

Comprehensive Food Security & Vulnerability Analysis

# UGANDA



#### Comprehensive Food Security & Vulnerability Analysis (CFSVA) Uganda April 2009

Prepared by Philip McKinney

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## 2. List of commonly used acronyms

ANOVA	- Analysis of Variance
CFSVA	- Comprehensive Food Security & Vulnerability Analysis
CPI	- Consumer Price Index
CSI	- Coping Strategy Index
EFSA	- Emergency Food Security Assessment
FAO	<ul> <li>Food and Agriculture Organization of the United Nations</li> </ul>
FCG	- Food Consumption Group
FCS	- Food Consumption Score
GDP	- Gross Domestic Product
GINI	- Gini Index
GNI	- Gross Nation Income
HIPC	- Heavily Indebted Poor Country
HIV/AIDS	- Human Immuno-deficiency Virus/Acquired Immune Deficiency Syndrome
IDP	- Internally Displaced Person
MCH	- Mother Child Health
MUAC	- Mid-Upper Arm Circumference
NGO	- Non-Governmental Organisation
PCA	- Principal Component Analysis
PEAP	- Poverty Eradication Action Plan
PPP	- Purchasing Power Parity
PRSP	- Poverty Reduction Strategy Paper
TLU	- Tropical Livestock Unit
UBOS	- Uganda Bureau of Statistics
UDHS	- Uganda Demographic Household Survey
UNHS	- Uganda National Household Survey
UNICEF	<ul> <li>United Nations Children's Fund</li> </ul>
VAM	<ul> <li>Vulnerability Analysis and Mapping</li> </ul>
WFP	- United Nations World Food Programme
WHO	- World Health Organization
WHZ	- Weight for Height z-score

## **Table of Contents**

1.	Acknowledgements	3
2.	List of commonly used acronyms	4
3.	Executive summary	9
•••	3 1 Background	9
	3.2 Scope and methods	9
	3 3 How many people are food insecure or vulnerable?	ģ
	3.4 Where do the food insecure and vulnerable people live?	10
	3.5 Who are the food-insecure or vulnerable people live:	10
	2.6 What are the underlying causes and threats to feed security and putrition?	11
	2.7 What are the implications for food cocurity interventions?	17
	Concret background on Urando	14
4.	4.1. Canaval information on Uganda	14
	4.1 General information on Uganua	14
	4.2 Macro-economic overview	10
	4.3 Social capital and governance	15
	4.4 Poverty and inequality	16
_	4.5 Poverty reduction and food security public policies	16
5.	Study objectives and methodology	19
	5.1 Objectives	19
	5.2 Definition of terminology and concepts	19
	5.3 Sources of data	20
	5.3.1 Secondary data review	20
	5.3.2 Primary data collection	21
	5.3.2.1 Survey instruments	21
	5.3.2.2 Survey teams and supervision	21
	5.3.2.3 Sampling procedures	22
	5.3.2.4 Data entry and statistical analysis	23
	5.3.3 Limitations of the study	23
		~ -
	5.3.4 Coordination of the study	25
6.	Community and household survey results	25 26
6.	Community and household survey results	25 <b>26</b> 26
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics	25 26 26
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics	25 26 26 26 26
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1.1 Female-headed households 6.1.2 Education	25 26 26 26 26 27
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1.1 Female-headed households. 6.1.2 Education 6.1.3 Displacement	25 26 26 26 26 27 28
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1.1 Female-headed households 6.1.2 Education 6.1.3 Displacement 6.2 Natural Capital	25 26 26 26 26 27 28 29
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1.1 Female-headed households 6.1.2 Education 6.1.3 Displacement 6.2 Natural Capital 6.2.1 Climate and agricultural seasons	25 26 26 26 26 27 28 29 29
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1.1 Female-headed households 6.1.2 Education 6.1.3 Displacement 6.2 Natural Capital 6.2.1 Climate and agricultural seasons 6.2.2 Crop production	25 26 26 26 26 27 28 29 29 29
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1.1 Female-headed households 6.1.2 Education 6.1.3 Displacement 6.2 Natural Capital 6.2.1 Climate and agricultural seasons 6.2.3 Land access	25 26 26 26 27 28 29 29 29 31
6.	S.3.4 Coordination of the study         Community and household survey results         6.1 Human capital         6.1.1 Demographics         6.1.1.1 Female-headed households.         6.1.2 Education         6.1.3 Displacement         6.2.1 Climate and agricultural seasons         6.2.2 Crop production         6.2.3 Land access         6.2.4 Livestock	25 26 26 26 27 28 29 29 29 29 31 32
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1.1 Female-headed households 6.1.2 Education 6.1.3 Displacement 6.2 Natural Capital 6.2.1 Climate and agricultural seasons 6.2.2 Crop production 6.2.3 Land access 6.2.4 Livestock 6.3 Physical capital	25 26 26 26 27 28 29 29 29 31 32 33
6.	S.3.4 Coordination of the study	25 26 26 26 27 28 29 29 29 29 29 31 32 33 34
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1 Female-headed households 6.1.2 Education 6.1.3 Displacement 6.2 Natural Capital 6.2.1 Climate and agricultural seasons 6.2.2 Crop production 6.2.3 Land access 6.2.4 Livestock 6.3 Physical capital 6.3.1 Housing conditions 6.3.1.1 Ownership and housing structure	25 26 26 26 26 27 28 29 29 29 29 31 32 33 34 34
6.	S.3.4 Coordination of the study.         Community and household survey results         6.1 Human capital         6.1.1 Demographics         6.1.1 Demographics         6.1.1 Female-headed households.         6.1.2 Education         6.1.3 Displacement         6.2 Natural Capital         6.2.1 Climate and agricultural seasons         6.2.2 Crop production         6.2.3 Land access         6.2.4 Livestock         6.3 Physical capital         6.3.1 Housing conditions         6.3.1.1 Ownership and housing structure         6.3.1.2 Lighting and cooking energy sources	25 26 26 27 28 29 29 29 29 29 31 32 33 34 34 34
6.	Community and household survey results 6.1 Human capital 6.1.1 Demographics 6.1.1 Female-headed households 6.1.2 Education 6.1.3 Displacement 6.2 Natural Capital 6.2.1 Climate and agricultural seasons 6.2.2 Crop production 6.2.3 Land access 6.2.4 Livestock 6.3 Physical capital 6.3.1 Housing conditions 6.3.1.1 Ownership and housing structure 6.3.1.2 Lighting and cooking energy sources 6.3.2 Water and sanitation	25 26 26 27 28 29 29 29 29 31 32 33 34 34 34 35
6.	S.3.4 Coordination of the study	25 26 26 27 28 29 29 29 29 31 32 33 34 34 35 35
6.	<ul> <li>5.3.4 Coordination of the study</li> <li>Community and household survey results</li></ul>	25 26 26 26 27 28 29 29 29 29 29 31 32 33 34 35 35 36
6.	5.3.4 Coordination of the study	25 26 26 26 27 28 29 29 29 29 29 31 32 33 34 35 35 36 37
6.	5.3.4 Coordination of the study. <b>Community and household survey results</b> 6.1 Human capital         6.1.1 Demographics         6.1.1.1 Female-headed households.         6.1.2 Education         6.1.3 Displacement         6.2 Natural Capital         6.2.1 Climate and agricultural seasons.         6.2.2 Crop production.         6.2.3 Land access         6.3.1 Housing conditions.         6.3.1.1 Ownership and housing structure         6.3.1.2 Lighting and cooking energy sources.         6.3.2 Water and sanitation         6.3.2.1 Water         6.3.2.2 Sanitation         6.3.3.1 Asset holdings and Wealth Index         6.3.3.1 Asset ownership.	25 26 26 27 28 29 29 31 32 33 34 35 35 37 37
6.	5.3.4 Coordination of the study. <b>Community and household survey results</b> 6.1 Human capital         6.1.1 Demographics         6.1.1.1 Female-headed households.         6.1.2 Education         6.1.3 Displacement         6.2 Natural Capital         6.2.1 Climate and agricultural seasons         6.2.2 Crop production         6.2.3 Land access         6.2.4 Livestock         6.3 Physical capital         6.3.1.1 Ownership and housing structure         6.3.1.2 Lighting and cooking energy sources         6.3.2.4 Water and sanitation         6.3.2.5 Sanitation         6.3.3.1 Asset holdings and Wealth Index         6.3.3.1 Asset ownership	25 26 26 27 28 29 29 31 32 33 34 35 35 36 37 40
6.	5.3.4 Coordination of the study. <b>Community and household survey results</b> 6.1 Human capital         6.1.1 Demographics.         6.1.1.1 Female-headed households.         6.1.2 Education         6.1.3 Displacement         6.2 Natural Capital         6.2.1 Climate and agricultural seasons.         6.2.2 Crop production.         6.2.3 Land access         6.3.1 Housing conditions.         6.3.1.1 Ownership and housing structure         6.3.1.2 Lighting and cooking energy sources.         6.3.2 Water and sanitation         6.3.2.1 Water.         6.3.2 Sanitation         6.3.3.1 Asset ownership.         6.3.4 Household wealth groups.         6.3.4 Household wealth groups.         6.3.4 Household wealth groups.	25 26 26 27 28 29 29 29 31 32 33 34 35 36 37 40 41
6.	5.3.4 Coordination of the study. <b>Community and household survey results</b> 6.1 Human capital         6.1.1 Demographics.         6.1.1.1 Female-headed households.         6.1.2 Education         6.1.3 Displacement         6.2 Natural Capital         6.2.1 Climate and agricultural seasons         6.2.2 Crop production.         6.2.3 Land access         6.2.4 Livestock.         6.3 Physical capital         6.3.1.1 Ownership and housing structure         6.3.1.2 Lighting and cooking energy sources         6.3.2.3 Land sanitation         6.3.1.4 Uwater         6.3.1.5 Ownership and housing structure         6.3.1.6 Ownership and knowing energy sources         6.3.2 Water and sanitation         6.3.2.1 Water         6.3.2.2 Sanitation         6.3.3.1 Asset ownership.         6.3.4 Household wealth groups.         6.4 Financial capital and livelihood strategies         6.4.1 Activities and financial capital	25 26 26 27 29 29 29 29 31 32 33 43 35 36 37 40 41 41
6.	5.3.4 Coordination of the study <b>Community and household survey results</b> 6.1 Human capital         6.1.1 Demographics         6.1.1.1 Female-headed households         6.1.2 Education         6.1.3 Displacement         6.2 Natural Capital         6.2.1 Climate and agricultural seasons         6.2.2 Crop production         6.2.3 Land access	25 26 26 26 27 28 29 29 29 31 33 34 35 36 37 40 41 41 41
6.	5.3.4 Coordination of the study. <b>Community and household survey results</b> 6.1 Human capital         6.1.1 Demographics.         6.1.1 Female-headed households.         6.1.2 Education         6.1.3 Displacement         6.2 Natural Capital         6.2.1 Climate and agricultural seasons.         6.2.2 Crop production         6.2.3 Land access         6.2.4 Livestock.         6.3 Physical capital         6.3.1.1 Ownership and housing structure         6.3.1.2 Lighting and cooking energy sources         6.3.2.1 Water         6.3.2.2 Sanitation         6.3.3.1 Asset holdings and Wealth Index         6.3.3.1 Asset ownership         6.3.4 Household wealth groups         6.4 Financial capital and livelihood strategies         6.4.1.1 Labour activities.         6.4.1.2 Seasonality of activities.	25 26 26 26 27 28 29 29 29 312 33 34 35 36 37 40 41 41 42
6.	5.3.4 Coordination of the study <b>Community and household survey results</b> 6.1 Human capital         6.1.1 Demographics         6.1.1.1 Female-headed households         6.1.2 Education         6.1.3 Displacement         6.2.1 Climate and agricultural seasons         6.2.2 Crop production         6.2.3 Land access         6.2.4 Livestock         6.3 Physical capital         6.3.1 Housing conditions.         6.3.1.1 Ownership and housing structure         6.3.1.2 Lighting and cooking energy sources         6.3.2.2 Sanitation         6.3.3.3 Asset holdings and Wealth Index         6.3.3.1 Asset ownership.         6.3.4 Household wealth groups         6.4 Financial capital and livelihood strategies         6.4.1.1 Labour activities.         6.4.1.3 Labour migration.	25 26 26 27 29 29 29 31 32 33 44 35 36 37 40 41 41 42 43

6.4.3 Classification of agriculturalists	. 46
6.4.4 FISNINg	. 48
6.4.5 Extension services	. 48
6.4.6 Household expenditure	. 49
6.4.6.1 Food and non-food expenditure	. 49
6.5 Food consumption and food security	. 51
6.5.1 Diet composition and food sources	. 51
6.5.2 Household food consumption profiles	. 55
6.5.2.1 Methodology	. 55
6.5.2.2 Food consumption profiles	. 55
6.6 Food security profiling	. 56
6.7 Multivariate analysis of food security status	. 59
7. Markets and market analysis	62
7.1 Food market structure	. 62
7.1.1 Crop market structure	. 62
7.1.2 Livestock market structure	. 62
7.2 Market access	. 63
7.2.1 Household dependence on markets for food	. 63
7.2.2 Households physical access to markets	. 63
7.2.3 Availability of food in markets	. 64
7 3 Conduct and performance	64
7 3 1 Market availability and traded commodities	64
7 3 2 Characteristics of suppliers	65
7 3 3 Composition of traders business costs	65
7.3.4 Main customors and distribution	66
7.3.4 Fidili customers and distribution	66
7.5.5 Trade expansion capacity	66
7.4 Traded volumes and prices	. 00
7.4.1 Haded volumes	. 00
7.4.2 Food and non-rood market prices	. 67
7.4.3 Determinants of market price changes	. 67
7.4.4 Import/Export dynamics	. 67
7.5 Market price analysis and trends	. 68
7.5.1 Prices of food staples	. 68
7.5.2 Variation across space and time	. 69
7.5.3 Market integration	. 69
8. Health and nutrition	71
8.1 Health care access	. 71
8.2 Maternal health	. 71
8.3 Child health (6-59 months)	. 72
8.4 Mortality	. 74
8.5 Risk factors for poor nutritional outcomes	. 75
9. Shocks and coping mechanisms	77
9.1 Shocks	. 77
9.1.1 Food access	. 77
9.1.2 Covariate shocks	. 78
9.1.3 Idiosyncratic shocks	. 78
9.1.4 Coping strategies and Coping Strategy Index	. 79
9.1.5 Humanitarian assistance and interventions	. 80
10. Conclusions	82
10.1 Geographic food security and vulnerability profiles	. 83
10.2 Livelihood food security and vulnerability profiles	. 86
10.3 Other priority areas for consideration	. 88
11. Recommendations	90
11.1 Humanitarian action	. 90
11.2 Poverty reduction and mid-term strategies	90
11.3 Policy and advocacy	90
11.4 Monitoring systems	91

11.5 Potential targeting criteria	91
12. Annexes	92
12.1 Sampling	92
12.2 Methodological note on nutrition analysis	93
12.3 Crops and crop group classifications	94
12.4 Methodology for analyzing food consumption data	95
12.5 Tables of estimates of population of Poor (wealth and asset) and Food Inse	ecure
households by strata	97
12.6 Methodology for the wealth index	98

## List of Figures

Figure 1: Food and Nutrition Security Conceptual Framework	. 20
Figure 2: General seasonal calendar for Uganda	. 29
Figure 3: % of households planting crop type within each	. 30
Figure 4: % Households who reported owning any animals	. 32
Figure 5: Animal ownership (% households reporting owning any of each animal)	. 33
Figure 6: % Households owning number of assets	. 38
Figure 7: Indicators related to assets ownership	. 39
Figure 8: Changes in asset ownership between Wealth Quartiles	. 40
Figure 9: Seasonality of main LH activities	. 42
Figure 10: Seasonal Migration of households (four main reasons)	. 43
Figure 11: Geographical distribution of Cropping Groups	. 48
Figure 12: Per capita expenditure patterns of various groups	. 50
Figure 13: Household expenditure patterns in Uganda	. 51
Figure 14: Food sources (reported by % of all food items)	. 52
Figure 15: Number of days food group consumed, by region	. 53
Figure 16: Food consumption profile changes with improving Food Consumption Sc	ore
(FCS)	. 55
Figure 17: Food Security Groups by Livelihood (Note that figure in parentheses is the	e %
of the livelihood group in the sample)	. 58
Figure 18: Food Security and Indexes of Wealth	. 59
Figure 19: No. times households went to buy food from the markets by Various Group	s in
past month	. 63
Figure 20: Households (%) reporting availability of food in the market in past year	by
region	. 64
Figure 21: Perception in changes in market food prices in the past 12 months	by
households	. 67
Figure 22: Annual Trends in CPI	. 68
Figure 23: Maize price seasonality (smoothed mean)	. 69
Figure 24: Regional price trends for maize	. 70
Figure 25: Vitamin A received in last 6 months (% children)	. 73
Figure 26: Measles vaccination (% children)	. 73
Figure 27: DPT3 vaccination (% children)	. 73
Figure 28: Illness reported in the 2 weeks prior to the survey (% children)	. 74
Figure 29: Seasonality of main food shocks	. 77
Figure 30: Seasonality of main covariate shocks	. 78
Figure 31: Seasonality of main idiosyncratic shocks	. 78
Figure 32: CSI scores for Asset Index, Wealth Index and malnutrition (wasting)	. 79
Figure 33: Interventions being accessed	. 81

## **List of Tables**

Table 1: Estimated population food insecure in Karamoja	10
Table 2: Demographic Description of the Sample	26
Table 3: Main Sources of Seeds for Households Planting Crops (Uganda)	30
Table 4: Inputs Reported by Household (Uganda)	31
Table 5: Wealth and Assets Correlations with other indictors	39
Table 6: % of Households of Asset Poor within Wealth Index Quartiles	41
Table 7: % of households reporting being engaged in the main activities reported	in the
CFSVA	42
Table 8: Description of Primary Livelihood Activity Groups in Sample (*unweigh	ited N
value given)	44
Table 9: Description of the main Farmer Groups in the CFSVA sample	47
Table 10: Characteristics of Fisherfolk in key Strata	48
Table 11: Reported average number of days households consumed each food item	in the
last 7days	54
Table 12: Weekly Consumption Patterns of Consumption Profiles (Uganda, Av	/erage
Values)	55
Table 13: Relationship between Food Consumption Scores and other Indicators	56
Table 14: Characteristics of Food Security Groups	58
Table 15: Main Suppliers of Traders in Uganda Markets	65
Table 16: Units of Primary commodity traded	66
Table 17: Market Integration (Correlation Coefficients)	70
Table 18: Summary of Maternal Health Indicators	72
Table 19: Crude Mortality Rate	74
Table 20: Food Group Weights Used in FCS Analysis	95
Table 21: Food Items used in the Uganda Assessment Diet recall tool and the	Food
Groups they were allocated to	96
Table 22: Definition of Food Consumption Profiles	96
·	

## List of Maps

Map 1: Where the Food Insecure are	. 10
Map 2: Map of Sample Stratification	. 22
Map 3: Stratifications by Region as Defined by the UDHS	. 22
Map 4: % of Households with Literate HH Head	. 27
Map 5: % Households that are less then 30mins from safe water source	. 36
Map 6: % Households greater than 1km away from safe water source	. 36
Map 7: % of Households Accessing Improved Sanitation	. 37
Map 8: % Households who are Asset Poor	. 38
Map 9: Map of Lowest Wealth Quartile (% of Households)	. 40
Map 10: Geographic Distribution of the 4 Main Livelihood Activity Groups	. 46
Map 11: % of Food Insecure Households by Strata	. 57
Map 12: % of Moderately Food Insecure Households by Strata	. 57

## **3. Executive summary**

#### **3.1 Background**

In Uganda, food and nutrition security remains high on the country's development agenda. The Government has recently produced several policy frameworks and strategies which acknowledges this importance, such as the forthcoming National Development Plan (2009-2014). The Government has also made a commitment to monitor the country's progress against the Millennium Development Goals (MDGs) - the first of which relates to eradicating extreme hunger and poverty.

In 2005, WFP conducted a Comprehensive Food Security & Vulnerability Analysis (CFSVA) in Uganda. In 2008, it was decided to conduct a similar assessment in order to update critical data on food and nutrition, enable more focused programme responses, and improve inter-agency coordination and targeting. The study aimed at addressing the following five questions:

- 1. How many people are food insecure or vulnerable?
- 2. Who are the food insecure or vulnerable people?
- 3. Where do the food insecure and vulnerable people live?
- 4. What are the underlying causes and threats to food security and nutrition?
- 5. What are the implications for food security interventions?

#### **3.2 Scope and methods**

For the purpose of the study, the country was divided into 25 'strata'.<sup>1</sup> For each stratum, a representative sample of households was selected using a two-stage random sample. This sampling design allows for the comparison of key food security indicators across strata.

While this CFSVA focuses on food security, it provides additional information on nutrition, health, markets, and community services/infrastructures. Both quantitative and qualitative data were collected. The data was obtained from 7,271 household questionnaires; 20,381 health and nutrition questionnaires; 379 trader questionnaires; 746 community questionnaires, and 25 focus group discussions. Data collection took place in October-November 2008. In Uganda, this corresponds to the end of the harvesting period and is typically a period of plenty. The nature of this seasonality has been taken into consideration in the interpretation of the results.

While the study was conducted in the most rigorous manner possible, some limitations must be acknowledged. One of these limitations regards nutritional data. Only multivariate analysis on the causes of malnutrition was reliable given the concerns about the data quality to accurately measure prevalence (more details are reported in annex 12.2)

#### 3.3 How many people are food insecure or vulnerable?

During the survey, food consumption data was collected at the household level and used to obtain a "snap-shot" of households access to food. During the analysis, households were categorized as those with poor (food insecure), borderline (moderately food insecure) or acceptable (food secure) consumption.

The results of the Uganda CFSVA 2009 indicates that 6.3% of households are food insecure, 21.3% are moderately food insecure and at risk of becoming food insecure if

<sup>&</sup>lt;sup>1</sup> Strata are either districts (in the northern and eastern part of the country) or aggregations of districts (in the southern part of the country).

conditions deteriorate. The remaining 72.4% of the households are classified as food secure.



#### 3.4 Where do the food insecure and vulnerable people live?

The highest prevalence of food insecurity is in the region of Karamoja (20%), especially in the southern part of the region: Moroto (30%) and Nakapiripirit (23%).

the region of Karamoja, In 208,000 approximately people are estimated to be food insecure and 387,000 people are deemed to be moderately food insecure (total 595,000 persons). Given the acute nature of food insecurity, this region should remain a priority for future food security and nutrition interventions. A breakdown by district is outlined in the table below.

Relatively high levels of food insecurity can be found also in Budaka (11% of the households are food insecure) and Busoga (15%). The latter has also the highest absolute number of food insecure people (500,000 people).

Table 1: Estimated population food insecure in Karamoja						
District	Est. Pop. 2008*	Food Insecure	Pop. Food Insecure**	Moderately Food Insecure	Pop. Moderately Food Insecure**	Total
Abim	54,100	9.6%	5,200	39.7%	21,500	26,700
Kotido	179,300	16.7%	30,000	44.0%	78,900	108,900
Kaabong	301,200	16.0%	48,200	42.0%	126,600	174,800
Moroto	265,300	30.0%	79,600	42.8%	113,600	193,200
Nakapiripirit	217,500	22.7%	49,400	18.5%	40,300	89,700
Karamoja***	1,017,400	20.4%	207,600	38.0%	386,600	594,200

\*UBOS projections

\*\*Rounded up to the nearest 100 people

\*\*\*Discrepancies are a result of weights and in rounding

It is worth noting that few households appear to be food insecure in the refugee/IDP hosting areas of Acholi, an area where food insecurity has traditionally been a problem. In part, this can be explained by the large contribution of WFP food assistance to this region. Given this, emergency food assistance should not be withdrawn unless there is confidence that the resulting food gap can be filled through new livelihood opportunities.

Detailed information on the geographical distribution of food insecurity is summarised in the conclusions of the report (see section 10.1: *Geographic food security and vulnerability profiles*).

#### 3.5 Who are the food-insecure or vulnerable people?

The analysis identified the main vulnerable livelihood groups in terms of absolute numbers and percentages.

A higher prevalence of food insecurity can be found among the 'Natural Resource Dependents' (11.7% of households are food insecure), 'Fisherfolk' (11.4%) and 'External Support Dependents'.<sup>2</sup> These groups rely on marginal livelihood strategies that have low income earning opportunities, or on external assistance.



The prevalence of food insecurity is generally lower among the 'Agriculturalists' (6.3%). However, since this is the major group in the population, it results in a large absolute number of food insecure households. During the analysis, farmers were divided into homogenous groups according to the major crops cultivated. Farmers cultivating mainly sorghum have the highest prevalence of poverty (44% are in the poorest wealth quartile), followed by the farmers cultivating 'other' crops (42%). A more detailed profile of the farmer groups can be found in the report (see section 6.4: *Financial capital and livelihood strategies*).

#### 3.6 What are the underlying causes and threats to food security and nutrition?

Economic access to markets is a significant problem across the entire country and is one of the main explanations behind the high levels of food insecurity in Busoga, Ankole and south Buganda. The general perception of the surveyed households is that food prices are higher than normal. The market analysis confirms this observation (see chapter 7: *Markets and market analysis*).

Another factor driving food insecurity is the reduced availability of food in the market, which was confirmed by the perceptions of surveyed households. Such reduced availability might be related to the decreased "effective demand" in some areas, caused by decreased household purchasing power.

Finally, general poverty, asset poverty and personal insecurity have been identified as forces driving food insecurity in Karamoja. This undercurrent of poverty increases the vulnerability of the region to covariate shocks. The combination of these factors exacerbates the recurrence of bouts of acute food shortages.

<sup>&</sup>lt;sup>2</sup> For further explanation, see section 6.4.2 *Livelihood activity groups*.

In order to further explore the underlying causes of food security, a multivariate analysis was conducted. The analysis confirmed the differences between surveyed strata observed at the bivariate level. It also isolated significant factors that are positively associated with food security. These factors are: literacy of the household head; large household size, high level of wealth; access to improved sanitation; high per capita total expenditures and low percentage of food expenditure; high coping strategy index (CSI); animal ownership; the size of the land accessed; and the number of different crops planted in the first season of 2008. Finally, using 'agriculturalists' as the comparison group, two groups were found to have statistically higher levels of food security: 'agro-pastoralists' and 'commercial traders'.

With regard to malnutrition, five factors have been found to be significantly associated with being underweight: 1) younger children are more likely to be underweight than older children; 2) males were found more likely to be underweight than females; 3) children experiencing diarrhoea have higher odds of being underweight; 4) children in households with no access to improved sanitation were more likely to be underweight; 5) wealth (measured by the wealth index) is found to be significantly related to being underweight.

#### **3.7 What are the implications for food security interventions?**

The study clearly shows that there is still a need for humanitarian interventions in Uganda. Specifically, the recommendations are as follows:

#### Priority areas:

- Karamoja Food insecurity is high in most parts of Karamoja; humanitarian interventions are strongly recommended to address food needs and non-food services.
- Acholi and Lango Humanitarian interventions are needed to provide sustainable livelihood and income opportunities.

#### Poverty reduction and mid-term strategies

- Interventions are needed to tackle the underlying causes of food insecurity. Results from the analysis clearly show the link between food insecurity and poverty. Therefore, it is recommended that programmes focus on livelihoods and income earning opportunities.
- In Karamoja, for example, the high level of poverty, combined with recurrent shocks, are likely to be the main driving factors of food insecurity. In this area, interventions should address environmental issues as well as poverty reduction and livelihood protection.
- Since high levels of food insecurity are also seen elsewhere in Uganda, these issues should also be considered throughout the country.

#### Policy and advocacy

- 1. Water and Water Access Improve quality and access to water for households.
- 2. **School Access** Provide free basic schooling for all and ensure that there are adequate teaching staff and facilities.
- 3. **Extension Services** Agricultural and veterinarian extension services need to be improved in both quality and coverage. The use of mobile phone technology and radios should be explored.
- 4. **Health Care** Provision of adequate and reliable health care services and medical supplies in rural communities.

- 5. **Sanitation** Promote the use and the construction of simple and improved latrines.
- 6. **Security and peace-building** This issue is particularly relevant for the Karamoja region and should aim at reducing raiding and general insecurity.
- 7. **Sensitization to hunger related issues** Provide information on food preparation, diet diversification as well as healthy and affordable eating options.

#### Monitoring Systems

Surveillance systems should be put in place/reinforced to monitor nutrition, markets and climatic conditions at the national and local levels in order to provide advance warning about emerging crises.

### 4. General background on Uganda

Chapter 4 aims to provide some general information about Uganda, explaining the context within which the country finds itself today. Sector specific information is provided throughout the report linking the findings to other sources of information.

#### 4.1 General information on Uganda

At the time of independence in 1962, Uganda had many qualities which made its future look promising: a relatively well developed education and health system and a strong economy supported by agricultural, textile and copper exports<sup>3</sup>, as well as an emerging industrial sector. But the country also inherited a strong North-South divide. Economic mismanagement ethnic tensions and political turmoil quickly undermined the country's potential for development. In 1971, the first president, Obote was overthrown by Colonel Idi Amin. Over the next decade, the situation deteriorated further. In 1980 Obote returned to power until being overthrown in 1985 by the UNLA<sup>4</sup>. In 1986 the NRA/M<sup>5</sup> ousted the UNLA and took power. The UNLA subsequently took refuge in the northern region (Acholi).

By the time the NRA/M took power, decades of civil war and poor economic performance had plagued the country. Most of the infrastructure and manufacturing sector were decimated and inflation was raging out of control. The legacy of political violence and human rights violations under Obote and Amin's regimes saw more than 300,000 killings.

The situation quickly turned around under NRA/M leadership. Changes in macroeconomic policies were introduced, including the liberalization, diversification and intensification of commercial agriculture and reinforcement of export oriented economic growth<sup>6</sup>. Results were surprisingly rapid. GDP growth averaged 7% through the 90's. The percentage of the population below the poverty line fell from 56% in 1992 to 35% in 1999<sup>7</sup>.

Uganda was the first country to gualify for the HIPC initiative and was involved early in the PRSP process. The country further benefits from major support from foreign countries. But the apparent success of Uganda hides numerous challenges to its sustained development. Since 1986, there have been 14 separate insurgencies into Uganda<sup>8</sup>. Unequal distribution of the benefits of the economic growth dramaticallv affects the poor. rural growth Agricultural is slower than population growth<sup>9</sup>, a major threat to rural development.

#### Violence & prolonged displacement

Brutal rebel activities in northern Uganda over 22 years (The Lord's Resistance Army -LRA) caused major disruption in the region and resulted in the displacement of an estimated 1.6 million people. The past two years have seen a relative calm in northern Uganda, with peace talks between the government and the LRA prompting hundreds of thousands of internally displaced persons (IDPs) to return to their homes in Gulu, Amuru, Pader and Kitgum districts of the Acholi sub-region. However, 700,000 households remain displaced. In the northeast, Karamojong warriors cause disruption and insecurity through banditry (not politically motivated).

<sup>&</sup>lt;sup>3</sup> Xiaobo Zhang, Security is like Oxygen, IFPRI, 2004.

<sup>&</sup>lt;sup>4</sup> Ugandan regular army

<sup>&</sup>lt;sup>5</sup> National Resistance Army/Movement. The NRA insurgency began in 1981 over accustions of alleged electorial fraud.

<sup>&</sup>lt;sup>6</sup> Byrnes, Rita M. (ed.) 1992. Uganda A Country Study, Library of Congress: Washington D.C. pp. 49-51.

<sup>&</sup>lt;sup>7</sup> Shenggen Fan, Xiaobo Zhang, and Neetha Rao, *Public Expenditure, Growth and Poverty Reduction in Rural Uganda*, IFPRI, 2004.

<sup>&</sup>lt;sup>8</sup> Liu Institute for Global Issues, May 2005, *Northern Ugandan-Human Security Update: Pursuing Peace and Justice: International and Local Initiatives*, Conflict and Development Programme

<sup>&</sup>lt;sup>9</sup> Based on a calculation by the author of the average growth of the agricultural production index, FAO data form 1990 to 2004.

#### 4.2 Macro-economic overview

Uganda is among the poorest countries in the world, with a GDP per capita of \$250 and a GDP per capita PPP<sup>10</sup> estimated at \$1,457, lower than the sub-Saharan countries average. In 2005, Uganda qualified as a low middle-income country ranking 178<sup>th</sup> out of 208 countries (GNI PPP - World Bank data). Over the last decade, Uganda has seen its GDP increase significantly. GDP grew an average 5.6 % from 2000 to 2005 and is expected to see growth of 6.4%, based on a 2008 estimate<sup>11</sup>. Uganda is ranked 156<sup>th</sup> out of 179 countries using the Human Development Index (HDR, 2006)<sup>12</sup>.

UNHS 2005/06 population poverty estimates indicate a reduction from 39% (2002/03) to 31%. The biggest reduction was noted in the rural population but estimates of poverty in the northern region have seen little change and still exceed 60%.

The economic success of Uganda is reflected in the accelerating transformation of the structure of its economy over the last two decades. This structural shift is fuelled by the expansion of the transformation industry (eg. processing and export of commodities such as coffee, fish and cut flowers), as well as tourism and services. As a result, the structure of the labour force is also changing. Agriculture contributed to roughly only 29% of the GDP in 2007, but still accounted for providing 62% of the employment<sup>13</sup>. Growth in the agriculture sector in the period 1997-2007 is estimated at 4.5%.

Uganda Consumer Price Index (CPI) saw an average change of 7.1% from 1990-2005. Between 2002/03 and 2005/06, farmers' incomes increased and the proportion of farming households in poverty declined from 48% to 33%<sup>14</sup>. Although headline inflation rates are relatively stable at 14.3%, the CPI has increased from 12.7% in December 2008 to 13.4% in January 2009. A doubling of headline inflation was reported in 2008, which was related to an increase in fuel costs and subsequent inflation.

#### 4.3 Social capital and governance

Over the last decade, Uganda has made significant progress towards entrenching its democracy. The presidential election of 2001 was generally seen as fair by the international community. More needs to be done, however. According to the 2005 Freedom Index<sup>15</sup>, Uganda's score for Political Rights and Civil liberties are respectively 5 and 4, on a scale from 1 to 7 (1 being the highest level of freedom and 7 the worst). Overall, the country is classified as relatively free. The advent of multi-party country elections through a referendum in 2005 is seen as a major step towards ensuring political liberties, but recent amendments to the constitution are cause for serious concern. In the recent months, freedom of the media has further been constrained for "national security" reasons and has included the arrest of journalists. Civil society groups are still administered under the Non-Government Organization Act and are subject to control through registration requirements.

Corruption remains a major constraint and is rampant in Uganda. According to the 2005 Corruption Perception Index (CPI)<sup>16</sup>, Uganda ranks 126<sup>th</sup> out of 180 countries with an overall score of 2.6 and 25<sup>th</sup> of 47<sup>th</sup> for the region. Concerns about corruption and misallocation of resources lead to a temporary withdrawal of the Global Fund from Uganda. Recently, however, the Global Fund announced that Uganda would again qualify to access funds given the steps taken by the government to remodel the administration.

<sup>&</sup>lt;sup>10</sup> Gross National Income Adjusted for Purchasing Power Parity – World Bank data.

<sup>&</sup>lt;sup>11</sup> CIA website.

<sup>&</sup>lt;sup>12</sup> http://hdrstats.undp.org/2008/countries/country\_fact\_sheets/cty\_fs\_UGA.html

<sup>&</sup>lt;sup>13</sup> Estimated from the Uganda National Household Survey 2002/3 (UNHS), Uganda Bureau of Statistics (UBOS)

<sup>&</sup>lt;sup>14</sup> UNHS 2005/06, Uganda Bureau of Statistics

<sup>&</sup>lt;sup>15</sup> www.freedomhouse.org

<sup>&</sup>lt;sup>16</sup> The CPI is compiled by Transparency International, see <u>www.transparency.org</u>

Relatively poor performance in corruption is also seen in the Governance Research Indicator Country Snapshot (GRICS) of the World Bank<sup>17</sup>.

#### 4.4 Poverty and inequality

According to the 2005 Human Development Report (UNDP), Uganda ranks  $154^{th}$  out of 177 countries on the Human Development Index and narrowly qualifies as a medium human development country (based on 2003 data). The human development index is a composite indicator based on health performance (life expectancy), education (enrolment ratio) and economics (GDP PPP). Strong economic growth has partially been translated into progress toward sustainable human development and poverty reduction. The proportion of Ugandans living in absolute poverty (Ugandan benchmark) decreased from 56% in 1992 to 35% in 2000 and has fallen again to 31% in 2007. Given the rapid population growth, however, the number of people living in absolute poverty has increased since 1992. In addition, poverty is unequally distributed in Uganda, with, for example, 63% of the population in the north living below the poverty line. Taking the international poverty line, 38% of the population lives on less than US\$ 2 a day. Income inequality is also very high, with a GINI index<sup>18</sup> of 41% (2006)<sup>19</sup>.

#### 4.5 Poverty reduction and food security public policies

Since 1997, the Ugandan Central Government has undertaken a process of decentralization toward local authories at the district level. There are currently 56 districts with an additional 11 proposed. Under this framework, the main role of the Central Government is the formulation of national policies and the monitoring of the implementation of those policies.

Uganda is a pilot country for the World Bank's Comprehensive Development Framework and was one of the first country to receive debt relief from the World Bank and the IMF under the Highly Indebted Poor Countries (HIPC) initiative. Some of the strategies for tackling poverty and food insecurity in Uganda are:

- 1. Poverty Eradication Action Plan and National Development Plan. The Government is currently revising its principal development framework, the Poverty Eradication Action Plan (PEAP), which will come to an end in financial year (FY) 2008/2009. The current PEAP is structured around five core pillars: (1) microeconomic policy; (2) production, competitiveness and competition; (3) security, conflict resolution and disaster management; (4) good governance; and (5) human development. It has marked a shift of policy focus from recovery to sustainable growth and structural transformation<sup>20</sup>. In particular, it places greater emphasis on private sector development, calls for a sharper focus on agriculture and insists on the need to restore security throughout the country. It made industrialisation a priority, through support to industry and commercial agriculture, which is expected to provide raw materials for processing industries and act as a market for industrial outputs<sup>21</sup>.
- 2. The Government expects to launch a new National Development Plan (NDP) 2009-2014, which will act as a successor to the PEAP and is intended to guide the country's path towards poverty eradication and prosperity. The NDP will attempt to better link short-term priorities with long-term goals, integrate sector plans within a coherent overall strategy, and identify concrete programmes to be implemented.

<sup>&</sup>lt;sup>17</sup> See <u>http://www.worldbank.org/wbi/governance/</u> for 2004 data.

<sup>&</sup>lt;sup>18</sup> The GINI Index is a measure of the extent to which the distribution of welfare deviates from a perfectly equal distribution.

<sup>&</sup>lt;sup>19</sup> UBOS data

<sup>&</sup>lt;sup>20</sup> PEAP Joint Staff Advisory Note, June 2005.

<sup>&</sup>lt;sup>21</sup> Uganda's Poverty Eradication Action Plan, 2004.

The NDP is expected to have six principal objectives: (1) uplifting household standards of living; (2) enhancing the quality and availability of gainful employment; (3) improving social, economic and trade infrastructure nationwide; (4) developing efficient, innovative, and internationally competitive industries; (5) developing and optimally exploiting the natural resource base and ensuring environmental and economic sustainability; and (6) strengthening good governance and improving human security.

- 3. *Peace, Recovery and Development Plan for northern Uganda.* In October 2007, the Government launched its Peace, Recovery and Development Plan for northern Uganda (PRDP) 2007–2010, which entered into force in July 2008. The PRDP functions within the PEAP and is expected to be part of the NDP. The plan focuses on the sustainable development of Acholi, Teso, Lango and Karamoja, with the aim of mobilizing human and financial resources for the conflict-affected districts. The plan has four strategic objectives: 1) consolidation of state authority; 2) rebuilding and empowering of communities; 3) revitalization of the economy; and 4) peace-building and reconciliation. It makes specific provisions for humanitarian assistance and community recovery.
- 4. The Karamoja Integrated Disarmament and Development Programme (KIDDP) 2007-2010, whose implementation began in 2008, is a medium-term framework harmonising the various interventions by the Government and its development partners in the region. The KIDDP's overall goal is to contribute to human security and promote the conditions for recovery and development in Karamoja. Its proposed activities are intended primarily to create a gun-free society and ensure parity between Karamoja and the greater north. The KIDDP highlights a progressive shift of policy focus in Karamoja, from humanitarian issues to recovery and development processes.

The KIDDP has seven components: 1) provide and ensure adequate security; 2) establish law and order; 3) support the provision and delivery of basic social services; 4) support the development of alternative means of livelihood; 5) undertake stakeholder mobilisation and education; 6) enhance the coordination, monitoring and evaluation of KIDDP interventions; and 7) cross-cutting issues.

- 5. Under the *Uganda Refugee Law*, the refugees living in settlements in Uganda are entitled to receive basic assistance, including food. The Government provides a plot of land to all refugee families living in the settlement, who are then expected to use the land for residential and agricultural purposes and achieve self-sufficiency in food production.
- 6. *Health Sector Strategic Plan.* Interventions towards maternal and child health are implemented through the Health Sector Strategic Plan (HSSP) II 2005-2010, which provides the framework aligned under pillar 5 of the PEAP for reducing child hunger and under-nutrition. The Plan puts an emphasis on micronutrient supplementations, in particular vitamin A, iodine, iron and folic acid. The share of the Government budget devoted to health was 9.3% in FY 2005/06.
- 7. Plan for Modernisation of Agriculture. The Plan for Modernisation of Agriculture (PMA) provides the framework aligned under pillar 2 of the PEAP for transforming Uganda's agriculture from a subsistence-based to a commercial-oriented sector. The main goals of the PMA include increasing incomes and improving the quality of life of subsistence farmers through increased productivity and greater access to market. Prosperity for All (PFA) is a more recent initiative that will attempt to achieve similar goals through integrated socio-economic programmes (eg. food security, home improvements, income generation, microcredit, improved marketing) targeted to the rural poor. It is a possible successor to the PMA. The share of the Government budget devoted to agriculture was 4% in FY 2005/06.

8. Other development plans. Other development plans include: a) the Education Sector Strategic Plan 2004-2015, which gives the basis for free and compulsory primary education; b) the Uganda National Disaster Preparedness Policy and Institutional Framework, led by the Office of the Prime Minister; c) the National Adaptation Plan of Action 2007, which deals with the challenges of climate change; d) the National HIV/AIDS Strategic Plan 2007/08-2011/12; e) the Development Assistance to Refugee Hosting Areas 2009-2013, which promotes a holistic approach in tackling the long-term development needs of refugees and hosting communities; and f) the Decentralization Plan, whose aim is to support the implementation of the Government national strategies at the district level while promoting the participation of citizens and local communities. Also significant is a Food and Nutrition Bill to be discussed soon in the National Parliament. The Bill will constitute the policy framework for addressing the food and nutrition security of vulnerable people, giving legal status to the right to food and therefore introducing a rights-based approach to the fight against hunger.

## 5. Study objectives and methodology

#### **5.1 Objectives**

Through in-depth data collection and analysis, the CFSVA provides humanitarian agencies with information on:

- The areas and population groups that are the most food insecure and malnourished, including: how many they are; how they are distributed in the country; why they are food and nutritionally insecure; how food or other assistance can make a difference in reducing hunger and supporting their livelihoods; and if, possible targeting criteria for the different socio-economic groups;
- An understanding of changes in the vulnerability of these populations over time;
- An overview of how well markets function and are integrated; and,
- Future risks for food security for incorporation in contingency plans (eg. from socioeconomic, natural, political or other shocks).

#### **5.2 Definition of terminology and concepts**

The CFSVA analysis is based on a particular understanding of food security and vulnerability. The Food and Nutrition Security Conceptual Framework presented in Figure 1 informs not only the selection of indicators for analysis and use in targeting, but also the design of field assessment instruments.

This report follows the logic of the Framework. Firstly the human, social, natural, physical and financial capital/assets are introduced. Secondly, the livelihood strategies are explored and thirdly, the livelihood outcomes are analyzed with a focus on food security outcomes (food consumption). The following two chapters deal with the general vulnerability context (ie. context and exposure to shocks) and finally, food utilization. The different components are then analyzed to identify determinants of food insecurity. Those determinants are summarized in food security and vulnerability profiles to answer the following key questions: Who are the food insecure, where are they, how many are they, and why are they food insecure? Lastly, recommendations are provided for WFP and its partners to strengthen food security programmes (ie. implications for programming).

**Food security** exists when "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life".<sup>22</sup> It is understood as a multidimensional function of:

- 1. **Food availability**: the amount of food physically available to a household (micro level) or at the national level (macro level);
- 2. **Food access**: the physical (eg. road network, market) and economical (eg. own production, exchange, purchase) ability of a household to acquire adequate amounts of food; and
- 3. **Food utilization**: the intra-household use of the food accessible and the individual's ability to absorb and use nutrients (eg. function of health status).

Food security is an outcome of the **livelihood strategies** adopted by a household. It includes the activities required for a means of living. Livelihood strategies are based upon the **assets** or capital available to the household, which include its human, social, natural, physical and financial resources. A livelihood strategy is **sustainable** when "it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base." <sup>23</sup>

<sup>&</sup>lt;sup>22</sup> World Food Summit, 1996

<sup>&</sup>lt;sup>23</sup> DFID (1999) Sustainable Livelihoods Guidance Sheet, Department for International Development.

**Vulnerability** is "the probability of an acute decline in access to food, or consumption, often in reference to some critical value that defines minimum levels of human well being".<sup>24</sup> It is a function of:

- 1. **Exposure to risk**: the probability of an event that, if it did materialize, would cause a welfare loss (eg. drought); and
- 2. **Risk management:** the ability to mitigate the possible consequences of a probable event. This can in turn be divided into ex-ante risk management (preparedness) and ex-post risk management (ability to cope). The ability to cope is the response after an event occurred; it can be negative and affect the resource base of the household, such as the selling of assets, or positive (non-negative response such as migration). The ability to cope is undermined by the intensity of the event itself but also by poor structural and societal conditions such as poverty.



#### 5.3 Sources of data

#### 5.3.1 Secondary data review

Uganda Bureau of Statistics (UBOS) undertook a secondary data analysis, based on the Uganda National Household Survey (2006), Uganda Demographic and Health Survey (2006) and other relevant studies. This data provided: geographic distribution of populations; poverty and inequality; government investment in social services; literacy and health levels among population groups; gender inequalities; food production

<sup>&</sup>lt;sup>24</sup> World Food Programme (2002) VAM Standard Analytical Framework.

patterns; access to land; and other related issues on food and nutrition. This review was to ensure that the key issues were captured by the primary data collection and tp identify the gaps in knowledge that could be captured by the CFSVA study. The results of the household and community data analysis will frequently reference secondary sources for comparison and verification.

#### 5.3.2 Primary data collection

The analysis of primary data was designed to capture the following information: (a) food security and nutrition profiles and socio-economic characteristics of sampled households; (b) household food consumption (frequency, diversity, and source); (c) access to health, water, sanitation and education; (d) household exposure and response to risk, including coping strategies; and (e) assets and livelihoods (eg. income/livelihood sources, ownership of physical assets such as land, livestock, agricultural production). The data collection occurred during October until mid-November 2008.

#### 5.3.2.1 Survey instruments

Four separate questionnaires/instruments were administered to sampled households/enumeration areas (EAs):

- 1. Household questionnaire covering basic household profile and food security (questions on demographics, education, housing, labour migration, agriculture and production, livestock, livelihoods, expenditure, market access, food consumption, shocks and coping, water and sanitation and assistance.)
- 2. Health and Nutrition questionnaire. Anthropometric measurements were taken from children 6 59 months. Weight and height measurements were taken from children using wooden height boards and UNICEF electronic Scale 890 SECA. MUAC measurements were taken from mothers.
- 3. Community questionnaire (administered to leaders and key informants in each locality).
- 4. Markets and Traders questionnaire (covering key market points within each stratum).

#### 5.3.2.2 Survey teams and supervision

The survey team was constituted as follows;

- 1. One supervisor was the team leader. The team leader was responsible for team cohesion, planning and survey execution, introducing the team to the local authorities, allocation of responsibility to enumerators in the field, sampling households in liaison with the data editor, and logistical coordination. The supervisor also had an added responsibility of conducting focus group discussions in some EAs.
- 2. One data editor, whose overall task was to ensure quality of the questionnaires by physical auditing and editing the questionnaires whilst in the field. The data editor had the prerogative to request the enumerators to re-do a particular questionnaire or section of questionnaire if they found it necessary. The data editor was also responsible for conducting the community questionnaire.
- 3. Three enumerators were tasked to administer the household food security questionnaire.
- 4. Two enumerators were responsible for administering the nutrition questionnaire one using a PDA<sup>25</sup>, the other using the hard copy questionnaire.
- 5. One enumerator was responsible for taking child measurements.
- 6. One enumerator was responsible for enumerating the market questionnaire and partnering with the child measurements enumerator.

<sup>&</sup>lt;sup>25</sup> Personal Digital Assistant

Generally one team was allocated per stratum. Where the stratum was considered too large for one team, two teams were allocated per stratum.

Additional supervision was provided by the technical team which was comprised of staff from or affiliated to UBOS, WFP, FAO, Ministry of Health, FEWS NET, UNICEF, World Vision and Ministry of Agriculture. This supervision involved spot visits and, more often, providing technical back-stopping.



Map 3: Stratification by region as defined by the UDHS



#### 5.3.2.3 Sampling procedures

#### Sampling plan

Based on an extensive discussion and review of existing stratification, the country has been divided into 23 strata. Two extra strata were proposed being: Refugees within West Nile; and Southwest strata. Hence a total of 25 strata were used for the survey (see Map 2). During the analysis the stratification of the region is used in order to simplify the presentation of data. This is shown in Map 3.

#### Sample design

A two-stage sample design was adopted. The first stage was the selection of enumeration areas (EAs) from each of the 25 strata using Probability Proportional to Size (PPS) sampling. The second stage was the selection of the households, which were the Ultimate Sampling Units (USUs). The frame from which the EAs were sampled was the one developed during the 2002 Population and Housing Census and later updated to include the current 80 districts. In each EA, households were selected either from a list compiled during the actual data collection, or from a list made available by the UBOS National Service Delivery Survey in mid-2008 (just before the CFSVA was undertaken).

#### Sample size determination

It was established that based on calculated standard errors, a design effect of 2 and, in order to have a coefficient of variation (CV) of less than 15%, 767 EAs needed to be sampled. Altogether this sampled number

of EAs would be sufficient to generate estimates, including at the stratum level. The number of EAs per stratum were computed using a power allocation ( $\lambda$ ) of 0.3 (see Annex 12.1).

#### Selection Procedure of households

Existing listings of all households in each EA were the basis for the selection of households. The households were selected using Simple Random Sampling (SRS) from household lists in each EA. In every EA, 34 households were sampled, 30 of which were surveyed for health and nutrition and 10 for food security. For the latter, every third

sampled household was included. Where listings were not available, the team generated a listing with the local leaders before proceeding.

#### 5.3.2.4 Data entry and statistical analysis

The data collection for the different strata started and concluded at different times. The activity started on September 29, 2008 and by November 14, 2008, all the teams had returned from the field. Data was therefore received at various intervals at the data entry room located in the Country Office building. A team of clerks received and recorded all questionnaires, specifically checking for completeness of the questionnaires, the number of questionnaires and enumeration areas completed against the expected per stratum and accuracy of the entries of the identification page of each datasheet.

Another team of clerks/editors carried out manual edit checks for systematic and other errors in recording or mis-recording that could be "captured by the eye" and fixed by consulting the relevant field editors and/or the provided checklist. The editors ensured that all the datasheets passed through to the data entry clerks were void of errors of a magnitude that would render a questionnaire unusable. The editing was done in batches of EAs per stratum. Altogether, a total of 7,271 household food security, 20,381 nutrition and health, 746 community and 379 trader questionnaires were returned. In addition, notes from 25 focus group discussions were also submitted from the field<sup>26</sup>.

**The database** was a simple Microsoft Access database with a data capture screen designed on the datasheet. The backend storage was centrally located on a remote server. The data entered was regularly backed up every morning before a new set of data was entered. The database was designed with controls and quality checks to minimise outlier, errors and to ensure mandatory entries. All data was stored in MS Access and converted to SPSS (Statistical Package for Social Sciences) for labelling and synchronisation with other software.

**Data cleaning** was an iterative process from entry to analysis stage. At the time of the analysis however, the team was mostly dealing with outlier and/or missing values.

Weights were created for the household food security, nutrition, community and market datasets prior to analysis. Analysis for the household food security, trader and community data was done using SPSS, while nutrition data was analysed using the Emergency Nutrition Assessment (ENA) software.

#### 5.3.3 Limitations of the study

While the study was conducted in the most rigorous manner possible, some limitations must be acknowledged.

**Representativeness**: Data were collected to be representative at the sub-regional level (clusters of districts or strata). Strata were created to achieve a relative homogeneity within clusters, but variability within clusters remains high. Data can be used for comparison across strata but not within them. As always with large scale surveys, sampling error due to multi-stage sampling and ecological fallacy need to be acknowledged in interpreting the results. One should be cautious about drawing conclusions on an individual's food security and vulnerability from aggregated data. Indeed, recommendations made for targeting criteria should be tested locally for efficacy.

**Questionnaire**: Because of the multiplicity of languages in Uganda, the instruments were not translated into local languages. All the enumerators had to be fluent in both English and the local language of the area surveyed. Intensive training on the use of the questionnaire and the relative simplicity of the concepts used, contributed to the reduction of potential bias or misinterpretation of the questions.

**Data collection**: Because of the random nature of the site selection, a few areas surveyed were difficult to access either for logistical or security reasons. These concerns

<sup>&</sup>lt;sup>26</sup> See Annex 12.2 for notes on the exclusion of nutrition prevalence data in this report.

limited the time available to some of the enumerators to conduct their interviews. In most cases, however, the interviews were conducted without any time pressure.

**Data quality**: Inaccurate recall and quantitative estimates may have affected the quality of the results. The enumerators were trained to facilitate such recollections and estimates through various methods (eg. event calendars, proportional piling). Also, in some cases social desirability<sup>27</sup> and expectations (eg. food assistance) may have affected the responses and set response patterns, especially in areas frequently surveyed (eg. northern Uganda).

**Nutritional data:** The CFSVA collected nutrition data (anthropometric measurements). It is recognised that despite five days of training enumerators, human error in recording anthropometric data is likely to have occurred. All anthropometric data was cleaned using appropriate software (Emergency Nutrition Assessment) and flagged for removal from the analysis. However, although enumerators were supervised, small errors in collecting anthropometric information and rounding can result in large errors in the index created during the analysis

**Health data**: Information on diseases and other health problems are self-reported and were not necessarily confirmed by qualified medical diagnosis. This also applies to mortality data. The cause of death is not necessarily a medical pronouncement or that of a qualified pathologist. Therefore, any disease or cause of death given may often be subjective and without medical merit.

**Comparability**: A CFSVA was conducted in Uganda by WFP in 2005. Using multivariate statistical techniques (ie. principal component analysis and cluster analysis), the 2005 study identified seven distinct household profiles characterized by different food consumption patterns. The current study adopted a new methodology to identify households with poor, borderline and acceptable consumption. Moreover, the 2005 study was conducted in a July- August, whereas the data for the current study were collected in October – November 2008. For these reasons, the results outlined in this report are not directly comparable with those from 2005.

<sup>&</sup>lt;sup>27</sup> The respondent answers in a way that he/she thinks will please the interviewer, or that results in direct benefits to him/her.

#### 5.3.4 Coordination of the study

This study was a joint collaboration of a number of agencies and government ministries. Their participation ranged from design, collection, data processing and analysis. The participation of the agencies recognised below ranged from in-kind support, technical support to financial contributions. Numerous coordination meetings took place during preparation, implementation and analysis of this study. WFP represented the key partner in food security and database management, UNICEF in health and nutrition and UBOS provided assistance in sampling. The key partners for the 2008 Uganda CFSVA are:

- 1. Action Contre la Faim (ACF)
- 2. Food and Agriculture Organization of the United Nations (FAO)
- 3. Famine Early Warning Systems Network (FEWS NET)
- Ugandan Ministry of Agriculture
   Ugandan Ministry of Health
- 6. Norwegian Refugee Council
- 7. Office for Coordination of Humanitarian Affairs (OCHA)
- 8. Office of the Prime Minister, Uganda
- 9. Oxfam International
- 10. Save the Children
- 11. Uganda Bureau of Statistics (UBOS)
- 12. United Nations Children's Fund (UNICEF)
- 13. World Food Programme (WFP)
- 14. World Vision

## 6. Community and household survey results

#### 6.1 Human capital

#### 6.1.1 Demographics

The population of Uganda increased from about 9.5 million in 1969 to 24.2 in 2002 and was estimated to be 29.6 million in 2008. Kasese, Lira and Bushenyi are the most highly populated areas while the districts of Bulisa and Abim remain the least populated. The population density averages 126 inhabitants per square kilometre, the north being less densely populated and mostly rural (88% of the northern population). According to census data<sup>28</sup>, population growth rate averaged 3.4% per year between 1991 and 2002. The latest estimate of the World Bank is 2.9% for 1990-2003 and a projection of 2.9% for 2003-2015. From the UNHS 2005/06, approximately 42% of the population is below the age of 15 years. The CFSVA (although not using the same age categories) indicates 49.5% of the population is under 16 years old.

On average, household size was just under six people with considerable differences per stratum. Kotido averaged 8.4 and Southwest Refugee just under five. In general, the Teso region had the highest average number of people - seven, per household. The dependency ratio was calculated to understand the ratio of children under 16 years old plus adults greater than 60 years old to the number of adults aged 16-60 years old. This gives an indication of the pressure on those providing income for the household. On average, the dependency ratio is 1.7, which is quite high and suggests that households contain a dis-proportionately high number of dependents. However, given that the age categories include children aged 15 years old (who are often considered to be independent), this ratio may be artificially high. The highest ratios were observed in Budaka (2.0), Apac (2.1) and Busoga (2.0) and on an aggregated average in East Central (2.0).

Table	2: Demog	graphic de	scriptio	n of the sa	ample					
Ave.	Ave.	% of		Houser	nold (HH	) compos	ition (%)	)	HH head	HH head
size	HH head	headed HH	Male aged 0-15	Female aged 0-15	Male aged 16-60	Female aged 16-60	Male aged >60	Female aged >60	ally ill in last year	/mentally impaired
6.0	42.4	28.4	24.6	24.8	21.8	22.0	2.4	2.8	41.1	9.5

Physically or mentally impaired households were not noted to as high a degree as the UNHS 2005/06 at the national level. The CFSVA was clear in noting that the highest percentage households reporting the household head as having physical or mental challenges were in south and central Buganda (15% and 16% respectively). This may well have an impact on household food security or at least be a strong risk factor. Increased risk is seen in south Buganda where the dependency is significantly higher (p < 0.05) in these households than households whose heads are not physically or mentally impaired (2.1 compared to 1.5).

#### 6.1.1.1 Female-headed households

The social structure of Ugandan culture is likely to create a gender-poverty bias. Women participate less in the labour market and earn lower wages than their male counterparts. Women represent about 60% of the adults living with HIV/AIDS<sup>29</sup> giving them increased

<sup>&</sup>lt;sup>28</sup> UBOS, 2002 op. cit.

<sup>&</sup>lt;sup>29</sup> UNDP, 2002, Uganda Human Development Report, 2002, *The challenge of HIV/AIDS, Maintaining the Momentum of Success*.

vulnerability to chronic illness, reduced earning capacity and reduced ability to care for their children.

From the CFSVA data, an average of 28% of households were female-headed. However, this subsumes considerable stratum variations. In Karamoja region this variation was often significantly different. Moroto reported 63% of households being female-headed, Nakapiripirit 69% and Kaabong 85%. This is probably a reflection of the pastoralist/agropastoralist lifestyle that dominates this culture.

On average, the women from female-headed households were 5 years older than men in male-headed households, but this differential was more pronounced in certain strata - in Elgon, Soroti, Kegezi and south Buganda the difference was more than 10 years. Again this may be a reflection of local cultural definitions of household heads.

In terms of physical or mental impairments female-headed households presented more problems than male-headed households, and in many strata it was double the prevalence. The highest percentage of female-headed households was reported in central and southern Buganda, 23% and 25% respectively. This is around twice that of other strata. Acholi, Lango and East Central and Eastern regions indicated 10-15% of household heads as being mentally or physically impaired, but the differences between genders of impaired household heads was much less pronounced than seen nationally.

#### 6.1.2 Education

Poverty and inequality are both an outcome and a causal factor of low education and health performances. According to the 2005 Human Development Report, the adult literacy rate was 68.9% (2003) and the combined enrolment ratio (primary, secondary and tertiary) was 74% in 2002/3, above the Sub-Saharan countries average. The



Universal Primary Education government program (UPE) has largely contributed to an increased enrolment in primary schools, but gender disparities still exist. 74% of men are literate vs. 58% of women in rural areas. This is strikingly different from urban populations (89% male; 83% female). Public spending on education was reported as 5.2% in the period 2002-05, but the number of pupils per teacher in primary education remains high, at 53.

From the CFSVA data it is clear that literacy levels are generally low for household heads. 39% of household heads were not able to read and write a simple message. There are large geographical differences with Kotido, Kaabong, Moroto, Nakapiripirit having the highest household heads illiteracy rate (87-94%). On average, the Karamoja region reports that

88% of household heads are illiterate. The highest levels of literacy are in the Southwest and Central 1 regions where 70-80% of household heads are literate (south Buganda and Kigezi showed the highest levels: 74% and 79% respectively). See Map 4 for the geographic distribution of literacy levels household heads.

Female-headed households were observed to be considerably less literate than maleheaded households - 36% compared to 71%. This observation suggests that female literacy is lower than the observations made in the UNHS 2005/06, at least in terms of household heads. On average 32% of the people in a household were attending some form of school (predominately primary school). 82.5% of households had males and 81% of households had females attending primary school. School attendance percentages were slightly better if the household head was literate or female. Approximately 36% of households reported having one or more males in secondary school as opposed to less than 10% for females. Less than 1% of all scholars were attending education at a higher level than secondary school.

The UNHS 2005/06 suggests that 37% of children have access to a primary school that is within 1km of their household and that 78% of children were within 3km of a primary school. 5% of children are further than 5km of a primary school - more frequently reported in western and central Uganda.

The most important reasons reported for children dropping out of school were 'not having enough money to support them' and 'chronic illness'. Having insufficient funds was reported more frequently for males than females, although chronic illness was reported equivalently (14%). In central Buganda, south Buganda and Katakwi/Amuria, over 90% of households reported that money was an issue, although in Katakwi/Amuria only 30% of households reported this as the reason for females dropping out.

#### 6.1.3 Displacement

Decades of conflict in various regions of Uganda, as well as in neighbouring countries, have created massive population movements and disruption of the socio-economic fabric. In the northern districts of Gulu, Kitgum and Pader, virtually the entire population lived in camps under extremely harsh conditions. There are still a large number of IDPs in the north, despite the progress of the peace process. As of February 2009, there are 710,000 IDPs in northern Uganda, down from 869,000 in November 2008 and 915,000 in October 2008<sup>30</sup>. Further displacements take place due to banditry in the Karamoja area and is often reinforced by the occurrence of droughts. Displacement caused by insecurity is a major source of vulnerability for the affected households. A further estimated 153,000 foreign refugees are reported to be in Uganda. These IDPs and refugees originate from Sudan (54,382), eastern Congo/DRC (62,764) Rwanda (17,399) Somalia (8,467) and smaller numbers from Burundi, Eritrea, Kenya and Ethiopia, among others.

This situation is clearly reflected in the CFSVA data. Adim and Kitgum indicated that around half of the households had been displaced. In Pader and Amuru displacement was around 70% but was much lower in Gulu (25% of households). Katakwi/Amuria reported 20% of the households having been displaced. In Moroto and Kasese, around 10% of the households had been displaced. The dominant fact is that there are still a large number of displaced households in the northern districts, particularly in Acholi region.

Few households responded to the question of returning and the majority of those that did said that they would either not return (32%) or they did not know if they would (37%). The main reason for not returning was either because of continuing insecurity (41%) or no house to return to (25%). There were some interesting differences between strata that contained many displaced households. In Amuru and Pader for instance, one of the main reasons given for non-return was the lack of water in West Nile. Whearas in Amuru, an important reason given was due to the lack of health facilities. Average distances travelled differed by residency type. Those in transit camps had travelled approximately 40km, whereas those newly resettled and in mother camps had travelled, on average, 120km.

<sup>&</sup>lt;sup>30</sup> Source: IASC 2009, found at <u>http://www.internal-</u> <u>displacement.org/idmc/website/countries.nsf/(httpEnvelopes)/2439C2AC21E16365C125719C004177C7?OpenDocument</u>

#### **6.2 Natural Capital**

#### 6.2.1 Climate and agricultural seasons

Two rainfall systems can be distinguished: unimodal in the north and bimodal in the rest of the country. In the north, rainfall ranges between 900 and 1,300 mm per year. The north-east is more sensitive to drought. The longer dry season influences the range of crops cultivated (eg. it is not favourable to bananas). It also creates a higher



vulnerability to seasonal hunger and extensive supports cattle rearing. In the rest of the country, the bimodal distribution of the rain allows for two harvests per year. Rainfall is slightly higher, ranging from 1,200 mm to 1,500 mm per year and is

well distributed. Temperature does not vary widely throughout the year, with an average temperature of 25  $^{\circ}\text{C}.$ 

#### 6.2.2 Crop production

According to the Famine Early Warning Systems Network (FEWS NET), the current maize and bean production projections is estimated at 350,000MT and 130,000MT respectively. From this, it is estimated that 50% of maize and 40% of beans will be available for commercial sale, both for the local and export markets. Usually, the first season in Uganda accounts for 60% of the total maize production in the country.

Figure 3 describes the diversity of crops within Farmer Groups (see analysis in Section 6.4.3). Of course, there is a larger diversity of cropping patterns within each of these groups but it is clear that each group tends to specialise in one crop (or crop type). In addition to a main crop, there are a number of other crops grown most notably maize, taking an average 10% of their land. This maize is probably for household use rather than for the market.

Households that are engaged in agriculture most frequently cultivate two crops, although the mean is three crops. There is some geographic variation with households in Kaabong reporting growing only one crop on average. Kigezi reported the most diverse cropping patterns (5.2 types of crops) and Kitgum reported 4.4 on average. The high average crop diversity in the northern regions may be explained by the greater concentration of cash crop farmers in this area who have, on average, greater diversity of crops. The lowest crop diversity is seen in Karamoja region and may well reflect the soil quality and environmental conditions as much as the types of farmers found there.



Seed sources for crops indicate a variety of vulnerabilities for agriculturalists. Own stocks, fellow farmers and to a certain extent farmer's groups have a reliance on the success of the previous harvest. Overall, slightly more than 50% of all the seeds used for planting were obtained from these sources. The Matoke and Fruit Farmers had the heaviest reliance, reporting that 61% of all their seeds came from these sources. Farmers groups, however, were not a commonly reported supplier (<2%) - with the exception of Other Farmers who reported that almost 6.5% of their seeds came from this source.

Seed from Government Extension workers was not reported very frequently on average. However Nakapiripirit (9%) and Budaka (7%) reported this source significantly more than other strata.

Support from NGOs was also reported by a small percentage of households (3%). There was a large variation between strata ranging from 0 to 25% with NGO source being most frequently reported in Pader and Kitgum. Interestingly, it was the Cash Crop Farmers that reported about 11% of their seeds coming from NGOs.

Table 3: Main sources of seeds for households planting crops (Uganda)				
Seed Source % of				
	Total			
Government Extension Worker	1.4			
NGO	3.1			
Fellow Individual Farmer	21.6			
Farmer's Group	1.9			
Saved from the previous harvest	30.3			
Purchased from Private Trader	40.0			
Other	1.7			

There is a heavy reliance on 'Purchase from Private Traders' as the source of seeds. Vegetable and Spice Farmers, Other Cereal Farmers and Sorghum Farmers reported this most frequently (71%, 72% and 74% respectively). Geographically, the most striking reliance on purchased seed was in the Teso and Lango regions. 55% and 65% respectively of the farmers in these regions said that they used seeds that had been purchased. 54% of the seeds in the Refugee camps were purchased. This reliance on purchased seeds makes agriculture in these places and by these Farmer Groups vulnerable to changing market prices, especially the more poverty inclined Sorghum Farmers.

All but 2.5% of households reported the use of agricultural inputs or improved seeds. Chemical fertilizer was the most common input (82%) with 11% of households reporting using pesticides/herbicides/fungicides. Only 5% reported using improved or hybrid seeds. There was significant variation in these agricultural practises. In Pader and Elgon around 20-25% of the households reported that they used improved or hybrid seeds

(significantly higher than elsewhere). This might be explained in Pader by NGO activities but in Elgon the reason behind this is less obvious. Although small, the use of organic

Table 4: Inputs reported by household (Uganda)	% HH reporting
Used improved/hybrid seeds	4.1
Used organic fertilizer	1.5
Used chemical fertilizer	72.3
Used any pesticides, herbicides or fungicides	9.7
None	2.5

fertilizer in Elgon is also significantly higher than in other strata (9% of households).

The use of chemical fertilizer was relatively consistent throughout Uganda, however more households reported using this input in the West Nile and in East

Central regions than elsewhere. Kitgum, Gulu, Adim and Kasese all reported over 90% of households using chemical fertilizer. Pesticides were most frequently reported in Elgon, Central Buganda (both 11%), Ankole (19%), south Buganda (25%) and in Kigezi (44%). In Soroti the highest reporting of non-inputs usage was reported (11% of households). Comparisons of Farmer Groups indicate few significant differences. The Matoke and Fruit Farmers use more pesticides than others and the Other Farmers group (along with Sorghum Farmers) uses more organic fertilizer than any other group. The use of pesticides and organic fertilizer increased in households belonging to higher Wealth Index quartiles (p < 0.05).

Households were also asked how long they thought their food stocks would last them. The lowest reserves of food stocks were reported in the Southwest region and in the Refugee camps, both of which reported that their stocks would only last three weeks. A clear correlation was made between the expectation for the duration of food stocks and Wealth Index quartile (p<0.05). Those in the lowest quartile expected their stocks to last 1.6 months, whereas those in the highest quartile expected their stocks to last for 2.7 months.

When asked about the main constraints of crop production, the most common responses were: 'pests and disease' (49% - most frequently reported in Budaka and Katakwi/Amuria, 60-65% of households); 'irregular rains' (39% - reported most extensively in Kotido, Kaabong, Moroto, Nakapiripirit, 90-95% of households); and 'poor soils' (27% - Kigezi and Ankole, being slightly over 40% of households). In Moroto 40% of households reported that 'poor seed' was a major constraint and Pader and West Nile Refugee camp 'flooding' was reported by 35 and 43% of the households, respectively.

#### 6.2.3 Land access

Uganda is often described as having some of the most fertile land in the region. According to FAO, about one quarter, or 5,100,000 ha of the land in Uganda is considered agricultural land, and another 2,100,000 ha are under permanent crop. Only 9,000 ha are irrigated. There is, therefore, significant potential for agricultural extension. Yet, land degradation, including erosion and loss of fertility, challenge this common assumption. The economic cost of erosion has been estimated to 11% of the GDP<sup>31</sup> and constitutes a major obstacle to sustainable development. While land availability is not a problem at the macro level, regional disparities exist. In the west, central and eastern regions, demographic pressure leads to fragmentation and exploitation of marginal lands. In the north, insecurity has limited access to land.

Land tenure is organized in four ways:

- 1. Customary: traditional system ranging from individual to communal ownership.
- 2. Leasehold: 49 to 99 years lease.
- 3. Freehold: individual ownership; often leads to fragmentation of the parcels due to inheritance.
- 4. Mailo: limited form of freehold, which recognizes tenants' rights.

<sup>&</sup>lt;sup>31</sup> Yaron, Moyini et al. *The contribution of environment to economic growth and structural transformation*, ENR working group, PEAP 2003

From the CFSVA data, a number of observations were taken regarding land holding and land quality. On average, the land fragmentation was generally low with an average of 1.7 parcels accessed per household. Sorghum Farmers tended to have greater land fragmentation (2.5 parcels per household) and it was in Kegezi where the greatest level of fragmentation was reported (average of 3.5 parcels per household).

In terms of fragmentation of the land, 77% of the households said that one or more of the parcels accessed were within 15 minutes, 25% of the parcels were 15-30minutes and 15% were within 30-60 minutes of the household. Land fragmentation indicates the level of access that the household has. Land that is further away is often less utilized and this would appear to be the case within the CFSVA sample. The difference between Asset Index groups was small, however, and varied by only 10%, suggesting that what land is available is used to a similar extent. This is not as true for the Asset Rich as, proportionately, they tend to cultivate considerably less of the land that is further away.

On average, households that had access to land tended to cultivate around 1.7 acres out of an average 10.3 acres available to them. Of course, there was considerable variation by strata. Larger areas of land were cultivated in the northern strata (in the regions of Acholi and Karamoja), particularly in Moroto (3.4 acres), Kitgum (3.1 acres) and Pader (2.8 acres). This observation should bear in mind that there are fewer agriculturalists in the north and that the population density is lower, and thus there is less competition for arable land. However, in the Acholi strata, households accessing land tended to cultivate significantly less of the total area accessed than in other areas of Uganda (60%). Refugee populations reported only cultivating about 0.5 acres of land. In East Central and Eastern regions, households tend to cultivate greater percentages of their land (82%) despite having significantly less than other strata. The types of farmers here are predominately Tuber Farmers in East Central, with the Eastern region having almost half as many Tuber Farmers but around twice as many Cash Crop Farmers (15%).

Overall 82% of the parcels of land accessed were described as good (36%) or fair (46%). 16% of the land owned was described as being poor and only 2% was described as being not suitable for farming. In Nakapiripirit, 10% of the land was described as being not suitable for farming and in Kigezi, 7.5%.

#### 6.2.4 Livestock

On average, 65% of the households in Uqanda reported owning animals or birds of some sort. This was lowest in Kotido (42%) and in SW Refugee camps (31%) with the highest percentage of household having some kind of animals observed in Soroti (83%). Overall only 50% around of households reported owning livestock in



Acholi and Karamoja. The observation for Karamoja seems unexpectedly low. This may be explained by a cultural proclivity for under-reporting animal ownership given the heightened threat of livestock rustling and violence in this area. The regional figure does, however, mask the fact that Nakapiripirit reported 72% of households owning animals of some sort. Of those who reported owning livestock, Nakapiripirit reported the greatest average ownership of goats (10), local cattle (11) and sheep (6) and far exceeded, by stratum average, any of the other strata. However in central Buganda, households reported, on average, owning 4 local cattle, 2 cows and 1 goat, amongst other smaller animals. These observations would suggest that even though fewer households own animals in central Buganda, they tended to own more, larger livestock. In Nakapiripirit 71% of the households owned livestock. West Nile also reported an average of 3 goats per household, significantly more than other strata. Figure 5 shows the percentage of households reporting ownership of various animals.

Although there were some exceptions to the general observation, few households actually owned very many goats, sheep or cattle. Only 20.4% of households own cattle. Only 14% of households owned more than one cow/bull and less than 2% owned more than 5. Goat ownership followed a similar pattern. 29% of households own goats and only 2.3% owned more than 10. 4.7% of households own sheep and 13.5% own pigs, with less than 2% and less than 1% owning more than 5 of these animals, respectively.



Figure 5: Animal ownership (% households reporting owning any of each animal)

Considering that most households own very small numbers of animals, most of the analysis that follows will consider simply owning (or not) one animal type rather than focusing on the numbers owned or in attempting to analyse Tropical Livestock Units<sup>32</sup> (TLU). However, TLUs were used as a standardised way of considering animal ownership for use in the wealth analysis and food security analysis.

On average 78% of households said that parasites or disease were major constraints to livestock production; 26% pointed towards poor pasture or feeds; and 20% said that lack of support services were a major constraint. Theft was an important constraint in Acholi and Karamoja strata, particularly in Nakapiripirit (35%) and Moroto (33%), where insecurity due to this was an important constraint. In Moroto 39% of the responses given by households said that poor breeds were a major constraint. In Kaabong the main constraint given was civil insecurity (73%), this was also important in Moroto (59%).

<sup>&</sup>lt;sup>32</sup> This analysis was actually carried out and although there were significant changes in TLU between food consumption groups, the actual value of the TLU was very small. The average value was 1.3 (for those that have animals) and this varied little by region except for – Central 2 (3.4 TLUs) and Karamoja (3.2 TLUs). A TLU is useful for understanding environmental carrying capacity of larger animals such as sheep, goats, pigs, cattle and camels. However, given that the mean TLU is pushed up by only a small number of households, the analysis concentrates more on households owning at least one animal.

#### 6.3 Physical capital

#### 6.3.1 Housing conditions

#### 6.3.1.1 Ownership and housing structure

Of the households interviewed in the CFSVA, the majority own the place where they live (87%), 5% live for free in a place that is not theirs and 8% pay rent (an average of 20,000USh per month). This varies from region to region, with the highest rents being paid in Teso (43,000Ush) and in Central 1 (32,000Ush). However it is in Central 1 and 2 that households most frequently report renting the place in which they live. Surprisingly, a few households in the Refugee camps reported renting (2.7%) and pay only around 7,000Ush a month.

The most commonly reported number of people that sleep in the household is 5 (mean 5.6) and the most frequently reported number of rooms was 2 (mean 2.8). In the Acholi strata households reported, on average, only 1.8 rooms. This is significantly less than most other regions. The southern regions (Southwest, Western, Central 1 and 2) reported more than 3 rooms on average, with around 5 people sleeping there. Households in Eastern Central, Eastern and Teso regions reported on average 2.4 - 2.8 rooms, but there were significantly more people sleeping there - between 6 and 7 people - and suggests that living conditions are more cramped there.

A crowding index is a way of understanding the number of people per room (excluding the kitchen). This reflects both issues of poverty but also of risk to disease and the spread of disease. On average the total people per room was 2.5 with crowding being a greater issue in the eastern and northern strata. Acholi and Karamoja indicate crowding levels of approximately 3.5 people per room and in eastern strata the crowding index was between 2.5 and 3.

Quality of housing is also commonly associated with poverty. In the Ugandan context, there is a large variety in the cultural and ecological preference for building materials. The use of building material in the development of a standardised wealth index could well be criticized in such a heterogeneous setting such as Uganda. This will be explored later. From the analysis of the construction material of the floor and of the main buildings walls, the results clearly show regional preferences and may well disguise poverty-related characteristics within each region. The use of cement as a flooring material is most common in central regions (about 40% of the households in central and south Buganda) and about 15% of the households in southern and western regions. Elsewhere this is virtually unheard of, with less than 5% of households reporting constructing floors from cement. The remainder of households reported using earth or stones.

The use of cement/concrete for walls followed a similar pattern. The use of mud as a material for walls was most frequently reported in the Southwest and Eastern regions, with SW refugees and Kaabong reporting around 97% of the houses made with mud walls. In Moroto and Nakapiripirit 72% and 31% of households respectively were observed as having bamboo or wood walls, an observation almost entirely unique to this area. In Pader, Amuru and Gulu houses were most frequently observed as being made of mud bricks/blocks. This material was also observed in around 40% of East Central and Central 1 houses.

#### 6.3.1.2 Lighting and cooking energy sources

Energy sources for lighting were, on average, almost completely from kerosene, oil or gas lanterns (91%), 4% used candles and 3% reported using electricity. The only exceptions to this almost exclusive use of kerosene were households in south Buganda where 13% reported using electricity (central Buganda reported 7%) and strata in Karamoja used candles/firewood more often than any other source (84%).

For cooking, fuel sources were almost exclusively firewood (89%) and charcoal (10%). Such heavy use of natural resources as the main fuel for cooking by the majority of the

population puts a large burden on the environment if wood is not managed in a sustainable manner and if wood-efficient burners are not commonly used. Approximately 20% of households in central and south Buganda reported using charcoal as the main cooking fuel. 16% of households in West Nile Refugee camps reported using charcoal.

#### 6.3.2 Water and sanitation

#### 6.3.2.1 Water

Safe water sources comprise taps, boreholes, protected springs and gravity flow schemes. The UNHS 2005/06 noted that there were large differences between rural and urban populations. Central and Western regions were noted as having the fewest households able to access improved water sources. In Eastern and Western regions, the largest number of households were reported as being more than 1km from safe water.

Data was collected from households about access to water and sanitation. The three main sources of water in Uganda are boreholes (40%), protected springs/wells (20%), and unprotected springs/wells (14%). Overall, 68% of the households reported using a protected source (mirroring the overall observations made previously<sup>33</sup>), 57% of which were within 30 minutes of the household and 87% were within 1 hour of the main water source. In Abim households most frequently reported having to travel 'more than 2 hours but less than half a day' to their main source of water (15%).

Overall, 53% of households reported being within 500m of their main water source and 80% are within 1km and 86% are within 1 hour. However, only 57% are within 30 minutes (one way) of their main water source. Those households that use unimproved water sources as the main source, tend to need to walk further (although on average this is around a 200m difference). In Moroto, 60% of the households reported that they were more than 1km away from their main water source.

On average, households use 76 litres per day, which equates to approximately 15 litres of water per person per day. The highest total consumption per day is reported in Budaka - 107 litres. The largest per person usage is in south Buganda where almost 19 litres per person per day is consumed. The least amount of water per household consumed is Kaabong where only 41 litres per day is consumed and in Kotido where only 7 litres per person per day was reported as being consumed.

The Sphere Standards use a level of 15 litres per person per day as an acceptable average water use for drinking, cooking and personal hygiene. Although this is geared towards supplying refugees and IDPs in humanitarian crises, this measure can be useful in gauging the current supplies of water from water sources in Uganda. On average in Uganda, 36% of households reported using 15 litres day. In the Southwest region, only 24% were using 15 litres a day per person and in Karamoja only 11% were using 15 litres per person per day. However these observations do not necessarily reflect access but usage. Also, the manner of recall was based on the assumption that a standard unit of measure (a 20 litre jerry can) was understood in each location. This analysis does, however, point out that much of the country may not access what is considered to be an average acceptable requirement for cooking, eating and drinking.

What is also interesting from the data is that there are no significant differences in the strata between the total amount of water consumed per household or per person (per day). The same is true for the distance to the water sources (recorded by either time or distance)<sup>34</sup>. This is observed in every stratum and suggests that the households will consume the same amount of water regardless of the distance or time taken to get to the main water source. The impact of this on households is that those that are far from their main water source will spend more time, energy and/or resources supplying their water needs and reducing productive inputs.

<sup>&</sup>lt;sup>33</sup> Uganda Bureau Of Statistics, UDHS 2005/06

<sup>&</sup>lt;sup>34</sup> ANOVA test, Turkey's-b (p>0.05).



Water treatment by households is limited to boiling (35%). 56% of the households reported that they do nothing at all with the water they collect. What is more concerning is that 44% of households that obtain water from unsafe water sources do nothing, while only 46% boil the water. 62% of households do nothing with water from safe water sources but 30% do boil it. However, this hides large regional differences and it is clear that Southwest, Central 1 and 2 regions are where most households mainly boil water. Other regions, with the exception of East Central, almost exclusively do nothing with the water, regardless of its source. In East Central 13% of households report filtering water before drinking from unsafe water sources.

85% of households reported using covered containers to store water and this was similar throughout Uganda, except in Karamoja where only 50% of households reported doing this. 20% of households reported that they had changed water source in the pervious two years. The main reasons given for this was that the original source had broken down (38%; 60-65% of households in West Nile, Karamoja and the Refugee camps), or that they had found a new water source (21%; 50-60% of households in Teso, East Central and Eastern regions). 19% reported that the original source had dried up (30-35% in West Nile, Southwest and Central 1) and 14% stated that they had moved away from their original residence within that time (85% of the households in Acholi).

Households in the survey reported water reliability. Overall 59% reported consistent reliability and a further 27% reported that it was reliable most of the time. However, 11% of the households reported that their main source was reliable only half of the time (30% in Karamoja). In Central 2, Eastern and Karamoja 7-8% of households reported that the water was not reliable most of the time.

#### 6.3.2.2 Sanitation

For this analysis, sanitation was divided into improved and un-improved sanitation according to internationally recognised standards<sup>35</sup>. Of the total population, 85% use a pit latrine for a toilet. 19% use pit latrines without a shelter, 51% have a shelter and 15% share a pit latrine with a shelter. Only 1% of the population use Ventilated

<sup>&</sup>lt;sup>35</sup> Not Improved Sanitation included; pit latrine without shelter, pit latrine with a shelter (shared), VIP pit latrine (shared), flush toilet (shared), no toilet, other; Improved Sanitation included; pit latrine with a shelter (private), VIP pit latrine (private), flush toilet (private), eco-san toilet.
Improved Pit (VIP) latrines and 13% use no toilet facility at all. Having no toilet was reported by virtually all households in Karamoja (91%) and approximately 35% of households in Acholi and Teso strata. This is quite unlike the UNHS 2005/06 survey that suggested that only 21% of the population in the north did not use some form of latrine. Overall, most households do not share the latrine (69%), 11% share with one other household and 20% share with two or more households (4.5% with more than five households). See Map 7 for the geographical spread of households accessing improved sanitation.



Nationally, 60% of households make no provision for hand washing and only 17% have both soap and water available. In Western, Central 2 and East Central, approximately 30% of the households made provision for soap and water for hand washing, significantly higher than other regions (10-15% in Southwest, Eastern and in the Refugee camps, with 6% or less in the rest of Uganda). Patterns for the availability of 'only water' was similar to that of 'soap and water' with the exception of Acholi where households tended to have 'water only' available more than soap.

Some of the main limiting factors by households for reported the construction of latrines given by household heads were the unaffordable costs (40%) and ignorance (26%). However, most households did not know why people did not construct latrines. When

asked about why toilets were not used, the majority of households heads said that ignorance was the main reason. About 20% noted that lack of availability was the main reason and 20% said that they did not know or there was no reason. Of note was the differences in hindrances reported between Karamoja and Acholi: the main reason in Karamoja for not using latrines was ignorance (64%) and lack of availability (50%); whereas in Acholi it was mainly due to lack of availability (65%). One of the main alternative reasons why households said they did not like to use shared toilets was the poor sanitary state that they were in.

The main methods of garbage disposal were reported as 'home dug pit' (34%), 'in surroundings but not in a pit' (47%) and 7% burned their garbage. There were few regional differences with the notable exceptions of Central 1, Central 2 and Karamoja where 20% of households reported burning their garbage, 35% of households in Acholi used a 'community pit' and in Karamoja 10% of households reported that private arrangements are made for garbage collection.

#### 6.3.3 Asset holdings and Wealth Index

## 6.3.3.1 Asset ownership

During the enumeration of the CFSVA, each household was asked if they owned any of 18 items. These were both productive, non-productive and livelihood related assets. Note that the reported frequencies are for those households that own one or more of the assets indicated (ie. for two or more of the same asset, the household is simply recorded as having that asset). The most commonly reported asset was a garden hoe (88.7%) -

hardly surprising given the prevalence of agricultural activity in Uganda. Other common household (non-productive) assets, such as a bed, mattress and chairs, were owned by 80% of households. Radio ownership was reported by 42.7% of households, whilst only 3.2% of households reported owning a television. Ownership of some form of transportation was predominately reported as a bicycle (43.6%). Motorised vehicles were mainly motorcycles (3.4%) and 1.5% owned an automobile. Less than 1% of households reported having a boat of some description. Interestingly, 26.9% of households reported owning a cellular phone.

In terms of productive assets related directly to livelihoods, ownership was infrequently reported. Fishing net ownership was reported by only 1.5% of the population and ploughs by only 4.2%.



In order explore asset ownership further, an asset ownership index was created. This is created as a proxy for asset based wealth (as opposed to the Wealth Index which illustrates a more complete picture of wealth). Recording a value of 1 for any household with more than one of any named asset, the total of all assets recorded was calculated. This was then recoded into three groups. As common household assets were not part of the equation, a reduced cut-off for each asset group was used so as not to over-estimate 'Asset Poor'. The cut-offs used were as follows: 'Asset Poor' – less than 3 assets, 'Asset Medium' – 4 to 8 assets, 'Asset Rich' – 9 or more assets<sup>36</sup>.

From the survey 22% of households interviewed were considered to be Asset Poor, 73% Asset Medium and 5% Asset Rich. There were significant differences between strata with the northern parts of Uganda indicating much higher frequencies of Asset Poor households than other parts of the country (see Map 8). Interestingly, there were more households in the northern parts of Uganda classified as Asset Poor than in the Refugee camps (with 33% West Nile Refugees and 50% Southwest Refugees households being Asset Poor).

<sup>&</sup>lt;sup>36</sup> Assets listed in the survey were as follows: bed, table, chairs, mattress, generator, radio/cassette, cell phone, sewing machine, bicycle, automobile, boat and motor, canoe, fishing net, hoe, ox-plough, motorcycle, television, battery.

Table 5: Wealth and assets correlations with other indictors									
Wealth Index Spearman's r	Assets Owned Spearman's r	Ν							
-	0.733 <sup>*</sup>	7271							
0.733 <sup>*</sup>	-	7271							
-0.316 <sup>*</sup>	$-0.312^{*}$	7271							
0.374 <sup>*</sup>	$0.400^{*}$	7140							
-0.229 <sup>*</sup>	$-0.199^{*}$	7156							
0.332 <sup>*</sup>	$0.378^{*}$	7167							
-0.130*	$-0.208^{*}$	7069							
	h other indictors Wealth Index Spearman's r - 0.733* -0.316* 0.374* -0.229* 0.332* -0.130*	Wealth Index Assets Owned   Spearman's r Spearman's r   - 0.733*   0.733* -   -0.316* -0.312*   0.374* 0.400*   -0.229* -0.199*   0.332* 0.378*   -0.130* -0.208*							

<sup>\*</sup>Two-tailed test of significance p < 0.01

The Asset Index was correlated with other indicators such as the coping strategy index, food consumption score, total per capita expenditure and % food expenditure<sup>37</sup> (see Table 5 for details). That is, with more assets, food consumption improved, the coping strategy index indicator was lower, % food expenditure as that of the total was less (reflecting greater monetary wealth) and total per capita expenditure was significantly higher. Other indicators such as persons per room (an indicator of crowding/poverty) were also significantly lower for those with an increased number of assets. See Figure 7 for a summary.

Also, for housing construction, Asset Poor households tended to more frequently report construction materials that are raw, natural materials such as bamboo/wood, earth/mud or sheet metal walls. More distinctly, the floors of the Asset Poor were almost always reported as being made of earth/stones (96%). As households reported more assets, fewer reported conditions associated with poverty and also reported improved housing materials. Female-headed households were more frequently reported as being Asset Poor (44% compared to 15% of households that are categorised as Asset Rich [see Figure 7]).



In terms of livelihoods and access to resources it was clear that those who were classified as Asset Poor cultivated smaller areas of land in 2008. However, there was no clear association between the Asset Index and total area of land accessed. Asset Poor households also had fewer livestock, as illustrated by the Tropical Livestock Unit (TLU). These households had less than 0.5 TLUs, whereas the Asset Rich had almost 2 TLUs.

These observations clearly illustrate the association of asset poverty, resource utilization and animal ownership. Indeed, the figures above show a distinct reduction of households with limited agricultural activity (area planted less than 1 acre; TLU less than 0.5).

 $<sup>^{37}</sup>$  Spearman's r test of correlation – used as data is non-normally distributed; two-tailed test of significance, all results significant to p <0.01

Within the defined livelihood activities, the most Asset Poor groups were Natural Resource Dependants (43%), External Support Dependants (38%) and Agro-Handicrafts (36%), with Agro-Labourers and Agro-Brewers having 34 and 33% of households being Asset Poor respectively. A more detailed look at the Agriculturalist livelihood suggests that those that focus on sorghum growing are more likely to be Asset Poor (45% of Sorghum Farmers, the major group, 50% of 'Other/Sorghum/Legume' Farmers, a minor







group) and are almost double in number than other agricultural groups. In terms of geographical importance, Sorghum Farmers are the majority of the agriculturalists in the northern strata.

#### 6.3.4 Household wealth groups

For this analysis, a Wealth Index was constructed. To gain accurate wealth data considerable takes enumeration and assumptions about asset values. However, for the purposes of the CFSVA a Wealth was constructed using Index wealth related variables. Selected economic status indicators included ownership of the following assets: 1) generator, 2) radio, 3) cell phone, 4) bicycle, 5) automobile, 6) motorcycle, 7) television, 8) battery, 9) improved toilet<sup>38</sup>, 10) house walls made of bricks/blocks or concrete, and 11) house floor made of cement or wood. The analysis was carried out using a Principle Component Analysis (PCA) and a Factoral Analysis identified the key wealth related variable. The final factor conserved 23.4% of the original variance and all the selected variables were positively correlated with it.

Other variables, like access to improved drinking water sources or ownership of household ware like bed, tables and chairs, were used in the exploratory phase of the analysis, but were then removed because they were not strongly related to the resulting factor. Input variables were selected aiming to identify "outputs" of wealth, like luxury items. Assets that are specifically related to particular working activities were not included into the analysis because their ownership depends on different livelihoods.

Wealth is considered an underlying

variable that cannot be directly observed, but which is associated with the above mentioned indicators. Factor analysis is the statistical procedure best suited to uncover the underlying wealth variable. The first principal component of the factor analysis has been used as an index that assigns a weight to all the indicators included in the analysis.

<sup>&</sup>lt;sup>38</sup> It was decided for this analysis that shared pit latrines were not 'improved' sanitation given that many of the reasons given in the survey about not using latrines were their lack of cleanliness. The frequency of shared VIP latrines was small and the use of shared, flush toilets was not recorded.

The Figure 8 shows the association of the various indicators with the underlying wealth status for the population, divided into quartiles<sup>39</sup>. Approximately 25% of the household population is clustered in each Wealth Quartile, this is in keeping with the UNHS 2005/06 estimate of 31%. Generally, the ownership of any asset contributes to increase the household's wealth, which is summarized in Table 6<sup>40</sup>.

Table 6: % of households of Asset Poor within Wealth Index Quartiles									
	Wealth Index Quartiles								
	1	2	3	4					
Asset Poor	64.4	25.8	7.8	2.0					
Asset Medium	15.1	26.9	30.6	27.3					
Asset Rich	0	0	5.3	94.7					

There are clear distinctions between strata. From Map 9 it can seen that the northern districts most frequently report households in the lowest Wealth Quartile. This is consistent with observations made by the UDHS that identified the north as having 58% of households in the lowest Quartile and almost 30% in the eastern region.

## 6.4 Financial capital and livelihood strategies

### 6.4.1 Activities and financial capital

#### 6.4.1.1 Labour activities

Diversity of labour reduces vulnerability to shocks and allows the household to have alternate income opportunities when one is reduced either seasonally or as a result of a shock. However, diversity may also reflect limited means when these income-earning activities are based on subsistence strategies, such as gathering firewood or the selling of wild fruit.

From the households that reported their income sources, 32% reported having only a single income source. This was predominately in agriculture and commercial trading, where 44% and 39% of the households, respectively, reported only one main activity. Those engaged in brewing and handicrafts reported more activities then others and likely reflects the low-income generation and seasonality of these activities (see Table 7).

34% of the population is engaged in casual or unskilled wage labour (and although this is normally combined with other activities, only 14% reported this with no other activities). From the table below you can see regional differences in households engaging in this activity. Households were asked to report on how much they would receive for daily labour. On average, this was reported as approximately 2,600USh. The lowest reported daily wage was in Kaabong and Moroto where it was between 1,000 and 1,200USh and the highest rates were reported in Apac, Central and south Buganda (3,700 to 4,800USh). Such differences, even in casual labour rates, could lead to labour migration away from areas where daily labour wages are so low.

<sup>&</sup>lt;sup>39</sup> See methodological note in Annex 12.2.

<sup>&</sup>lt;sup>40</sup> Figure 8 clearly shows that the asset ownership increases across the Wealth Quartiles. It is interesting to note that the prevalence of households with a bicycle is lower in the fourth Wealth Quartile compared with the third. However, at the same time, the fourth Quartile shows a significant increase in the percentage of households owning a car. It is likely that the bicycle becomes a less preferred means of transport as soon as households can afford a car. Therefore, the decline in bicycle ownership in the fourth Quartile should not be considered as a sign of poor performance of such indicator.

Table 7: % of households reporting being engaged in the main activities reported in the CFSVA										
	Agriculture (including crop sales)	Livestock (incl. animal and product sales)	Unskilled wage labour/daily labour	Skilled labour (artisan)	Salaries, wages (employees)	Brewing	Petty trading	Seller, commercial activity		
Southwest	81.8%	12.7%	41.8%	6.0%	4.6%	3.6%	9.2%	5.1%		
Western	72.9%	12.9%	17.5%	2.8%	11.3%	2.7%	14.7%	3.7%		
Central 1	75.0%	23.9%	24.2%	7.4%	11.4%	1.6%	5.3%	16.2%		
Central 2	76.3%	16.3%	25.1%	5.7%	9.0%	1.9%	7.9%	4.1%		
East Central	90.6%	21.7%	27.5%	3.9%	5.8%	1.1%	8.9%	10.0%		
Eastern	90.5%	34.2%	38.6%	4.5%	4.7%	2.1%	15.7%	4.9%		
Teso	68.8%	12.2%	50.5%	4.3%	5.9%	16.5%	14.7%	1.5%		
Lango	84.3%	1.6%	32.4%	5.8%	6.8%	6.3%	9.6%	1.9%		
West Nile	87.1%	10.4%	34.0%	3.0%	5.5%	14.5%	22.5%	1.1%		
Acholi	71.7%	2.4%	52.5%	2.6%	5.6%	23.5%	10.3%	0.6%		
Karamoja	60.9%	25.6%	40.2%	0.3%	3.2%	18.9%	3.3%	3.9%		
Refugee camps	52.3%	9.7%	57.2%	5.4%	6.2%	14.0%	19.1%	2.6%		
National Average	78.1%	16.4%	33.8%	4.7%	7.2%	6.1%	11.6%	5.6%		

\*Only livelihoods that are represented at 5% or more in the national sample are listed

#### 6.4.1.2 Seasonality of activities

The main livelihood activities show fair amounts of seasonal variation on average, although livestock does not. There are two distinct peaks in agriculture, which reflects the bimodal agriculture system in Uganda (see Figure 9). In south and central Buganda, there is little seasonal fluctuation in agriculture suggesting year-round activities. In Karamoja there is only one peak that would appear to last between March and



to last between March and September. Although Livestock Income Activity shows little in the way of seasonality, there are three distinct peaks in the Refugee stratum with the main one being between May and August

(the others are shorter -November/December and February). A similar, but less prominent, pattern is seen in West Nile. For unskilled labour there are few strata that vary from that

presented below. The exceptions are those in East Central that show two distinct peaks (October to February and June to August). Petty trade is also a prominent activity in Uganda although there is little in the way of seasonal variation. This is with the exception of south Buganda, which would suggest that trade tails off at the end of the year (November/December) and in East Central where trade is slow at the beginning of the year (January to May) and peaks in July and November.

#### 6.4.1.3 Labour migration

Approximately 28% of households in Uganda had migrated for the purposes of labour or seeking job opportunities. This was the most frequently reported reason for migration in western (40%) and central (44%) regions<sup>41</sup>.

During the CFSVA the households were asked if any member was working or looking for work outside of their community, to which 17% of the households answered positively. When asked where, 47% of the households responded that the workers went to large urban/peri-urban centres. Approximately 28% sought work in Parish centres (local or not local), and 24% in other villages (local or neighbouring). The indication from the data that household members mainly move to larger urban centres may suggest limited labour opportunities in smaller centres and also limited agricultural-based opportunities in rural villages. Katakwi/Amuria and Lira reported most frequently household members leaving to go to another location<sup>42</sup>. Migration to other urban or peri-urban centres was reported most frequently by Gulu, where 92% of the households mentioned this, and Budaka (83%). Local migration was most frequently mentioned in Kigezi where 53% of the households responded affirmatively. Migration to other parishes was most commonly observed in Kotido (67%). Overall in Uganda, the greatest percentage of households reporting labour migration are in the Central 1 and Southwest regions (16% and 30% of the total reported households) and tended to go to large urban centres rather than smaller parish centres or villages.

Seasonal migration was also investigated by the CFSVA. This investigated why households migrated seasonally and who went. Overall, the main seasonal migration was for 'trade/find work' (54%; 89% in Kigezi), 'to get a better education' (26%; this was generally higher in the northern strata with Amuru reporting that this was the main reason for seasonal migration, 63%) or for 'marriage/links with family members' (8%; most frequently mentioned in Kasese, 36%). 'Migration for livestock' was mentioned rarely (1% of households; however this was the most important reason given in Kaabong, 60% of the households) and seasonal migration to 'live with family in times of distress' was reported by only 5% of the households. In Kotido this was the most frequently reported reason (34%).

Figure 10 illustrates when these migratory patterns occur (as reported by the household). Note that due to the infrequency of reporting, it is difficult to accurately interpret livestock migration and distress migration. However it would appear that livestock migration occurs three times a year (March, June and October), Distress migration seems to occur mainly in the period June to November



and for education in February, July and October (relating roughly to the school calendar).

As for who are going, it would appear that, on average, 28% of the household was reported as leaving the household seasonally. Migration was mainly male-only in the household (62%) but in approximately 20% of the households, both male and females migrated and in approximately 17% of households only females migrated. For households where only the females migrated, it was mainly for education (42%) and for

<sup>&</sup>lt;sup>41</sup> Uganda Bureau Of Statistics, UNHS 2005/06

<sup>&</sup>lt;sup>42</sup> The main locations given were: another district/region; Sudan; Kenya; and Somalia - in that order of frequency.

income (26%). In households where both males and females migrated, it was mainly males that left with an average ratio of 1.35, ie. about one third more males then females.

#### 6.4.2 Livelihood activity groups

During the CFSVA data collection, households were asked to provide information on the three most important livelihood activities that they participated in over the previous 12 months. They were then asked to indicate the importance of each related to the other, providing a total of 100%. Because there is no one single activity that necessarily identifies a household's livelihood, a more complex analysis had to be undertaken. For the purposes of this analysis, and after exploring the data to ensure that important differences were not overlooked, a number of groups were placed together<sup>43</sup>. This was to reduce the "noise" in the cluster analysis and allow for more distinct livelihood groups to be created. In order to group the livelihood activities together in a manner that created groups with the greatest similarities a Principle Component Analysis (PCA) was carried out and the Cluster Analysis produced 12 Livelihood Activity Groups. The following is a summary of this clustering.

Table 8: Description of Primary Livelihood Activity Groups in sample (*unweighted N value given)									
Livelihood Group % (N*)	Livelihood Group Description (the average characteristics of the households in the group)	% Lowest Wealth Quartile	% Asset Poor						
Agriculturalists 47.3 (3219)	83% of the household's income comes from Agriculture, with some supplemental income from casual labour (7%). 53.3% of the total expenditure is spent on food.	25.4	18.9						
Agro-Labourers 14.1 (1097)	Almost all the income comes from unskilled labour (75%) with an additional 14% coming from agriculture. 59.2% of the total expenditure is on food.	33.4	33.9						
<b>Agro-Pastoralists</b> <b>7.3</b> (529)	45% of the total income is from livestock or the sale of livestock products with much of the rest coming from agriculture (42%). This group is relatively well off and is reflected in a relatively low expenditure on food as a percentage of the total (44.8%).	18.2	13.7						
Salaried Labourers 5.0 (307)	80% of the total income for this group is derived from a salaried wage, or regular work. However, an additional 12% comes from agriculture. This group expends a relatively smaller percentage of the total on food (47.2%).	3.3	3.2						
Agro-Traders 4.5 (314)	The majority of income for these households is from Petty Trading (69%), with a supplemental income from agriculture (23%). A small additional amount comes from casual labour (4%). This group also expends a relatively high amount on food compared to the total (59.3%).	14.9	16.2						
External Support Dependants 3.6 (288)	External support is defined as income from either sale of food assistance, begging or gift from relatives/friends. For this group 64% of their income is from one or more of these sources. An additional 17% comes from remittances and a further 12% from agriculture. Only 49.7% of the total expenditure is on food but this is likely to be so low due to food support from others or food assistance.	37.2	38.1						
Agro-Brewers 3.2 (378)	54% of the total income comes from Brewing with supplemental income from agriculture (29%) and unskilled labour (8%). 56.4% of the total expenditure is on food.	24.6	32.5						
Commercial Traders 3.2 (155)	77% of the total income is from commercial trade. An additional 12% comes from agriculture and 7% from government allowances. A relatively small amount of the total expenditure is on food (44.9%).	5.6	4.0						
Agro-Artisans 3.0 (171)	73% of the total income is derived from skilled labour, however, 18% comes from agriculture. 51.0% of the total expenditure is on food.	8.7	7.1						

<sup>&</sup>lt;sup>43</sup> For the PCA and Cluster Analysis the following groups were merged; 'Sale of Charcoal, Bricks' and 'Sale of Firewood etc.' were joined to form one group of 'Natural Resource Utilization'; 'Gift from family/relatives', 'Begging' and 'Sale of Food assistance' were grouped together and renamed 'External Assistance'. The latter group would seem to join groups that are not socially the same. However the analysis was not able to separate these and indicated these activities frequently occurred together.

Table 8: Description of Primary Livelihood Activity Groups in sample (*unweighted N value given)							
Natural Resource Dependants'	These households source 75% of their income from activities such as firewood gathering, charcoal burning etc. A small but important part of their income activity is from agriculture (11%). This group expends a	37.5	43.0				
<b>2.6</b> (442)	much higher percentage of their total expenditure on food (63.3%).						
Fisherfolk 2.1 (110)	77% of the total income is gained from fishing activities. However even within this group 15% of the total income comes from agriculture. 60.3% of the total expenditure is on food, which is relatively high compared to the other groups.	21.6	15.7				
Agro-Handicraft 1.3 (88)	In this group 57% of the total income comes from handicrafts. This is supplemented with agriculture 28% and a small amount from casual labour (7%). 57.1% of the total expenditure is spent on food.	36.8	36.0				

The maps below provide a sense of the percentage of households within each stratum for the four main livelihood activity groups. It should be noted that Pastoralists do not appear within the sample. However this is likely to be due to their mobile nature and the limitations of the sampling rather than them not existing within the population.

The Agro-Pastoralists households are probably settled pastoralists in the northern districts, particularly in Karamoja, but are more likely to be agriculturalists who are more reliant on their animals in the southern districts. Thus, the geographic differences in lifestyle of the agro-pastoralists are probably large and also the livelihood evolution (ie. agriculturalists leaning towards livestock reliance in the south and pastoralists with agricultural tendencies in the north). The wealth, asset poverty and exposure to shocks are different in the Agro-Pastoralists, depending on their location.



## 6.4.3 Classification of agriculturalists

It was seen from the results of the CFSVA that almost 80% of the households participated in agricultural activities to some extent. Because agriculture is so prominent in Uganda and the purpose of the CFSVA is to highlight sources of food insecurity and vulnerability, it was felt that a further classification of the agricultural activities was required. As farmers in Uganda tend to plant the same crops year after year, it was decided that the classification would be based on the major crops (determined by the % of the total area cropped for each crop or crop type)<sup>44</sup>. For the analysis, crops were grouped together into similar crop types (eg. cereals, legumes, tubers). Important main crops such as maize, sorghum and millet were kept separate in order to ensure that they were identified as important classifications. The issue of intercropping was dealt with post

<sup>&</sup>lt;sup>44</sup> See Annex 12.3 for the reclassification of the crops into crop types for the analysis.

classification as 75% of the households reported that they intercropped at least one of the crops grown (and legume growing occurred in more than 80% of the households). Using the % of area grown of each crop (as that of the total area planted) a PCA and Cluster Analysis was carried out. The resultant clustering produced ten groups of farmers with distinct planting patterns. This is presented in the table below:

Table 9: D	escription	of the main Farmer Groups in the CFSVA sample			
Group Name	% of HH in Sample	Cropping Patterns (average % of total for group)	% HH in Poorest Wealth Quartile <sup>45</sup>	% HH planting < 1acre	% HH Cultivating < 100% of land accessed
Tuber	27.7	60% of the total crops planted were Tubers with 20% of the land being planted with Legumes. 43% of the crops were intercropped.	19.3	57.8	52.7
Legume	23.0	70% of the total area planted was Legumes. This was supplemented by Maize, about 10% of the total area planted. Of the non-leguminous crops 44% were intercropped.	24.1	59.1	49.2
Other (with Sorghum)	1.4	Approximately 50% of the total area planted was other crops with around 15% cropped area from legumes and sorghum. 39% of all the crops were intercropped.	42.2	28.8	49.4
Maize	10.5	70% of the total area cropped is maize with an additional 15% from legumes, a small amount (6.5%) comes from sorghum. 49% of the all crops are intercropped.	29.2	69.1	44.5
Sorghum	8.6	Sorghum is almost exclusively grown by this group (81%) and only 6% of the total area is given to maize and 5% to legumes. Only 31% of all the crops were intercropped.	44.4	56.1	47.3
Millet	6.3	47% of the total area cropped is given to Millet with the main second crop being legumes (24%). 31% of all the crops were intercropped.	22.0	50.2	51.6
Cereal	3.5	63% of the crops reported were cereals other than maize, sorghum or millet. About 13% of the total area was legumes and 36% of all the crops are intercropped.	17.2	26.2	61.9
Matoke / Fruit	4.5	45% of the crops are Bananas with other fruits as important contribution (17%). Almost 20% of the crops are legumes with 44% of all crops being intercropped. Very little maize is grown in this group, only 4%.	29.8	62.5	47.4
Vegetable / Spice	1.1	Vegetables accounted for 47% of the total area planted with spices accounting for about 13%. Less than 10% of the total area is given to legumes with about 45% of all crops being intercropped.	17.5	47.3	48.6
Cash Crop	13.5	51% of the crops are cash crops with around 18% legumes. 43% of all the crops are intercropped.	20.9	35.9	48.4

It was interesting to note that all groups planted between 5 and 10% of the total crop area with maize (with the obvious exception of Maize Farmers who planted 70% of the total and Matoke/Legume/Fruit Farmers who planted 4% of the total). It is likely that this is for home consumption rather than for market. Although some of the concepts in the table above have not yet been introduced in this report, it is interesting to see that the two Farmer Groups that focus on sorghum have a significantly higher frequency of households in the poorest Wealth Index Quartile. This may be a geographic fallacy as the largest proportion of these farmers are found in the northern and eastern districts where greater percentages of households are shown to be in the poorest Wealth Index Quartile and so this does not actually suggest a causal relationship. The assumption with these groups is that by using percentage of the total area planted, this represents the main crop which these households habitually plant and therefore from which they derive their

<sup>&</sup>lt;sup>45</sup> See Section 6.3.4 for a full explanation of this index.

main source of income. By describing some of their characteristics we can identify vulnerabilities to a variety of shocks and get a better understanding of the food security issues within the main agricultural income activity group (described previously).



#### Figure 11: Geographical distribution of Cropping Groups

#### 6.4.4 Fishing

Fishing was reported by only 4% of the population. In many strata no households reported fishing activities at all. In Soroti 12% of households reported fishing as an activity. Apac (10%), Bunyoro-toro (9%), Katakwi/Amuria (8.5%) and West Nile (7.5%) reported more households than other districts engaging in fishing as an activity.

Almost 60% of fishing was from lakes and 17% was from rivers. The greatest

Table	10:	Characteristics	of Fisherfolk in key	Ī
atrata				

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Strata	% of HH Fishing	Ave. kg/dav	% Sold
Арас	9.8	20.2	63.2
Bunyoro-toro	8.4	27.8	66.7
Central Buganda	3.0	56.3	79.6
Busoga	4.0	15.1	70.6
Katakwi/Amuria	8.1	1.9	21.4
Soroti	11.4	10.1	50.8
South Buganda	3.4	62.0	86.4
West Nile	7.3	29.2	51.4

quantities of fish caught per day was reported in central and south Buganda which reported 56 and 62kg per day respectively, which was mainly sold (80%) and the rest was kept for own consumption (although a small amount [3%] was given away). In the strata where fishing was most commonly reported, daily catches ranged from 1 to 30kgs per day (see Table 10 for details). Most fish is sold as fresh (50%), with around 17% being smoked, 8% dried, 5% salted and 3% fried. Only one major constraint in carrying out fishing was evident from those that are engaged in this activity - poor catches (75%). Other constraints that were mentioned by 30-40% of the households were: lack of fishing gear; low fish prices; too many government regulations; harassment from officials; theft; rough waters; and hippos. Lack of capital was reported by about 50% of those involved in fishing activities.

#### **6.4.5 Extension services**

Households were asked about extension services that were available to them. They were asked to rate their access to these services and then asked what priority they put on having this service available to them. Generally, these services were not reported in the Refugee camps. For most of the services, approximately 45-50% of households reported having access, with the exception of Market Information services which was reported by only 40% of households. There was little difference between the ratings of the services

(18-24% of households considered them poor, 15-19% of households considered them fair and 8-10% of households considered them good). There were some noticeable differences between strata that are summarized here.

Credit services were not available to 91% of the households in Katakwi/Amuria. In Gulu 60% and Kasese 70% of the households said that the credit services were poor. Only in Amuru did a significantly large proportion of the households report that these services were good (40%).

For Agricultural Extension services 25 and 18% of all households reported that the quality of service was poor or fair, respectively. In Kasese and Katakwi/Amuria, 50% of the households reported that this service was poor, and in Kaabong this was as high as 60%. This may be particularly important given that this is where agriculture is still an important part of income generation and where agriculture is more difficult than in other parts of Uganda. It was in Kitgum that these extension services were most frequently commended as being good (20%). Veterinarian Extension services were rated as poor by 50% of households in Gulu and Katakwi/Amuria. In Budaka, about 20% of households were happy with the quality of this service. In Nakapiripirit 54% of households said Veterinarian Extension services were not available, significant in that 72% of households reported owning animals of some sort. In Soroti (44%) and Katakwi/Amuria (33%) access to these services appeared to be better, although it was often rated as poor.

Market Information services were almost non-existent in Ankole and Kigezi where 82% and 85%, respectively, of the households reported not having any access. This was interestingly contrasted with Lira were virtually everyone reported accessing this service and with around half saying that the service was good. In Kitgum and Gulu approximately 82% of households reported having access to Agricultural Inputs services, although in Gulu 60% of households considered this to be a poor service. In Kitgum 27% reported that Market Information services were good.

In terms of ranking the priority of services, there were no clear patterns nationally. In Eastern, Teso and Acholi strata, the first priority would seem to be Agricultural inputs. In other parts of Uganda, the first priority was split between Credit Services and Agricultural Extension services. Interestingly, Veterinarian Extension services were given a relatively low priority and tended to be 3<sup>rd</sup> or 4<sup>th</sup> regardless of the location. Market Information was generally considered to be 4<sup>th</sup> or 5<sup>th</sup> priority by most strata, except in Lira where more than half of the households considered this the 1<sup>st</sup> priority.

#### **6.4.6 Household expenditure**

During the CFSVA, households were asked to recall how much they had spent in the last 30 days for 20 food items and 15 other non-food expenditures, eight of which were recalled over a period of six months and were for expenses less frequently incurred (such as education, clothes, celebrations etc.). The six-month expenditures were converted to average monthly expenditures for the analysis. Although the methodology was restricted to only a few items, and does not reflect full expenditure enumeration, the analysis will allow us to understand the relationship between food and non-food expenditure<sup>46</sup>. Gross income was not enumerated in this survey and there is therefore no way of verifying consistency in the recall of expenditure. However, the observations remain useful for comparative analysis.

#### 6.4.6.1 Food and non-food expenditure

In order to make the observations between households comparable, expenditure was normalized by expenditure per capita and will be reported as such henceforth. On average, the households in the survey spent approximately 30,000USh per month per capita (16USD). This was mainly reported as coming from own-generated cash. Of the total monthly expenditure, 53.5% was used for food items. Elgon and south Buganda

<sup>&</sup>lt;sup>46</sup> As the list is not complete, nor standardized between countries where other CFSVAs have been conducted, it is not strictly possible to make comparisons to other analyses or expenditure patterns.

reported the highest per capita expenditure (45-46,000USh). In Elgon the percentage spent on food was 59% as opposed to 49% in south Buganda, which would suggest that there is less disposable income in Elgon. By stratum, households tended to expend significantly more on food, as a percentage of the total, in West Nile (65%) and Moroto (67%) and in Kotido where almost 85% of the total expenditure was on food. This is summarised in Figure 12 by region and clearly shows that Central 1 and 2 have greater per capita expenditure as well as a low percentage of total food expenditure. As can be seen in Figure 12, Salaried Labourers, Agro-Artisans and Commercial Traders have the highest total per capita expenditure. Within the Agriculturalist Livelihood Activity group (Farmer Groups) there was little in the way of variation in terms of total expenditure and percentage of food expenditure from the mean values.



Figure 12: Per capita expenditure patterns of various groups

An interesting observation on expenditure is that total per capita expenditure only sharply increases in the Highest Wealth Group Index Quartile but increases more steadily between Asset Index groups. In both cases it is the Highest Wealth Quartile and Asset Rich that have much more in the way of disposable income.

Division of expenditure is illustrated in Figure 13. Food is the largest expenditure and accounts for 54% of the total. Education and Medical Expenses account for 6-7% of the total expenditure. The breakdown of food expenditure shows that cereals (26.4%), milk/meat and eggs (19.1%), tubers and matooke (16.8%) and legumes (14.6%) are the main components of food expenditure. The fact that meat and other animal products (excluding fats and butter) are a main expense shows that this is an important part of a normal diet. The high proportion that it takes probably reflects the generally high price of these food items. However, the additional quality that it brings to the diet is important in terms of food security and good nutrition.



## 6.5 Food consumption and food security

In earlier sections of this report we have detailed various livelihood strategies used by the population in the sample. These strategies often determine the access and availability to food as well as health, wealth vulnerability and consequently food security. In this section we consider food consumption as an indication of food access and availability.

#### 6.5.1 Diet composition and food sources

On average adults and older children ate slightly less than children under 5 years old (2.2 compared to 2.6 times a day). However there were some differences between strata. In the Central regions (1 and 2), the youngest children ate almost 3.5 times a day, significantly more frequently than elsewhere. There was also a striking difference between the strata in the Karamoja region which reported much fewer meals (for all ages) than anywhere else - on average 1.6 times for adults and 1.8 for younger children. This may reflect cultural habits as much as access to food as more pastoral communities tend to have fewer meals in a day.

On average, difficulty in acquiring food shows a distinct seasonal pattern. Generally, households reported that they found it most difficult in acquiring food from May to August. However in the Southwest, Western and Central 1 regions this was later in the year - August to November - and in the Eastern region this was earlier (March to June). Households in Karamoja most frequently reported difficulties in acquiring food throughout the year and households reported this through a more extended period - April to November.



Households were also asked what the main sources of each food item were for the period which they were recalling consumption. The overall picture indicates that purchases (55% of all the food items) and own production (33% of all food items) are the most important food sources. Understanding food sources can also assist in identifying vulnerabilities of households or geographical areas. For example increased dependency on purchase (at the time of the survey) would suggest a risk to food security are increasing food prices. When considering geographical differences clear trends appear. The Acholi region and the Refugee camps indicate that around 24% of the all food items came from Food assistance (in the recall period - 7days) and 14% in Karamoja. The high reporting in Acholi and Karamoja for food assistance is likely to be reflective of the high numbers of IDPs in these areas. In the Refugee camps the low reporting of overall food items coming from Food assistance may reflect the desire for food diversity that is not contained in the ration. In the Karamoja region only 10% of the food items came from own production with an additional 8% coming from Hunting/Gathering/Fishing (a profile significantly different from other regions). Southwest region also reported around 3% of food items coming from Hunting/Gathering/Fishing. Note the much higher reporting of 'borrowing' as a source of food in Karamoja and Teso. It is not clear why this may be but may reflect cultural structures and be an indication of food shortages at the household level.

In terms of sources of food for Wealth Quartiles, the wealthier households tend to acquire more food from own production and purchase. The lowest quintile still sources 51% of its food items from the market, suggesting that increases in market prices would contribute to difficulties in acquiring food for this quintile. The lowest Wealth Index Quartiles showed the highest percentage of food sourced from 'gifts' (6%) and this reduced with increasing wealth (only 3% received as gifts in the highest Wealth Index Quartile).

Table 11 provides a more complete overview of the frequency of the consumption of food items in the diets of the various regions, refugees and by food consumption groups (see 6.5.2.2 for definitions) and Wealth Index. This shows clear geographical differences in food preferences. This can be clearly seen with regard to tubers, maize, matooke, milk (but not in the manner expected: ie. milk is drunk more frequently in the southern

regions as opposed the northern regions and is probably related to animal ownership and wealth, which are greater in the southern regions).

This profile should be useful when considering nutritional interventions as it provides interesting insights into food item preferences within different geographical locations of Uganda. For example in Teso, cassava, potatoes and sorghum seem to make up the bulk of the staples consumed. However, if there are a large number of households eating foods that are not a normal preference because of shocks or hardships, these observations may not be true for a normal year.

The figure below illustrates the difference in food frequency patterns of food groups by region. This helps to point out the difference in diet frequency as well as diversity. In Acholi, diversity is reduced and in the Refugee camps there is little in the way of meat or milk consumed. Note that in the southern and eastern regions there are some (Central 1 and East Central) that have low reported frequencies of pulses and a lower overall frequency of consumption of food groups. Central 1 and 2 also consume milk more frequently than other regions.





Table 11: Reported						Staple	es					Leg	umes	0	it	Meat	& Hig	h Qua	lity Pr	otein	்	Ŀ	
days households co in the last 7days	onsumed each food item	Maize	Rice	Sorghum	Millet	Wheat	Cassava	Potatoes	Yams	Bread etc.	Matooke	Beer residue	Beans etc	G'nuts, sim sim	Vegetable	Fru	Fish	Meat	Blood	Eggs	Milk	Oil etc	Suga
DHS Regions for	Southwest	2.0	0.3	0.8	1.0	0.1	1.3	2.5	0.3	1.1	4.7	0.2	4.8	1.1	3.4	1.3	0.3	0.6	0.0	0.2	1.9	1.5	2.0
Uganda	Western	1.7	0.9	0.2	0.7	0.0	4.4	2.6	0.4	1.4	2.4	0.2	5.8	1.5	2.3	1.3	1.5	0.9	0.0	0.4	1.2	4.3	4.1
	Central 1	1.4	0.8	0.0	0.3	0.0	2.9	1.8	0.4	2.4	3.5	0.2	2.3	1.7	2.0	1.6	1.3	0.9	0.0	0.6	2.8	3.5	5.0
	Central 2	1.8	0.9	0.0	0.2	0.1	3.3	2.8	0.3	1.6	2.3	0.1	4.1	1.5	2.6	1.2	0.7	0.7	0.0	0.5	2.5	3.4	4.7
	East Central	1.9	0.9	0.6	1.2	0.0	2.1	3.5	0.2	1.5	0.8	0.3	2.2	1.6	3.5	1.5	1.3	0.6	0.0	0.3	1.7	3.6	4.0
	Eastern	2.8	0.8	1.7	1.8	0.1	2.3	1.8	0.2	1.3	1.3	0.2	3.2	2.0	3.4	0.7	0.9	1.0	0.0	0.4	1.8	3.5	4.3
	Teso	1.0	0.2	4.3	0.8	0.1	6.0	2.8	0.0	0.6	0.1	0.2	2.3	2.8	3.3	1.6	1.5	0.5	0.0	0.2	0.9	1.4	2.4
	Lango	1.8	0.2	0.3	0.9	0.0	3.3	1.8	0.1	0.9	0.2	0.1	5.2	1.2	1.7	0.8	0.5	0.3	0.0	0.1	0.7	4.3	2.8
	West Nile	2.4	0.3	1.1	0.4	0.1	4.9	2.3	0.0	1.1	0.4	0.1	4.8	3.2	3.8	1.3	1.7	0.6	0.0	0.4	0.4	2.8	3.4
	Acholi	3.4	0.3	1.2	0.9	0.0	1.8	1.1	0.1	0.3	0.0	0.0	4.0	2.3	3.3	0.1	0.3	0.1	0.0	0.0	0.1	3.3	1.4
	Karamoja	4.0	0.3	2.1	0.1	0.0	0.3	0.2	0.0	0.4	0.1	1.8	2.7	1.0	2.7	0.1	0.1	0.7	0.2	0.1	0.9	2.3	0.8
	Refugee camps	4.2	0.3	0.5	0.0	0.0	2.1	1.1	0.1	0.7	1.0	0.0	4.0	1.8	3.1	0.7	0.8	0.4	0.0	0.1	0.3	3.8	2.5
Liveli-hood	Agriculturalists	2.0	0.5	0.9	0.9	0.0	3.2	2.5	0.2	1.0	1.9	0.2	4.2	1.6	3.1	1.1	0.9	0.6	0.0	0.2	1.3	3.2	3.4
Activity Groups	Agro-Labourers	2.2	0.5	0.7	0.6	0.0	2.5	1.9	0.2	1.0	2.1	0.2	3.6	1.5	2.7	.9	0.6	0.6	0.0	0.3	1.2	2.4	2.5
	Agro-Pastoralists	2.7	0.6	0.7	0.8	0.0	2.7	2.2	0.4	1.4	2.5	0.3	3.8	1.7	3.3	1.5	0.7	0.9	0.0	0.5	3.3	3.4	4.1
	Nat. Resource Depend.	3.3	0.3	1.3	0.4	0.1	2.1	1.4	0.3	0.9	0.5	0.6	3.4	1.7	2.9	1.0	0.7	0.6	0.1	0.4	0.5	2.8	1.9
	Agro-Brewers	2.7	0.4	1.7	0.7	0.0	2.9	2.1	0.1	0.8	0.8	0.3	3.8	2.6	3.2	.8	0.9	0.5	0.0	0.2	0.8	3.0	3.0
	Agro-Traders	2.3	0.7	0.8	0.6	0.1	3.1	2.3	0.2	1.8	2.2	0.1	3.9	2.1	2.7	1.3	1.4	0.8	0.0	0.4	1.6	4.0	4.2
	Salaried Labourers	2.1	1.5	0.5	0.9	0.0	2.5	2.2	0.2	2.9	2.3	0.1	4.0	2.1	3.2	1.8	1.1	1.0	0.1	0.8	2.6	4.8	5.4
	Ext. Support Depend.	2.7	0.6	0.7	0.4	0.0	2.2	1.8	0.2	1.1	1.5	0.1	4.0	1.5	2.9	0.9	0.7	0.6	0.0	0.2	1.0	2.8	3.0
	Agro-Artisans	2.0	0.9	0.6	0.7	0.0	2.7	1.9	0.1	2.4	2.8	0.2	3.8	1.8	2.6	1.4	0.8	0.8	0.0	0.7	2.1	3.9	4.5
	Commercial Traders	1.9	1.1	0.4	0.5	0.1	2.3	1.9	0.2	2.8	3.1	0.2	3.5	2.3	2.5	1.7	1.0	1.2	0.0	0.8	2.9	3.9	5.0
	Fisherfolk	2.3	1.0	0.5	0.5	0.0	4.2	2.9	0.1	1.7	1.4	0.2	3.1	1.9	1.6	0.6	4.6	0.6	0.0	0.2	1.7	3.8	4.7
	Agro-Handicrafts	2.4	0.6	0.9	0.5	0.0	3.4	2.4	0.5	1.1	1.1	0.1	3.8	2.6	2.8	0.9	1.6	0.5	0.1	0.2	0.4	3.1	3.2
Wealth Index	Lowest	2.2	0.3	0.9	0.5	0.0	2.5	2.0	0.2	0.6	1.7	0.3	3.8	1.3	2.7	0.8	0.7	0.4	0.0	0.1	0.8	2.3	2.1
quartiles	Second	2.3	0.4	1.0	0.7	0.0	3.0	2.3	0.2	0.9	1.6	0.2	4.1	1.7	3.0	0.9	0.9	0.5	0.0	0.2	1.0	2.9	2.9
	Third	2.2	0.5	1.0	0.9	0.1	3.2	2.3	0.2	1.3	1.7	0.2	3.9	1.9	3.1	1.2	1.1	0.7	0.0	0.3	1.5	3.4	3.8
	Highest	2.0	1.1	0.4	0.8	0.1	2.8	2.3	0.3	2.3	2.7	0.2	3.7	1.9	3.0	1.7	1.0	1.0	0.0	0.7	2.8	4.2	5.1
National Average		2.2	0.6	0.8	0.7	0	2.9	2.2	0.2	1.3	1.9	0.2	1.7	2.9	1.1	2.2	0.9	0.7	0.0	0.3	1.5	3.2	3.5

#### 6.5.2 Household food consumption profiles

#### 6.5.2.1 Methodology

Each household was asked about the food that they had eaten the last 7 days. The response for each of the foods on the list was simply the number of days, in the week prior to the interview, that it had been consumed by one of the members of the household. The information gathered on dietary diversity and frequency of consumption is analysed by calculating the Food Consumption Score (FCS) and, subsequently, assigning a Food Consumption Group.

FCSs are calculated based on diversity of the households consumption of eight food groups, which is weighted according to the quality of nutrients that they bring to the diet, multiplied by the frequency of consumption. From this score, three Food Consumption Groups are created. This provides an indicator for food access. The complete methodology can be found in Annex 12.4.

#### 6.5.2.2 Food consumption profiles

The resulting scores from this analysis are categorised into three groups. A score of 0-21 indicates a 'poor' diet, a score of 21.5-35 indicates a 'borderline' diet and a score greater than 35 is considered 'adequate'. Using these cut-offs the average diets can be described as follows:

Table 12: Weekly consumption patterns of consumption profiles (Uganda, average values)											
Food	Pop.	Food Groups (Frequency of weekly consumption)								Mean	
Group.	(%)	Staples	Pulses	Vegetables	Fruit	Meat	Milk	Sugar	Oil	FCS	
Poor	6.3	5.6	0.6	1.7	0.3	0.1	0.0	1.2	1.1	16.7	
Borderline	21.3	6.7	3.2	2.6	0.4	0.3	0.1	1.9	2.1	29.5	
Acceptable	72.4	6.9	5.9	3.2	1.5	1.3	2.1	4.2	3.8	53.8	

From this table one can see that important differences between the groups are clear. The transition from the Poor to Borderline consumption profile shows a distinct increase in the frequency of consumption of pulses, sugar and oil. The consumption of staples also increases. A mean consumption of 5.6 times a week is a clear indication that those households in the Poor consumption group may not be consuming adequate amounts of energy.

Figure 16: Food consumption profile changes with improving Food Consumption Score (FCS)



The transition from Borderline to Adequate is clearly marked by an increase in the frequency of consumption of pulses, fruit and sugar. However the most notable change and probably a defining change, is the appearance of meat and milk in the diet. As seen from Table 12, the consumption of these items is also strongly associated with higher Wealth Index Quartiles.

Changes in meal frequency between groups was also noted and those with an Acceptable consumption profile ate, on average, more frequently then those in the other groups. Meal frequency is related to calorific intake and although this was a small, but significant, difference (p<0.05), these differences may reflect important differences in energy intake. What is also important to note in this transition is that there are changes in the general diversity of the diet.

Blood was included in the food items, and as in the WFP EFSA (2007) conducted in Karamoja, it was noted that consuming blood was associated with improved food security. In the CFSVA, blood consumption was also noted in Karamoja and would appear to be more frequently consumed in those with Acceptable food consumption profiles.

## 6.6 Food security profiling

This section is dedicated to considering the main characteristics of the food insecure. Using Food Consumption Groups (from the analysis above), a number of characteristics commonly associated with poverty and food insecurity were cross-tabulated and tested for significance (p < 0.05). In order to illustrate how Food Consumption Groups are related to other indicators associated with livelihoods and poverty, a number of proxies were tested for significant correlations<sup>47</sup>. TLU was used as proxy for pastoralism or animal ownership, daily wage rate was used for casual labour, land cultivated for agriculturalists and reduced CSI was used as alternate proxy for assessing food access. The results of this analysis are presented in Table 13. From this it is clear that Food Consumption Scores are a useful proxy for food security.

Table 13: Relationship between Food Consumption Scores and other indicators							
Indicator	Spearman's r	N					
Reduced CSI	-0.251 <sup>*</sup>	7161					
Wealth Index	0.332*	7161					
Number of Assets	$0.378^{*}$	7161					
Tropical Livestock Units	$0.191^{*}$	7161					
Total Area of Land Planted in Last Season	$0.065^{*}$	6043					
Daily Wage Rates (unskilled labour)	0.177*	6251					

<sup>\*</sup>Two Tailed test of significance p < 0.01

Interestingly, total area of land accessed was not correlated to food consumption scores and notably, the association between total area of land planted last season only shows a weak correlation, despite being significant. This would suggest that land access and area planted are not strong driving factors in food insecurity. The negative correlation of the reduced CSI shows that the lower the score, the higher the food consumption score (ie. more food secure).

There were a number of significant differences between the groups and tended to lead to the conclusion that food security was reasonably well measured by the food consumption scores<sup>48</sup>. Given this, the analysis that follows will consider that households with a Poor diet score are Food Insecure, those with a Borderline diet score are Moderately Food Insecure and those with an Adequate score are Food Secure. The main findings of the most significant correlations are presented here.

<sup>&</sup>lt;sup>47</sup> Spearman's r test used as continuous variables are non-normally distributed.

<sup>&</sup>lt;sup>48</sup> However this is not to say that the food consumption classifications are the most reliable way of assessing food security in the longer term, but rather at the time that the data was gathered.



Map 12: % of Moderately Food Insecure households by strata



Overall, the CFSVA highlighted that 6.3% of the population were Food Insecure, with an additional 21.3% being Moderately Food Insecure. Maps 11 and 12 indicate those strata that have the largest percentages of Food Insecure households. From this, it is clear to see that it is in Kotido, Kaabong, Busoga (16%), Nakapiripirit (22%) and Moroto (30%) where the of highest levels food insecure households are. Additionally, it is interesting to note that food insecurity lies in the 5-10% range further south, noting specifically Ankole and south Buganda. This is further discussed in the Conclusions chapter as the observations of such high levels of food insecurity in eastern and southern districts are inconsistent with other related observations.

demographic characteristics of The Food Insecure households were considered during the analysis. The difference observed was that kev female-headed households are more Food Insecure (35.5%) than Food Secure (26.2%). Although few other demographic indicators were linked to Food Security, the most interesting was based on the age profile of the household. Those households with more elderly (>60 yrs) tended to be more Food Insecure and households with a greater average number of 19-49 yrs were more Food Secure. This not reflected in significant was differences between groups for the Dependency Ratio but may be related to productivity of the financially active members of the household.

Households with 2 or less people were more likely to be Food Insecure than

larger households. Crowding was also not related to food security status. Literacy of the household head was also greater in Food Secure households. Indeed, around 47% of household heads in Food Insecure households were literate compared to 65% of Food Secure households. This pattern was the same regardless of the gender of the household head. Meal frequency, for all ages, also increases as food security improves.

Considering facilities, the source of water was not correlated to food security status nor any other related observations except for households that paid for water. However, access to improved sanitation (or any sanitation for that matter) was significantly related to food security status. 46% of Food Insecure used improved sanitation compared to 53% of the Food Secure, although this may be related to the distribution of Food Insecure households in the northern regions who mainly do not have access to improved, or any, sanitation. It is difficult to untangle cultural preferences from underlying factors for food insecurity and this is simply an observation. Food Secure households more frequently reported cement or concrete walls (42% compared to 28%) and generally had more permanent/expensive material as flooring (21% compared to 12%). This is indicative of wealthier households (forming part of the wealth index) rather than actually having better walls making the household food secure.

When considering				
agricultural	Table 14: Characteristics of Food	Security Gro	ups	
production, Food Insecure households	Food Security Group	Food Insecure	Moderately Food Insecure	Food Secure
reported consuming	Female-headed household (%)	35.5	33.6	26.2
a lesser (estimated)	Literacy of Head of household	47.0	51.4	65.1
value of nome grown	Not using a toilet (%)	17.6	16.9	10.9
food and were more food secure. This	Ave number of crops (2008A Season)	2.60	2.84	3.25
may relate to	% of Total land cultivated	84.1	80.9	74.7
success of the prior harvest. What is	% of land planted with legumes	20.3	28.3	29.9
interesting is that	Ave. number of Chickens	1.8	2.3	3.9
Food Secure	% HH owning at least 1 goat	26.9	29.7	37.2
households tended to	% HH owning at least 1 cow	27.9	30.7	39.5
use a smaller	Cement/concrete Walls (%)	28.3	32.0	42.3
percentage of the	Wood or Cement Floors (%)	11.5	11.1	21.1
land that they own for cultivation. This	Value of Home Based Goods Consumed (USh)	58,000	60,600	82,300

may be related to the fact that they rent out more land or that they are engaged in other more profitable and time-consuming activities (which means that they are unable to cultivate), or can be related to quality of the land farmed. Other important agriculture related observations were that the Food Insecure households tended to have lower crop diversity and that they planted a lower percentage of their land with legumes. This could be related with consumption patterns, as significant increases in legume consumption between food consumption groups was observed.



Animal ownership was also significantly different between food security classifications. Food Insecure households averaged 1.8 chickens, whereas Food Secure households reported owning 3.9, on average. When considering Tropical Livestock Units (as a means



to standardise the total number of livestock owned) they were also significantly different (0.5 in Food Insecure households and 1 in Food Secure households). When considering whether the households owned any of a particular animal, the most important differences were in goat and cattle ownership.

Figure 17 indicates the distribution of food security classification between livelihood groups. As illustrated (in order of importance of livelihood) Agro-Labourers, External Support Dependents, Natural Resource Dependents, Fisherfolk and Agro-Handicraft livelihoods are the most food insecure.

Food Insecure households are more prevalent in the lowest Wealth Index Quartile (9.8%) than the highest (3.3%). This follows a similar pattern with the Asset Index. 11.7% of Asset Poor are Food Insecure and only 2.5% of the Asset Rich are Food Insecure. This is shown in Figure 18. This figure shows a clear reduction in

prevalence with an increase in Asset ownership or Wealth Quartile.

A comparison between displaced and non-displaced households<sup>49</sup> indicates that those who are displaced tend to be poorer, have fewer animals, expend a greater percentage on food, have a poorer food consumption score, have fewer assets and tend to plant smaller areas of land. This suggests that these households (on the whole) are more vulnerable than households that have not been displaced.

As stated throughout this section, these observation are simply illustrative of Food Insecure and Food Secure households and does not attempt to provide a causal relationship. This is the purpose of the following section. These characteristics, however, may help to refine interventions and possibly provide mechanisms for targeting of these programmes.

## 6.7 Multivariate analysis of food security status

In order to further explore the underlying causes of food security, a general linear model (GLM) was used<sup>50</sup>. GLM the analysis of individual predictors of food security that are both continuous variables, like the Wealth Index or TLU, and categorical household

 $<sup>^{49}</sup>$  Comparison of means using t-test (using Bonferroni correction) p <0.05.

<sup>&</sup>lt;sup>50</sup> The analysis was run on the actual observations or characteristics of the surveyed households. This was done in order to avoid the artificial over-representation of features due to the large weights associated with households from specific strata.

characteristics, like sex of the household head, livelihood groups and geographical distribution  $^{51}$ .

Some of these variables were found to be statistically significant in predicting food insecurity status in the resulting model (R square = .315). Controlling for all the other parameters, the main effects on food security were due to:

**Literacy of the household head** – This ability was found to be positively associated with food security. The sex and the age of the household head were found not to be statistically significant, even when gender was cross-tabulated with other parameters to explore possible interactions.

**Household demographics** – Larger households were more likely to be more food secure, as measured by the FCS. On the other hand, controlling for all the other parameters, the dependency ratio was found to have no significant influence on the FCS. This might be due to the rigidity of age categories in calculating the dependency ratio. In fact, per the standard definition, children younger than 16 are considered non-active members of the household, while in the context of rural Uganda, those members are already very likely to be contributing to the household wellbeing status.

Also, a non-significant influence on food security was found to be having (or not) disabled or chronically ill members in the household. However, it has to be underlined that this information was based on self-reporting declarations and certain types of illness, like HIV, are very likely not to be reported. Therefore, this finding has to be carefully interpreted and could not be used to justify a non-relationship between food security and health status at the household level. However, improved FCS was seen in households that did not have chronically ill or disabled household members, compared to those that did. This would suggest that these households require additional support as these individuals may result in reduced food access of the household within which they live.

**Wealth** – Different parameters of wealth were explored as predictors of food security in the model and many were found significantly related to food security.

The Wealth Index, the Asset Index (or asset ownership diversity) and the use of electricity, generator or solar power (versus candle or firewood) as the main source of lighting in the house were found to be statistically positively associated with food security, controlling for all the other parameters entered in the model.

**Access to improved toilet facilities** (defined in the sanitation section) – This was found to the significantly related with food security and the result is consistent with the findings at the bivariate level. Not having access to improved toilet facilities resulted in a lower FCS, controlling for all the other parameters included in the predictive model.

**Monthly food and non-food expenditure per capita** – Increases in both food and non-food per capita expenditure were found to be positively associated with the increase of the FCS. The significance of these associations indicates that expenditure, and more generally disbursement availability, is a predictor of food security.

**Food expenditure as percentage of total expenses** – As commonly expected, even controlling for all the other selected parameters, increases in this indicator were found negatively related to increases in FCS. This confirms that the more a household manages to spend on items other than food, the more likely it is to reach higher level of food

<sup>&</sup>lt;sup>51</sup> The dependent variable used as proxy for food security was the Food Consumption Score (FCS). The independent predictors included: gender and age of the head of households, head of household literacy, households with any disabled or chronically ill member/s, number of people currently living in the household, dependency ratio, permanent versus non-permanent type of walls (earth/mud wall vs. cement/bricks), floor (earth wood floor vs. cement, tiles), lighting used (candle, firewood vs. electricity, generator, solar), cooking fuel (wood, charcoal vs. kerosene, gas, electricity), the availability of unimproved vs. improved sources of water and toilet facilities, the total number of assets owned, the Wealth Index, animal ownership (in Tropical Livestock Unit - TLU), the size of the land accessed, number of different crops planted in season 1 of 2008, reduced Coping Strategy Index (CSI), monthly per capita total amount of food and non-food expenditure, food expenses as percentage of total expenditure, the location (strata) and the livelihood strategy.

security. That being said, those who have a smaller disposable income are more likely to be food insecure.

**Coping Strategy Index (CSI)** – The implementation level of coping strategies, ie. the need to cope somehow with difficulties in getting enough food or resources for other basic needs as measured by the CSI, was found negatively related to the food security outcome. In other words, the more a household has to cope, the more it is likely to score a low level of food security. This result corroborates the usefulness of the CSI as a rapid and relatively easy tool to monitor changes in food security at the household level.

**Agriculture and livestock** - Animal ownership (in TLU), the size of the land accessed by the household for their agricultural activities and the number of different crops planted in season 1 of 2008 were all found to be positively related to the FCS and hence, significant predictors of food security.

**Stratum** – The multivariate analysis confirmed that the differences between surveyed strata observed at the bivariate level are still valid, controlling for all the other parameters. In other words, keeping constant characteristics of the household, level of wealth, expenditure, ownership of livestock and access to land and type of livelihood strategy implemented, living in different areas of the country, all influence the food security level at household level. Taking Bunyoro-Toro (a province generally found to be food secure and with the lowest level of poor food consumption as assessed during the CFSVA as a comparison reference), households were more likely to have lower food security level in all the other strata except central Buganda and Ankole, where no statistically significant difference was recorded. The other exception was Elgon districts where sampled households were found more likely to have a higher FCS compared to households in Bunyoro-Toro.

**Livelihood strategy groups** – Finally, the livelihood strategy was found as having a relatively significant impact on food security at household level. Using Agriculturalists (the most common type of livelihood group found in the CFSVA) as the comparison group, two groups were found to have a statistically higher level of food security (as measured by the FCS): agro-pastoralists (ie. agriculturalists that diversify their livelihood engaging in livestock related activities), and commercial traders.

Note that these predictors do not act in isolation and therefore, when interpreting them for specific locations, they need to be considered together. This is particularly exemplified in Karamoja where, although a large percentage of the population are agro-pastoralists, there is a high level of food insecurity. When these households are described using other predictors such as CSI, we can see that they are experiencing many shocks and have increased pressure to maintain food household access. It is likely that these shocks and pressures to maintain food access result in food insecurity for this livelihood strategy in this location but not in others.

# 7. Markets and market analysis

## 7.1 Food market structure

### 7.1.1 Crop market structure

Crop production in Uganda is dominated by smallholder, semi-subsistence farming households cultivating an average of 1.7 acres. Smallholder farmers produce about 96% of the food that passes through the market outlets in the country. Due to a lack of proper storage facilities, limited access to credit and sources of income, farmers always sell their surplus immediately after harvest. As such, the marketing chains are long with a number of intermediaries operating between farmers in producing areas and consumers.

Cereals are the most traded food items with maize taking the largest share in terms of market volumes handled. Maize is grown in all regions of Uganda, with the Eastern Region estimated to currently produce the largest quantity. The maize market in Uganda is structured such that there are players at the local, regional as well as national levels. Assemblers, who are also mainly farmers, buy grain from other farmers' markets for the purpose of reselling it to consumers or local and regional wholesalers. Although some operate independently, they also act as agents for wholesalers.

It is of importance to note that a large number of actors in the maize market are the same ones who handle other produce, such as rice and beans. Thus the structure for these commodities tends to be similar to maize. The major difference is that there is more done to add value to maize through milling flour of different grades and involves interactions with millers at different levels.

The fresh food market tends to be more loosely structured, although it tends to follow a similar pattern to the cereals and grain market structure. Food items such as fresh potatoes and cassava are sold by farmers on an *ad hoc* basis, mostly at village level markets, and usually to raise money to meet particular needs or buy other food items. Beyond this level, travelling traders play a significant role. These work with village middlemen who scout for the produce until sufficient quantities can be raised. The travelling traders then collect the aggregated bulk that they transport, mainly to Kampala. Once in Kampala, they sell to wholesalers who supply different vendors around various markets in the city. However it is not uncommon, depending on availability of the produce, for the wholesalers to engage in retailing at the same time.

## 7.1.2 Livestock market structure

Livestock in Uganda are often marketed for slaughter or for breeding. The conventional animal products frequently marketed include meat, milk, hides and skins, poultry and eggs. Under the traditional production system, it is usually surplus livestock, not needed to sustain the life of the producer, that are often marketed. The number of surplus animals is determined by the producer's financial needs availability of water and feed supplies (especially in the dry season) and the disease situation.

Primary livestock markets, where pastoralists sell their livestock and produce, are usually in surplus producing areas and operate once a week so that traders can take turns in attending different areas. Most of the retailing infrastructure in these markets is lacking. Most of the traders in the primary markets operate locally with ties to nearby centres. There are also inter-district traders that usually buy larger volumes that are linked to municipal wholesalers (secondary and terminal) markets. For cattle, sheep and goats, travelling traders operate in different parts of the country, eventually ending up in Kampala or the regional markets, especially southern Sudan.

#### 7.2 Market access

During the CFSVA, household heads were asked about how frequently they accessed markets, how far away there were, the cost of getting to them and general food availability in the markets accessed.

#### 7.2.1 Household dependence on markets for food

The majority of households country-wide depend on local markets for some or even all of the food items consumed, depending on the time of the year. Results from the primary data showed that 90% of households went to buy food from the market in the previous 30 days. The most frequent reasons given by the 10% who had not gone to markets were either: they did not have enough money (50%); or that their own food supplies were sufficient (27%). As shown in Figure 19 below, Commercial Traders and Agro-Traders reported the most number of times they bought food from the market compared to the other livelihood groups. The highest number of trips to the market was observed in the central region (about 14 times to the market in the previous month) while Lango and Southwest regions reported the lowest number.

The situation in the west could be that households had sufficient own production most of the time, while in Teso it could be due to insufficient money to buy. The frequency of trips to the market increased along with changes in wealth profile and food security profile. Thus the households that are food secure probably depend not only on own production but also on the market, especially for high nutrition value items.



Figure 19: No. times households went to buy food from the markets by Various Groups in past

#### 7.2.2 Households physical access to markets

The data suggests that most of the households are able to access markets for food whenever needed. The majority (85%) reported that a market was within 5km and of these, 75% are able to walk there. A smaller proportion (about 13%) of households reported paying 1,000 – 2,000Ushs for the journey. Typically, households that paid to go to market travelled less frequently and for those who reported markets close-by, they tended to visit more often. 58% of those that went to market daily were mainly within a kilometre of the market; 82% were within 2km. Market access was generally poorest in Kotido where 25% of the households reported that the market was 6-10km away but all the households said that they walked. Large markets that serve a wider hinterland are mostly constrained by poor transportation means. The roads are in a poor state most of the year and get especially worse during the rainy seasons.

## 7.2.3 Availability of food in markets

As for the availability of food on the market, 50% of households reported that there was less food available, compared to regular year. 25% reported that it was either normal or higher. The most reported scarcity of food was reported in Refugee camps and Karamoja. The Eastern and Southwest reported a high availability of food, which is not surprising given that this area is considered the national food basket (see Figure 20) below.



Figure 20: Households (%) reporting availability of food in the market in past year by region

However, the majority of households surveyed countrywide (82%) reported that food was more expensive than the previous year. It was only in the western and south-western parts of the country where a significant portion of households reported lower food prices. This is probably due to the relative availability of certain key commodities that, through the forces of supply and demand, kept prices low. It is also important to note that the village and other lower level community markets are highly sensitive to seasonal changes in production.

## 7.3 Conduct and performance

A total of 379 traders spread throughout the country were interviewed during the assessment. However, the analysis of trader dynamics is based on responses from 348 traders derived after cleaning the data. The traders were sampled from all the 11 regions of the country including Southwest, Western, Central-1, Central-2, Eastern Central, Eastern, Teso, Lango, West Nile, Acholi and Karamoja. An additional 45 traders were also sampled from the Refugee camps.

## 7.3.1 Market availability and traded commodities

Overall, 70% of traders in all regions stated that key food and non-food items (including cereals, pulses, roots and tubers, fish, meat, sugar, salt, oils, transport, firewood, charcoal and flour milling services) were available in the market. However, only 46% of the traders mainly in parts of the Southwest, East, East central, and the Refugee camps noted the availability of Irish potatoes and wheat. Similarly, only 26% of traders - mainly in East Central and the Refugee camps - said that cooking fuel was available in the market. Although 35% of the traders felt that market availability was higher than a regular year, this was not significantly different from the 32 and 34% who felt that it was lower or normal respectively. Comparatively, 85% of traders in Southwest region

reported that the market availability of most commodities was much higher than usual. This was similarly echoed by the household survey findings as observed in Figure 20. Also, as reported by the households, a high number of traders (73%) in Acholi, Karamoja region as well as the Refugee camps reported significantly lower than regular market availability.

## 7.3.2 Characteristics of suppliers

The markets in Uganda are characterized by high competition, which has an important bearing on how they source their supplies and deal with customers. The majority of traders (58%) stated that they had more than five business competitors. Competition was especially stiff in Katakwi/Amurai, Pader and West Nile areas of Teso, Acholi with over 78% of traders reported having more than five competitors. However, some monopolies in the trade of non-food items, particularly soap and paraffin, still existed in parts of Amuru in Acholi, Elgon and Pallisa in East and Kigezi in Southwest according to traders who stated that they did not have any competition.

Table 15: Main suppliers of traders in Ugandan markets				
	Number	%		
No supplier	3	1		
1 Supplier	16	5		
2-3 Suppliers	110	33		
4-5 Suppliers	91	27		
> 5 Suppliers	113	34		

The structure of suppliers closely mirrors that of competitors with 61% of traders having more than four suppliers despite significant regional differences. All or the majority of traders: 100% in Central-1, 79% in Southwest, 57% in the Refugee camps, 50% in Central-2, 47% in Western and 42% in West Nile regions purchased from more than five suppliers; 65% in Eastern Central, 54% in Acholi and 42% in Karamoja regions purchased from 2-3 suppliers; and

42% in Eastern and 37% in Lango regions purchased from 4-5 suppliers. Table 15 shows the distribution of traders by the number of suppliers they purchase from.

Most traders, 74 and 70%, in Southwest and Lango regions stated that they would be capable of reaching more than five alternative suppliers in case of significantly high current supply prices for their primary commodities, compared to a cumulative 21% for the other regions. Overall, 13% of traders stated that they had no other alternatives particularly in Eastern and Refugee camps; 5% had only one alternative supply source; 37% 2-3 alternative supply sources; and 17% 4-5 alternative supply sources.

The distance traders have to travel to suppliers does not appear to be a reason for the few alternative supply options. For instance, 48% of the traders, the majority, are about 10-49 kms away from their suppliers, yet the options for accessing alternative supply sources vary widely. Also, the majority of traders in Acholi region, 47%, are less than 10 kms away from their suppliers, yet can only access 2-3 alternative sources compared to Lango region where 76% of the traders are 10-49 kms from suppliers, yet able to access more than five supply sources.

The majority of traders overwhelmingly stated that they would not be able to obtain credit from their suppliers or other sources especially in East Central, Eastern, Lango, Acholi, Karamoja and Refugee camps. Only 30% in Southwest, Western and Central 1 and 2 regions stated that they were able to obtain credit from their suppliers or other sources. According to 95% of the traders, credit availability either remained the same or reduced significantly compared to the previous year. Traders in Southwest, East Central, West Nile, Karamoja and the Refugee camps reported the most significant reductions.

## 7.3.3 Composition of traders business costs

In general, Teso and Lango regions had the lowest transaction costs at 30 and 37% of the national average respectively. The highest transaction costs were recorded in Centra-2, Karamoja, Central-1 and Eastern at 277, 199, 130 and 117% of the national average respectively. Nationally, transport was the major cost driver, constituting 44% of the transaction costs and highest in West Nile, Central 1, Central 2, Karamoja and Refugee camps regions at 59% of the total transaction costs. Similarly, rent costs were also high constituting 17% of all transaction costs nationally and highest in Teso region at 34% of

all the transaction costs. Others included costs of: storage - highest in Lango region at 11% of all costs; cost of tips - highest in Western region at 10% of all costs; broker fees - highest in Southwest at 15% of all costs; taxes - highest in Acholi region at 22% of all costs; certificate costs - highest in Karamoja region at 14% of all costs; bribes - highest in Acholi at 19% of all costs; transformation - highest in Eastern region at 37% of all costs; road tolls - highest in Acholi region at 9% of all costs; and security - highest in Central-1 at 14% of all costs.

According to the traders, most of the cost items including security, road tolls, transformation, bribes, certification, brokers, tips and storage were significantly lower compared to the previous year. However, 85% and 55% of traders observed that transport and rent costs were significantly higher than the previous year.

#### 7.3.4 Main customers and distribution

Most traders (88%) identified households as their main customers, while only 10% identified retailers as their main customers especially in Budaka areas of Eastern region. Most traders reported using several means of transport to reach their customers. However, they identified four modes of transport as vital including: Hilux pick-ups for 29% of the traders especially in Southwest and Refugee camps; Dyna<sup>52</sup> for 24% of the traders especially in Eastern, Lango and Karamoja; bicycles for 21% of traders especially in Acholi and East Central; and motorbikes for 13% of traders especially in Acholi and West Nile.

#### 7.3.5 Trade expansion capacity

Most traders identified lack of capital (20%), high transaction costs (17%), high cost of commodities (15%) and lower consumer demand (13%) as the major constraints to trade. This, coupled with the identified lack of access to credit, indicate that there is potential for expanding trade. Furthermore, the fact that 77% of the traders stated that they would require only seven days to bring additional supplies if they had information on an impending increase in households' disposable income, clearly demonstrates the opportunity for expansion and/or market based intervention. However, there is low expansion capacity given that only 38% of the traders would be capable of increasing their traded volumes by up to 100% without incurring additional transaction costs. Eastern and Karamoja indicate the regions with highest expansion capacity especially if insecurity and restriction to movement can be addressed.

#### 7.4 Trader volumes and prices

The units of trade vary widely between markets and within commodities with a bias for small quantities mainly to enhance affordability. The three most traded food items included maize (87%), beans and pulses (68%) and wheat (48%). However, there were regional differences for example, in the Southwest region, sugar, maize and sorghum were the most heavily traded commodities while in Western region, maize, cassava and rice dominated.

#### 7.4.1 Traded volumes

The volumes traded in most markets vary widely with the majority of traders, 66 and 70%, in the below-100 units category for purchases and sales respectively. Only 5 and 4

Table 16: Units of primary commodity traded					
	Buyers	Sellers			
Less than 100	226	239			
101-500	82	73			
501-1000	17	14			
1001 and Above	16	14			

% of the traders bought or sold over 1000 units respectively. Maize traders dominated the less than '100 units' category with 32% buyers and 31% sellers, followed by beans and pulses, cassava and sugar traders. Soap and paraffin were the most traded nonfood items across the regions although

<sup>52</sup> Dyna is a box van with the approximate capacity of 10 metric tonnes.

charcoal was also important in Acholi, Karamoja and Refugee camps. Table 16 shows the distribution of traders by traded volumes, depicting some of the traders who sold less than 100 units as either farmers or traders who purchased large volumes of commodities then sold in small units.

#### 7.4.2 Food and non-food market prices

In general, the prevailing prices of most food items were higher compared to a regular year across the regions according to 63% of the traders, particularly for maize, rice, groundnuts, meat, oils and fats, sugar and salt. The trend was similar for non-food items except cooking gas, which did not record any price increase. More recently, the price of most commodities, particularly those heavily traded, showed a mixed trend. For example, the price of maize rose by 29% in Karamoja in three months and reduced by 58% in West Nile over the same period. Similarly, the price of beans and pulses rose by 67% in Central-1 region and reduced by 46% in Acholi region over a three-month period. Nevertheless, the most significant increases in price were recorded in Southwest and Refugee camps regions where matooke prices rose by 180 and 100% respectively. Conversely, charcoal prices recorded the greatest increase of 102% especially in the Kotido areas of Karamoja region. This ties in well with household perceptions of changes in prices over the last 12 months. Global changes in market prices, combined with decreases in income are likely to result in reduced household access to food and contribute to household food insecurity. It is interesting to compare Figure 20 with perceptions in changes in price to that of the general prevalence of food insecurity by region. Notably, regions that are more food insecure perceive higher food prices and lower food availability.



#### 7.4.3 Determinants of market price changes

The main reason given for the observed price increases included reduced availability (25% of traders), high transaction costs (21%), high wholesale prices (17%) and a combination of increased demand from consumers, neighbours and neighbouring countries (26%) for both food and non-food items.

#### 7.4.4 Import/Export dynamics

The majority of the traders (42%) stated that the volumes of food items they traded had reduced and were generally lower especially in East Central and Karamoja regions. Consequently, only 13% of the traders reported selling food items outside of their districts with 8% selling to neighbouring districts, 6% to regional towns, 5% to

neighbouring countries and only 2% to the capital city, Kampala. Compared to the rest of the regions, only East Central and Teso regions had no traders selling food outside their respective jurisdiction. Southwest, Eastern, Lango, West Nile, Acholi, Karamoja and Refugee camps had the highest numbers of traders who sold food to traders in other districts and even neighbouring countries. The traders who were engaging in cross-border trade included: 21% in Southwest (which borders on the Democratic Republic of Congo/DRC and Rwanda); 14% in West Nile (bordering south Sudan and DRC); 10% in Central-2 (bordering Tanzania); 9% in Acholi (bordering south Sudan); and 4 and 2 % in Eastern and Karamoja regions respectively (on the border with Kenya). The most important food items traded included: sim sim, maize, meat, millet, sorghum, cassava and beans.

### 7.5 Market price analysis and trends

Using market data collected by WFP over the last nine years, the following analysis provides some insights into market integration, price trends and spatial variances of key markets throughout Uganda.

#### **7.5.1 Prices of food staples**

Cereal prices continued to rise from the beginning of 2009, following on from the food price crisis that hit world markets in 2008. Although Uganda was deemed as one of the countries in which the price increases were less pronounced<sup>53</sup>, there was nonetheless a visible increase in prices, reaching their peak in April 2008. In fact, prices continue to be high in relation to the average price between 2000 and 2007.



As the financial crisis' impact begins to spread in 2009, it will be important to continue monitoring the evolution of price trends in Uganda. The financial crisis is likely to have a very real impact on the export sectors within Uganda (including cotton, coffee and fish and cut flowers) and have a negative impact household on employment and income. Should prices continue to maintain their high level. then households will be

doubly hit in the coming months, though which of the households will be hit the hardest will depend on the relative price movements and how flexible the households are in adjusting their production patterns.

For now, the Consumer Price Index (CPI) seems to have maintained a high level after having reached its peak in August 2008, as seen in Figure 22.

This peak in the CPI is, in fact, an all-time high. Changes in the CPI are less related to changes in maize prices, which fell sharply in April 2008, but started to climb again in August/September of the same year. This may suggest that the CPI is related to other staples such as matooke. Figure 23 shows how maize prices have changed considerably over the last eight years.

<sup>&</sup>lt;sup>53</sup> Gandure, S. (2008), *High Food Prices in the Eastern, Central and Southern Africa: Assessing Impact and Tracking Progress Towards Meeting the CFA Objectives*, World Food Programme.

A seasonal price analysis indicates little in the way of significant seasonal price variations. However this could be due to a price flattening effect of production in two modal agricultural systems (the uni-modal system in the northern districts and bimodal system of the central and southern districts).

7.5.2 Variation across

space and time Maize markets in Uganda



display very little volatility given the current high price for it. In fact, the coefficient of variation in all markets under study – Jinja, Masaka, Mbarara, Gulu, Mbale, Arua and Kampala - are below 0.20, with the most stable market being Kampala with a coefficient of variation of 0.023 for the time period between January 2000 and April 2008.

Lower volatility of food prices contribute to food security, whether households are netbuyers or net-sellers. Lower volatility means that prices decline less during harvest time and farmers who sell get better prices. In fact, this could also explain the small variability seen in nominal prices each year. It also means that prices rise less during the lean season and households who buy pay lower prices. Lower volatility reduces uncertainty as well.

The coefficient of variation at the national level, once smoothed for monthly fluctuations, also reflect the generally stable nature of markets across Uganda.

#### 7.5.3 Market integration

Maize price trends across regions seem to show that there is little co-movement among prices in different regions of Uganda. In fact, traders indicated that there were significant transport costs that could be contributing to different price behaviours across regions.

Prices seem to be rising ubiquitously across regions, and the difference in price levels among the regions (see Figure 24). In general, price levels in eastern Uganda tend to be lower than the rest, while prices in Kampala tend to be higher than in the rest of the country. Eastern Uganda is the surplus-producing region of Uganda and, as such, lower maize price levels are to be expected. This observation does not assist in explaining the high levels of food insecurity in eastern Uganda. However, the price analysis only considers maize, which is not the main staple of this part of Uganda.



Of particular importance when looking more at disaggregated data is the seeming lack of coherence in the behaviour in markets with northern Uganda: mainly Arua and Gulu. While maize prices in Gulu appear to be always lower than prices in Kampala M&L, prices in Arua seem to be always above prices in Kampala M&L. This is likely due to the fact that Arua is a

fairly poorly integrated market in the rest of Uganda. Also, there is a high population of Refugees and IDPs in Arua, thus having a high and isolated impact on price formation and evolution.

An analysis of market integration through the calculation of correlation coefficients shows that while there is significant integration of markets across most of Uganda, this is in fact at very low levels. Also, Arua is virtually isolated from the rest of Uganda with no significant correlations to any other markets under study<sup>54</sup>.

Table 17: Market integration (correlation coefficients)								
	Kampala M&L	Jinja	Masaka	Mbarara	Gulu	Mbale	Kampala High	Arua
Kampala M&L	1							
Jinja	0.235*	1						
Masaka	0.393*	0.305*	1					
Mbarara	0.380*	0.266*	0.459*	1				
Gulu	0.517*	0.330*	0.441*	0.362*	1			
Mbale	0.251*	0.575*	0.253*	0.147	0.266*	1		
Kampala High	0.658*	0.139	0.201	0.147	0.279	0.356*	1	
Arua	-0.0002	0.106	0.086	0.0004	0.038	0.167	-0.040	1

Markets are not remarkably integrated within Uganda. The most significant correlations are between Gulu and Kampala M&L; Masaka and Mbarara; and, Jinja and Mbale markets.

The contemporaneous price movements between Jinja and Mbale markets indicate that there is good integration within eastern Uganda. The correlation between Gulu and Kampala M&L indicate that there are good trading relations between these two market centres between the north and Kampala. Furthermore, correlations between Masaka and Mbarara show that markets in western Uganda and central Uganda also seem to be somewhat integrated. However, further analysis would need to be carried out to factor in lags in transmission of price signals from market to market.

<sup>&</sup>lt;sup>54</sup> Correlation Coefficients were calculated using the first differences of the data series given the presence of unit roots. The starred correlation coefficients were found to be significant at the 5% level.

## 8. Health and nutrition

Health expenditure accounted for only 2.5% of the GDP in 2004  $^{55}$ . This is higher in neighbouring countries like Kenya and Tanzania but lower than Rwanda (4.5%). This may, in part, illustrate why adult mortality has remained relatively unchanged in the last 20 years. According to the Health Sector Strategic Plan I<sup>56</sup>, the GoU targeted having health facilities within a radius of 5km to the communities.

From the UNHS 2005/06, the estimate of acute malnutrition in the rural population was 6.1% global acute malnutrition and 1.9% severe acute malnutrition. Wasting was shown to be particularly high in the Karamoja part of the northern region. Approximately 17% of children were underweight and 4% of these were severely underweight. Stunting is estimated to be 39% (moderately or severely stunted) and 16% severely stunted in the rural population, being particularly high in the Southwest region. Nutrition data was collected during the CFSVA but there were difficulties in using it to demonstrate prevalence rates in the main part of this analysis. See Annex 12.2 for a fuller explanation.

### 8.1 Health care access

Access to health care facilities at the community level was reasonable and in many cases multiple services were available (almost 80% of communities reported more than one type of health facility). Only 6% of communities reported not having access to any health care facilities. This varied by region, with communities in West Nile (15%) and Karamoja (16%) most frequently not having any type of health facility. The in East Central, Southwest and Acholi around 10% of communities did not have any health facility. In addition, only 7% of the communities that did not have access to a health facility were within a one-hour walk to the nearest medical service. In terms of limitations of the centres available, the most frequently reported was lack of drugs (78%), which often leads to lack of attendance. The most frequently reported type of service available was a private clinic (55%) and 40% of communities reported the presence of a traditional healer (particularly present in Central 1 region; 71%). 40% of the communities reported having a hospital centre III, and around one third reported having a health centre II.<sup>57</sup> This would suggest that it is easier for the communities to access non-government, potentially unregulated, medical care with the associated risk for poor diagnosis and drug prescription, not to mention additional cost.

## 8.2 Maternal health

During the CFSVA, mothers of children were asked about antenatal care, micronutrient supplementation, having had diarrhoea in the two weeks prior to the survey and sleeping under a bed net (and if it was treated or not)<sup>58</sup>.

It is observed that the mothers interviews had similar characteristics presented in the UDHS 2006. A summary of the main findings for maternal health are presented in Table 18. There was little in the way of regional or inter-stratum variations, with only 5 to 10 % points between strata. However, in Gulu only 68% of mothers reported having

<sup>&</sup>lt;sup>55</sup> United Nation Development Programme UNDP, Human Development Report (HDR), 2005

<sup>&</sup>lt;sup>56</sup> HSSP I 2000-2005

<sup>&</sup>lt;sup>57</sup> Health Facilities are classified as follows:

<sup>•</sup> Referral Facility – General Hospital (District level – 500,000 pop) or Health Centre IV (Country level – 100,000 pop)

<sup>•</sup> Health Centre III – (sub-country level – 20,000 population)

<sup>•</sup> Health Centre II – (Parish Level – 5,000 population)

<sup>•</sup> Health Centre I – (Village health Team – 1,000 population)

<sup>&</sup>lt;sup>58</sup> No specific maternal age was collected within the health and nutrition survey, which is why this data is not presented in the report.

received antenatal care during their last pregnancy. In Kitgum and in the Refugee camps, in the Southwest region, 94% of mothers had reported receiving antenatal care and this possibly reflects the high degree of humanitarian interventions in these places.

Table 18: Summary of maternal health indicators								
Antenatal care during last – pregnancy	Womer anten	Women receiving antenatal care		Vitamin A within 8wks of	Slept under a	Used a	Diarrhoea	
	Midwife / Nurse	Mean number of visits	Tablet	birth of last child	mosquito net	net	wks prior	
80.9%	94.6%	3.6	69.0%	48.8%	62.5%	70.2%	15.9%	

The highest prevalence of reported diarrhoea was in Kotido (37%) and Kaabong (25%). Other strata that were noteworthy here were mothers in Moroto (22%) and in Busoga (22%). Overall, the number of mothers experiencing diarrhoea in the two weeks prior to the survey was not related to food consumption scores but was related to poor sanitation (Chi square = 6.295 p <0.05).

Although the average percentage of women that reported receiving vitamin A was relatively low (49%), this hides large regional differences. Only 28% of mothers in the Southwest region reported having received vitamin A within eight weeks of giving birth to the last child. This was quite different to northern strata and the Refugee camps. 64% of women reported receiving vitamin A in Teso, West Nile, Acholi and Karamoja - again possibly relating to the higher concentration of humanitarian interventions in these areas. This pattern was also reflected in mothers reporting having received iron-folate tables during their last pregnancy. However, this was notably different in Central 1 and Central 2 where mothers were more likely to receive iron-folate during pregnancy than vitamin A after pregnancy. This may reflect either poorer post-natal care or reduced availability of vitamin A.

The least percentage of mothers sleeping under a mosquito net were found in Western region (43%) and the highest in Teso (90%). This would suggest that mothers in Western region are at greater risk of malaria<sup>59</sup>. Overall the majority of nets used were insecticide treated. However, in Central 1 and Central 2, 37% and 45% respectively responded that their nets were not treated. Of the 55% of mothers reporting using nets (in both Central 1 and 2), there is therefore an increased risk of malaria due to the use of untreated nets.

## 8.3 Child health (6-59 months)

Mothers were asked about the health of their children, including vaccination status and vitamin A supplements.

For Vitamin A supplements, 69.5% of children had received the supplement in the last 6 months. Regions that reported greatest coverage of vitamin A was in Southwest (84%), West Nile (92%), Acholi (91%) and Karamoja (88%) - see Figure 25. This is likely to be explained by the humanitarian efforts in the northern regions and would point towards then need to strengthen structural health facilities that are not in humanitarian intervention areas. This observation is reinforced by the fact that children in these areas mainly got vitamin A from Child Health Days (43% nationally) and not as a result of routine health visits. This was with the exception of West Nile where 95% of the children had received vitamin A from a routine visit. In East Central 71%, Teso 78% and Southwest 61% of children received this supplement from Child Health Days.

Mothers were also asked if the child had received a measles vaccination. This was confirmed from the health card when available. Based on the mothers' recollection and

<sup>&</sup>lt;sup>59</sup> Data on fever in the previous 2 weeks was not collected and thus assessment of risk to malaria could not be analyzed.
confirmation with the health card, 82.8% of the children had received a vaccine. Although close, this not at the target of 85% coverage normally associated with population level protection from a measles outbreak. Central 1 (72.1%), Central 2



Figure 25: Vitamin A received in last 6 months (% children)

(78.4%), East Central (78.5%), Eastern (78.9%) and Lango (81.5%) were all below this level of protection DPT3<sup>60</sup> Figure (see 26). vaccination coverage was slightly nationally better (87.7%; 54.8% confirmed by health card). Coverage was lowest in Central 1 (74.6%) and East Central (80.9%), see Figure 27.

Mothers were also asked about whether or not the child had experienced diarrhoea (and specifically with blood), fever or cough in the two weeks prior to the survey. It should be noted that this is based on selfreporting and not a clinical diagnosis and therefore, any results should be interpreted with caution.

Overall 64% of the children had been reportedly ill with one or more of the illnesses noted above. Children were less frequently sick in Central 1 (40%) of children. Fever was the most reported illness (57%), followed by cough (45%) and Diarrhoea (29%; 6% of mothers reported that the child had blood in the diarrhoea).

Fever was most frequently reported in East Central (89% of children) and least reported in Central 1 (28%).

However this is not related to sleeping under a mosquito net (or at least not the night before), which is likely to suggest that the fever reported is not related to malaria but is some other childhood illnesses. Nationally 60% of children were reported to have slept under a mosquito net and this was most frequently reported in Karamoja (82%) and Teso (88%).

Diarrhoea was most frequently reported in Acholi (38%) and Karamoja (39%), as is diarrhoea with blood in it (Acholi, 9%; Karamoja, 14%). It should be noted here that 8% of children in the Refugee camps were also reported to have blood in their diarrhoea. This symptom suggests serious infection and is a matter of public health concern. Such reporting, especially in the Refugee camps, should be further investigated to ensure that

<sup>&</sup>lt;sup>60</sup> Diphtheria Pertusis Toxoid Vaccination (last of the 3 vaccinations)

there is not serious public health issue. There was a significant association between having had diarrhoea in the two weeks prior and not having access to improved sanitation (Chi square; 8.77 p < 0.01). The need to improve sanitation in the northern districts would seem apparent from this observation. Further investigation should be considered for other factors at the household level. See Figure 28 for summary of illness experienced by children in the survey.

Health seeking practices mothers were by enquired of for children that had been ill in the two weeks prior. There were two main types of facility that the mothers took their children to. Either Government health centres (36%) or pharmacies/drug stores (28%) were the main places to take the child, with around 15% of the mothers taking the child a clinic that was to privately run or run by an NGO. In Southwest and



in Karamoja approximately 8% of children were taken to a traditional practitioner, indicating that traditional beliefs are still quite prevalent in these areas (in Western region this was only 3% while in other regions this was not reported).

## 8.4 Mortality

The life expectancy at birth from the 2002 Population and Housing Census indicated a level of 50.4 years for both sexes (52.0 years for females and 48.8 years for males). Adult mortality is slightly higher among men than among women (9.3 and 8.2 deaths per 1,000 population). Little has changed in adult mortality in the last 15 years.

Table 19: Crude Mort	Table 19: Crude Mortality Rate							
Region	CMR							
Southwest	0.18							
Western	0.26							
Central 1	0.22							
Central 2	0.22							
East Central	0.25							
Eastern	0.35							
Teso	0.10							
Lango	0.29							
West Nile	0.16							
Acholi	0.36							
Karamoja	0.49							
Refugee camps	0.22							
National Average	0.25							

Infant mortality rate declined from 122 to 75 deaths per 1,000 live births between 1991 and 2006, while under-5 mortality declined from 203 to 137 deaths per 1,000 live births over the same period. The infant mortality level is highest in Southwest region.

From the CFSVA data, it is possible to estimate the Crude Mortality Rate (CMR = deaths/10,000 people/day). This indicator is different from the rates presented above. However it provides an indication of any acute problems with mortality. For sub-Saharan Africa the threshold for humanitarian emergencies is 0.9 (/10,000people/day) and the baseline  $0.44^{61}$ . The results of the CFSVA indicate that the CMR for all the strata are within the normal parameters for sub-Saharan Africa. Moroto was flagged as having a CMR of 0.9 deaths/10,000/day. Although

worth mentioning, this should be viewed with caution. It is possible that there are serious health problems and high levels of malnutrition persisting in this area<sup>62</sup>. The summary of CMR by region shows that mortality is higher in Acholi and in Karamoja, even though they are generally within the expected parameters for sub-Saharan Africa.

<sup>61</sup> Sphere Guidelines, 2004

<sup>&</sup>lt;sup>62</sup> Nutrition Survey (UNICEF and partners) 2008.

## 8.5 Risk factors for poor nutritional outcomes<sup>63</sup>

A binary logistic regression analysis was used to explore underlying causes and individual level predictors of having nutritional problems. Two sets of analyses were run with underweight and acute malnutrition (or wasting) taken as dependent variables<sup>64</sup>. Explored variables were related to health, demographic, dietary and socio-economic determinants of malnutrition. It should be noted that it is difficult to make assumptions about diet from household and the nutritional status of the child as intra-household dispersion of food is not accounted for.

Several models were explored for both underweight children and acute malnutrition.

With regards to underweight, 4,942 children 6 to 59 months<sup>65</sup> were included into the analysis. After adjusting for all the factors in the model, 5 variables were found to be significant associated:

- 1. Age of the child Younger children were found more likely to be underweight than older children. This finding is consistent with common expectations, as younger children are more exposed to diseases and feeding practices are still in an adjustment phase.
- 2. **Gender of the child** Males were found more likely to be underweight than females<sup>66</sup>.
- 3. **Diarrhoea** Experiencing diarrhoea results in higher odds of being underweight, even controlling for all the other factors in the model.
- 4. No access to improved toilet Children in households with no access to improved toilets were more likely to be underweight than children living in households with better toilet facilities.
- 5. **Wealth index** The wealth proxy was found to be significantly related to underweight in children. Belonging to a poorer household increased the child's risk of being underweight.

Other variables were explored in the various models at different stages. Some of them were significantly related to underweight when the association was explored on a bivariate basis, but the statistical significance dropped when controlling their effects for other predictors that were entered in the model. Regarding underweight, these variables were: gender of household head, ability of the household head to read and write simple messages and CSI coefficient (the latter two variables becoming redundant when the Wealth Index was entered in the model). With the introduction of wealth into this model, it can be seen that it moderates the effect of illiteracy and/or the pressures on the household in maintaining food supply (CSI).

The FCS was not significantly related to underweight in children 6-59 months in any of the explored models. However, it has to be underlined that indicators of consumption at household level do not take into consideration intra-household allocation of food, thus any association, (or lack thereof), with nutritional outcome has to be carefully interpreted.

<sup>&</sup>lt;sup>63</sup> See Annex 12.2 for details as to why nutrition prevalence data is not available in this report.

<sup>&</sup>lt;sup>64</sup> Underweight (weight for age) as defined by any child less than -2sd from the reference mean and acute malnutrition (weight for height) defined as any children less than -2sd from the reference mean. WHO 2006 Growth Reference Standards were used to calculate indexes. For the purposes of this model, children with oedema were excluded. The cause/s of oedema are not clear and complicates the more linear relationship between reduced weight and illness or lack of food. As it stood, no differences were seen regardless of whether oedema was included or excluded from the model.

<sup>&</sup>lt;sup>65</sup> The number of children eligible for this analysis was drastically reduced compared to the entire child sample because household level information on food security (including water and sanitation) was collected for a sub-sample only (one in every third household).

<sup>&</sup>lt;sup>66</sup> See notes under acute malnutrition for the same observation.

Considering acute malnutrition, a number of logistic regressions were run on 4,898 children aged 6 to 59 months. The final model identified four variables significantly related after adjusting for other factors. Those variables were:

- 1. **Age of the child** Younger children were found more likely to be acutely malnourished than older children.
- 2. **Gender of the child** Males were found more likely to be acutely malnourished than females.
- 3. No access to improved toilet No access to improved toilet facilities at household level was found to increase the likelihood of a child being acutely malnourished.
- 4. Wealth index Children from poorer households were more likely to suffer from acute malnutrition than children from richer households.

The analysis was carried out in two stages: first, exploring the immediate causes of acute malnutrition; and second, trying to identify key underlying factors that influence acute malnutrition as nutritional outcome.

When the analysis was limited to explore the immediate causes, commonly expected variables were proved to be significantly related to acute malnutrition (age and sex of the child; diarrhoea; no access to improved toilet facilities).

Looking at possible underlying causes of acute malnutrition, the ability of the household head to read and write simple messages was found to have a positive impact of on acute malnutrition outcome, reducing the odds of a child being found acutely malnourished, controlling for all the other factors.

However, the introduction of the Wealth Index, as an additional underlying factor of acute malnutrition, made the effect of reading/writing ability of the household head and diarrhoea in the child redundant. This indicates that wealth protects against wasting in the event of diarrhoea, and using the same reasoning, so does literacy.

The CSI and the FCS as proxy of stress and of food consumption measured at household level were found to have a significant impact on acute malnutrition outcome when analyzed together with child demographic and health variables (age, gender and presence of diarrhoea). However, if the head of the household is literate or, more importantly, wealthier, these characteristics (CSI and FCS) are not predictors of malnutrition. This illustrates very well the protecting characteristics of literacy and wealth in the outcome of malnutrition. The basic translation of this observation is that consumption patterns are less important in wealthier and literate households in terms of resulting in malnutrition. For poorer, illiterate households consumption patterns are much more important and are more likely to result in malnutrition. Given this, by targeting poor and illiterate households, we can help reduce acute malnutrition.

# 9. Shocks and coping mechanisms

Data collected from the UNHS 2005/06, indicated that two in three households had experienced one kind of shock or the other, but more than 80% of households reported some form of shock in the northern region. Most of the shocks would appear to be covariate shocks with more than 10% of households reporting some form of violent attack or robbery. 14% of households reported a death of a family member other than the household head.

## 9.1 Shocks

A common practice is to divide shocks and hazards into categories that are: 'co- variant', ie. those that apply to entire communities, regions or even countries as whole(eg. price movements in markets, epidemic disease, extreme weather, civil disorder and policy changes); and 'idiosyncratic' hazards ie. those that only affect particular households or individuals (eg. domestic, workplace or transport accidents, fire, crime, addiction, physical disability, etc).

On average 26% of households reported experiencing some form of covariate shock and 49% reported experiencing at least one idiosyncratic shock. In Gulu, Soroti, Apac, South west, Refugee camps and Kasese, around 10-12% of the households reported experiencing a covariate shock - much lower than most other strata. In Kotido and Moroto, this was as high as 97% and in Kaabong it was 84%, (although in Kotido only 21% of households had experienced idiosyncratic shocks). In Amuru and Moroto, 75% of households had experienced idiosyncratic shocks.

### 9.1.1 Food access

Households were also asked if they had, in the last 12months, experienced a situation when they could not provide enough food for their household. Overall, 37% of the households said that they had experienced this situation. There were no significant

differences between food security groups but there were differences between Asset Poor and the Lowest and Highest quartiles of the Wealth Index. This may suggest that access to food is perhaps more important in food security than that what type of food is eaten. Households in the Karamoja (95%) region and those in the Refugee camps (82%) reported this most frequently. Those



reporting experiencing this problem least were in south and central Buganda (35 and 40% respectively). Acquiring sufficient food would seem to be most difficult from March to October, with the most difficult months being between May and July.

The households were also asked why they did not have enough food. The main reason was 'inadequate stocks due to drought/poor rains' (25%) and was most frequently reported by households in Karamoja (76%). Teso, Lango and West Nile also more frequently reported this reason than other regions (approximately 40% of households). 'Not enough money to buy food in the market' was also a reason given by approximately 25% of the households. This was more frequently given as a reason in Acholi (42%) and in Western region and in the Refugee camps (37%). Around 32% of households in West Nile and Karamoja gave this as the main reason for inadequate food. On average 19% of

households reported that food was too expensive. Again, this we more frequently reported in the northern strata, particularly Karamoja (49%), Acholi and Lango (34%).

Clear trends in frequency of reporting these main reasons were observed between Wealth Index Quartiles and Asset Index groups, but it was the moderately food insecure that more frequently reported them. Seasonal analysis shows that most of these shocks peak in the middle of the year (June) and are reported least frequently in November, December and January. Drought was reported most frequently at the beginning of the year, peaking in June and tailing off after August.



### 9.1.2 Covariate shocks

The most commonly reported covariate shock was that market prices were too high (19% of households reported this shock). This was not significantly different between food secure households but it was significantly more frequently mentioned bv households in the lowest Wealth Index Quartile and by the Asset Poor, indicating that the perception of high food prices is

different with increased wealth, as well as being more affected by changes in market prices of food items. Other covariate shocks, such as insecurity and looting were infrequently mentioned, on average (2%). This was with the distinct exception of Karamoja region where in Moroto 94% of households had experienced insecurity (54% in Kaabong and Kotido). Additional problems of conflict/raiding were also reported very frequently in Kaabong and Kotido (60 and 67% respectively) during the previous year. An interesting observation was that conflict/raiding and general insecurity were more frequently reported in the Asset Poor, and by those in the lowest Wealth Index. This is combined with the same observation that these households also frequently reported significantly more looting of assets. There were, however, no distinct seasonal variation in these shocks and they would appear to be a constant threat.

### 9.1.3 Idiosyncratic shocks

Idiosyncratic shocks are events that affect а household at a micro level but may also reflect macro level conditions and covariate shocks. For example, reduced income of a household member may be linked to poor harvests because drought/poor rains reduce opportunities the for casual labour. On average, the main idiosyncratic shocks that were reported



were, 'unusually high levels of human disease or accident' (26%), 'reduced income of household member' (17%) and 'death of a household member' (9%). Idiosyncratic shocks were the main shocks experienced by households in the sample. Looting of assets was more frequently reported in households classified as Asset Poor or in the lowest Wealth Quartile and was reported by 3% of households on average (most frequently in Kaabong (28%) and Moroto (59%)). Reduced income was most frequently reported in

Bunyoro-toro (35%) and West Nile refugees (37%). In Abim and Kaabong 22%, Busoga 26% and Kasese 20% of households reported unusually high deaths of a household member in the previous 12 months, significantly higher than other strata. Reduced income of a household member was most frequently reported in West Nile refugees (37%), Katakwi/Amuria (28%) and Bunyoro-toro (35%). Reduced income, on average, was not related to food security status, Wealth Index or asset poverty.

### 9.1.4 Coping strategies and Coping Strategy Index

In the CFSVA, eleven coping strategies were investigated for the frequency of use in the previous seven days. The most frequently reported mechanism was to rely less on preferred or expensive food (38% of households). 30% of households reported reducing meal size and a similar percentage reduced the number of meals. 25% percent of households reported borrowing food from neighbours/friends and purchasing food on credit. About 17% reported gathering wild foods, hunting or harvesting immature crops. Purchasing food on credit was most frequently reported in the Southwest region (46%) and in Karamoja (36%), whereas 41% of households in Southwest region and 60% of households in Karamoja reported gathering wild foods.



Coping strategies are used to offset threats to a household's food and economic resources in times of hardship. The use of the Coping Strategy Index (CSI) allows for the analysis of these strategies in terms of their severity and frequency. The score produced from the analysis does not have any thresholds to indicate severity. However, the higher the score the more severe/frequent coping mechanisms are employed and can be compared between households and groups as well as changes over time.

For the CFSVA analysis of the CSI, a reduced model was used that references standard 'severity weights' for five coping strategies.<sup>67</sup> These household scores can then be compared between groups, providing a picture of the severity hardships being faced by households within them. The overall CSI score nationally was 5.1 with Abim, and Moroto reporting the highest scores (20.0 and 18.8 respectively).

<sup>&</sup>lt;sup>67</sup> eating less-preferred/expensive foods (weight = 1); borrowing food or relying on help from friends and relatives (weight = 2); limiting portion size at mealtime (weight = 1); limiting adult intake in order for small children to eat (weight = 3); reducing the number of meals per day (weight = 1).

There was a clear distinction between households reporting that they had experienced problems acquiring enough food and their CSI score. Those without problems had a score of 1.7 and those that did had a score of 7.2. However, this is consistent with what would be expected, as the CSI is composed mainly of food access coping strategies. When considering the differences between Food Security Groups the Food Secure have a significantly lower score than the Food Insecure (4.6 compared to 6.6). What is striking about this observation is that there is only a small difference between groups and may suggest that quality/diversity of diet is an important determinant of food security.

When comparing the CSI of wealth groups and asset groups, it emerges that the better off have a significantly lower score (see Figure 32). Households experiencing any kind of shock during the previous 12 months have a CSI score that is approximately double that of those that did not. However, experiencing a shock in the previous 12 months (covariate or idiosyncratic) does not preclude the household from employing coping mechanisms in the days prior to the survey. This trend is seen in the Food Secure as well as Asset Rich. However, it is the Asset Rich households that do not experience shocks and whom seldom require the use of any coping mechanisms (CSI score 1.1).

## 9.1.5 Humanitarian assistance and interventions

During the CFSVA, households were asked about what types of assistance that they have accessed in the previous 12 months. 60% of households said that they had received assistance of some kind. Health services (45%) and water and sanitation (29%) were most frequently reported. Mother Child Health (MCH) and Nutrition Non-Food interventions, cash-for-work and income generating activities were reported by approximately 15% of households on average. The graph below indicates interventions being accessed as a percentage of the total. In south and central Buganda 22 and 28% of households, respectively, reported accessing some form of assistance. This compares sharply with those in the northern regions where almost all households received some form of assistance. In Acholi, Karamoja and the Refugee camps, 68-72% of households reported receiving General Food Distribution and this was one of the main interventions provided (see Figure 33). Interventions based around service provision, such as health, water and sanitation and agriculture, form a higher percentage of the interventions.

Asset Poor households that receive assistance in Mother Child Health and Nutrition centres are more likely to be Food Insecure, whereas those who receive assistance from food-for-work, cash-for-work, water and sanitation, income generating activities, access to credit, agricultural inputs and farmers' training are more likely to be Food Secure. These observations may be related to other observations such as the relationship between food security and malnutrition and illness being related to malnutrition. The households attending MCH and Nutrition clinics are more likely to be Food Insecure and this modality may serve to target these households. However, it is not clear if this method of targeting helps to make these households more food security (through access to cash, credit or agriculture skills) helps to improve food security even in the Asset Poor.

General food distribution targeting seemed to cover virtually all households regardless of food security status (in this study). In fact, the more food secure households in Acholi and Karamoja reported receiving food assistance. However, increased food security could be the result of receiving food assistance rather than poor targeting. Food assistance does seem to target more Asset Poor than Asset Rich, although some Asset Rich do report receiving food assistance and would suggest that targeting mechanisms and criteria should be revised or reinforced at the distribution stage.



# **10.** Conclusions

Nationally, there are 290,000 households classified as Food Insecure by this analysis (approximately 1.8 million people). These results reflect the problems during a period when food should be more plentiful (October/November post harvest). The concern is that those that are Moderately Food Insecure will also require assistance or face difficulties in maintaining access to food, potentially reducing asset bases and consequently increasing poverty in areas where food insecurity is already high.

The highest prevalence of food insecurity is found in the strata in Karamoja where 20.4% of the population are deemed to be Food Insecure and a further 38.0% are classified as Moderately Food Insecure (and can easily become food insecure if insecurity continues and/or markets continue to destabilise and/or there is another harvest failure in the coming seasons). The situation in Karamoja continues to be problem of acute food insecurity. This is reflected in high levels of malnutrition (although not presented in this report this comes from preliminary observations). Given that the situation in Karamoja continues to demonstrate signs of acute food insecurity, programming to address the immediate needs of the households in this region remains a priority. However, many of the problems faced by this population can be addressed over the longer term to mitigate these acute periods of high food insecurity. It is likely that the impact of recurrent shocks is heightened by the fact that poverty is so high in Karamoja and these households are unable to mitigate and/or cope well with covariate or idiosyncratic shocks that they encounter during dry seasons or difficult years.

In the east of Uganda, Busoga has shown that food insecurity is a significant problem. Here 15% of the population was classified as Food insecure (approximately 85,000 households; 0.5million people). From the analysis, this would appear to be a chronic problem, related to market access, availability and chronic illness/reduced income potential of the households. This crisis would appear to be a 'silent' problem, affecting large numbers of people. Addressing health, income generation and general poverty is likely to be most effective strategy in dealing with this hunger.

In the northern regions, specifically districts in Acholi, displacement is an important issue. Those that are displaced have been shown to be poorer and have worse food consumption patterns than households that have not been displaced. However, the current situation would appear to be good with a low prevalence of food insecurity. This, however, would appear to be partly related to the sustained provision of food assistance by humanitarian organisations to households in the Acholi and Lango regions and can easily be seen from the fact that an important source of food in these areas is from 'food assistance'.

Southern strata also appeared to have a reasonably high number of households being classified as being Food Insecure (south Buganda 9.3%; and Ankole 7.6%). The high percentage of households classified as Food Insecure in south Buganda is a difficult phenomenon to explain. Here, CSI is low (2.9) and the percentage of Asset Poor households and those in the lowest Wealth Index Quartile is low. Diet diversity is relatively high compared to other regions and the percentage of households experiencing shocks is also relatively low.

Overall in Uganda, there are clear differences between food security classification and Wealth Index Quartiles as well as the Asset Index. This strongly suggests that asset poverty and the least tangible concept of 'wealth' are related to food insecurity and that poverty is a key driving force in food insecurity in Uganda. This may be combined with changes in the market place, reducing food availability.

Market prices and food availability would appear to be a strong contributor to food insecurity. The analysis of perceived access (prices) and availability (amount of food in the markets) suggested that everywhere, except in the Southwest and Western regions, this was a perceived problem. This may reflect increased prices because of increased fuel

costs and therefore the costs of getting food to more remote parts of the country (because of the reduction in quantities being sent due to restrictions on the transporters). This fits in well with the macro-economic trends seen in Uganda over the last year. Household access to food is likely to be exacerbated further in households whose income has decreased in the last 12 months or productive household members who have lost employment opportunities.

The multivariate analysis for determinants of malnutrition highlighted that in both underweight and wasting, male children were more at risk than female children. This observation is generally opposite to that of normally anticipated outcomes.

Nationally, health and wealth seem to be related. As food insecurity is related to wealth, and nutritional outcomes are related to health, it is important that proper sanitary needs are met in the population. Advocacy at national and sub-national level to improve public and private sanitation and implementation of sanitation programmes to improve access to sanitation is required to address illness, food insecurity and, ultimately, poverty.

## **10.1 Geographic food security and vulnerability profiles**

This section of the report focuses on the geographical issues identified during the analysis.

### 1. Northern regions

#### Karamoja – 3.6% of the population 20.4% are Food Insecure (34,600 households) 38.0% are Moderately Food Insecure (64,400 households)

Insecurity in the northern regions plays an important part in contributing to poverty, which in turn relates to food insecurity. In Karamoja, of all food items consumed, 36% were from obtained from food assistance. This may help to explain the lower rates of food insecurity in Acholi compared to Karamoja. Although equal percentages of households reported assistance of some sort (95-97%), a greater number of households reported experiencing shocks in Karamoja and this was reflected in the CSI scores (13.7). Karamoja is clearly still under pressure from both environmental (covariate) shocks and shocks affecting the household (idiosyncratic). Dietary diversity is also lower in Karamoja, although not significantly different than other regions. One of the defining characteristics of Karamoja is that food insecurity is combined with high levels of acute malnutrition in children (6-59 months). Although the multivariate analysis indentified Agro-Pastoralists as being more protected from food insecurity at a national level, the Agro-Pastoralists in Karamoja have been experiencing more shocks and tend to report having greater problems maintaining food supply (as reported by the CSI) than other Agro-Pastoralists in different regions. Also, the majority of the land is planted with sorghum and these farmers also tend to be more food insecure. Equally, about 23% of the population, Natural Resource Dependents, are also more food insecure than other livelihoods (11.7%).

## Acholi – 4.8% of the population

## 2.2% are Food Insecure (5,000 households)

### *36.2% are Moderately Food Insecure (81,700 households)*

Underlying food insecurity in Acholi is probably generally masked by the activities of on-going general food distributions in these districts. Over 20% of all the food items were reported to be from food assistance. However, purchase of food on the markets is also an important source of food. Although this region remains relatively food secure, there is a need to encourage resettlement, income generating activities and opportunities for marketing and service provision. The study identified also signs vulnerability to food insecurity reinforcing the idea that food security is not sustainable. For instance, total expenditures are low thus suggesting that disposable income is limited. This is also reflected in low dietary diversity at 4.1 food groups in the week prior to the survey (despite a relatively high diversity of crops - 3.8%; higher than more agricultural areas). However on average, people in this region

cultivate almost 2.5 acres of land on average (although only about 55% of what they have access to).

About 44% of the households are female-headed with literacy levels that are the third lowest only to Karamoja and the Refugee camps. Additionally, 18% of household heads were reported to have been chronically ill in the last 12 months and 11% were physically or mentally impaired. Households generally have few assets and approximately 59% are considered Asset Poor. Shocks are reported by approximately 60% of the households and the CSI score is 6.2 which would suggest that there are still pressures in maintaining sufficient food for the household. These general indicators would suggest that the large percentage of moderately Food Insecure could become Food Insecure with the reduction of food assistance and other food security interventions (95% of households) unless replacement policies and strategies are put in place to develop infrastructure, livelihoods and markets in this region. When comparing the results of this survey with the 2005 CFSVA, there have been significant changes in the prevalence of food security in this region. Although not tested, this may be due to changes in displacement and insecurity in this region since the time of the last survey.

### West Nile – 9.0% of the population

1.1% are Food Insecure (5,700 households)

### 13.2% are Moderately Food Insecure (56,000 households)

The percentage of Food Insecure and Moderately Food Insecure in West Nile would suggest that this region/stratum is much more food secure than other northern districts. On average 95% of households reported receiving assistance (the vast majority of them received non food assistance. A similar percentage of households reported some sort of shock and the CSI score was 5.5 (suggesting a similar pressure to maintain food supplies as in the households of Acholi). Much fewer households reported being chronically ill (8%) or physically or mentally impaired (5%). However, access to land (3.5 acres) and the total area cropped (1.7 acres) is low. Despite a reasonably large total monthly expenditure (141,000USh), around 65% was used on food. Dietary diversity is higher in West Nile and helps to understand the difference in Food Security status compared to other surrounding regions and districts. The input of humanitarian interventions is also likely to have reduced food insecurity but one cannot rule out the important role of cultural food preference in that area. This region needs to orient itself towards the development of infrastructure, market and livelihoods to maintain progress made by humanitarian interventions.

### 2. Eastern and East Central Regions – 22.1% of the population Eastern 6.7% are Food Insecure (32,000 households) East Central 15.1% Food Insecure (85,000 households)

One observation made by the CFSVA is the relatively high percentage of Food Insecure in Busoga (15%). This area is characterized by a reduced overall frequency of food groups, particularly of higher quality food items (ie., pulses, milk and meat). Such decrease affects mainly the households in the lowest Wealth Index Quartile.

Extended data analysis on Busoga shows that wealth and asset poverty indicators are generally much higher compared to other similarly affected areas. The CSI score was very low, indicating little pressure in maintaining food consumption. This is confirmed in meal frequency scores. Interestingly, 56% of households reported that the household head had been chronically ill in the last 12 months, significantly higher than any other strata.

Busoga is dominated by agriculture (almost 70% of households), which is known to be low in income earning diversity. Many households reported that they were not able to access sufficient food due to increases in market prices (30%) and 21% of households reported reduced income of a household member. Additional triangulation with secondary data sources does not rule out the possibility of a

'hidden hunger' in this district. Industry has been declining and land fragmentation increasing in the past 3 years. Additionally, with so many communities reporting a lack of health services and problems accessing markets (due to high food prices and/or reduced income), a change in the frequency of food consumption may be why we observe such a high prevalence of food insecurity. This would not appear to be the result of high levels of acute malnutrition, (as it seems that calorific needs are being met), but that long-term nutrition needs not being met – this may be appearing in the form of micronutrient malnutrition and stunting.

In Budaka, where food insecurity was reported at 11%, the situation is different. Poverty levels are higher as measured by Asset Poverty and Wealth Index Quartiles. The CSI was much higher and would seem to indicate that there are pressures in obtaining sufficient supplies of food. This would seem to be related to a reduced income of household members, an increase in human diseases and high food prices (shocks were most commonly reported in Budaka). It should be noted at this point that Elgon is relatively better off, with only 2.4% Food Insecure and 10.9% Moderately Food Insecure.

For these regions, there are also a high number of Moderately Food Insecure households (146,000 in East Central and 102,000 in Eastern). This would indicate that these regions have a high potential for increased numbers of Food Insecure at a time when the stocks from the previous harvest run out, or if market prices continue to rise.

### **3.** Northern Central regions – 11.2% of the population Teso 5.3% are Food Insecure (32,000 households) Lango 1.6% Food Insecure (85,000 households)

Food insecurity is relatively low in districts within these two regions. This is with the exception of Soroti, which would appear to have a much higher rate of food insecurity than the other districts (7.2%). When the data is examined further, it is difficult to pinpoint the underlying factors that are driving the food insecurity. However, one of the prominent reasons given for not being able to access enough food was high food prices in the market and not having enough money. These would appear to be important factors driving food insecurity. In Teso and Lango, food insecurity is likely to be mainly driven by changes in food availability (increases in market prices) and reduced access, particularly in Soroti.

# 4. Central Regions – 22.2% of the population

#### Central 1 Region – 9.3% Food Insecure (297,000 households) Central 2 Region – 3.0% Food Insecure (92,000 households)

These regions are normally understood to be food secure, although in the 2005 CFSVA, 20-30% of households were reported as being vulnerable. It was households in south Buganda that would appear to be less food insecure (9.3%).

For households reporting difficulties in accessing food in central Buganda, it is because they had inadequate food stocks, not enough money to purchase food and market prices were very expensive for them. In each of these cases households had significantly lower food consumption scores then those who were not experiencing these issues. In south Buganda, households are generally better off but those who are Food Insecure tended to report a significantly reduced number of days in which staples were consumed. However, the CSI score was not significantly different between the two districts. Although these areas are normally better off and less food insecure, market access would seem to be an important issue in south and central Buganda.

#### 5. Western and South Western Regions – 26.6% of the population Western Region – 2.7% Food Insecure (100,000 households) South Western Region – 6.1% Food Insecure (231,000 households)

Food insecurity is relatively low in these districts. Bunyoro-toro would appear to be the most food secure of these districts with only 2.1% Food Insecure. Further, of

those that are classified Food Insecure, there is a significantly high percentage of households that are Moderately Food Insecure. This is greatest in Ankole (26.2%) and lowest in Bunyoro-toro (with only 7.9% of households Moderately Food Insecure). The difference in food insecurity between Ankole and Bunyoro-toro is not necessarily explained by the difference in wealth, as both the percentages of Asset Poor and those in the lowest Quartile Wealth group are not so different. Consumption patterns are different, in that in Ankole more households (39%) reported eating from only three food groups in the seven days prior, despite the mean food consumption score being similar. From a further analysis of coping mechanisms, there is little that would explain why Ankole exhibits greater food insecurity. However in Ankole, Kigezi and Kasese the frequency of use of coping mechanisms recorded were much greater than that of Bunyoro-toro and surrounding districts. Purchasing food on credit, harvesting immature crops (or gathering wild foods/hunting), eating less preferred foods and limiting portion size were most frequently noted, as well as reducing the number of meals eaten in a day.

Agriculture and Agro-Labourers are the main livelihoods of the Southwest region and it has been shown that Agro-Labourers are one of the most food insecure groups. In Ankole round 17% of households reported that food was too expensive and this was combined with 21% of households reporting loss of income of a household member. Those that had experienced these shocks tended to report a lower daily wage rate and is likely to be related to poor household access to food in combination with reduced availability, ie. increased food prices. This may explain, in part, the issues in Ankole, ie. increases in food prices and poor labour rates may be more of an underlying issue in southern and western regions.

## **10.2 Livelihood food security and vulnerability profiles**

The main vulnerable livelihoods that have been highlighted by this report are the Agro-Labourers, Agriculturalists (due to large numbers in the population) and the marginal livelihood strategies (External Support Dependents, Natural Resource Dependents and Fisherfolk). The following describes the characteristics of households that are Food Insecure within each of the main livelihoods of concern.

# 6. Agro-Labourers (678,000 households) – 14.5% of the population 9.1% are Food Insecure (61,700 households)

This livelihood is the second most common livelihood group in Uganda (14.5%) and is one of the most Food Insecure groups. 40% of the households are either Food Insecure or Moderately Food Insecure. 43% of the Food Insecure in this livelihood are in the lowest Food Insecurity Quartile and 51% are Asset Poor. 35% of these households are female-headed and literacy rates are quite low (47.9%). Only 40% have access to improved sanitation and 91% have less than 0.5 TLU in livestock and rarely report having any kind of poultry. On average, these households only own 1.75 acres of land and cultivate less than one acre (80%). Low crop diversity (<2 crops) for those that farm, increases vulnerability, as seen in the model described in the previous section. 25% of households have two members or less and tend to be headed by younger men (average age 38 years). Total monthly expenditure of these households tends to be low compared to other livelihoods and approximates to around 16,000USh per capita. These households reported a CSI of nearly 9 suggesting that there was reasonably high pressure in maintaining weekly food consumption. Food consumption and composition was poor, with over 80% of households consuming only three food groups or less in the previous week. Seasonal labour availability restricts earning opportunities throughout the year and, as seen in the seasonal analysis, the lowest earning potential is between the months of October and March.

## 7. Marginal Livelihood Groups – 6.4% of the population

# External Support Dependents (173,000 households) – 3.7% of the population 7.6% Food Insecure (13,000 households)

Within these households there are particularly striking characteristics of the Food Insecure. 53% of these households are Asset Poor (and tend to own only the most basic of items) and 40% are classified in the lowest Wealth Index Quartile. 52% of External Resource Dependents are female-headed and only 38% can read and write a simple message. This group is elderly (67 years) and on average, are 14 years older than that of other groups and in addition tend to be more functionally disabled (32%) or chronically ill then other groups (66%). Almost half are in households of two or less.

Access to improved sanitation is low but higher than other groups (30%). 93% of the households report having less than 0.5 TLUs and crop diversity is reasonably low (2.3 types of crops). External Support Dependents reported having access to almost 2.5 acres of land but tended to only cultivate around 50% of this (1.25 acres). The total monthly household expenditure tends to be very low compared to other groups (27,500USh) but is not reflected in per capita expenditure, as the households are tend to be small. Almost 85% of households in this group ate three or less food groups in the previous week and dietary diversity is very low (2.2 food groups on average). 80% had experienced some kind of shock but only 50% had received any kind of assistance. The CSI score for this group was 7.3 and would indicate a reasonably strong pressure in maintaining food consumption in the household. Although 80% of households had access to improved water sources, only 30% had access to improved sanitation. It is likely that this group are the elderly widows that out-live their spouses, or couples whom their family does not live with but provides some financial support.

# *Natural Resource Dependents (126,000 households) – 2.7% of the population 11.7% Food Insecure (14,750 households)*

71% are Asset Poor and 86% are in the lowest Wealth Index Quartile. 52% of the households are female-headed. Literacy of the heads of households is very poor and only around 16% can read and write simple messages. Around 12% of household heads are functionally disabled and 15% chronically ill. Only 13% of the households have two or less people. 70% of households have access to safe drinking water sources but *no* households have access to improved sanitation. Total expenditure of this group is very low and is less than 32,000USh. Monthly expenditure on food per capita is approximately 3,500USh. 87% of households have experienced one or more shocks in the last 12 months but most have received some form of assistance (85%). Dietary diversity is low (2.3 food groups per week) and 96% of households consume three food groups or less. The total amount of land accessed is relatively large (3.7 acres) but only 66% of this is cultivated. However, almost 50% of the households reported owning livestock or some sort.

### 8. Fisherfolk (98,000 households) – 2.1% of the population 11.4% Food Insecure (11,000 households)

These households practise fishing in a lake or large body of water. 35% of these households are considered Asset Poor and 29% are in the lowest Wealth Index Quartile. Only 10% of the households are female-headed and the average age is less than 32 years old. 55% of these household heads are literate but 25% are physically impaired and 22% reported being chronically ill in the last 12 months. The majority of these households have three to six members with only 13% having two or less. Very little land and is accessed (less than 1.5 acres) and around 75% of that is cultivated, with an average of 2.6 crop types. Most of these households reported owning animals (70%), although the TLU value was relatively low (0.2). 69% had

access to safe water sources and around 56% improved sanitation access. Per capita food expenditure was relatively high (13,600USh), as was the total monthly expenditure, 78,000USh. Around 28% of the total fishing catch is consumed and the rest is sold with a mean catch of 10kg per day. Despite this, 88% of the households report eating only from three food groups or less in the last week. Ultimately, it is this that appears to be the main problem in food insecurity and may constitute poor food preference and eating habits. However, with such small catches, it is not likely that these households gain much in the way of income from this livelihood. Although this group has potential to improve on their main income source, (through livelihood specific interventions), the issue of sustainability is always present in the fishing industry. However, increased diversity of income opportunities and improvements in land use may help to increase revenue for these households.

# 9. Agriculturalists (2,278,000 households) – 48.7% of the population 6.3% Food Insecure (143,500 Households)

Although the prevalence of food insecurity is generally lower in this major livelihood group, when compared to others, the large numbers of households makes this livelihood important in terms of food security. 34% of the Food Insecure Agriculturalist households are female-headed. The average age of the household head is 46 years old. Literacy of the head of household was 45%, and 30% noted chronic illness in the last 12 months. On average, 18% of household heads were reported as having a physical or mental impairment. Approximately 13% of households have two or less people in them.

Although average total monthly expenditure was relatively high (79,000USh) when compared to other Food Insecure households, the per capita food expenditure is low (6,700USh). Access to safe water sources was reported by the majority of households (67%) . 53% of the households had access to improved sanitation. The average number of TLUs for these households was just less than 0.5 but 64% of households reported owning animals of some sort.

The total amount of land that was accessed by these households was quite low (2.2 acres) but 84% of it was used for cultivation. Crop diversity was about average (2.9 crops). Approximately 78% of this Food Insecure group consumed three or less food groups in the seven days prior to the survey. The CSI score was 5.7 with 60% of the households reporting experiencing a shock of some kind in the last 12 months, 54% having received some form of assistance. This group is generally better off than other Food Insecure livelihood groups. However, there are strong variations between agriculturalists in different regions and reflects the main issues faced by households, as described in the previous section. Improved farming techniques, better use of land and agricultural inputs my help to improve yields and therefore income generating opportunities. Additionally, strengthened markets and access for selling their produce will improve income at a more global level. Livelihood specific interventions are needed but income diversity should also be explored, considering the role of larger livestock.

## **10.3 Other priority areas for consideration**

Chronic illness in areas normally known for productivity may be leading to household food insecurity. It is not correct to assume that all the chronically ill people are infected by HIV; however HIV is one of the underlying causes for the levels of chronic illness reported. This scenario would seem to be illustrated very well in eastern Busga where, although not in acute food insecurity as highlighted by high levels of child acute malnutrition, the rate of food insecurity is high (15%). This highlights the chronic nature of this situation and should be addressed through health care provision (13% of communities interviewed in Busoga did not have any health care facilities and 56% of households reported having chronically ill heads of household). Additional understanding

of the HIV/AIDS situation should be explored (secondary data or primary data) and interventions reinforced to address the problem.

# **11.** Recommendations

Overall, there is clearly still a requirement for humanitarian interventions in Karamoja as well as addressing underlying causes of poverty that result in increased vulnerability to food insecurity. Food insecurity is also present in sometimes quite high levels, for example in Busoga where 15% of households are Food Insecure. This illustrates that addressing food insecurity is a national issue and not localised to Karamoja, even though the underlying issues are different. Broadly, the recommendations from the CFSVA analysis are as follows:

## **11.1 Humanitarian action**

- **Karamoja** Food insecurity is high in most parts of Karamoja and humanitarian interventions are highly recommended for both food needs and service provision.
- Acholi and Lango Reduction of humanitarian interventions in a manner that considers the need to ensure livelihoods and incomes are developed/sustained, without significant humanitarian assistance.
- Interventions modalities These should consider targeted nutrition interventions, general rations and food-for-work.

## **11.2 Poverty reduction and mid-term strategies**

- Interventions are required to address the underlying causes of food insecurity. These should address livelihoods and income earning opportunities. The high level of poverty in Karamoja is likely to be the main vulnerability to the prevailing and recurrent shocks resulting in high levels of food insecurity. Recurrent shocks in this area undermine the ability to build asset bases and reduce poverty. Thus, interventions should consider addressing both environmental issues, as well as poverty reduction and livelihood protection.
- Given that high levels of food insecurity are also seen elsewhere in Uganda, (although would appear to be less acute), these issues should also be addressed throughout the country.
- These interventions should consider a wide variety of modalities and note that cash-based or voucher-based interventions would seem to have increased impact on food security than food-based interventions. Micro-financing and micro-credit systems would also be useful interventions within this strategy.

## **11.3 Policy and advocacy**

- 1. Water and water access Improving access to, and quality of, water to households.
- 2. **School access** Provided free basic schooling for all and ensuring that there are adequate facilities and teaching staff.
- 3. **Extension services** Agricultural and Veterinarian extension services need to be improved in both quality of services and in coverage.
- 4. **Health care** Provision of adequate and consistent health care in rural communities and ensuring that there is an adequate supply of medicines and other supplies to treat common illnesses.
- 5. **Sanitation** Promoting the use of latrines and how to construct simple, improved latrines.
- 6. **Security and peace-building** Directed at Karamoja and aiming to reduce raiding and general insecurity.
- 7. Sensitization to hunger related issues Providing information on food use, diet diversification and healthy, affordable eating options.

## **11.4 Monitoring systems**

The continuation of market information systems at national level will allow the tracking of key food commodities but this information requires dissemination to farmers and pastoralists. This system will allow farmers to improve the marketing of their produce and in receiving information about buyers. Improvements in the analysis and dissemination of meteorological data to farmers will also help to avoid the premature planting of seeds.

Additional need for nutrition monitoring/surveillance systems is required, especially in the northern districts (prone to high levels of acute malnutrition). However, consideration should be given to growth monitoring systems in the southern districts where more chronic nutrition problems are the main issue. These systems should be maintained at the district level as well as at the national level, with systems in place to assist district government in advocating for appropriate resources when needed.

## **11.5 Potential targeting criteria**

From the profiles of food insecurity created from the analysis of the CFSVA data, it is possible to identify useful guidance on targeting criteria. However, these should not be used without some local validation and discussion at the community level where programmes are planned to be implemented. Note that they cannot be used in isolation, given that food insecurity cannot be categorised by any one feature of the household. Useful targeting criteria include:

### Easily observed characteristics

- Two or less members
- Cultivate 1 acre of land or less or no land is cultivated
- Cultivate less than two types of crop
- Female-headed household
- No animals
- No access to good, improved sanitation
- Elderly-headed households (>65yrs)
- Illiterate household head
- Have no productive assets and less than three household assets

### Other characteristics that would require some enumeration

- The principle source of income would be from casual labour
- The principle source of income would be from other family members/begging or selling food assistance
- Main income from collecting firewood or other natural resource-based activity
- Consumed less than three food types in the last week
- High CIS score (>10)

# 12. Annexes

# 12.1 Sampling

## Sample allocation

Stratum	Rural HHs_ Census 2002	EAS
1	48 827	25
2 (West Nile refugee)	48.000	25
3	320,023	37
4	38,808	25
5	36,383	25
6	63,448	27
7	11,348	25
8	20,479	25
9	46,165	25
10	34,964	25
11	26,078	25
12	246,507	35
13	221,811	34
14	136,577	31
15	63,234	27
16	147,390	32
17	130,549	31
18	418,952	39
19 (Southwest refugee)	46,000	25
20	512,247	40
21	491,986	40
22	122,962	30
23	223,257	34
24	408,934	39
25	530,423	41
Total		767

## Coefficient of Variances (CVs) for under 5 mortality

Stratum	Design effects	Proportion (Under five mortality)	Household	(Standard Errors)	(CVs)
1	0.992	0.177	253	0.0239	13.51%
3	1.614	0.185	368	0.0257	13.90%
4	0.992	0.177	241	0.0245	13.83%
5	0.992	0.177	238	0.0246	13.92%
6	0.992	0.177	266	0.0233	13.16%
7	0.992	0.174	189	0.0275	15.80%
8	0.992	0.174	212	0.0259	14.89%
9	0.992	0.174	250	0.0239	13.73%

Stratum	Design effects	Proportion (Under five mortality)	Household	(Standard Errors)	(CVs)
10	0.992	0.174	236	0.0246	14.12%
11	0.992	0.174	223	0.0253	14.54%
12	0.863	0.116	349	0.0159	13.72%
13	0.863	0.116	342	0.0161	13.87%
14	0.863	0.116	310	0.0169	14.56%
15	0.992	0.177	266	0.0233	13.17%
16	0.992	0.177	315	0.0214	12.10%
17	0.992	0.177	308	0.0217	12.25%
18	1.239	0.129	388	0.0189	14.68%
20	1.528	0.159	404	0.0225	14.14%
21	1.182	0.128	401	0.0181	14.17%
22	1.434	0.145	304	0.0242	16.68%
23	1.434	0.145	342	0.0228	15.71%
24	1.434	0.145	386	0.0214	14.79%
25	1.528	0.159	407	0.0224	14.09%

## **12.2** Methodological note on nutrition analysis

The nutrition data for children and adults was collected based on the SMART (Standardized Monitoring and Assessment of Relief and Transitions) guidelines. These guidelines use an associated software that allows the data quality to be checked in a very simple manner. These checks offer insight into population level problems, child selection problems and measurement issues. This software is called Emergency Nutrition Assessment and is available through the SMART methodology website (http://www.smartmethodology.org/).

In the Uganda CFSVA, once the data had been collected there was an initial problem in that the ages of the children were not correctly matched to the rest of the anthropometric data. However, although this was mainly corrected, there remained some errors that were generally flagged (EPI flagging system) by the analysis software (and subsequently removed from the analysis). Further to this, of the 25 surveys conducted, 17 of the surveys were highlighted as being either of poor or unacceptable quality. There were a number of issues highlighted that pointed towards both poor child selection and measurement inaccuracies. In these 17 surveys, the degree of error was such that the prevalence of malnutrition would have been inaccurate at the population level. The decision was made between UNICEF, WFP and UBOS not to publish any of the prevalence data in the CFSVA as only eight surveys were indicated as being of adequate quality and this would mean that there were large gaps in the information presented in a report that was intended to provide national estimates and geographical data for all 25 strata.

However, it was deemed feasible to use child level data to consider the underlying causes of malnutrition and to develop the understanding of the links between malnutrition and food security. This involved using only data that was not flagged as being out of range (according to globally recognised parameters). The nutritional status of these children was then reclassified into malnourished/not malnourished. This reduces measurement errors that are generated when the continuous variables are generated for the nutrition indexes of Weight-for-Height, Weight-for-Age or Height-for-Age (wasting, underweight or stunting respectively). To summarise, prevalence of malnutrition generated from the data collected in the CFSVA would have been inaccurate due to the data being of insufficient quality for 17 of the 25 surveys. Prevalence was thus not reported. However, producing a binomial (malnourished/not malnourished) variable reduced the inaccuracies at the child level and allowed the analysis of the data to understand the underlying causes of malnutrition.

Nevertheless, bearing in mind the problems encountered during data collection, these results should also be interpreted with caution.

Cereals	Roots/Tubers	Cash Crops	Avocado
Wheat	Irish potatoes	Sugarcane	Oranges
Barley	Sweet potatoes	Cotton	
Rice	Cassava	Tobacco	Banana
	Yam	Coffee all	Banana food
Separate Cereals	Coco yam	Сосоа	Banana beer
Maize		Теа	
Finger millet		Oil palm	Spices
Sorghum	Vegetables	Sunflower	Ginger
	Cabbage	Simsim	Tumeric
Legumes	Tomatoes		Vanilla
Beans	Carrots	Fruit	Black Pepper
Field peas	Onions	Pawpaw	
Cow peas	Pumpkins	Banana sweet	
Pigeon peas	Dodo	Jackfruit	Other
Chick peas	Eggplants	Passion fruit	
Groundnuts		Pineapples	
Soya beans		Mango	

## **12.3 Crops and crop group classifications**

## 12.4 Methodology for analyzing food consumption data

An important part of the Food Consumption Scoring (FCS) is the weights attributed to the food groups. The determination of the food group weights as described in the calculation of the FCS is based on an interpretation by a team of analysts of `nutrient density'<sup>68</sup>. This concept has been applied in other dietary diversity indicators, such as that used by C-SAFE, as well as researchers in Zambia<sup>69</sup>.

Although subjective, this weighting attempts to give greater importance to foods such as meat and fish, usually considered to have greater nutrient density and lesser importance to foods such as sugar. It is not yet known if these weights are appropriate universally. However, at this time it is recommended that the weights remain constant to provide a more standardized methodology. As research continues, further support may be lent to these weights, or it may be found best to modify them in either a universal or context-specific manner.

There are limitations to the recall tool used in this study (as with most recall tools). One of the most significant is that they do not identify quantity and therefore predicting adequacy, for micronutrients and macronutrients, is difficult. Therefore care must be taken when translating the food consumption groups into nutritional adequacy (that is, sufficient micro- and macro-nutrients for healthy function).

These weights are assigned based on the nutrient density of the food groups. The highest weight was attached to foods with relatively high energy, good quality protein and a wide range of micro-nutrients that can be easily absorbed. Currently, weights recommended by VAM are calculated based on the following logic:

		-
Food groups	Weight	Justification
Main staples	2	Energy dense, protein content is lower and poorer quality than legumes, micronutrients (bound by phytates).
Pulses	3	Energy dense, high amounts of protein but of lower quality than meats, micronutrients (inhibited by phytates), low fat.
Vegetables	1	Low energy, low protein, no fat, micro-nutrients
Fruit	1	Low energy, low protein, no fat, micro-nutrients
Meat & fish	4	Highest quality protein, easily absorbable micronutrients (no phytates), energy dense, fat. Even when consumed in small quantities, improvements to the quality of diet are large.
Milk	4	Highest quality protein, micronutrients, vitamin A, energy. However, milk could be consumed only in very small amounts and should then be treated as condiment and therefore re- classification in such cases is needed.
Sugar	0.5	Empty calories. Usually consumed in small quantities.
Oil	0.5	Energy dense but usually no other micronutrients. Usually consumed in small quantities

Table 20: Food group weights used in FCS analysis

An additional benefit of the weights is that the score is 'stretched', allowing for a more truly continuous score, which gives greater flexibility in analysis. The un-weighted score would have a possible range of 0 to 56. The weighted score has a range of 0 to 112.

 <sup>&</sup>lt;sup>68</sup> 'nutrient density' is a term used to subjectively describe a food group's quality in terms of caloric density, macro and micro nutrient content, and actual quantities typically eaten.
<sup>69</sup> FHANIS/CSO (Food, Health and Nutrition Information system/Central Statistical Office). 1998. FHANIS Urban Report:

<sup>&</sup>lt;sup>69</sup> FHANIS/CSO (Food, Health and Nutrition Information system/Central Statistical Office). 1998. FHANIS Urban Report: Monitoring of the Household Food Security, Health, and Nutrition in Urban Areas, Lusaka, Zambia: Central Statistical Office.

Using the data collected with a standard WFP seven day recall tool, eight food groups were made from the 23 food items in the list. This was done as follows:

Table 21: Food items used in the Uganda Assessment Diet recall tool and the food groups they were	
allocated to	

Food groups	Food items in the recall tool										
Main staples	Sorghum, Maize, Wheat, Rice, Matooke, Millet, Cassava, Potatoes, Yams, Bread/Mandazi/Chapati										
Pulses	Beans/Peas, Groundnuts, Sim Sim, Sunflower										
Vegetables	Fresh Vegetables (eg. leafy greens) including Wild Plants										
Fruit	Fruits, including wild fruit										
Meat & fish	Mutton, goat, beef, pork, poultry, eggs or fish										
Milk	Fresh milk, fermented or sour milk										
Sugar	Sugar or sugary foods										
Oil	Vegetable oil, Animal fats (butter/ghee etc.)										

Using the data on the food within these groups, all the consumption frequencies of food items of the same group were summed, and for those groups that were above 7 they were recoded as 7 (ie. that food group is eaten every day). The value for each group is then multiplied by the appropriate weight (from Table 20). The sum of all of the weighted food group scores then gives the Food Consumption Score (FCS).

The FCS was then recoded into the food consumption groups using the following cut-offs, along with the rational used for creating them:

Table 22:	Definition of F	ood Consumption Profiles
FCS	Profiles	Rational
0-21	Poor	A minimum diet consumed in Somaliland is expected to be 7 days of Staple (7 * 2(FCS weight)) + 7 days of Oil (7 * 0.5(FCS weight)) + 7 days of Sugar (7 * 0.5(FCS weight)). That is $14 + 3.5 + 3.5 = 21$ . This is clearly not a good diet and therefore classified as 'Poor'
21.5-35	Borderline	This consumption pattern would be an improvement no the 'Poor' profile. That is the minimum consumption plus the addition of, typically, oil four times a week and pulses four times a week ie. $(4 * 0.5(FCS \text{ oil weight}) + (4 * 3(FCS \text{ pulses weight}) = 14$ . Thus 21 (from the Poor diet) + 14 (from the additional foods consumed) = 35. This diet still lacks sufficient diversity and frequency of consumption to make it acceptable but is more diverse than the 'Poor' diet.
> 35	Acceptable	An acceptable diet is defined by any greater diversity and/or increased frequency of consumption compared to that of the 'Borderline' diet.

Households food consumption thus assigned one or other of these profiles for the analysis.

	Denvlation	FCS Classification						Wealth Index							Asset Index				
	(2008 N Projection	No. HHs	Po	oor	Borde	erline	Accep- table	Lo	west	Se	cond	Third	High- est	Asset	t Poor	Asset N	ledium	Asset Rich	
	Појесноп	-	%	HH*	%	HH*	%	%	HH*	%	HH*	%	%	%	HH*	%	HH*	%	
Kitgum	357,000	59,500	3.2	1.9	39.0	23.3	57.8	27.5	16.4	49.8	29.7	17.1	5.6	60.2	35.8	39.4	23.5	0.4	
West Nile	2,543,900	423,983	1.1	4.7	13.2	56.0	85.7	20.9	88.8	33.4	141.8	29.9	15.8	25.3	107.2	71.5	303.1	3.3	
Amuru	208,300	34,717	4.2	1.5	44.6	15.5	51.3	10.0	3.5	43.3	15.1	38.8	7.9	64.2	22.3	35.4	12.3	0.4	
Gulu	353,500	58,917	1.3	0.8	36.7	21.7	61.9	4.0	2.4	33.2	19.6	45.6	17.3	46.5	27.4	51.3	30.3	2.2	
Pader	436,000	72,667	0.7	0.6	28.5	20.7	70.8	13.1	9.5	48.9	35.6	29.1	9.0	58.6	42.6	41.0	29.9	0.4	
Abim	54,100	9,017	9.6	0.9	39.7	3.6	50.7	52.9	4.8	28.1	2.6	10.5	8.6	62.4	5.7	36.2	3.3	1.4	
Kotido	179,300	29,883	16.7	5.1	44.0	13.2	39.2	74.2	22.2	12.4	3.8	7.7	5.7	69.4	20.8	30.6	9.2	0.0	
Kaabong	301,200	50,200	16.0	8.1	42.0	21.1	42.0	88.8	44.6	6.8	3.4	1.6	2.8	86.5	43.4	13.1	6.6	0.4	
Moroto	265,300	44,217	30.0	13.3	42.8	19.0	27.2	84.9	37.6	12.0	5.3	2.4	0.8	92.8	41.1	7.2	3.2	0.0	
Nakapiripirit	217,500	36,250	22.7	8.3	18.5	6.8	58.8	73.9	26.8	16.5	6.0	6.0	3.7	86.7	31.5	12.8	4.7	0.5	
Elgon	1,440,600	240,100	2.4	5.7	10.9	26.3	86.7	40.1	96.4	30.7	73.7	19.2	10.0	13.8	33.1	83.4	200.2	2.9	
Budaka	1,421,100	236,850	11.7	27.7	33.5	79.5	54.8	25.3	59.9	26.1	62.0	29.0	19.5	17.0	40.2	77.6	183.8	5.5	
Soroti	1,013,400	168,900	7.2	12.2	35.7	60.4	57.0	16.9	28.7	37.8	63.9	32.9	12.4	20.5	34.7	72.3	122.2	7.2	
Katakwi/Amuria	396,500	66,083	1.1	0.8	19.6	13.0	79.3	4.4	3.0	25.4	16.8	57.7	12.5	28.7	19.0	67.3	44.5	4.0	
Lira	956,100	159,350	1.0	1.7	26.8	42.8	72.2	35.7	56.9	40.4	64.4	16.2	7.7	24.2	38.7	72.7	115.9	3.0	
Apac	780,100	130,017	2.2	2.9	16.2	21.1	81.6	12.7	16.5	27.2	35.4	48.6	11.6	13.8	18.0	82.6	107.5	3.6	
Bunyoro-toro	2,779,300	463,217	2.1	9.9	7.9	36.8	89.9	25.5	118.0	23.4	108.3	22.3	28.9	11.5	53.5	80.8	374.5	7.6	
Central Buganda	3,076,600	512,767	3.0	15.4	14.7	75.3	82.3	19.9	102.1	18.0	92.4	19.1	43.0	18.0	92.4	77.7	398.4	4.3	
Eastern Busoga	3,375,900	562,650	15.1	84.9	26.0	146.2	58.9	15.9	89.5	23.2	130.5	31.3	29.6	11.3	63.7	84.4	474.7	4.3	
Kasese	924800	154,133	4.8	7.5	14.0	21.6	81.2	44.3	68.4	19.1	29.5	20.0	16.5	26.1	40.3	72.6	112.0	1.3	
Kigezi	1,255,000	209,167	3.3	7.0	19.6	41.0	77.1	53.8	112.5	18.6	39.0	17.4	10.2	14.7	30.8	83.8	175.3	1.5	
Ankole	2,534,600	422,433	7.6	32.2	26.2	110.9	66.1	23.8	100.5	28.7	121.2	21.7	25.8	15.5	65.5	78.8	333.0	5.7	
South Buganda	3,193,000	532,167	9.3	49.5	20.4	108.7	70.3	11.9	63.2	16.6	88.5	19.5	52.0	16.1	85.7	74.1	394.6	9.8	
National Average**	28,063,100	4,677,183	6.3	294.7	21.3	996.3	72.4	25.2	1,178.7	25.4	1,188.1	24.4	24.9	22.0	1,029.0	73.3	3,428.4	4.70	

## 12.5 Tables of estimates of population of Poor (wealth and asset) and Food Insecure households by strata

\*Number of households in 1000s (rounded to the nearest 100 households) \*\*Differences in national totals are due to the weighting system used for national average calculations

## **12.6 Methodology for the Wealth Index**

Due to the very different size of population groups represented in each stratum sample (single districts versus regions), the weighted analysis artificially considerably inflated the representativity of households sampled in the larger and more populated strata. The distribution of the population in Quintiles suffered from this artificial inflation, resulting in a breakdown of the weighted sample where Quintiles were not grouping the population into five, fairly equal 20%-size groups. The distribution in Quartiles appeared to be less subjective to this distortion, grouping the population in fairly similar 25%-size groups. Therefore, the Wealth Index has been presented by Quartile of population instead of Quintiles, as it is commonly done in other CFSVAs.