skilled laboured households are the second richest in terms of their average annual per capita income. Ninety-one (91%) of household heads had been to school with 3% of them having continued after SSS. They also have one of the lowest dependency ratio with only 29% of their households having any dependents below 15 or above 64 years. Only 11% of households are headed by women which is the lowest among all livelihoods.

Source: CFSVA 2008