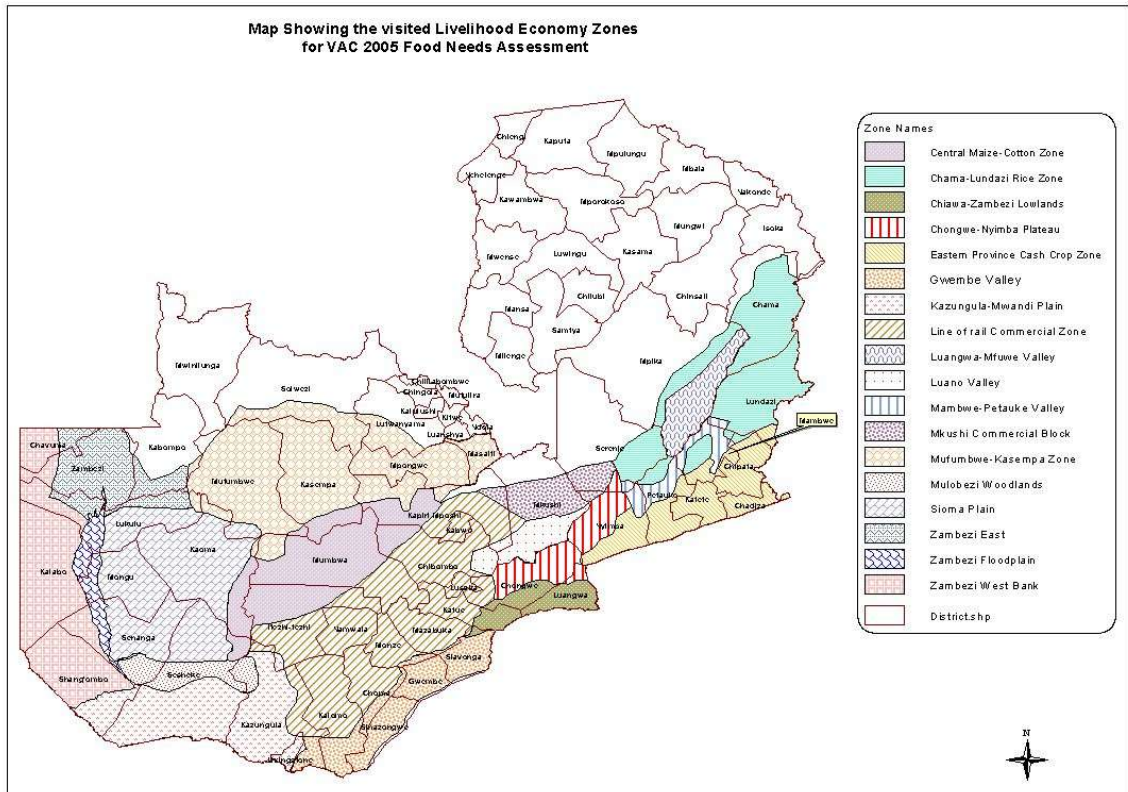




**ZAMBIA**  
**Vulnerability**  
**Assessment Committee**



# 2005 Vulnerability and Needs Assessment

By

**The Zambia Vulnerability Assessment Committee (ZVAC)**

**June 2005**  
**Lusaka**



# TABLE OF CONTENTS

<b>TABLE OF CONTENTS.....</b>	<b>I</b>
<b>LIST OF TABLES.....</b>	<b>III</b>
<b>LIST OF FIGURES.....</b>	<b>IV</b>
<b>ACKNOWLEDGEMENTS.....</b>	<b>V</b>
<b>ACRONYMS.....</b>	<b>VI</b>
<b>EXECUTIVE SUMMARY.....</b>	<b>VII</b>
<b>1.INTRODUCTION.....</b>	<b>1</b>
1.1BACKGROUND.....	1
1.2JUSTIFICATION AND OBJECTIVES OF THE VAC ASSESSMENT.....	1
1.3GENERAL OBJECTIVE OF THE ASSESSMENT.....	1
1.3.1 <i>Specific Assessment Objectives</i> .....	2
1.4LIMITATIONS.....	2
1.5METHODS AND PROCEDURES.....	2
1.5.1 <i>Sample Design and Coverage</i> .....	2
1.5.1.1Sample Stratification and Allocation .....	2
1.5.1.2Sample Selection.....	3
1.5.2 <i>Analytical approach</i> .....	3
1.5.2.1Estimating drop in cereal production.....	5
1.5.2.2Identifying desperate areas and persons affected.....	5
1.5.2.3Assessing under five nutritional status .....	6
<b>2.CONTEXT.....</b>	<b>7</b>
2.1THE ECONOMY .....	7
2.2INPUT DISTRIBUTION.....	7
2.3FOOD SUPPLY AND ACCESS.....	8
2.3.1 <i>Crops and Food Supply in 2004/05 Marketing Season</i> .....	9
2.4LIVESTOCK SITUATION .....	10
2.5WATER .....	11
2.6NUTRITION.....	12
2.6.1 <i>Trend analysis of malnutrition at national level</i> .....	12
2.6.2 <i>Trend analysis of malnutrition with provincial breakdown</i> .....	13
2.7HIV AND AIDS.....	14
2.8EDUCATION.....	15
<b>3.FINDINGS.....</b>	<b>17</b>
3.1HOUSEHOLD CHARACTERISTICS AND FOOD SECURITY.....	17
3.1.1 <i>Household characteristics</i> .....	17
3.1.2 <i>Food security</i> .....	17
3.1.2.1Rainfall and staple production .....	19
3.1.2.2What type of households had largest drop in cereal production?.....	21
3.1.2.3Food Supply and Outlook for 2005/06 Marketing Season.....	22
3.1.2.4Staple food accessibility .....	23
3.1.3 <i>Nutrition</i> .....	24
3.1.3.1Household characteristics affecting child malnutrition.....	26
3.1.3.2Dietary Diversity and child feeding practices.....	26
3.1.3.3Morbidity and childhood malnutrition.....	26
3.1.3.4Water and sanitation and child malnutrition.....	27
3.1.4 <i>Health</i> .....	27
3.1.4.1Childhood illness.....	27
3.1.4.2Crude mortality rates.....	27
3.1.4.3Chronic illness among adults in the past 12 months.....	28
3.1.4.4Access and use of health services.....	28
3.1.5 <i>Water</i> .....	29

3.1.5.1	Drinking Water.....	29
3.1.5.2	Water for Livestock .....	30
3.1.6	Education.....	31
3.2	RURAL LIVELIHOOD SITUATION.....	31
3.2.1	Baseline profiles of zones visited.....	31
3.2.2	Market performance.....	32
3.2.3	Wealth Ranking.....	33
3.2.4	Seasonal Calendar.....	34
3.2.5	Household sources of food.....	35
3.2.5.1	Sources of food for poor households.....	35
3.2.5.2	Sources of food for middle households.....	35
3.2.5.3	Sources of food for better-off households .....	37
3.2.5.4	Analysis of food sources .....	37
3.2.1	Household sources of income.....	38
3.2.5.5	Sources of income for poor households.....	38
3.2.5.6	Sources of income for middle households.....	38
3.2.5.7	Sources of income for better-off households.....	40
3.2.5.8	Analysis of sources of income.....	40
3.2.6	Household expenditure patterns.....	41
3.2.6.1	Chronic hazards.....	44
3.2.6.2	Periodic hazards.....	44
3.2.7	Coping or response strategies.....	44
3.2.8	Indicators of imminent crisis.....	46
3.3	RURAL VULNERABILITY.....	46
3.3.1	Cereal Gap Analysis.....	46
3.3.2	Targeting .....	49
3.3.2.1	Protecting lives for those within the rural (cash and barter) economies .....	49
3.3.2.2	Protecting lives for the economically vulnerable .....	49
3.3.3	Programming Strategies .....	49
3.3.3.1	Free Food or Food for Work.....	49
3.3.3.2	Choice of commodity.....	49
3.3.3.3	Cash transfer.....	50
	<b>4.CONCLUSIONS AND RECOMMENDATIONS.....</b>	<b>51</b>
	<b>REFERENCES.....</b>	<b>54</b>
	<b>ANNEXES.....</b>	<b>55</b>
	ANNEX 1. PRIMARY SAMPLING UNITS (SEAs) BY FOOD ECONOMY ZONES AND DISTRICT, 2005.....	55
	ANNEX 2. LIVELIHOOD ECONOMY ZONE MAP.....	56
	ANNEX 3. ZAMBIA NATIONAL FOOD BALANCE FOR 2005/06 MARKETING YEAR.....	57
	ANNEX 4. CHILD HEALTH AND NUTRITION CHARACTERISTICS PER SEX.....	59
	ANNEX 5. CHILD HEALTH AND NUTRITION CHARACTERISTICS PER LIVELIHOOD ZONES.....	60
	ANNEX 6. NUTRITION HOT SPOT MAP.....	61
	ANNEX 7. REPORT WRITING AND EDITORIAL TEAM.....	62
	ANNEX 8. STUDY AREAS AND FIELD RESEARCH TEAMS.....	63

## LIST OF TABLES

<b>TABLE 2-2.1. INPUT DISTRIBUTION THROUGH SUPPORT PROGRAMMES (2000-2005).....</b>	<b>8</b>
<b>TABLE 2-2.2. PERCENTAGE OF UNDERWEIGHT AMONG UNDER-FIVES.....</b>	<b>14</b>
<b>TABLE 3-3.1. MEAN PRODUCTION DIFFERENCE BETWEEN 2003/04 AGRICULTURAL SEASON AND 2004/05 AGRICULTURAL SEASON PER HOUSEHOLD .....</b>	<b>18</b>
<b>TABLE 3-3.2. ACUTE MALNUTRITION AND HEAD OF HOUSEHOLD'S MARITAL STATUS..</b>	<b>26</b>
<b>TABLE 3-3.3. CHILD MORBIDITY BY MUAC FOR AGE Z-SCORE.....</b>	<b>27</b>
<b>TABLE 3-3.4. PROPORTION OF CHILD DISEASE BY AGE GROUP.....</b>	<b>27</b>
<b>TABLE 3-3.5. ACCESSIBILITY OF SAFE DRINKING WATER AND WATER TREATMENT AMONG SMALLHOLDER FARMERS, MAY 2005.....</b>	<b>30</b>
<b>TABLE 3-3.6. ESTIMATES OF DISTRICT CEREAL NEEDS (METRIC TONS) AND NUMBER OF PERSONS AT RISK, 2005/06 MARKETING SEASON.....</b>	<b>47</b>
<b>TABLE 3-3.7. DISTRICTS UNDER MONITORING AND THOSE LESS AFFECTED, 2005/06 AGRICULTURAL MARKETING SEASON.....</b>	<b>48</b>

## LIST OF FIGURES

<b>FIGURE 2-2.1: CEREAL PRODUCTION TREND, 1995 THROUGH 2005.....</b>	<b>9</b>
<b>FIGURE 2-2.2. WATER LEVEL TREND FOR SELECTED STATIONS IN FOUR DISTRICTS.....</b>	<b>11</b>
<b>FIGURE 2-2.3. UNDER-FIVE NUTRITIONAL STATUS FOR ZAMBIA.....</b>	<b>12</b>
<b>FIGURE 3-3.1. CONTRIBUTION OF PRODUCTION AND OTHER MEANS TO TOTAL CEREALS UTILIZED BY THE HOUSEHOLD, 2004/05 AGRICULTURAL MARKETING SEASON .....</b>	<b>18</b>
<b>FIGURE 3-3.2. RELATIONSHIP BETWEEN DEPARTURE OF CUMULATIVE RAINFALL FROM 30 YEAR NORMAL (1960-1990) AND STAPLE PRODUCTION AS OF MARCH 31, 2005.....</b>	<b>20</b>
<b>FIGURE 3-3.3. COMPARISON OF LEVEL (2004/05 AGRICULTURAL SEASON) AND CHANGE (FROM 2003/04) IN CEREAL PRODUCTION ACROSS SELECTED HOUSEHOLD DEMOGRAPHIC CHARACTERISTICS .....</b>	<b>21</b>
<b>FIGURE 3-3.4. SEASONAL CALENDAR FOR MOST COMMON FOOD AND INCOME SOURCES.....</b>	<b>34</b>
<b>FIGURE 3-3.5. SOURCES OF FOOD FOR THE MIDDLE HOUSEHOLDS BY LIVELIHOOD ZONE.....</b>	<b>36</b>

## ACKNOWLEDGEMENTS

The Zambia Vulnerability Assessment Committee (ZVAC) wishes to thank the following institutions for participating in the assessment:

- CARE International
- Catholic Relief Service (CRS)
- Central Statistical Office (CSO)
- Disaster Management and Mitigation Unit, Office of the Vice President (DMMU)
- Department for International Development (DFID)
- Famine Early Warning Systems Network (FEWSNET)
- Ministry of Agriculture and Cooperatives (MACO)
- Meteorological Department (MET)
- National Food and Nutrition Commission (NFNC)
- Natural Resources Development College (NRDC)
- Oxfam Great Britain
- Programme Against Malnutrition (PAM)
- Red Cross Society of Zambia
- The United Nations System
- World Vision Zambia

The VAC is grateful for financial and logistical support from the Zambian Government through the DMMU, OXFAM, United Nations System, Regional DFID and other cooperating partners. The National VAC is also thankful to the regional VAC office for their coordination role.

The VAC also wishes to express gratitude to the district officers who accompanied the teams for fieldwork. Lastly, but not the least, the VAC wishes to thank participating households and the communities, who without their cooperation, the assessment would not have been conducted.

## ACRONYMS

ACE	Agricultural Commodity Exchange
AIDS	Acquired Immuno Deficiency Syndrome
CBoH	Central Board of Health
CBPP	Contagious Bovine Pleuro Pneumonia
CFS	Crop Forecast Survey
CMR	Crude Mortality Rate
CRS	Catholic Relief Service
CSO	The Central Statistical Office
DMMU	The Disaster Management and Mitigation Unit
DRC	Democratic Republic of Congo
FAO	Food and Agricultural Organisation of the United Nations
FBS	Food Balance Sheet
FEWSNET	The Famine Early Warning Systems Network
FEA /HEA	Food Economy Approach / Household Economy Approach
FEZ	Food Economy Zone
FHANIS	Food Security Health and Nutrition System
FRA	Food Reserve Agency
GDP	Gross Domestic Product
GRZ	Government of the Republic of Zambia
HEPS	High Protein Energy and Protein Supplement
HIPC	Highly Indebted Poor Country
HMIS	Health Monitoring and Information Systems
HIV	Human Immuno Deficiency Virus
LCMS	Living Conditions Monitoring Survey
MACO	Ministry of Agriculture and Cooperatives
MT	Metric Tonnes
NEWU	National Early Warning Unit
NGO	Non Government Organisation
NRDC	Natural Resources Development College
OVC	Orphans and vulnerable children
PAM	Programme Against Malnutrition
PHS	Post Harvest Survey
SEA	Standard Enumeration Area
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
WFP	World Food Programme
WVI	World Vision International
VAC	Vulnerability Assessment Committee
ZDHS	Zambia Health Demographic Survey
ZNFU	Zambia National Farmers Union
ZVAC	Zambia Vulnerability Assessment Committee



## EXECUTIVE SUMMARY

Zambia and the entire southern sub-region experienced drought during the 2004/05 agricultural season. Two thirds of Zambia, mainly the south western parts, was badly affected by erratic rainfall. By mid February and March 2005, most of these areas received little and/or no rainfall at a time when most crops were at critical stage of development. This rainfall situation caused irreversible agronomic damage to most crops. Drought tolerant crops such as cotton and tobacco were also affected by the erratic nature of the rainfall.

It is against this background and the findings of the VAC Rapid Crop Assessment Report of March 2005 that the Vulnerability Assessment Committee (VAC) decided to conduct the April/May 2005 assessment. The general objective of the assessment was to determine the impact of inadequate rainfall on household livelihoods in affected areas during the 2004/5 agricultural season. The assessment set out to address other sub objectives related to the following: food security, health, nutrition, education, water and sanitation. Further, the assessment aimed to estimate the number of affected households and determine the food requirements in affected areas. Other sub objectives were related to understanding livelihoods, response strategies and recommendation of appropriate types of intervention

The VAC assessment survey covered 105 Standard Enumeration Areas (SEAs) falling in 17 Food Economy Zones or 1,690 households residing in the rural areas of the southern half of Zambia. The survey was carried out for a period of 21 days using a cross sectional sample. Five (5) teams consisting each of 6 data collectors implemented the assessment. Three consultants consisting of one data analyst, one sampling consultant from CSO and a national statistical consultant were engaged to consolidate the research team. Within VAC membership, two coordinators spearheaded the two components of the assessment, one for the household questionnaire while the other for Food Economy Approach (FEA) based module.

### Major findings

- There was a marked downsizing in terms of input distribution and beneficiaries.
- The 2004/05 cereal production, according to the Ministry of Agriculture and Cooperatives (MACO) has been estimated at 1,121,071MT of which 866,187MT is maize; 13,338MT is rice while the balance of 48,297MT is sorghum and millet After taking into account opening stocks, the Food Balance Sheet (FBS) shows that the total maize available falls short of the total requirement by 85,000MT. The rice deficit is estimated at 12,000MT while cassava surplus is at 324,834MT.
- A total population of 1,232,661 people in the rural areas of Zambia (excluding the commercial farmers) are likely to be food insecure and would require 118,335 metric tonnes of cereal for a period of 8 months (July 2005 – February 2006) in 27 districts covering Lusaka, Central, Southern, Western and Eastern Provinces.
- Seven districts, namely; Itezhi-itezhi, Nyimba, Katete, Chadiza, Chipata, Lundazi, and Chama will require monitoring of the food security situation through out the year.
-

- The survey further established that some districts that were equally affected by the drought were not as severely affected. These districts were;
- Mufumbwe, Kasempa, Mpongwe, Lufwanyama, Masaiti and Chongwe.
  
- The major determinant of wealth in most zones was livestock ownership and size of land cultivated. In the zones visited, the poor wealth category formed the greatest proportion of about 50% while the middle formed about 30% and the better-off 20%. Generally, the major contribution of food came from own production and this increased by wealth group. This was supplemented by purchases in the better off and medium wealth bracket while labour exchange for the poor household was the key food supplement. Poorer households failed to reach the recommended household/individual caloric requirements for the year. Labour exchange for poorer households was the highest contributor to income sources while crop sales were the leading contributor for middle and better off households.
  
- The main chronic hazards in the areas visited were two: mainly human-wild animal conflict and crop/livestock diseases. The periodic hazards common across all zones were erratic rainfall, floods, poor crop marketing and input distribution, and limited water sources especially for livestock.
  
- As for under five nutritional status, the assessment has established that there were varying levels of malnutrition. Serious cases were in parts of Eastern, North-western and Western provinces, and these will require further investigations on causality. The assessment also found out that the proportion of children with common illnesses was high in areas where malnutrition was a concern. Equally, diet diversity among children was found to be inadequate across all the zones.
  
- Under-five mortality was within acceptable rates. In the areas visited one fifth of the adult population were chronically ill, 12 months prior to the assessment. This situation has a potential to adversely impact on food and income sources especially that a sizeable number of the chronically ill were head of households.
  
- In terms of education, it was found that the highest drop out percentage was higher for girls and this was common in valley and other far flung areas. The main reason for drop out was early marriage, inability to afford fees and lack of interest.
  
- Regarding water, the assessment established that the distance to water sources was generally short and that about two thirds of the respondents indicated that there would be no reduction in quantity of water compared to last year. However, at least two thirds of households did not treat water. North-western province was most susceptible to unsafe water compared to other provinces.

## **Recommendations**

- Preparations for food relief intervention should commence almost immediately to fit in the recommended time frame of July 2005 to February 2006 in the affected districts. Programming strategies should encompass options related to free food or food for work, choice of commodity and cash transfer options.

- For recurrent floods and droughts, permanent solutions to be sought through integrated water management schemes such as simple irrigation techniques for agriculture and small dams for livestock.
- Strengthen veterinary programmes in Southern province and extend it to North-western and Western Provinces

### ***Nutrition***

Enhancement of supplementary feeding programmes using HEPS as well as therapeutic feeding programmes following international standards in serious and risky zones. In addition there is need for improved management of child illnesses.

### ***Water***

There is need to enhance the current interventions in water treatment such as use of chlorine and boiling of water before drinking since two thirds of the respondents in the survey used unsafe water sources.

### ***Education***

Sustenance of girl child education programs especially in the valley areas. There is need to sensitize guardians on equal access to education by both gender and discourage early marriage for girls.



# **1. INTRODUCTION**

## **1.1 Background**

Zambia has an estimated population of 10.8 million (CSO, 2000 Census) of which 60% live in rural areas. The country has about 75% of arable land. The majority of the rural population depends on subsistence agriculture as their source of livelihood. The most popular type of farming practiced by these farmers is mixed farming. Rearing of animals is most common in the southern and western parts of the country. The majority of subsistence farmers in Zambia grow rain fed crops particularly maize, which is the main staple food crop. Other major crops include millet, sorghum, cassava and rice. However, the country has been experiencing droughts of varying severity since 1991, which have affected food production. The most affected food crop has been maize, which is nearly grown throughout the country. It is from this realisation that the Zambian government and its cooperating partners decided to put in place a Vulnerability Assessment Committee that is mandated to carryout periodic food assessments particularly in drought prone areas.

The VAC is a consortium of government, NGOs and UN agencies that has been conducting food security assessments since 2002. These assessments have been carried out in collaboration with the SADC Food, Agriculture and Natural Resources (FANR) Vulnerability Assessment Committee. The purpose of these assessments has been to assess needs, inform on food aid distribution priorities within the country and guide/inform on-going food security monitoring. The current assessment is the third in the series of rolling assessments coordinated by the Regional Vulnerability Assessment Committee (RVAC).

## **1.2 Justification and Objectives of the VAC Assessment**

The country has just experienced another drought particularly in the southern half of the country. Most of the districts in this region experienced poor rainfall for the larger part of the current agricultural season. Consequently, many households are expected to become vulnerable to food insecurity. The impact of the drought of the just ended agricultural production season on the rural poor is not known. The Ministry of Agriculture and Cooperatives (MACO) and the Central Statistical Office (CSO) have just completed a crop forecast survey (CFS) aimed at determining expected production and expected food deficit. However, the CFS does little to inform on the effects of the drought on people's livelihoods or to understand these household's capacities to cope. Thus, the CFS is useful but only as an input into a comprehensive vulnerability assessment exercise. The government and other stakeholders (donors, private players, etc) require information on vulnerability and some indications of spatial differences in the severity of the effects of drought in order to develop informed instruments and strategies to help mitigate them. Consequently, there is need to collect information that can help illuminate the expected food deficit that needs to be covered by food transfers.

## **1.3 General Objective of the Assessment**

The main objective of this assessment is to determine the impact of inadequate rainfall on household livelihoods in affected areas during the 2004/5 agricultural season.

### 1.3.1 Specific Assessment Objectives

- Assess the impact of inadequate rainfall on food security
- Assess the impact on under five nutritional status
- Assess impact of inadequate rainfall on education, water and sanitation
- Estimate the number of affected households
- Determine the food requirements in affected areas
- Assess coping strategies currently engaged in by households
- Recommend appropriate types of intervention

## **1.4 Limitations**

One of the largest strengths of this study is that it used a statistically valid multi-stage sampling scheme, which recognizes the heterogeneity of the livelihood zones as a basis for the first stage of sampling. However, the resources with which the survey was conducted were limited. This limited the size of the sample greatly. Had more resources been adequate, a larger sample size would have been used so as to ensure estimates are more representative at sub-district level to direct targeting.

The late release of crop estimate data from the crop forecast survey was another identified limitation. These data should have been made available to the assessment team before the start of the needs assessment exercise, which together with rainfall data would have been useful in identifying areas to be covered in the assessment.

Although normally weight for height is the commonly used measure of wasting, this study used the mid upper arm circumference (MUAC), a much quick and logistically more straight forward technique, to approximate wasting. Therefore, malnutrition prevalence rates estimated in this study cannot be compared with those from the recent results of the ZDHS, LCMS, and FHANIS, all of which used weight for height.

## **1.5 Methods and procedures**

### 1.5.1 Sample Design and Coverage

The VAC assessment survey was designed to cover 105 Standard Enumeration Areas (SEAs) falling in about 17 Food Economy Zones or approximately 1690 non-institutionalised private households residing in the rural areas of the southern half of Zambia. The survey was carried out for a period of 21 days using a cross sectional sample. This sample is nationally efficient and is expected to yield reliable estimates at Zonal levels since FEZ zones constitute explicit strata for the survey.

#### *1.5.1.1 Sample Stratification and Allocation*

The sampling frame used for VAC Assessment survey was developed from the 2000 Census of Population and Housing and the Food Economy Zonal maps. Overlaying the CSO SEA map onto the FEZ map developed the assessment frame. The Census frame is administratively demarcated into 9 provinces, which are further divided into 72 districts. The districts are further subdivided into 155 constituencies, which are also divided into wards. Wards nest Census Supervisory areas, which in turn nest Standard Enumeration areas (SEAs). On the other hand, the FE Zone map is made of 28 zones. However, the

current assessment only took place in 17 zones falling in the southern half of the country. According to the meteorological rainfall indicators, these constitute areas, which were characterized with poor rainfall during this agricultural season. For the purposes of this survey, SEAs constituted the ultimate Primary Sampling Units (PSUs).

In order to have equal precision in the estimates in all the zones and at the same time take into account variation in the sizes of the Zones, the survey adopted the Square Root sample allocation method, (Lesli Kish, 1987). This approach offers a better compromise between equal and proportional allocation methods in terms of reliability of both combined and separate estimates. Annex 1 shows the distributions of the Primary Sampling Units (PSUs) or SEAs to Zones and target Districts.

#### *1.5.1.2 Sample Selection*

In order to bring logistics and costs to manageable levels, the VAC assessment targeted districts in affected zones since a purely probability sample at zonal level would have been grossly expensive and inefficient in as far as the objective of the assessment are concerned. The VAC survey employed a two-stage cluster sample design whereby during the first stage, 105 SEAs were selected with Probability Proportional to Estimated Size (PPES) from the entire target districts (Refer to Annex 1). The size measure was taken from the frame developed in the 2000 census of population and housing. By implications, the selected districts and their corresponding SEAs represented the zones that nested them.

The second-stage selection of households for the VAC Assessment survey adopted the 2000 census count of households in selected SEAs. Due to time constraints and inadequate funds, it was not possible to undertake an area listing exercise so as to obtain new counts of households. Therefore, the sampling interval was estimated by dividing the 2000 census count of households in every selected SEA by 15 since 15 households was our desirable take per PSU. The inclusion of the households in the sample was systematically determined by the sampling interval.

In the May 2005 survey, the household instrument queried people as to their household demographic and health characteristics, asked them to quantify their own-production and livestock holdings using a baseline period of between March 2003 and April 2004, ascertained what they thought to be limiting factors of production, listed coping strategies employed over the previous year, and ranked incomes and expenditures over the past 12 months. The Key Informants survey compared current with April 2004 sales and purchase prices for staple foods, livestock, and cash crops, ascertained water sources and means of waste disposal, and queried as to newly employed coping strategies for both food and income.

#### 1.5.2 Analytical approach

The 2005 food needs assessment by the Vulnerability Assessment Committee (VAC) used two different but complementary approaches – the household economy approach (HEA) and the household questionnaire approach. The HEA involved using livelihood-based analysis for the purpose of understanding the impact, at household level, of hazards such as drought, floods and/or market dislocation. The first step in a livelihood-based analysis was preparation, in late June 2004, of a livelihood zone map comprising 28 zones (see Annex 2). This map delineates geographical areas within which people share basically the

same patterns of access to food (i.e. they grow the same crops, keep the same types of livestock, etc), same income sources and have the same access to markets. Livelihood zone boundaries do not always follow administrative boundaries. Conversely, one livelihood zone may cover several administrative zones. In July 2004, four zones, namely, the Gwembe Valley (in Southern Province), Chongwe-Nyimba Plateau (in Eastern Province), Sioma Plains (Western Province), and Zambezi West Bank (North-Western Province) were assessed and baseline information on livelihoods documented.

In the 2005 assessment, five teams went to 17 livelihood zones (see Annexes 1 and 2) for 21 days in May 2005 to collect information on wealth groups, sources of food and income, patterns of expenditure, bad year coping strategies, and seasonal calendars for each livelihood zone. Most of the field data was collected from district and community-level key informants and household-level focus groups. The livelihood zones were selected on the basis of them falling in areas that were affected by prolonged dry spells and were high risk areas for crop failure, Therefore, areas that had fair to above normal crop growing conditions, mainly in northern Zambia, were netted out. In areas like Gwembe Valley (in Southern Province), Chongwe-Nyimba Plateau (in Eastern Province), and Sioma Plains (Western Province), which already have baselines, data collection was limited key informants at district level. The goal was to obtain community-level findings using purposively sampled communities. The results of the community discussions were triangulated with key informant interviews.

The second approach used in the VAC 2005 food needs assessment used questionnaire-based household interviews. Here interviewed households were selected using a two-stage sampling scheme. The two approaches complemented each other in estimating the impact of the drought and in arriving at a red-spot map aimed at signalling to the government and other stakeholders in rural welfare.

To derive the extent of the damage on food security caused and/or expected to be caused by the 2004/05 drought, it was important to identify a baseline against which to compare the indicators of impact of drought as observed and/or expected to be observed in the months following the harvest of this season. A recent year that is generally regarded as having been normal is often a good candidate for a baseline. In this study, the 2003/04 agricultural season and the coping strategies employed in the agricultural marketing season that followed (2004/05 agricultural marketing season) were used as the reference against which to measure the expected outcome of the current drought. It is generally agreed that Zambia experienced normal agricultural years during at least two seasons prior to 2004/05.

In addition to the usual demographics, the instrument used in the sample-based household survey asked questions about the household's asset base and the agricultural situation in the just ended drought affected season, including actual and expected cereal production. In order to understand the (expected) movement in the direction of impact, much more effort was devoted to understanding the household's circumstances (food and nutrition security) and coping strategies employed in a normal drought-free year. Thus, the questionnaire asked questions on nutrition, cereal and tuber production, food purchases, food sales, income sources, expenditure patterns, access to inputs and all other supplementary coping strategies that the household typically employs in a normal year. As stated above, the survey considered and used the 2003/04 agricultural season and the (2004/05) agricultural marketing season that followed as a typical year.



### 1.5.2.1 Estimating drop in cereal production

Before performing any calculations involving aggregating across the different crops, each crop was converted to some common unit. We use maize calorie equivalents as the common unit. To obtain quantities of crops in maize calorie equivalents, the quantity of the crop was multiplied by the ratio of its unit calorie content to maize unit calorie content:

$$\text{Quantity of crop } i \text{ in metric tons of maize calorie equivalents} = \left( \text{Quantity of crop } i \text{ in metric tons} \right) \times \frac{\text{Kilo calorie content of crop } i \text{ per metric ton}}{\text{Kilo calorie content of maize per metric ton}} \quad (1)$$

The calorie contents of various crop commodities were obtained from FAO (1997). With 2003/04 crop production regarded as normal, the drop in mean cereal production was calculated as the difference per household between cereal production during the 2004/05 agricultural marketing season and quantity produced and/ or expected to be produced at the beginning of the 2005/06 agricultural marketing season. The latter was computed as the sum of production and carry over stocks as of May 2005, when the survey was conducted.

### 1.5.2.2 Identifying desperate areas and persons affected

All districts were first classified using a process that determined the kilocalorie gap resulting from the current years' sources of food and the desired yearly household requirement. All districts that met the yearly kilocalorie requirement were eliminated at the first level. Districts that failed to reach the desired kilocalories were classified using a severity index. By this index, all those districts whose food sources only contributed one-third of the kilocalorie needs were classified as severe while those that contributed up to two-thirds were classified as moderately severe. Those districts that contributed over two-thirds were classified as less severe.

The severity index was estimated as the proportion of district energy requirement that is satisfied by production:

$$\left( \text{Proportion of energy requirement satisfied by production} \right) = \frac{\left( \text{Quantity of cereal produced} \right) \times \left( \text{Kilo calorie content} \right) \times \left( \text{District population} \right)}{\left( 1,470 \text{ kcal per day} \right) \times \left( 365 \text{ days} \right) \times \left( \text{District population} \right)}, \quad (2)$$

where 1,470 kcal is 70 percent of the daily energy requirement per person from cereal crop sources. Following nutritional recommendation, the remaining 30 percent of the kilo calorie requirement is assumed to be satisfied by non-cereal sources. Thus, the numerator is total energy produced whereas the denominator is total energy requirement for the district. A selection method was developed to derive three classification classes of food insecurity severity based on this index. A district is regarded as severe if production satisfies less than 36 percent of the calorie requirement and as moderately severe if its cereal production satisfies between 37 percent and 59 percent of cereal calorie requirement. Finally, a district is regarded as not being in severe cereal deficit if its cereal production satisfies at least 59 percent of the requirement.

To determine the actual number of households affected, attention was given only to severe cases where it was established that their current response strategies are not enough to wipe out the food deficits and will require external intervention. Other categories could afford to wipe out the current food gaps using a variety of response strategies. The actual percentage of households considered very poor or severe was determined using the household economy approach. This percentage was applied to the projected 2005 district population.

#### *1.5.2.3 Assessing under five nutritional status*

All children less than five years of age in the sampled households were assessed and tested for malnutrition. Past experience with attempts to integrate anthropometrical data in the VAC needs assessment showed that weight and height measurements are very time-consuming. In this study, we estimated child malnutrition by measuring and examining the child's Mid Upper Arm Circumference (MUAC), and other related indicators. More specifically, the nutrition/health module of the questionnaire captured data on:

- Mid Upper Arm Circumference (MUAC) for children above 6 months but below five years of age,
- Three-day dietary diversity recall,
- Sickness during the week prior to the survey

The MUAC was used in two alternative ways. The first indicator was MUAC itself (in centimetres) used to identify children at risk of dying. The second indicator was MUAC for Age, expressed in Z-Score. The latter was computed using pre-developed routines in Epi-Info. By the Z score, a child is considered to be globally malnourished if MUAC for Age is less than -2 Z-Score, and to be severely malnourished if MUAC for Age is less than -3 Z-Score and/or presents oedema on both feet. There is no decision chart available for MUAC for Age of less than -2 Z-Score. The decision chart for the implementation of selective feeding programmes uses Weight for Height of less than -2 Z-Score as a referral cut-off point (WHO, 2000).

The analysis of results on prevalence of under-five malnutrition and recommendations on which livelihood zones requires development of selective nutrition programmes was done by comparison with total prevalence of the whole area of study (Southern half of Zambia) as a cut-off point. Results on under-five prevalence of malnutrition should not be compared to prevalence of wasting identified through other national surveys.

Results on child dietary diversity were interpreted after calculating Individual Dietary Diversity Score (IDDS) for each child<sup>1</sup>. To do this, food items were grouped into 7-food categories consisting of legumes and pulses, milk products, sugar products, fruits and vegetables, livestock products and carbohydrates. For each child, daily frequencies of food intake in the various food groups were calculated. The IDDS was calculated by summing across all food groups. A scale was then used to interpret the resultant values. The value is regarded as being equal to "0" if daily frequency of intake <0.5 and "1" if daily frequency of intake ≥0.5. Normative data on ideal levels of dietary diversity are not available thus an IDDS of 3 was chosen as a cut off point in order to classify children as having a poor (IDDS < 3) or good (IDDS ≥3) dietary diversity score. Mothers or caretakers were also asked if the child had been sick during the week previous to the assessment.

---

<sup>1</sup> Household Dietary Diversity Indicator Guide for Measurement of Household Food Access", FANTA, March 2005.

## 2. CONTEXT

### 2.1 The Economy

Despite falling short of targeted growth rate, the Zambian economy has grown at a reasonably high rate in recent years. By the end of 2004, the economy had attained a 4.6% growth in gross domestic product. However, annual inflation rate has remained relatively high 17.5 percent.<sup>2</sup> In agriculture, the government intends to continue focusing on food security, crop diversification and opening up new agricultural production areas. The fertilizer support program will continue at 50% subsidy level.

The continued high inflation implies low effective demand for agricultural and non-agricultural produce, which in turn has had an adverse effect on the economy. The projected inflation target of 15 percent may not be achieved as long as consumer demand remains weak. The exchange rate remained relatively stable averaging ZMK 4,700 per 1 US\$ during 2004 and falling to around ZMK 4,680 per 1 US\$ mid 2005, implying a significant appreciation of the Kwacha. Commercial lending rates have slightly dropped to around 35% from an average of 38% in 2004. Interest rates have remained prohibitively high and, thus, unfavourable for borrowing. This impediment to borrowing has kept private investment in agriculture very low. The low investment in agricultural equipment and early warning/preparedness systems has left the sector highly vulnerable to natural changes in weather.

In March 2005, Zambia reached the Highly Indebted Poor Countries Initiative (HIPC) Completion Point which will ensure that a substantial part of its debt (amounting to ~\$7 billion) will be written off. It is expected that savings from this would benefit social sectors such as education and health.

### 2.2 Input Distribution.

Generally, the various Input Distribution Programmes have had a positive impact on the access of inputs to farmers in the past five agricultural seasons. Unfortunately, most districts remain substantially dependent on inputs distributed by the Government and Non Governmental Organisations. The major input programmes are GRZ Fertilizer Support Programme (FSP), EDRP/DMMU Programme, PAM's Food Security Pack (FSP) and the FAO input programme. All these programmes were necessitated by the desire to facilitate farmers' recovery from previous droughts.

---

<sup>2</sup> For the past two years, the government has failed to effectively bring inflation down to a target of 15% or less.

**Table 2-2.1. Input Distribution through Support Programmes (2000-2005)**

Item	Quantity by agricultural season				
	2000/01	2001/02	2002/03	2003/04	2004/05
Number of beneficiaries	60,000	135,000	305,924	336,000	134,000
Maize Seed (MT)	300	675	3,333	3,935	2,545
Fertilizer (MT)	6,000	13,500	66,600	79,445	45,900

Source: FAO, PAM, MACO

In the 2004/05 agricultural season, there was general down sizing of both quantity of inputs and the number of beneficiaries targeted. The total maize seed and fertilizer distributed dropped by 35% and 42% in 2004/05 season respectively while targeting 60% less beneficiaries compared to the 2003/04 season (Table 2-1). The decline in input support results from the assumption that agriculture/food security interventions would facilitate the transition to recovery and self-reliance for affected populations.

Similarly, the Conservation Farming component was expected to provide extended stability by improving soil fertility and consequently yields for the seasons of programme implementation and beyond. Realistically, food security programmes have not succeeded in ensuring replenishment of farmers' seed stocks, but have only managed to meet immediate minimum food requirements in most cases. However, longer-term impacts still remain to be established.

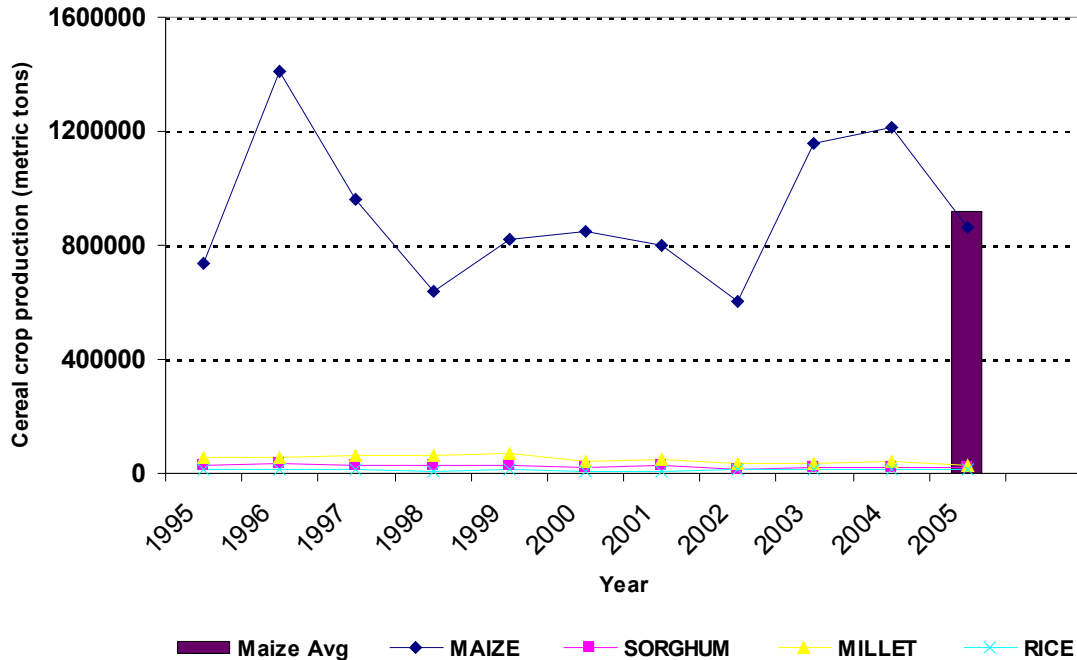
In an effort to increase maize output following significant reduction of the main season harvest, Government through Program Against Malnutrition has timely (May 2005) distributed inputs for wetland production. Western and Luapula Provinces have received the highest quantity of inputs while Southern and Copperbelt received the least. Although winter production contributes significantly towards food security in the valley areas of Central Province these have been notably left out of the program. For instance, wet season production in Luano Valley is much more than the rainy season harvest. Although past VAC assessments have established that most wet season production is done without application of fertilizer as the soils used are relatively fertile, its been included in this programme. The sustainability of fertilizer use for wet land maize production remains questionable.

### **2.3 Food Supply and Access**

Among cereals produced during the wet season, maize continues to rank number one in terms of output. The production levels of other cereals (sorghum, millet and rice) have remained relatively stable in the past ten years (Figure 2-1). When maize and fertilizer subsidies reached their peak in the late 1980s, the area under maize cultivation was about 1 million hectares accounting for about 70 percent of the total cropped area. During the past ten years, the share of maize to both cultivated area and production has declined significantly. The drought years of 1991/92, 1994/95, 1997/98, 2000/01 and 2001/02 resulted in corresponding reduction in area harvested. This implies that rainfall performance has remained the major determinant of crop output in any given year. Other factors include high cost of inputs and widespread use of recycled seeds by small scale

producers. While in 1989, the area under maize cultivation was estimated at about 1.02 million hectares; in 2004 it was only 631,079 hectares, a decline of 38 percent.

**Figure 2-2.1: Cereal production trend, 1995 through 2005**



Source: MACO

With the importance of maize declining both in area and productivity and that of other cereals remaining relatively stable, other crops have been increasing their share in the livelihoods of Zambians. Among these are two major cash crops cotton and groundnuts, and root crops (cassava and sweet potato). Between 1989 and 1999, the cropped area under groundnuts increased by more than 100 percent and the area for cotton increased by 65 percent. The total area planted to cassava and sweet potato increased by 65 percent and 54 percent, respectively. The production of cassava flour has more than doubled in the past ten years. According to a study by the Food Security Research Project, cassava's percentage of energy produced by smallholders has increased from 16 percent in 1993 to 31 percent in 1999. However, cassava production in 2001/02 declined by 12.4 percent compared to 2000/01. In 2004/05, cassava production has moderately increased by 15% with respect to the 2003/04 season.

### 2.3.1 Crops and Food Supply in 2004/05 Marketing Season

The staple cereal production for the 2003/04 agricultural season in Zambia amounted to 1,273,578 MT (excluding wheat), with carry over cereal stocks from the previous year amounting to 101,156 MT. This was with the backdrop of human consumption requirement of about 1,050,855 MT of staple cereals for 2004/05 marketing season. The total available cereal exceeded the total requirement by 113,500 MT, implying a surplus

production year. For maize alone, there was an estimated surplus of 120,000 MT, which was available for export.

The last two seasons saw the recovery of maize after two years of deficit production which led Zambia to move from a maize importing country to a major Southern African Regional maize supplier. The WFP has in the past two marketing seasons purchased substantial amounts of maize from Zambia for its regional and local programmes, having bought 110,000MT in 2003/04 season alone. Informally, Zambia exported at least 25,647MT of maize to neighboring countries mainly Zimbabwe and Democratic Republic of Congo (DRC) between July 2004 and April 2005. At least 60,000MT of maize were formally exported by the month of March.

In expectation of significant reduction in the 2004/05 harvest as a result of poor rainfall performance, Government decided to take precautions by imposing a ban on maize export in March. This was done in the absence of crop estimate figures, therefore has likely resulted in market distortions.

## **2.4 Livestock Situation**

Production of livestock is concentrated in three main provinces namely Central, Southern and Western Provinces with cattle contributing 62% share of major livestock in Zambia. Other major livestock include goats (27%) and pigs (8%). Cattle population was estimated at 2,341,970 at the end of 2004 representing an 11% drop from the 2000 estimate.

In the past ten years, cattle production has been severely disrupted by recurring disease outbreaks, the common ones being Foot and Mouth Disease (FMD), East Coast Fever and Contagious Bovine Pleuropneumonia (CBPP). The FMD is endemic in Sesheke (Western Province), Kazungula (Southern Province), Mbala and Nakonde (Northern Province), but in 2004 spread to parts of Central and other Southern Province districts. CBPP endemic areas are Western Province, North-western, Southern and extreme Northern Province Districts. East Coast Fever areas include Eastern, Central, Lusaka and Northern Provinces. Coincidentally, most of the areas affected by these diseases are also the ones that are prone to drought. This often exacerbates farmers' vulnerability to the effects of drought by taking away the means to cultivate their land (draught power) as well as one of the most relied on income source. Under normal circumstances, in these farming systems, livestock acts as some form of insurance against poor weather and the resultant crop failure.

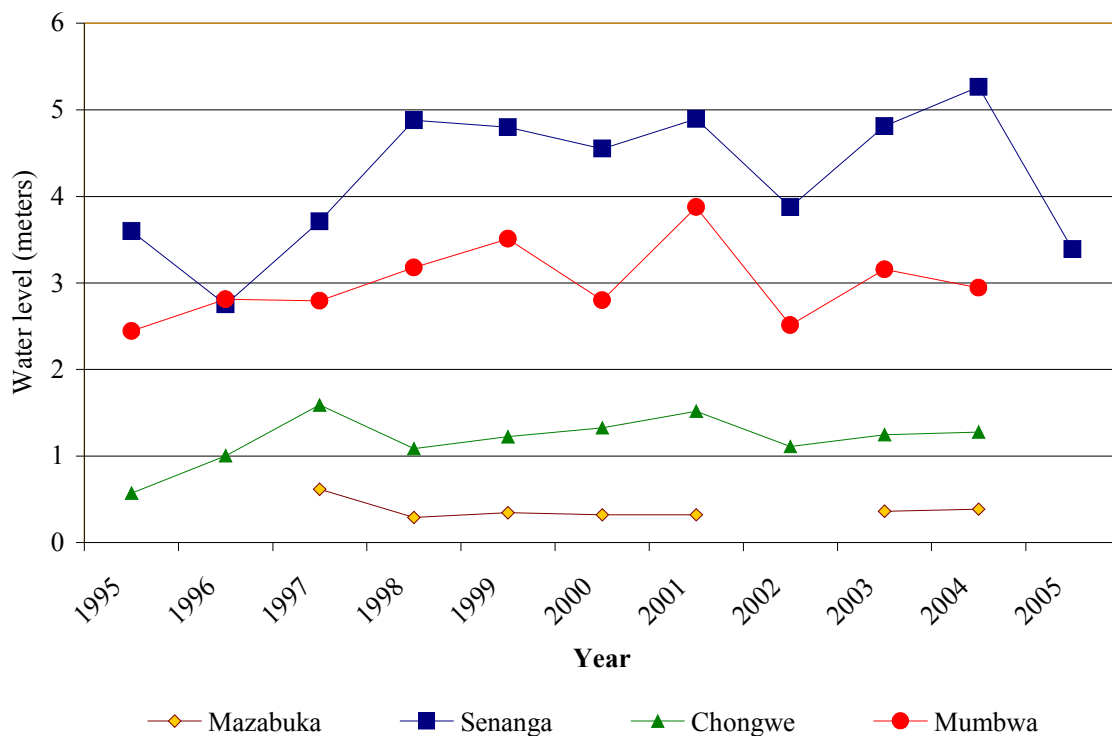
These diseases have affected the farmers in terms of loss of draft power as well as income source. East Coast Fever has resulted in significant loss of cattle in recent years and continues to be a major threat to cattle population. As long as farmers fail to employ good animal husbandry practices (dipping), this problem will continue. The recent outbreak of FMD in Southern and Central Provinces led to the government imposing a ban on livestock movement in these areas in September 2004 which resulted in significant increase in meat prices in urban areas. With the expected reduction in crop output resulting from poor rainfall performance in these areas, there was increasing pressure to lift the livestock movement ban, the threat of FMD having waned after vaccination programs. Continued movement restriction would have exacerbated the food insecurity situation in affected areas. Consequently, conditional lifting of the ban was effected on March 4, 2005.

## 2.5 Water

Zambia has a high surface water potential with many perennial rivers, swamps, dambos and lakes. The total surface water resource is estimated at 2,747 cubic meters per second or 86,500 million cubic meters per annum. In total, the surface water resources are estimated to cover 45,000 square kilometres (6%) of the total land area<sup>3</sup>. However, its potential remains to be fully exploited for improved livelihood of its people and economic growth of the country. In its effort to improve the living standards of its people, Government's main objective in the water sector is to promote sustainable water resource development in order to attain an equitable provision of adequate quantity and quality of water for all competing groups of users at acceptable costs and ensuring security of supply under varying conditions.

Compared to most countries in Southern Africa, Zambia enjoys favourable ground water conditions with regard to depth, storage capacity, available yields and exploitation potential. Total ground water storage is estimated at 1,740,380 million cubic meters and ground water recharge at 57,500 million cubic metres. The major uses of water in Zambia are twofold; for agricultural purposes and non consumptive hydro power generation. Domestic and industrial uses are estimated to a mere 0.5 percent.

**Figure 2-2.2. Water Level Trend for Selected Stations in four Districts**



Source: Ministry of Energy and Water Development

Rainfall has been known to affect water levels depending on the severity of the deficit or excessive rainfall situation. Generally, significant reductions in water levels were recorded

<sup>3</sup> National Water Policy 2005 Draft report, Ministry of Energy and Water Development

in 1995 and 2002 which could be attributed to the severity of the drought of 1995 and the two consecutive droughts of 2000/01 and 2001/02. The trend of water levels for the month of April in the last ten years for some monitored stations of four Districts shows more steep rises and falls in areas with high water levels than those with low levels (Figure 2-2). Figure 2.2 also shows the differences in impact on water levels in different areas. For instance whereas two areas (Mazabuka and Chongwe) experienced reduced levels following the 1997/98 drought, the impact was not severe enough in Senanga and Mumbwa to reduce the levels.

Recent data for Senanga indicates that the levels had by April 2005, gone below those recorded during the last drought year of 2002. During the 2004/05 season, rainfall was most erratic in the low rainfall areas of Southern and Western Provinces.

## 2.6 Nutrition

Malnutrition is a major public health and welfare problem in Zambia. Under-nutrition is a result of both inadequate food intake and illnesses. The inadequate food intake is a consequence of insufficient food available at household level and/or improper feeding practices. In most cases, improper infant and young child feeding practices include both the quality and the quantity of food offered to children, as well as timing for complementing breastfeeding (complementary feeding). These underlying causes are further influenced by factors such as income, wealth of households, distance to markets, crops grown and livestock owned. Likewise, the dependency ratio also affects the capacity of households to meet their needs.

Data available on nutritional status is primarily derived from anthropometric measurement on children under five years of age. Three indicators are often used, height-for-age (stunting)<sup>4</sup> weight-for-age (underweight)<sup>5</sup> and weight for height (wasting)<sup>6</sup>. Children under 5 years old are considered the most vulnerable, and therefore children's nutritional status is a good outcome indicator as it reflects both the household's food and nutrition security and health situation.

### 2.6.1 Trend analysis of malnutrition at national level

Data for analysis of nutrition status has been derived from secondary data using:

- Zambia Demographic and Health Survey (ZDHS), CSO/CBoH/USAID/ORC, 2001
- Living Conditions Monitoring Survey (LCMS), CSO, 2002
- Food security, Health and Nutrition Information System (FHANIS), CSO, 2003

Figure 2-3 shows national results coming out of ZDHS, LCMS and FHANIS for the three nutritional indicators between 2001 and 2003.

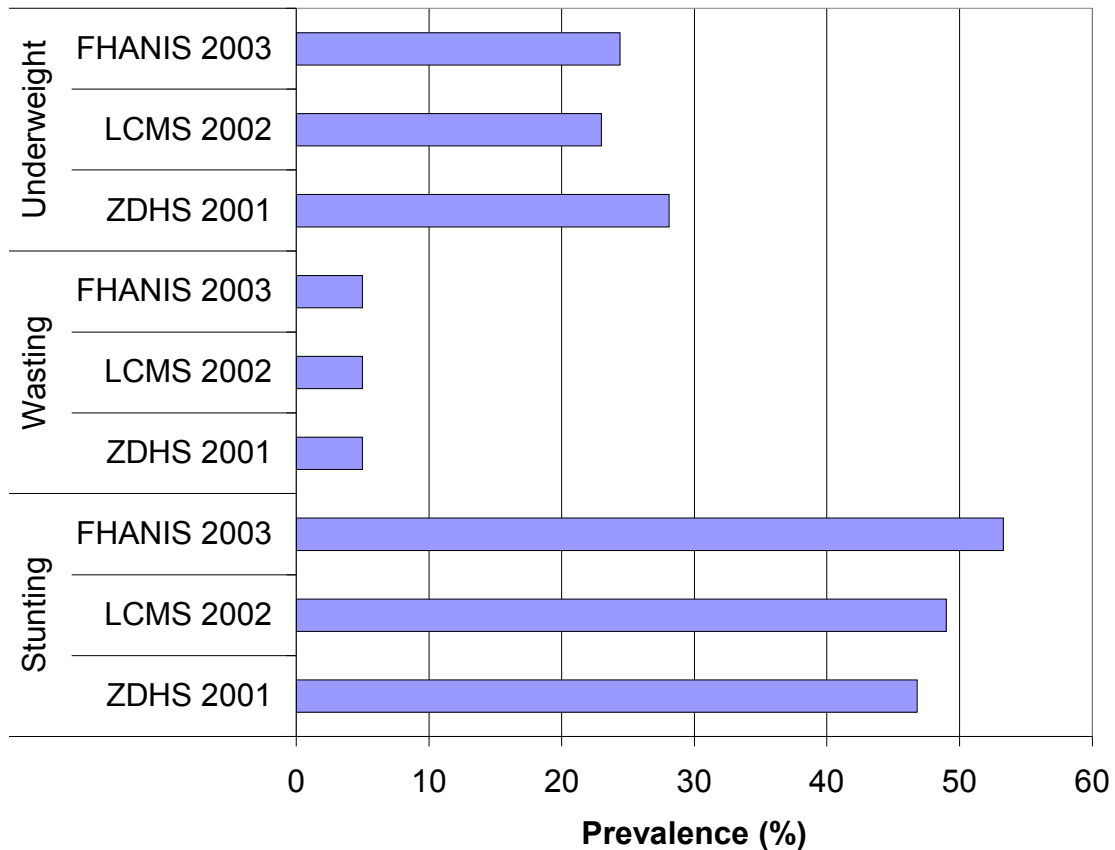
### Figure 2-2.3. Under-Five Nutritional Status for Zambia

<sup>4</sup> Height for age, which shows linear growth, is measure of long term. The child whose height is below 2 standard deviation of the Z-Score is stunted or chronically malnourished. Stunting is a result of long term deprivation due to repeated illness or inadequate dietary intake.

<sup>5</sup> Weight for age is a composed indicator for both linear growth and body proportion. A child whose weight for age is below 2 standard deviation of Z-score is considered as underweight. Child can be under weight because he is stunted or wasted.

<sup>6</sup> Weight for height is of current nutrition status. It is sensitive to recent past illness or acute dietary intake. Wasting is a form of acute malnutrition.





Source: ZDHS 2001, LCMS 2002, FHANIS 2003

Stunting is indicative of a cumulative problem of the past. The findings are very similar in the three surveys and show alarming results for prevalence of chronic malnutrition (stunting varying between 53% - ZDHS 2001- and 47% - LCMS 2002); prevalence of stunting in Zambia is comparable to Ethiopia (51.5%, DHS 2000) and Malawi (49%, DHS 2000) and much higher than West African countries (38.7%, DHS Burkina Faso 2003 and 38.2% DHS Mali 2001). About 28% of under-fives were underweight in 2001 (ZDHS), 23% in 2002 (LCMS, 2002) and 24% in 2003 (FHANIS).

National prevalence of wasting shows a stable trend or insignificant variations over a period of ten years. The prevalence of global acute malnutrition (wasting) ranged between 2.5% and 7.6% and has remained stable over a period of ten years (CSO 1992; CSO 1996; CSO 2001/02). These rates are within the global acceptable range (about 5%) and do not suggest a need for any emergency food. But they indicate need for preventive activities including family's nutrition education and community's nutrition sensitization.

In Zambia, children between zero (0) and twenty three (23) months of age are the most vulnerable. The proportions of children who are stunted, underweight and wasting is higher during this time (0 to 23 months). Malnutrition among children below five years was also found to be associated with the source of drinking water. The ZDHS 2001 – 2002 found that children whose drinking water was well water or surface water are more likely to be stunted than children with access to piped water.

#### 2.6.2 Trend analysis of malnutrition with provincial breakdown

Health Monitoring Information System (HMIS) provides very useful quarterly database on child growth monitoring underweight rates at national level, even if the coverage of the HMIS is low (coverage of 29.5% in 2003 and 31.5% in 2004). At Provincial level, underweight proportion shows a decrease between 2003 and 2004. The highest under-weight proportions were observed in the same provinces in 2003 and 2004: Luapula, Northern, Eastern and North-Western (Table 2-2). These provinces will require close monitoring and improvement in food security, health and nutrition programmes.

**Table 2-2.2. Percentage of Underweight Among Under-fives**

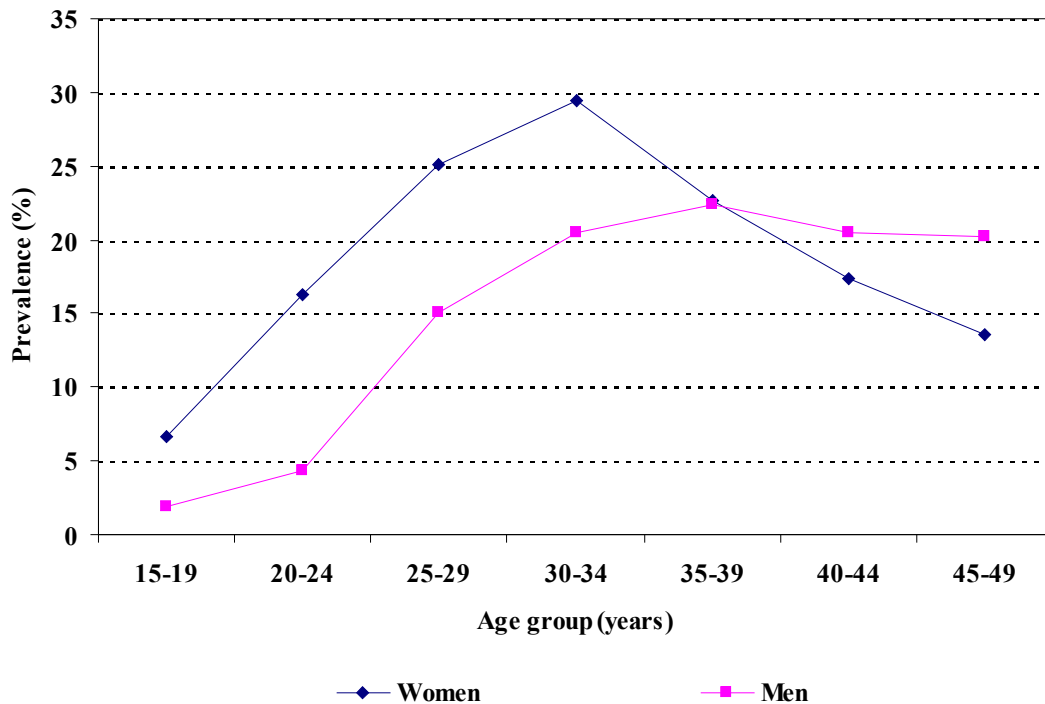
	<b>2003</b>	<b>2004</b>
<b>Zambia</b>	21%	17%
<b>Luapula</b>	31%	27%
<b>Northern</b>	29%	25%
<b>Eastern</b>	25%	20%
<b>North-western</b>	23%	19%
<b>Western</b>	21%	15%
<b>Southern</b>	19%	14%
<b>Central</b>	16%	13%
<b>Copperbelt</b>	13%	11%
<b>Lusaka</b>	12%	10%

Source: HMIS 2003-2004

## **2.7 HIV and AIDS**

Zambia is facing an HIV/AIDS epidemic of considerable proportions (see Figure 2.4). The Zambian Demographic and Health Survey (ZDHS) of 2001/02 found that approximately 15 percent of the Zambian population aged 15-49 are HIV positive (CSO, CBoH and ORC-Macro, 2002). The findings from this population-based survey suggest that in the younger age groups, women have higher infection rates than men. In the age group 25-29 approximately 25 percent of women tested positive compared to 15 percent of men. In the older age groups men predominate among those infected. Prevalence data do not provide a grasp of the annual number of new infections, nor does it provide an indication of how long ago people were infected. Nevertheless, the data indicate that large numbers of the Zambian population will fall ill and die within the next couple of years with multiple health, social, economic as well as food security consequences.

**Figure 2-4: HIV/AIDS Prevalence by Sex and Age**



Source: ZDHS, 2001 – 2002

Recent estimates by UNAIDS and the WHO put the number of people in Zambia that died of AIDS-related causes at 120,000 in the year 2001. These organizations estimate that there are currently 570,000 children under 15 years in Zambia who have lost one parent or both parents to AIDS.

HIV prevalence rates amongst 15-49 age group for women and 15-59 age group for men differ markedly by province with the highest prevalence in Lusaka (22 percent) and the Copperbelt (19.9 percent) Provinces. The Northern (8.3 percent) and North-Western Provinces (9.2 percent) have much lower infection rates. Differences in prevalence rates by province are largely a function of the level of urbanization in each province. The 2001-2002 ZDHS found that HIV infection differ markedly by place of residence. In urban areas the HIV prevalence was twice as high compared to rural areas at 23 percent and 11 percent respectively. The high HIV/AIDS prevalence in most areas undermines the households' ability to mitigate against the effects of crop failure due to poor rains.

## 2.8 Education

The Zambian Government policy on education is supportive of ensuring that children have access to education as a fundamental right. However, this is far from being achieved. Between 1991 and 1999, the Zambian enrolment growth rate of 0.2 percent fell far behind the population growth rate of 3.3 percent<sup>7</sup>. In 2001, only 66 percent of the 2 million children of primary school age were in school and of those not in school, most (56 percent) were girls. The primary completion rate in 1988 was also relatively low at 63 percent with

<sup>7</sup> WFP Country Programme Activity no 1 : ABE 2003-2006

the gender gap at 13 percent. It was established that one major cause of low enrolment was the high cost of education.

In an effort to increase access to education UN Agencies such as UNICEF and WFP in partnership with Government have introduced some education programmes. Among these was the introduction of community schools which was the best option for parents who could not afford fees and school requisites as well as cater for increased number of orphans. This was aimed at among other things to increase access to quality basic education for 50 percent of school aged children and increasing literacy levels. Other programmes supporting basic education has been school feeding programmes in selected schools. This aims at increasing enrolment and attendance, reducing drop outs and improved nutritional status of school going children through provision of daily ration of fortified blended food. WFP is currently implementing this programme in parts of Southern and Eastern Provinces with plans for expansion to other areas.

Even with the introduction of free primary school education by Government in February 2002, fulfilment of the right to quality education remains a major challenge. However, some improvements have been registered between 2001 and 2003 particularly through the implementation of Programme for advancement of girl education, re-entry policy (young mothers able to continue school) and introduction of free primary education<sup>8</sup>.

---

<sup>8</sup> UNICEF Mid term review of country program 2002-2006

### 3. FINDINGS

#### 3.1 Household characteristics and food security

##### 3.1.1 Household characteristics

The households in the survey population were of varied demographic characteristics. More than three-quarters (78 percent) of the households in the survey population were male-headed. Like many other studies have confirmed in the past, this study too seems to suggest that female headed households are relatively more disadvantaged than their male-headed counterparts. While the majority (93 percent) of male-headed households have married heads, most of the female-headed households are either widowed (51 percent) or divorced/separated (29 percent).

Even though the aggregate number of female-headed households is less than a quarter of the number of male-headed households, more than 79 percent of all widowed households are female-headed. With an average dependence ratio of about 1.9, each economically active member of a female-headed household takes care of 25 percent more dependents than does his/her counterpart in a male-headed households.

##### 3.1.2 Food security

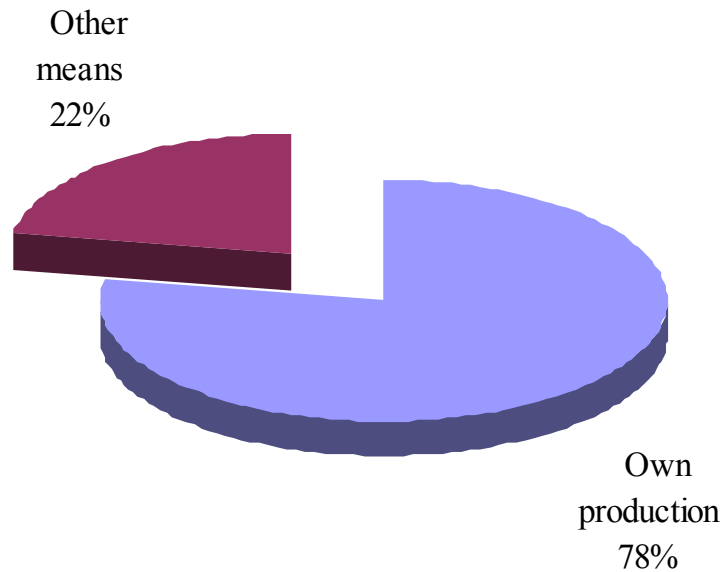
The survey covered the rural households in the southern half of Zambia. In the 2004/05 agricultural marketing season – a relatively normal year – although households displayed a wide diversity in food sources and other livelihood strategies, it is clear that own production remains a dominant source of livelihood. An average household produces about 0.80 metric tons of maize calorie equivalents of cereals of which 80 percent (0.64 metric tons) is retained for home use. To meet their cereal needs for the year, the households supplement the retained 0.64 metric tons with an additional 0.18 metric tons obtained through other means (purchases, casual labour, remittances, etc.). Thus, more than three-quarters (78 percent) of the cereals utilized by the household are from own production (Figure 3-1).

Given that the bulk of the remaining 20 percent of the produced cereals is sold<sup>9</sup>, the contribution of own production to livelihood is even larger. In addition to contributing towards cereal purchases, the income earned through cereal sells also helps to partially meet other cash needs. Maize still plays a very critical role, accounting for almost all (98 percent) of total cereal production. The dominance of own production in the household's food basket confirms these households' vulnerability to production-related food insecurity risk. This is further reinforced by the fact that the bulk, if not all, of these households rely on rain fed agriculture. The 2005 Zambia VAC survey was conducted at the beginning of the 2005/06 agricultural marketing season, which was probably too early for the impact of the drought of the preceding cropping season (2004/05) to show. However, one gets a feel of the expected impact by looking at the production difference between the year in question and a recent good year. Table 3-1 presents and compares cereal production figures for the 2003/04 agricultural season, a good year, and 2004/05 agricultural season, a drought year.

---

<sup>9</sup> Some are also given away to friends and relatives

**Figure 3-3.1. Contribution of production and other means to total cereals utilized by the household, 2004/05 agricultural marketing season**



Source: Data from the 2005 ZVAC survey

**Table 3-3.1. Mean production difference between 2003/04 agricultural season and 2004/05 agricultural season per household**

Livelihood zone visited		Total cereal production in metric tons of maize calorie equivalents		Production difference
		2003/04 agricultural season	2004/05 agricultural season	
Code	Name	(1)	(2)	(3)=(1)-(2)
3A	Mufumbwe-Kasempa	0.826	0.576	0.250
4A	Central Cotton	1.535	0.419	1.115
4B	Chama-Lundazi Rice	0.793	0.445	0.349
5A	Line of Rail Commercial	1.045	0.466	0.579
5B	Eastern Province Cash Crop	0.598	0.308	0.290
6	Sioma Plains	0.516	0.209	0.307
7A	Kazungula-Mwandi	0.839	0.150	0.689
7B	Chongwe-Nyimba	0.859	0.528	0.331
7C	Luano Valley	0.731	0.252	0.479
9	Mulobezi Woodlands	0.878	0.291	0.588
10A	Zambezi West Bank	0.970	0.250	0.721
10B	Zambezi East	0.230	0.116	0.114
11A	Gwembe Valley	0.786	0.126	0.660
12A	Chiawa-Zambezi Low Lands	0.673	0.298	0.375
12B	Mambwe-Petauke Valley	0.687	0.219	0.468
13	Mkushi Commercial Block	0.881	0.271	0.610
14	Zambezi Flood Plains	0.551	0.187	0.364
All zones		0.817	0.361	0.456

Source: 2005 ZVAC Survey, 2005 CFS, and 2003/04 PHS

Table 3-1 shows that in the southern half of the country that was visited by the VAC, cereal production dropped by more than half (56 percent) between 2003/04 and 2004/05 agricultural seasons. The exact magnitude of the reduction varied by livelihood zone with the largest drop in production experienced in Gwembe Valley (84 percent), Kazungula-Mwandi (82 percent), Zambezi West Bank (74 percent) and Central Cotton (73 percent). Mufumbwe-Kasempa and Chongwe-Nyamba, the least affected livelihood zones, experienced 30 percent and 39 percent drop in production, respectively.

Reduction in and poor distribution of rainfall during the 2004/05 cropping season was cited by the interviewed households as one of the leading reasons for the slump in production. This argument is corroborated by rainfall data from the Meteorological Department. By the first dekad of March 2005, cumulative rainfall was way below normal in most parts of southern Zambia. As expected, districts in Southern and Western Provinces were the worst hit by drought.

### *3.1.2.1 Rainfall and staple production*

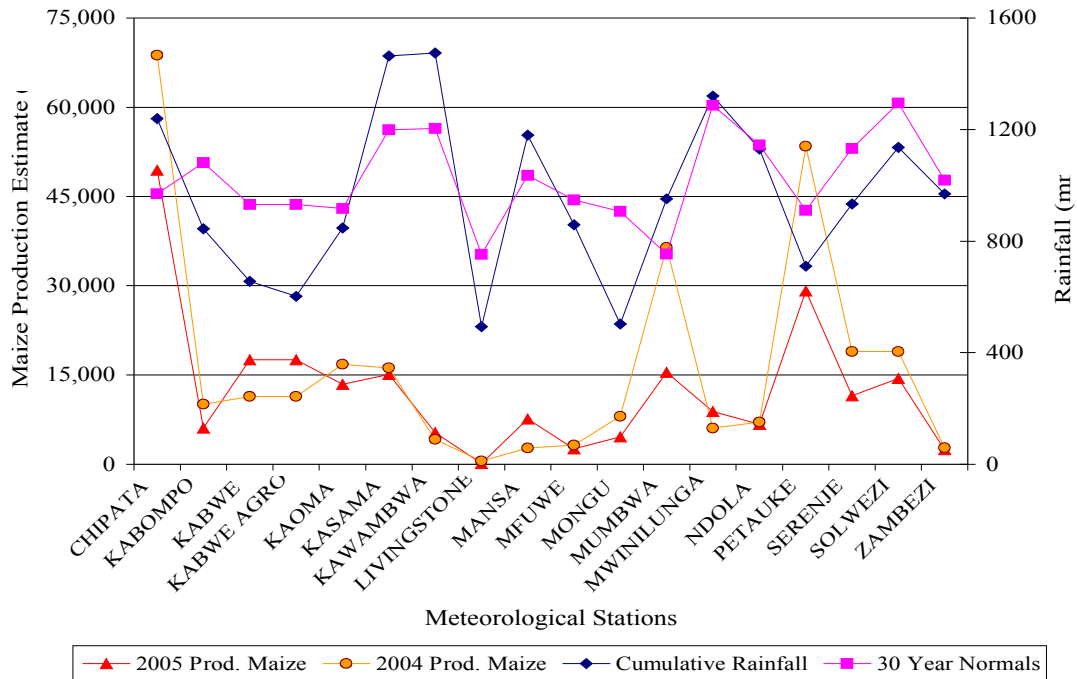
The 2004/05 production season was characterized by prolonged dry spells resulting in insufficient rainfall (drought) especially over the Southern and Western Provinces of Zambia. This has had severe negative impact on crop yield resulting in partial and/or complete crop failure in the affected areas.

Generally, the onset of rainfall in most parts of the country was good with the first rains being received as early as October 2004. Lusaka, Southern, some parts of Central (Mumbwa) and Western provinces (Shang'ombo) were the exception due to late onset of rainfall. By December 2004, two thirds of Zambia mainly the southwestern parts were already experiencing erratic rainfall which continued through to January 2005. By February and March 2005, most of these areas received little and/or no rainfall when most crops were at critical stage of development and moisture was needed most. This rainfall situation caused irreversible damage to crops. Drought tolerant crops such as cotton were also affected by erratic rainfall.

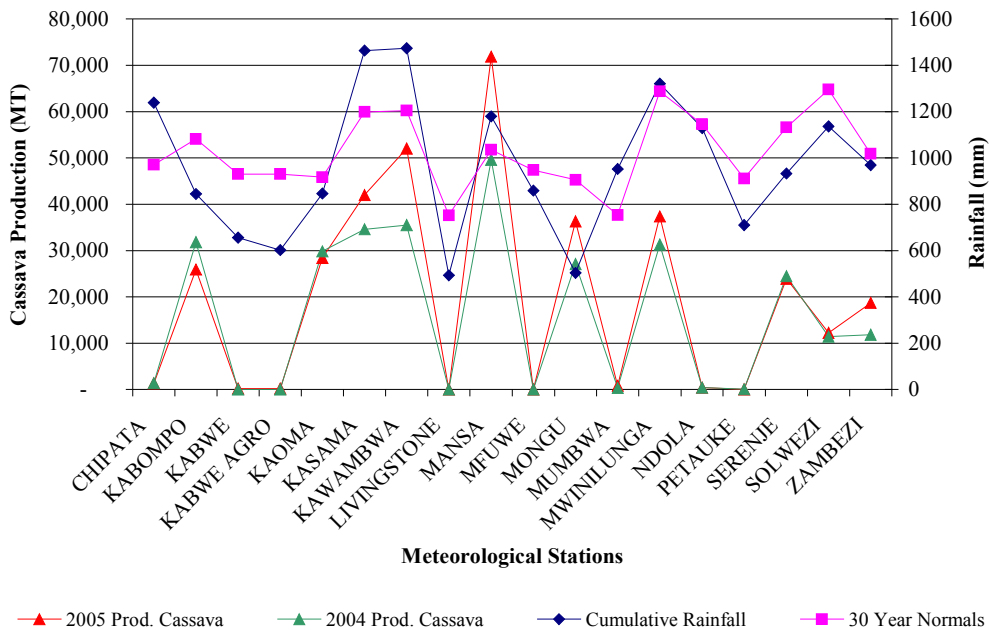
Figure 3-2 summarizes the relationship between cumulative rainfall's departure from the 30 year normal and staple production in selected locations in the Southern half of the country. It shows that erratic rainfall in the assessed districts had significant impact on the overall production of the main food crop. Being one of the major determinants of a good harvest, the extended dry spells occurred when most crops were at the critical stage of development (for maize, at grain filling stage). The graph provides a comparative analysis of cumulative rainfall as of 31<sup>st</sup> March 2005 to the 30-year normal rainfall and for two seasons. In areas which received good rainfall, 2005 maize production is comparable to and in some cases, even higher than that of 2004 (Figure 3-2a). In the case of cassava, reduced rainfall had insignificant impact on production which is not surprising as the crop is relatively drought tolerant (Figure 3-2b). The results in Figure 3-2 also confirm, as expected, that of the two crops, maize was affected most by the erratic rainfall situation.

**Figure 3-3.2. Relationship between departure of cumulative rainfall from 30 year normal (1960-1990) and staple production as of March 31, 2005**

**a) Rainfall and maize production**



**b) Rainfall and cassava production**



Source: Rainfall data from the Meteorological Department; Maize and cassava production from the Crop Forecast Survey (CSO, 2005)

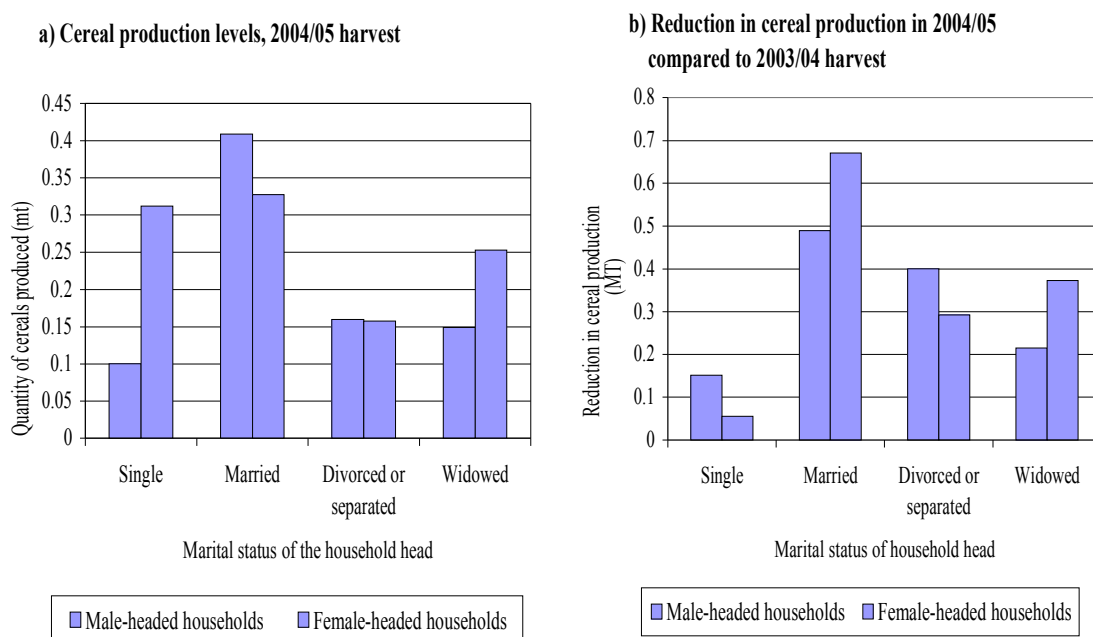


### 3.1.2.2 What type of households had largest drop in cereal production?

As already discussed above, cereal production has dropped drastically between 2003/04 (a relatively good agricultural season) and the 2004/05 agricultural season. Because households are generally heterogeneous, it is important to have some insights on the types of households that were affected the most. Figure 3-3 presents both levels of (Figure 3-3a) and changes in (Figure 3-3b) cereal production across selected household demographic characteristics.

On average, households with married heads had higher levels of cereal production than any other category of marital status. More specifically, cereal production was at least 75 percent higher in households with married heads than in households with any other marital status. When disaggregated by gender within the ‘married’ category, male-headed households had 25 percent higher levels of cereal production than female-headed ones. However, in most other ‘marital status’ categories households with female heads seem to maintain relatively higher cereal production levels than do male-headed households. For example, there is not much difference in cereal production between married female-headed households and single female-headed households.

**Figure 3-3.3. Comparison of level (2004/05 agricultural season) and change (from 2003/04) in cereal production across selected household demographic characteristics**



Source: Data from 2005 ZVAC Needs Assessment Survey

However, although they have high cereal production levels, the households with married heads are also the ones that experienced the most reduction in cereal production (Figure 3-3b). This means that not only do households with married heads have much more food than their unmarried counterparts in good years but also that their production systems are substantially more vulnerable to weather changes. On average, a household with a married head lost five times as much cereal as households that had single heads.

Moreover, the drop in cereal production in households with married heads was 61 percent and 56 percent higher than that experienced by households with divorced/separated and widowed heads, respectively. Among the married households, those headed by females experienced 37 percent more cereal production reduction than their male-headed counterparts. Similarly, in the widowed category female headed households are almost twice as vulnerable to production risk as male-headed households. Male-headed households are more vulnerable to production risk in the 'single' and 'divorced/separated' marital categories than their female-headed households.

### *3.1.2.3 Food Supply and Outlook for 2005/06 Marketing Season*

The Ministry of Agriculture crop estimates indicate that maize production has decreased significantly from 1,207,202 MT in 2003/04 to 866,187 MT in 2004/05 production season, marking a 28 percent reduction. This decrease is mainly attributed to the poor rainfall in almost all parts of the country except for the Northern, Luapula, northern parts of North-western and Copperbelt Provinces. Contribution by the commercial farmers to the total maize production is expected to be 254,804 MT (29 percent), indicating that it has remained relatively stable (compared with 253,861MT in 2003/04). However, in percentage terms, large-scale contribution has increased by 8 percent due to reduction in smallholder production. Although all provinces recorded significant increase in area planted to maize, production dropped due to yield reduction. Only Northern and Luapula Provinces increased production by 28 percent and 55 percent respectively. However, the levels of production in these provinces are not high enough to cover for reduction in output from the maize-belt. Similarly, sorghum recorded a slight decrease of 10 percent in production despite having increased hectarage by 21 percent. The increase in hectarage could partially be as a result of increased access to seed through the input supply programs. Millet production declined by 25 percent despite a slight increase (7 percent) in area planted while rice production increased by 14 percent.

Cassava production has marginally increased by 15 percent nation wide compared to last production season. It is important to note that traditional cassava producing areas of Northern, Western and Luapula Provinces have maintained their high levels of production with significant increases observed in Luapula and Western Provinces (over 25 percent increase). However, Copperbelt, Lusaka and Southern provinces which are non traditional cassava consuming areas have significantly reduced production (25 percent, 54 percent and 71 percent drops respectively), attributable in part to reduction in area.

The 2004/05 total cereal production has been estimated at 1,121,071MT of which 866,187MT is maize; 13,338MT is rice while the balance of 48,297MT is sorghum and millet (Annex 3). Wheat has not been included in the analysis for VAC purposes because it is a non-staple. After taking into account opening stocks, the Food Balance Sheet (FBS) shows that the total maize available falls short of the total requirement by 85,000MT. The rice deficit is estimated at 12,000MT while cassava surplus is at 324,834MT. It is important to note that the surplus or deficit levels are influenced by competing requirements such as human consumption, reserve requirements, stock feed, breweries, seed and cross border trade (export). The balance sheet has assumed no maize strategic reserves for the 2005/06 marketing season and no informal export estimates have been factored in. Even though the maize export ban was imposed in March, exports to DRC have continued at the same rate; a minimum of 1,890MT was exported in April alone. In

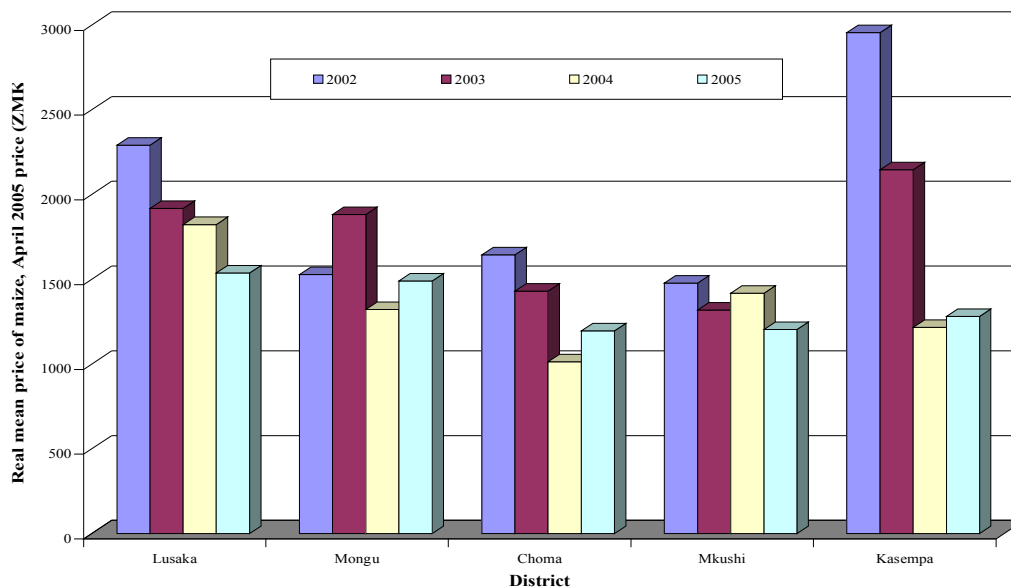
addition, the 2004/05 FBS has underestimated breweries requirements, having reduced the amount by 50 percent with respect to last season<sup>10</sup>.

Based on the above factors, the relatively low maize deficit (85,000MT) should be treated with caution. For the non traditional cassava consuming areas, cassava is unlikely to feel up the gap. The Agricultural Commodity Exchange<sup>11</sup> observed that continued strength of the maize price (US\$180-190/MT), reflects the weak supply situation. Currently there is uncertainty among the private sector on Government's policy towards the maize shortfall. The continued 15 percent import duty on maize will discourage private sector imports. In the absence of imports, maize prices are likely to climb steeply towards the end of the year which will have implications on staple food access for poorer households.

### 3.1.2.4 Staple food accessibility

In the 2004/05 marketing season, maize retail prices remained relatively low much longer than normal in line with the good supply following surplus harvest from 2003/04 production season. The prices started rising only at the end of 2004 instead of the usual period of August/September. In line with the normal maize price pattern, prices peaked in February/March and thereafter, fell as expected in April. With the reduced output from the 2004/05 harvest, prices are expected to start rising earlier than usual (before August), which will make the staple more difficult to access for poorer households. Compared to the past three seasons (Figure 3-4), the April 2005 prices in drought-affected areas were lower for most districts implying improved access to the staple food in 2005.

**Figure 3-4 : Real Retail Maize Price Comparison for the Month of April**



Source: Data from Central Statistical Office, 2005

Mongu and Choma Districts however were exhibiting higher prices in 2005 with respect to 2004. This could be attributed to the greater impact of the drought on the current harvest in these districts compared to others. For Southern Province, most districts are exhibiting a

<sup>10</sup> Refer to the Zambia National Food Balance Sheet Study, February 2004

<sup>11</sup> ACE Market Bulletin, May 27<sup>th</sup>, 2005

similar pattern. The exceptionally high prices in Kasempa (2002, 2003) were partly due to high demand for exports to DRC.

The Agricultural Commodity Exchange (ACE) in mid May observed increases in maize prices in response to strengthened demand by millers and brewers in a bid to satisfy current demand and build up depleting stocks. Contrary to expectations of increased supply following harvesting, current supply has remained relatively low putting pressure on prices. This could partly be attributed to the uncertainty surrounding the level of the 2005 harvest during the month of May as crop estimate figures were released very late (June).

Overall maize prices are not expected to reach the high levels which prevailed in the 2002/03 marketing season, A number of factors support this conclusion including: the higher harvest level attained in 2004/05 compared to 2001/02 production season (42 percent higher) and the relatively high carryover stock from the 2004/05 marketing season.

### 3.1.3 Nutrition

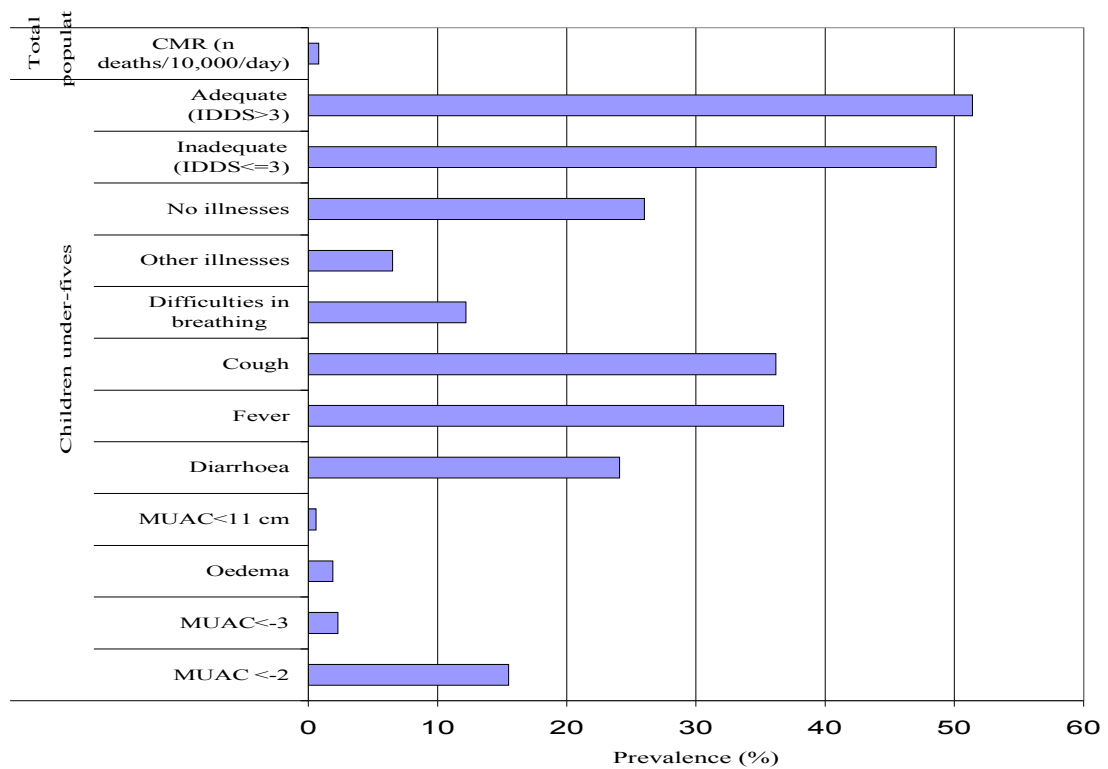
Several nutrition questions were asked in the survey with special focus on under-five children. A total number of 841 under-five children were examined, supplemented with responses from the mother and/or care take on the child's eating attributes and food diversity. Of these 48 percent were females and 52 percent were males. Figure 3-5 summarizes information collected on prevalence, nutrition and health characteristics (see Annex 4 and 5).

Overall, the prevalence of child malnutrition, as measured by MUAC for age, was 15.5 percent, while oedema was at 1.9 percent (Figure 3-5). The survey revealed that malnutrition was more prevalent in male children (21.2 percent with Z-score < -2; and 2.2 percent with oedema) than in female children (9.5 percent with Z-score < -2; and 1.6 percent with oedema).<sup>12</sup> The total prevalence of malnourished children, which was found to be 15.5 percent, was considered as a cut off point to identify the severe cases in each of the zones.

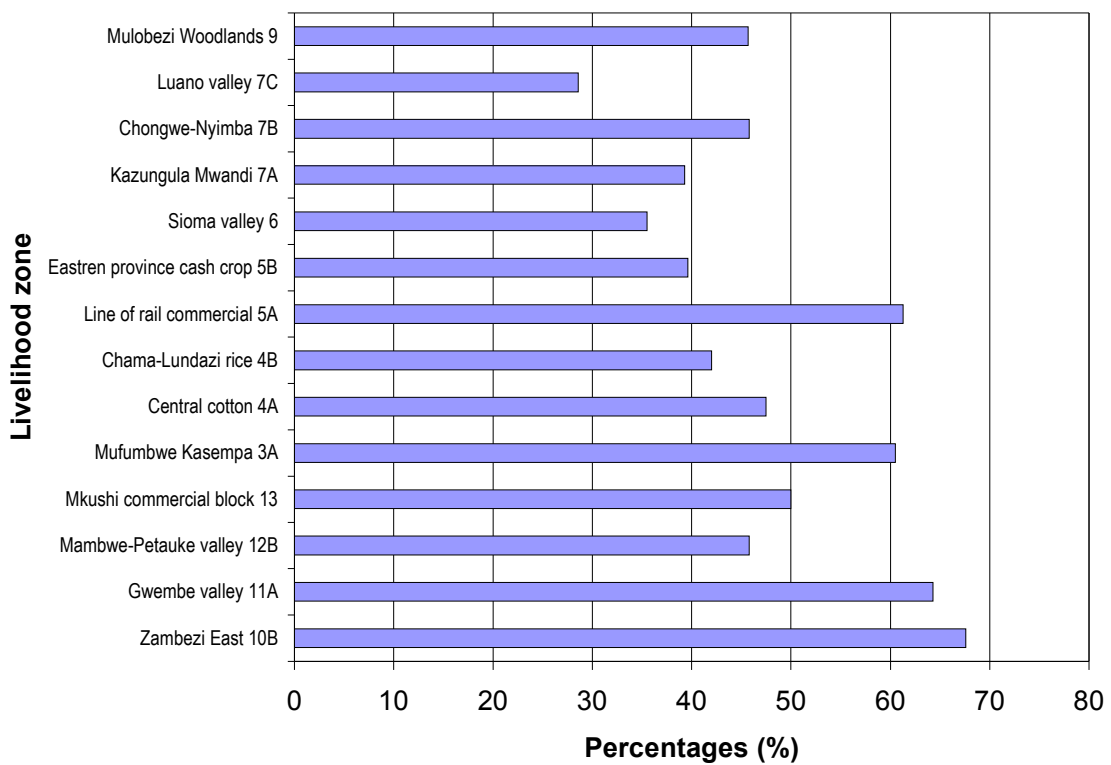
Prevalence of global malnutrition among under-fives were the highest in the following zones: Mufumbwe-Kasempa (Zone 3A), Chama-Lundazi Rice (Zone 4B), Eastern Province Cash Crop (Zone 5B), Mambwe-Petauke Valley (Zone 12B), and Sioma Plains (Zone 6). It was also observed that prevalence of severe acute malnutrition was the highest in Zones Chama-Lundazi Rice (Zone 4B) and Mambwe-Petauke Valley (Zone 12B). Prevalence of malnutrition was moderate (equal to the total prevalence) in Zambezi East (zone 10B) and Luano Valley (zone 7C), while Mulobezi Woodlands (zone 9), Line of rail commercial zone (5A), Mkushi commercial block (zone 13), Gwembe Valley (zone 11A) and Central Maize-Cotton zone (4A) had acceptable malnutrition levels (see Annex 6).

### **Figure 3-5. Total prevalence, Nutrition and health characteristics, Southern half of Zambia, April 2005**

<sup>12</sup> Interested readers are referred to Annexes 4 and 5 for details.



**Figure 3-6. Proportion of under-fives with inadequate diet diversity, Southern half of Zambia, May 2005**



Mention must be made here that although Chongwe-Nyimba plateau (7B) showed a low prevalence of malnutrition, the zone showed a high proportion of children with high risk

of mortality (MUAC less than 11 cm). Other zones with high proportions of under-fives with risk of mortality were Mambwe-Petauke Valley (12B) with 6.9% and Sioma plain (6).

Cases of bilateral oedema have been also identified in some zones. The highest prevalence were in Zambezi East – zone 10B (2.6%), Gwembe valley zone -11A (2.3%) line of rail commercial zone 5A -3.3% and Kazungula-Mwandi plain zone 7A–(3.8%).

The under- five diet diversity varied across all the zones visited (see Figure 3-6, above). It was established that dietary diversity was generally not adequate. Fifty one percent (51%) of the children had inappropriate diet diversity score.

### 3.1.3.1 Household characteristics affecting child malnutrition

There was a higher proportion of children among male-headed households with moderate and severe malnutrition than among female-headed households (Table 3-2). The household size had critical role to play in the prevalence of malnutrition among the children included in the sample. It was also observed that the larger the family size the higher chances of having children with low Mid-Upper Arm Circumference.

**Table 3-3.2. Acute Malnutrition and Head of Household’s Marital Status**

Item	Marital Status			
	Male Headed HH (%)		Female Headed HH (%)	
	Married	Not Married	Married	Not Married
Global Malnutrition	16.2	20.6	0.0	11.8
Normal	83.8	79.4	100.0	88.2
Total	100.0	100.0	100.0	100.0

### 3.1.3.2 Dietary Diversity and child feeding practices

Majority of households in the areas visited reported to have had two meals in a day. It was revealed that high proportion of children who had acute malnutrition were from households having one meal a day. Dietary diversity was used as measurement of child food intake for children above 6 months. The study revealed that a higher proportion of male children (51.9%) had an inappropriate diet diversity score than their female counterpart (45.0%). Overall, about 48.6 percent of all the under-five children had inappropriate diet diversity.

Dietary Diversification Score was compared to MUAC for age of children below five years. It was also observed that inappropriate diet diversity score was more prevalent among male children in the sample. It was observed that about 54.2% of malnourished children had inappropriate diet diversity while 46.8% of children with no problem of malnutrition had also inappropriate diet diversity. Diet diversity is inadequate for a large percentage of children but the difference between malnourished and non malnourished children is less important as expected.

### 3.1.3.3 Morbidity and childhood malnutrition

The study revealed that as high as 43 percent, 62.6 percent and 48.8 percent of the children have had diarrhoea, fever and cough, respectively, within a week prior to the survey. A high proportion of children with acute malnutrition were reported to have had diarrhoea, fever and a cough a week prior to the survey (Table 3-3).

**Table 3-3.3. Child morbidity by MUAC for Age Z-Score**

MUAC by Age Z-score	Proportion (%) by illnesses			
	Diarrhoea	Fever	Cough	Difficulty in breathing
Global Malnutrition	44.0	57.4	48.4	5.1
Normal	20.4	31.8	34.2	9.0
Total	23.7	35.4	36.2	8.5

Proportion of diarrhoea, fever, cough and difficulties in breathing among under-fives children was the highest among children aged 6–23 months (Table 3-4).

**Table 3-3.4. Proportion of child disease by age group**

Age Group	Diarrhoea (%)	Fever (%)	Cough (%)	Difficulties in breathing (%)
0–5 Months	13.1	28.1	30.4	1.6
6–11 Months	50.0	43.0	44.6	13.8
12–23 Months	36.0	53.8	52.4	10.6
24 Months +	14.9	28.8	29.3	9.0

#### 3.1.3.4 Water and sanitation and child malnutrition

The main sources of drinking water in the communities visited were unprotected shallow wells, unprotected spring, unprotected deep wells, protected deep wells, and village boreholes. The survey found that children with unprotected water source had a higher risk of being acute malnourished. Water treatment had no significant impact on the proportion of children having malnutrition.

#### 3.1.4 Health

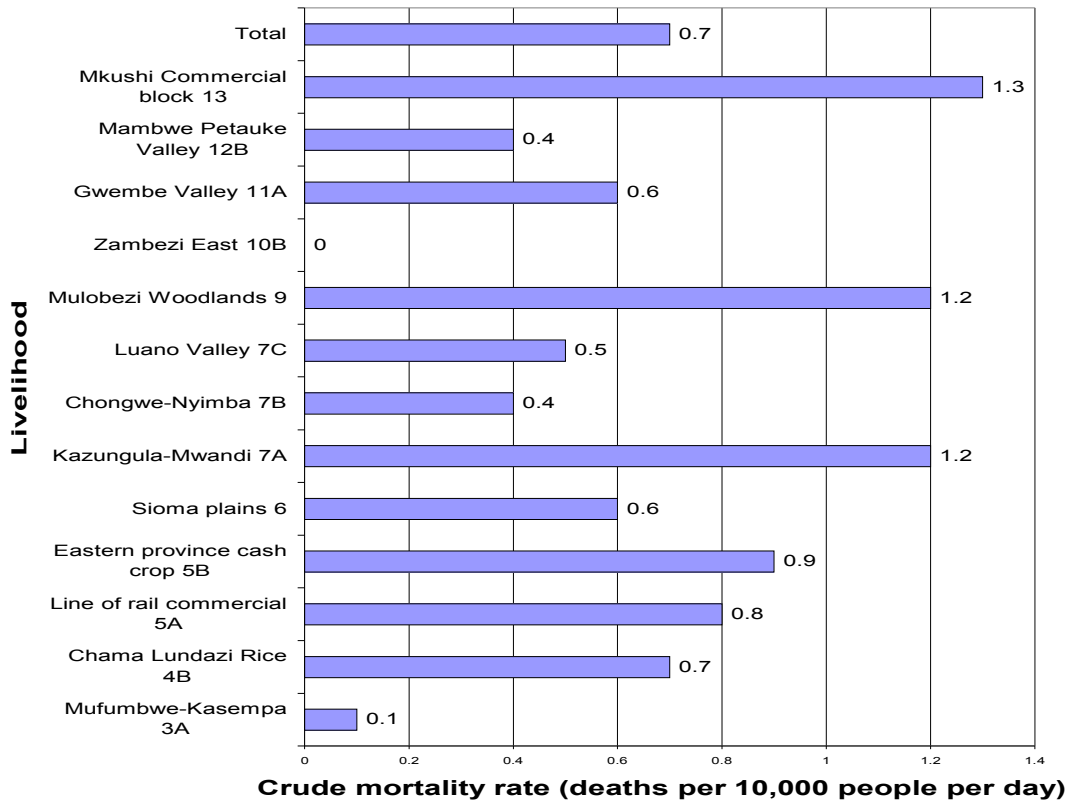
##### 3.1.4.1 Childhood illness

In terms of health status, diarrhoea, fever and cough were the most prevalent illnesses as cited by caregivers of the children in the zones visited. The study recognized that these illnesses were more common male children than their female counterparts. The proportion of under-fives child diseases differed among the zones. Most of the clinical signs illnesses (diarrhea, fever, cough and difficulties in breathing) were prevalent in the following zones: Chama-Lundazi (zone 4B), Luapula Valley (zone 5B) and Mambwe-Petauke (zone 12B).

#### 3.1.4.2 Crude mortality rates

The overall crude mortality rate (CMR) for the six months prior to the survey was just about normal at 0.7 deaths per 10,000 per day.<sup>13</sup> However, some zones had unacceptably high CMRs. For example, Mkushi Commercial Block (Zone 13), Kazungula-Mwandi Plain (Zone 7A), and Mulobezi Woodlands (zone 9) had CMRs as high as 1.3, 1.2, and 1.2, respectively (Figure 3-7).

**Figure 3-7. Crude Mortality Rates, Southern half of Zambia, May 2005**



Among the household members who died during the 6 months prior to the survey, 17 percent had been chronically ill for more than 3 months. When disaggregated by age, the under-five mortality rate is reasonably low with a crude mortality rate of 0.2 per 10,000 per day. The highest mortality rates were observed among 15-49 year and >50 year age groups, each at 0.4 persons per 10,000 per day.

### 3.1.4.3 Chronic illness among adults in the past 12 months

About 20.7 percent of the adults in the study area have been chronically ill for more than 3 months during the 12 months prior to the study. Amongst them, 6.4% were heads of households. When disaggregated by livelihood zone, Gwembe Valley (Zone 11A), Mulobezi Woodlands (Zone 9) had the highest proportion of chronically ill adults at 9 percent, followed by Mambwe-Petauke Valley (Zone 12A) at 7 percent.

#### 3.1.4.4 Access and use of health services

<sup>13</sup> Any CMR < 1 is considered normal



Among members of households who got sick during the two weeks prior to the survey, 7.7 percent did not seek health care. About 57.2 percent sought care from formal health facilities, 5.1 percent got home-based care (own medication), 3.2 percent from a pharmacy or dispensary, 2.7 percent from private care and 2.6 percent from a traditional healer.

When the formal health facilities were not used, the reasons mentioned were lack of transport (6.2%), lack of money (4.9%), poor care quality -lack of confidence in health staff, poor availability of drugs (0.3%), religious or cultural reason (0.8%) and “patient too ill to be moved” (0.1%)

### 3.1.5 Water

#### *3.1.5.1 Drinking Water*

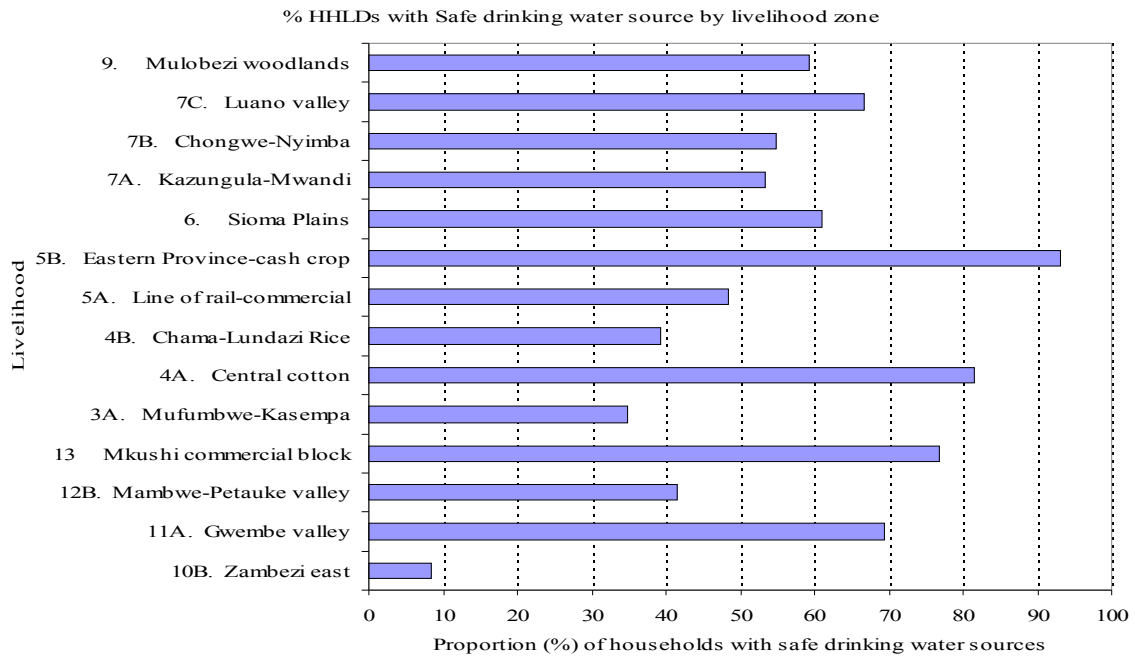
The main sources of drinking water in areas assessed were river, lake, well and borehole. Access to safe water was highest in Eastern Province Cash Crop Zone (93%), Central Cotton Maize Zone (81%), Mkushi Commercial Block Zone (77%) and Gwembe Valley (69%). Poor access to safe water on the other hand was highest in Zambezi East Zone (92%), Mufumbwe Kasempa Zone (65%), Chama-Lundazi Zone (61%) and Mambwe Petauke (59%). Generally, the problem of access to safe water is more prevalent in North-western Province and valley areas of Eastern Province (see Figure 3-8). It is worrying that about two thirds of households in all assessed areas do not treat water despite the high levels of access to unsafe water in some areas which could result in high risk of water borne diseases.

On average, distance to water source in all assessed areas was a kilometer or less implying that currently most households have drinking water source within reasonable distance regardless of the safety (Table 3-5).

Compared to April 2004, water quantity had remained more or less the same for most areas. Chongwe Nyimba and Chama Lundazi however recorded a 77% and 50% of households having less water respectively. Note that Chama Lundazi also has the highest percentage of shallow wells supporting the reduced quantity situation. It is however possible that the situation in some of the other areas could deteriorate later on in the season when the full impact of the drought may be felt. Generally, most water sources for drinking water (80%) do not dry up. Among the areas covered, only Chongwe –Nyimba was a special case with at least 51% having experienced drying up of water source while for other areas, the percentage was much lower.

Among the covered areas, Chongwe Nyimba and Chama Lundazi had by May already started experiencing reduced water quantity compared to other areas. Currently these are the main areas of concern in terms of water supply.

**Figure 3-8. Proportion of households with access to safe drinking water sources by livelihood zone, May 2005**



Source: Data from 2005 ZVAC survey

**Table 3-3.5. Accessibility of safe drinking water and water treatment among smallholder farmers, May 2005**

	% HHLDs with safe water source	% HHLDs who treat drinking water	% HHLDs with less quantity of water compared to last year	Mean distance to water source (km)
10B. Zambezi east	8.3	6.7	48.3	1.0
11A. Gwembe valley	69.3	4.4	37.8	0.6
12B. Mambwe-Petauke valley	41.4	44.8	41.4	0.6
13 Mkushi commercial block	76.7	23.3	13.3	0.6
3A. Mufumbwe-Kasempa	34.7	24.0	40.5	0.4
4A. Central cotton	81.4	11.9	28.8	1.1
4B. Chama-Lundazi Rice	39.2	20.8	50.0	0.5
5A. Line of rail-commercial	48.3	27.1	48.7	0.5
5B. Eastern Province-cash crop	93.1	22.2	23.6	0.6
6. Sioma Plains	61.0	16.9	22.4	0.3
7A. Kazungula-Mwandi	53.3	13.3	45.0	0.4
7B. Chongwe-Nyimba	54.7	30.7	77.3	0.6
7C. Luano valley	66.7	66.7	20.0	0.5
9. Mulobezi woodlands	59.3	6.8	44.1	1.1

Source: Data from 2005 ZVAC survey

### 3.1.5.2 Water for Livestock

Water supply for livestock in many areas is a source of concern and the situation is likely to worsen later on in the year when full impact of the drought on water sources is likely to be felt. In the major cattle keeping areas of Southern, Western and Central Provinces farmers will start driving their herds far distances in search of water as the main sources (streams) completely dry up. This is likely to increase risk of disease outbreak as animals mix during grazing and sharing of limited water sources. In Mumbwa District for example, animals will be going to the Kafue plains for water and pasture mixing with wild animals in game reserves. This was the cause of the last Foot and Mouth Disease outbreak which spread to non endemic areas of Central and Southern Provinces.

### 3.1.6 Education

The findings show that the number of households with at least one child dropping out of school in the twelve months prior to the assessment ranged from 13% in Luano Valley to 3 percent in Kazungula-Mwandi Zone. Generally, there were more drop outs recorded in valley areas compared to other areas which could be attributed to more access problems as a result of poor infrastructure in such areas.

The drop outs were found to be much higher for girls than for boys which is of much concern. The drop outs were mainly attributed to economic reasons despite Government having declared primary education free. The other reason was the lack of interest in school by children from these households.

## **3.2 Rural livelihood situation**

### 3.2.1 Baseline profiles of zones visited

The major economic activity for most households in the zones visited was agriculture. Most households practiced mixed farming covering mainly crop and livestock production. The main crops grown for consumption were maize, sorghum, millet, rice, groundnuts, and beans. The main cash crops grown in most zones were cotton, tobacco, rice, soybeans and maize. Tobacco and cotton are mostly grown under contract farming where a company provides all the necessary inputs and extension. The contracting company afterwards recovers related costs at the time of buying from the farmers. Soybeans, rice and maize do not have clearly defined marketing channels and their marketing mostly depend on farmers' own arrangement.

Apart from crop production some zones are rich in livestock and livestock products. Cattle are the dominant form of livestock reared followed by goats, pigs and chickens. Most cattle are reared for draught power and some for home consumption. Livestock plays a very big role in the livelihood of the people as key sources of food and income.

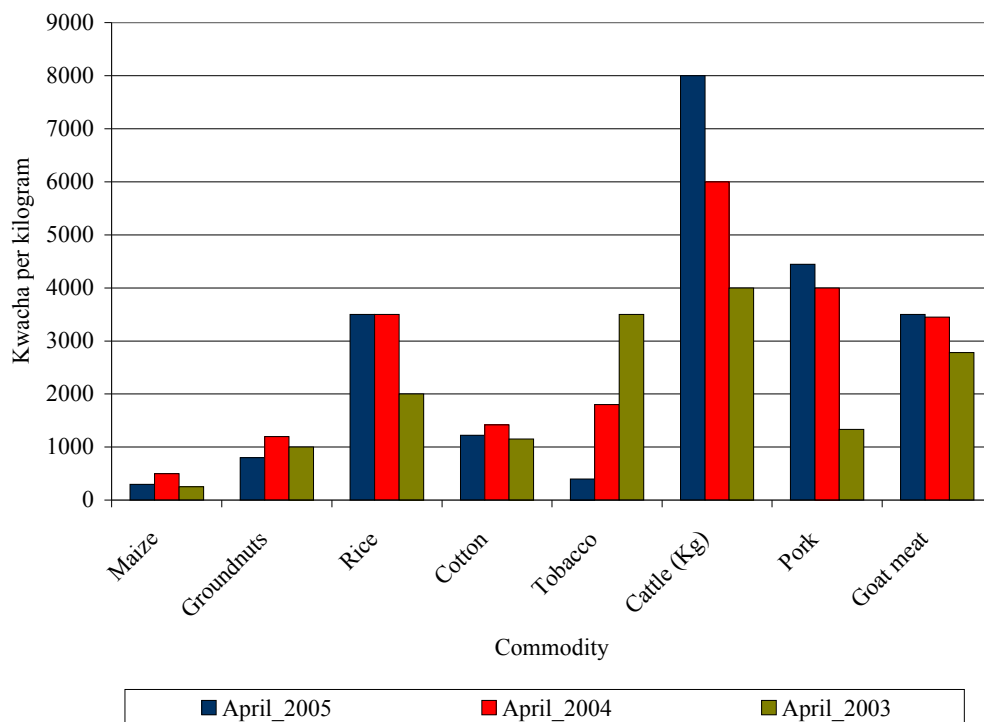
Most zones have basic structures that support localized trading and marketing of agricultural products. Overall, road networks are poor and this has proved to be a major constraint and has resulted in most economic potential not being fully exploited. Fewer households are engaged in formal employment, but there is a lot of opportunity in most zones for agricultural casual labour mainly from better-off farmers. The major threats to the livelihoods in most zones are drought, excessive rains, localized flooding, livestock diseases, crop pests and poor marketing systems.

### 3.2.2 Market performance

The major food commodities traded in most zones are, maize and other smaller cereals. Prices of crops vary with the time of the year. Before the main harvest in April which also coincides with the hunger period in most zones, prices tend to be high but later decline following harvesting and then steadily until December.

Retail prices of maize remained relatively low compared to other foods. Compared to the same period in 2003 and 2004, prices in April 2005 have remained at a lower level (see Figure 3-9). However, for livestock, the prices have been generally higher than the past two years. This trend was expected due to the recent past good years when grain supply on the market increased significantly leading to lower prices. Prices of cash crops generally remained lower than the past two years. It was evident that despite the fact that some markets are well defined and strategically located, the local farmers especially the small scale farmers continue to get low prices for their produce. With free market system the local farmers are struggling to learn how to get the best value for their products.

**Figure 3-9. Price trend of major commodities traded in most zones**



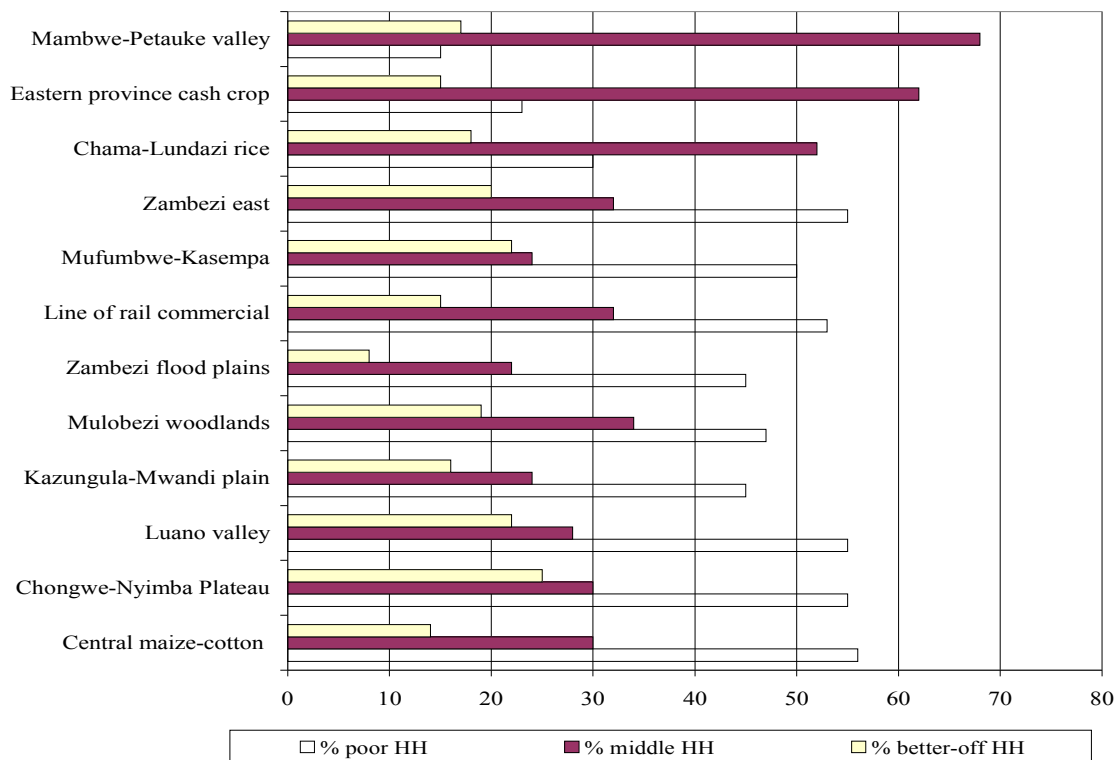
In a typical year livestock trading is low because livestock owners are not willing to sale their livestock. Livestock sales reach maximum at the beginning of the school year as livestock owners start raising money to send children to school. The period between September and December are typical hunger months and during this period there are desperate sales of livestock at low prices. The increased food supply in the past two years has assisted in stabilizing and raising livestock prices, as there has been less desperate selling. Small livestock especially chickens; goat and pigs are easily traded compared to cattle.

### 3.2.3 Wealth Ranking

Wealth status has enormous implications on access to food and income (see Figure 3.10). Better off households cultivate larger areas of land and in addition employ casual labor. As a result, they produce more food and cash crops. Better off farmers usually own livestock that act as a direct source of income through sales. Poor households, in contrast, usually access plough oxen through labor exchange implying that they cultivate only small areas and plant late. The poorer households rarely have livestock to sell, with the exception of chickens.

The major determinant of wealth in most zones is livestock ownership and size of land cultivated. The better off households have larger holdings of land owned and under cultivation. They have livestock and can afford to purchase agricultural inputs. They also hire casual labor from the worse off households. The poor wealth category usually does not own livestock and have smaller land parcels. The different wealth characteristics make a big difference in livelihood patterns and coping mechanisms among different wealth groups. Both of these have implications and determinant effect on type and amount of crop cultivated, income and expenditure patterns and levels of food security.

**Figure 3-10. Wealth breakdown of households in zones visited**



In the zones visited, the poor wealth category formed the greatest proportion of about 55% while the middle form about 30% and the better-off 20%. The highest proportion of the poor was in Central maize cotton zone (56%). This was followed by Chongwe-Nyimba plateau, Luano valley and Zambezi East zones at (55%). The lower categories of poor households were in Mambwe-Petauke, Eastern province cash crop and Chama-Lundazi rice zones at 15%, 23% and 30% respectively. Apparently these are the same zones that had the higher proportions of the middle categories. Generally the zones with high potential for production and income opportunities, like the Eastern province cash crop, had

higher categories of middle households while those in the flood plains, like the Zambezi flood plains, had higher proportions of poor households.

### 3.2.4 Seasonal Calendar

Most seasonal activities in the zones visited are heavily dependant on agricultural production for both food and income. The common activities across the zones are shown in Figure 3-11.

**Figure 3-3.4. Seasonal calendar for most common food and income sources**

Activity	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall												
Land preparation												
Weeding												
Dry harvest of most food crops												
Green maize consumption												
Cotton sales												
Groundnuts												
Livestock sales												
On-farm casual labor												
Wild foods												
Fishing												
Peak hunger months												

The common agricultural activities in all the zones start with the onset of rainy season. From October to November land preparation is completed for most crops, which include maize, sorghum, cowpeas and groundnuts. Planting follows land preparation with the onset of rainfall in November and December. Weeding is done from February to March. In wetland areas, like Luano valley, land preparation and planting is done in winter, between end of July and September. May and June are periods of dry harvest for most crops while March marks the beginning of green maize consumption until the beginning of April.

Milk production peaks form January to April, when there is plenty of grass and water for the cattle. Livestock sales peak in January due to school fees and from October to December due to lack of staple grain, maize. Casual labour employment for land preparation increases with the beginning of rainy season in October to November. February to March is weeding time and May to June is the harvesting period. Off farm employment is highest from July to September. Collections of wild food tend to increase from February to April. Fishing starts from the end of fish ban in March and increases steadily from April to July. Casual labour employment increases with the beginning of rainy season from October to November since this is the period for land clearing and preparation. February to March is time for weeding and May to June is the harvesting period. Off farm employment is highest from June to September

The hunger months are from September to February in a typical year. However in the wetlands hunger months are reduced by consumption of green maize.

Most food and, to a limited extent, income acquisition strategies in most zones revolve around the rainy season. In zones with potential for cash crops, there is a sequence of cash injections at peak harvest and sale time through out the season. This cycle assists to mitigate deterioration in food security.

### 3.2.5 Household sources of food

Figures 3.12, 3.13 and 3.14 show the sources of food for the different wealth groups. The graphs represent the contribution of each food type to the 2100Kilocalories (Kcal) per person per day requirement in a typical year like 2004. Generally, the major contribution of food came from own production and this increased by wealth group. This was supplemented by purchases in the better off and medium wealth bracket while labour exchange for the poor household was the food key supplement.

#### *3.2.5.1 Sources of food for poor households*

As depicted in Figure 3-12, even in a good year, most poor households failed to reach the recommended household/individual caloric requirements for the year. Poor households tried to make up their food shortfall through labour exchange to the middle and the better off. Some poor households used wild food as a major food source. Across the livelihood zones, the poor wealth groups in Mambwe-Petauke, Mufumbwe-Kasempa, Line of rail commercial and Luano valley were more food insecure, as their combinations of food sources did not contribute much to kilocalorie requirement.

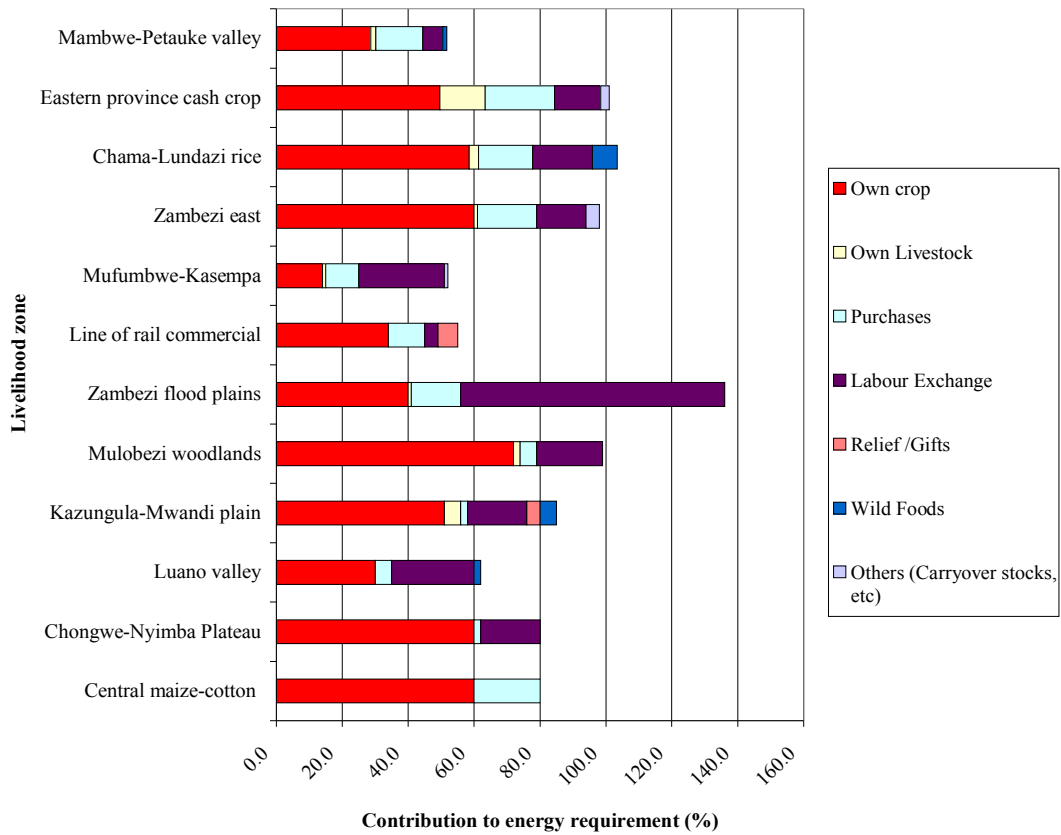
For poorer households vegetables and wild fruits usually filled the food gap. The poor categories in the Central maize-cotton, Chongwe-Nyimba and Kazungula-Mwandi have food sources that contribute just about 100% of their kilocalorie needs. Meanwhile the poor in the remaining zones have food sources that contribute over 100% of kilocalorie needs.

#### *3.2.5.2 Sources of food for middle households*

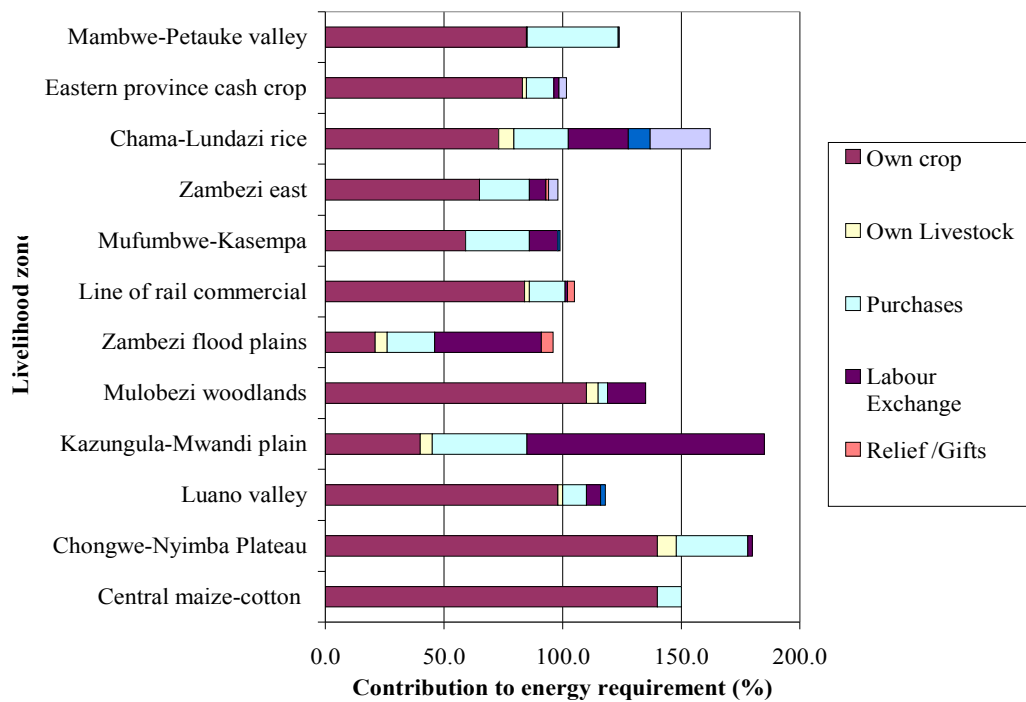
The contribution of food to kilocalorie requirement for middle households is shown in Figure 3-13. In all the zones visited the current food sources are able to meet kilocalorie needs for the middle wealth group.

The biggest share of food contribution for the middle category was generally own crop production followed by purchases, labour exchange and livestock. There were very few cases of relief or gifts as major food sources. High crop production areas like Chama-Lundazi zone, managed to attain carryover stocks.

**Figure 3-12. Sources of food for the poor households by livelihood zone**



**Figure 3-3.5. Sources of food for the middle households by livelihood zone**

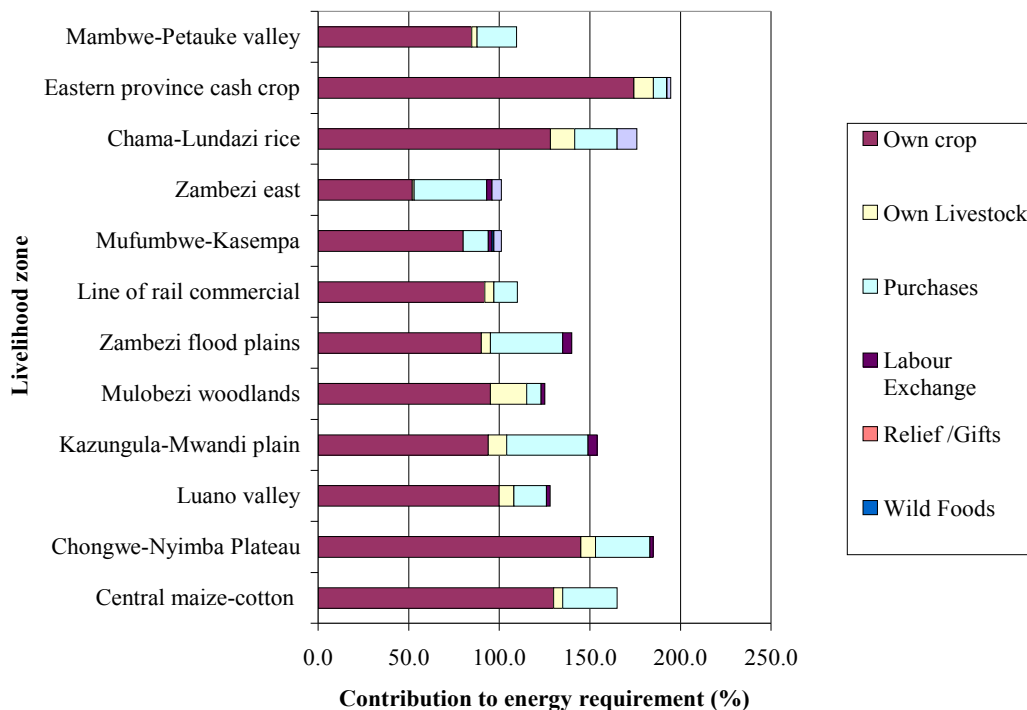




### 3.2.5.3 Sources of food for better-off households

Figure 3-14 shows the combination of food sources for the better-off households. The better-off wealth group were able to meet their kilocalorie requirement. The line of rail commercial, Zambezi east, Mufumbwe-Kasempa and Mambwe-Petauke zones were almost on the threshold. Purchases still made a significant contribution to kilocalorie needs as did own livestock. This wealth group did not engage much in labour exchange nor depended on relief or wild foods. The high crop producing zones exhibited high quantities of contribution from own crops compared to those zones in valley areas.

**Figure 3-14. Sources of food for the better off households by livelihood zone**



### 3.2.5.4 Analysis of food sources

The contribution of own crop production increased with wealth. Poorer households obtained about 50% of their food needs from their own production and according to the seasonal calendar accounted for roughly 5 months of consumption. Meanwhile the middle and better off households obtained almost all of their food from their own crops. The major source of difference between the poor and the middle was that the poor ended up with insufficient time spent in their own fields as a result of selling their agricultural labor.

The contribution of purchases or exchange declined with wealth. Own crop production became less significant as a source of food among the middle and better off wealth groups as purchases became more prominent. The reason for this trend was that some maize was grown as a cash crop and as one moves up the wealth groups, maize became the more dominant crop grown and mainly for sale. Cassava was generally preferred for consumption in areas like Zambezi west where it is a staple. In such areas, better off groups grew maize for sale and then purchased cassava from those selling.

Poor and lower middle households were forced to make up the shortfall in their food crop needs through working directly for food (labour exchange) or through working for cash to purchase food (and other essential non-food items). Poor households obtained a significant part (30-40%) of their food in this way and much of this was through labour exchange.

Generally, livestock production (in the form of milk and meat) made only a very small contribution to the food sources of most households in these zones. Households that owned cattle consumed smaller quantities of milk. Slaughter was generally restricted to goats (at times of festivals and funerals) and chickens.

Wild foods (including fruits and tubers) played an important role as a source of food for poor and middle households, contributing up to 5-10% of annual food needs. The wild foods that were consumed in average and good years were not considered as essential foods, and acted only as supplements.

Relief food accounted for 0-2% of caloric food needs across all wealth groups in the reference year. There was no sign of geographical or intra-community targeting. Some villages received assistance within the districts visited and others did not, and this did not seem to be related to required needs. In villages where assistance had been provided, all households were reported receiving assistance.

### **3.2.1 Household sources of income**

The figures 3-15, 3-16 and 3-17 represents the major sources of income for the zones visited for the period March 2003 to April 2004.

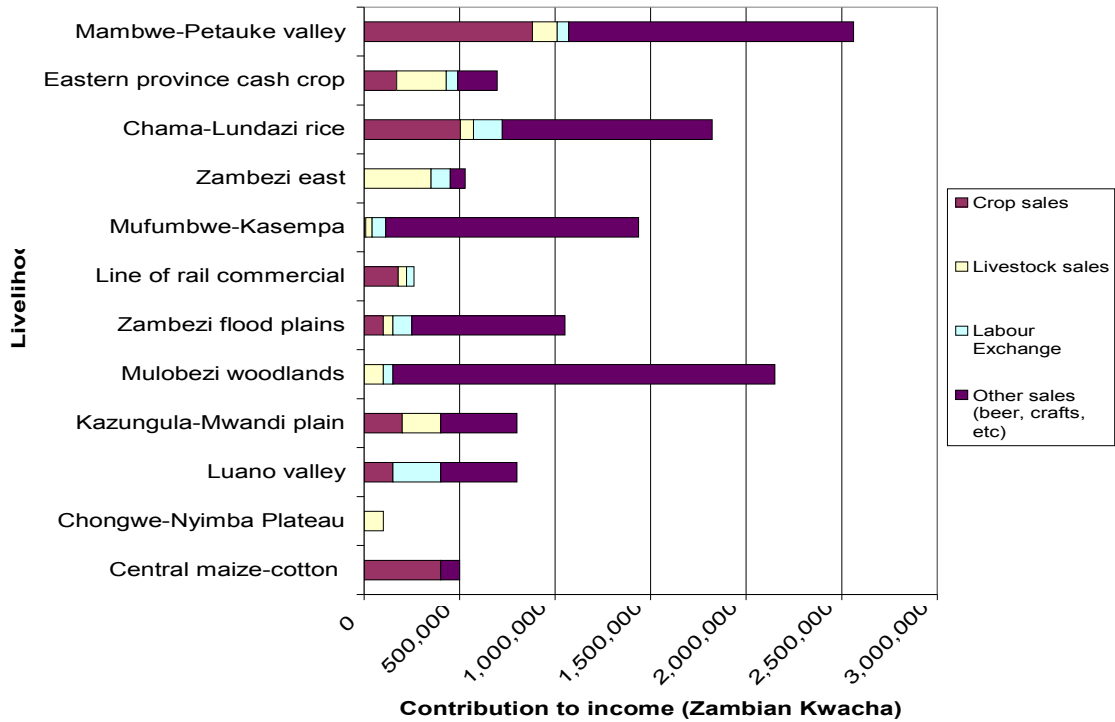
#### *3.2.5.5 Sources of income for poor households*

The major income sources for the poor households were businesses such as beer brewing and crafts. The other major sources were crop sales and labour exchange. Income sources for the poor households were generally low, below ZMK1, 000,000 a year except for isolated cases in Mulobezi woodlands, Chama-Lundazi and Mambwe-Petauke valley zone where income was between ZMK1, 500,000 and ZMK2, 500,000. The high crop sales in Chama-Lundazi and Mambwe-Petauke were explained by accessibility to contract farming for cotton and tobacco. Livestock sales were not very key sources of income across the zones visited except in Zambezi East where sale of small ruminants was common.

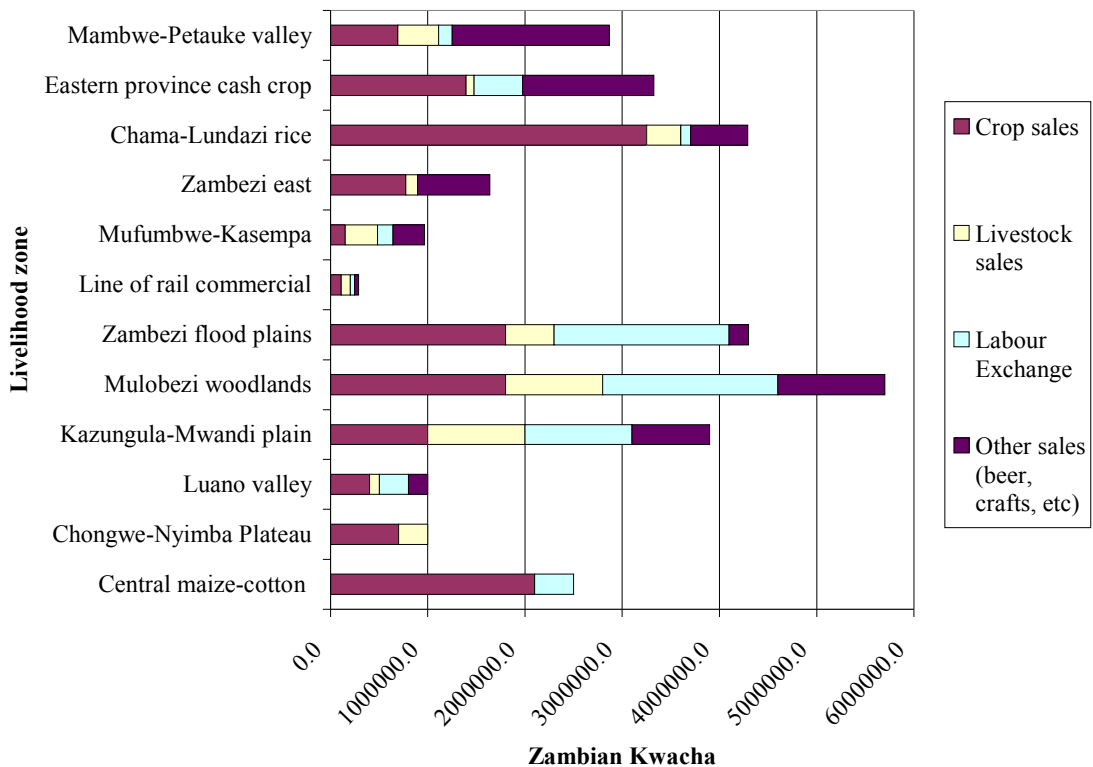
#### *3.2.5.6 Sources of income for middle households*

Annual income for middle households was on average ZMK3, 000,000. The bulk of the income came from crop sales especially in those areas where there was contract farming of cotton, tobacco and surplus maize. The highest income levels were in Mulobezi woodlands, Zambezi flood plains and Chama-Lundazi zones. High timber, winter maize and some surplus maize sales explained this income trend respectively. Labour exchange also played a key role in contributing to incomes in some zones while livestock sales were generally low. The least income level was in valley areas like Luano valley and Line of rail commercial zones. Small businesses were another major income for middle households.

**Figure 3-15. Sources of income for poor households by livelihood zone**



**Figure 3-16. Sources of income for middle households by livelihood zone**



### 3.2.5.7 Sources of income for better-off households

Key sources of income for better-off households were crop and livestock sales. The highest incomes were in zones with access to contract farming of cotton and tobacco. Across the zones the maximum yearly income was under ZMK10, 000,000 except for Chama-Lundazi rice zone that recorded about ZMK20, 000,000. The other major sources were from livestock sales and small businesses.

**Figure 3-17. Sources of income for better off households by livelihood zone**



### 3.2.5.8 Analysis of sources of income

The main source of cash income for all wealth groups was crop sales. The poor households additionally got their cash income from casual labour. Other sources included sale of vegetables, charcoal, wild foods, bush/handcrafts and gifts/remittances.

The better off households got more income from crop sales mainly due to comparative advantage of larger hectareage, use of draught power and capacity to hire casual labour to work in the fields. Maize sales were also major sources of income for the better off and medium bracket households. For the poor households maize was mostly for consumption. The better off households in most zones had a broader and more diversified income base compared to the poorer households. Income from cotton sales across zones was an increasingly important source of cash for the other wealth groups.

Labour exchange for poorer households was the highest contributor to income sources. In most cases, labour was paid for in terms of food unless otherwise. The sources of income in the livelihood zone as depicted in Figure 3-15 shows that the poor households were only

able to get income from sale of chicken and other small livestock to raise money for household daily needs such as salt, grinding meal costs, hospital and clinic fee.

The medium rich households depended more on crop and livestock product sales such as milk, for their major cash source. Livestock sales were a source of income for all wealth groups. Poor households sold chickens and goats (if they had them) whilst other groups (especially the better off) sold cattle, goats, pigs, sheep and even livestock products such as milk (and sometimes meat) to gain cash income.

Petty trading in selling of vegetables which are grown on dambos provided considerable income for all households. Vegetables were grown and sold by households in all wealth groups, but were most typical for poor and middle households. Beer sales were major income sources for most poor and middle households. Beer was mainly brewed from sorghum and was dependent on the availability of sorghum and surplus maize. Most of the transactions in the zones were done through barter trade, which was the most predominant way of exchanging goods and services.

Self-employment formed the most significant source of income for poor and middle wealth groups. Self-employment activities included bee keeping and sale of honey, fishing, wild game hunting, beer selling, fine grass sales, and mat sales.

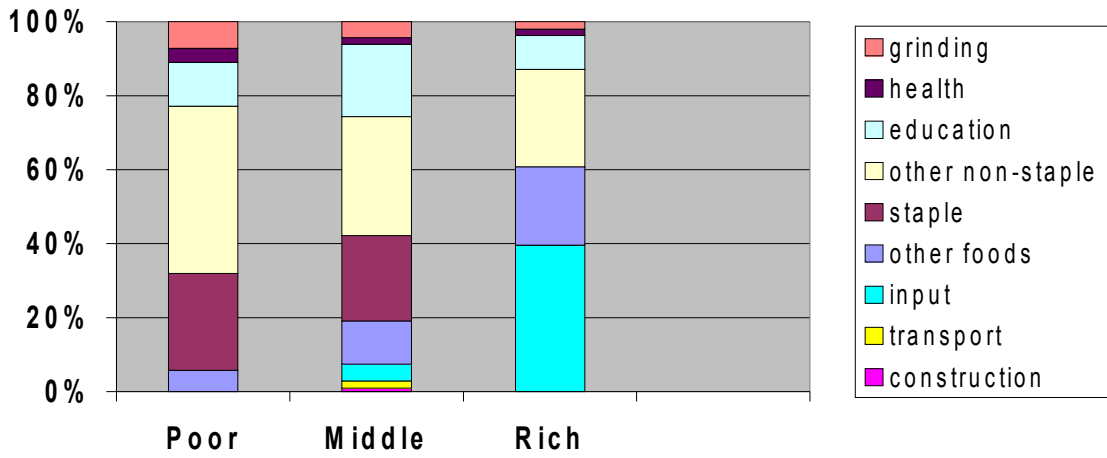
### 3.2.6 Household expenditure patterns

Different expenditure patterns were exhibited in different livelihood zones. The main ecological and economic characteristics of the zone were normally dictating the observed patterns. For example, in zones where crop and livestock agriculture was common, the key expenses were on agricultural and/or veterinary inputs. Figures 3-18 and 3-19 shows the expenditure pattern for the Luano valley zone and the Line of rail commercial zone.

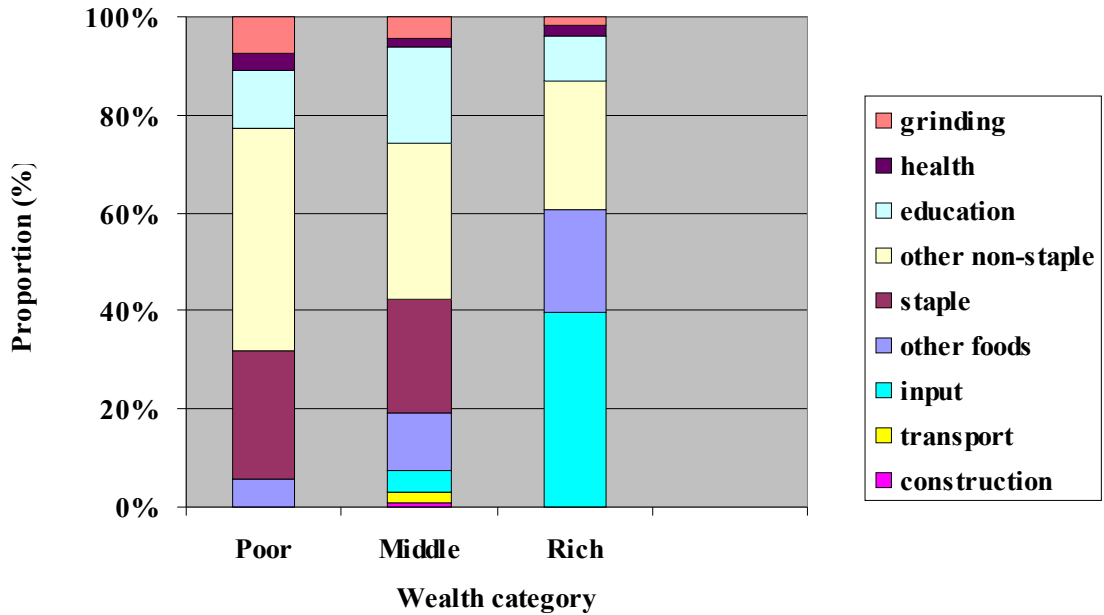
Figure 3-18 represents the expenditure pattern for the households in the Luano valley zone from March 2003 to March 2004. The major expenditure for households in the valley were essential household items like salt, soap, kerosene; grinding and firewood. Most transactions in the zone are by barter trading. The poorer households in the zone hardly spent any of their income on agricultural inputs.

In the Line of rail commercial zone, expenditure on staple food for poor households was almost the same as for middle households because they obtained most of their purchased food-using cash earned through crop sales and casual work. The better-off (rich) households had spent little on purchase of staple food due to their usually bountiful staple production. As a result of their relatively high income, the middle and better-off households could afford to buy inputs, which included fertilizer, seed, pesticides and veterinary drugs compared to the poor households who could not afford. The category 'other foods' included accompaniments (relish), sugar and oil. The expenditure item 'Other non-staple' included clothes, soap, grinding, candles (or diesel/paraffin), beer, utensils and other miscellaneous items. Expenditure on most of these items increased with wealth.

**Figure 3-8. Expenditure pattern in Luano valley**



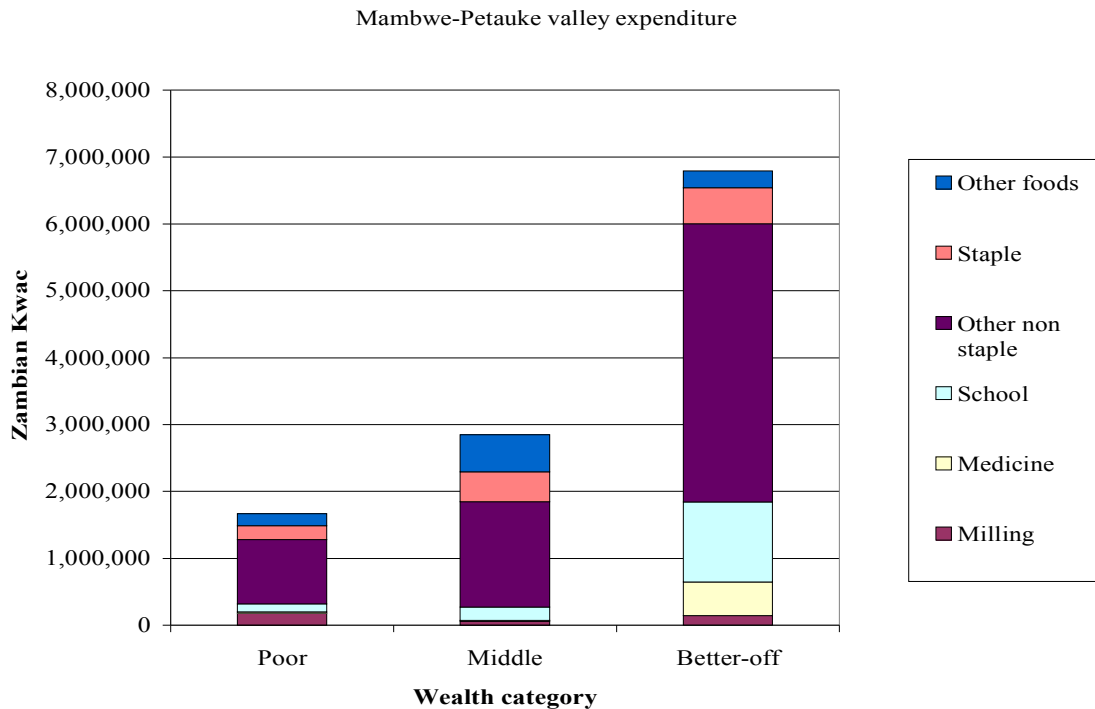
**Figure 3-9. Expenditure pattern in the Line of rail commercial zone**



## Analysis of expenditure patterns

Figure 3-20 shows an example of the general trend in expenditure observed across the zones visited. The example is obtained from the pattern in Mambwe-Petauke zone.

**Figure 3-20. Example of expenditure patterns across all zones**



As depicted in Figure 3-20, better-off households generally spent more than poorer households on almost all the items. Expenditure appeared to be positively correlated to the level of income. For the poor households, the major expense consisted of purchase of the staple, and maize milling expenses which was common among all the wealth groups. In addition, expenses on staple foods were consistent across the wealth groups although the better off usually spent less. Other consistent expenditures across wealth groups were on health and essentials like salt and soap. A major difference among wealth groups was observed in the expenses related to other non-staples like health and education items on which the better off spent significantly more. Education featured prominently for the middle and better offs attesting to the fact that the poor more often than not have only primary school going children most likely because it is costless in terms of school fees and other prerequisites.

## **Potential hazards in zones visited**

### *3.2.6.1 Chronic hazards*

In zones like Mufumbwe-Kasempa, Mambwe-Petauke and Chongwe-Nyimba human-wild animals conflict remains a major problem. The proximity of game parks and game management areas has led to areas on the periphery to suffer from crop damage especially by hippos and elephants.

In zones that have a lot of livestock, such as those in southern, eastern and western parts of Zambia, livestock diseases such as CBPP remained a major threat to cattle rearing. In cases such as those in western Zambia, diseases are endemic resulting in periodic restrictions on cattle movement. In eastern Zambia the African Swine Fever has consistently reduced the population of pigs while the Newcastle disease has consistently attacked chickens. Cattle diseases, for example, expose owners to impacts related to asset base erosion, thus affecting future response strategies that involve cattle as food or as a source of income. Secondly, diseases reduce draught power for higher crop hectares thus further reducing expected yields.

### *3.2.6.2 Periodic hazards*

The main periodic hazard in the zones visited was erratic rainfall. This was in terms of long dry spells, few rain days with high rainfall amounts or generally inadequate rainfall. This always tended to create transitory food insecurity in most zones.

In zones such as the Luano valley and Zambezi flood plains, excessive rainfall causes localized floods and subsequently water logging that submerges crops. In Zambezi east zone water logging results in cassava rotting, disturbing access to the main staple food. Due to persistent floods in some zones, the main crops are grown along the riverbanks where there is a lot of silt and moisture. This usually destroys the first crop and the households have to wait for two to five months before they go for second planting and harvest from the second crop. The period in between the first planting and the harvest of the second planting is when most households are food insecure. The floods mean that household will not have food for the first planting season to the second planting season until the second harvest.

Crop diseases particularly, the larger grain borer infestation of stored grain was common in most zones. Poor crop marketing and input distribution had lead to reduced incomes in many households in most zones visited. Farmers in most zones always pointed out how the market system disadvantaged them

### 3.2.7 Coping or response strategies

In the Central maize-cotton zone, when hazards affect the area, production of both food and cash crops gets affected. For the poor the main response when hit with drought/floods is to increase casual labour in commercial farmers and to the better off households. For the better off and medium households, the main response to reduced rainfall and drought has been sale of livestock to make up for the loss in income and food shortfall. When livestock diseases attack the zones, the farmers turn towards massive selling of livestock.



The major coping strategy in Luano valley was dependency on wild fruits, and increased casual labour to those in formal employment. With limited livelihood options and limited cash transactions, coping strategies were very limited in the Luano valley.

In Kazungula-Mwandi zone, most affected households were the poor. In most of the months of the year these worked in the fields of the medium and the well off for their livelihood. The poor wealth group coped with the drought situation by sale of casual labour, increased sale of bush products such as bundles of grass, making of reed mats, and increased beer brewing. The middle households coped with the drought situation by selling the last season crop stocks, selling of livestock and small business trading. Some of the medium wealth group were involved in casual work, and beer brewing had increased.

In Mulobezi woodlands zone the poor coped by casual work (land clearing and weeding) for the better offs, and seeking work as domestic workers, increased sale of bush products such as bundles of grass, making of reed mats, increased beer brewing and increased prostitution. The medium and the well off wealth group sold livestock products and engaged in gardening. Most of the people depended on last season (2003-04) crop harvest and cross-border trading with Namibia. The poor were coping by working for medium and richer wealth groups in Zambezi flood plain zone. The medium households also work for well off wealth group and engage in petty trade. The richer are selling livestock. There is a complaint that the buyers are paying less for their livestock. Other responses are sale of bush products.

In Sioma the poor coped with the drought situation through casual labour, wild fruit collection and relief food; stealing is quite rife in the villages worst affected by the drought. The medium and the richer wealth group relied on last season's crop harvest. One strategy that is commonly employed in bad years is to reduce on non-essential expenditures. Households reported reducing expenditure on clothes, grinding, relish and other non-staple items in bad years.

In the line of rail commercial zone, all wealth groups attempted to expand their food and income sources that are less directly affected by the hazard in bad years. For example, the collection of wild foods expands in bad years, both for consumption and for sale. However, the poor households in the current survey did not reflect this expandability in their responses. Livestock sales also increase in bad years. The wealthier households are in a better position to exploit this strategy since they own more livestock. Migration of individual household members in search of employment within the zone is a common strategy in bad years, generally employed by poor and middle households. The success of this strategy partly depended on the extent to which neighbouring areas within the zone were also affected by the hazard in a particular year. Other coping strategies included local casual labour, fishing, petty trade, reducing expenditure on education in order to buy food and parents sending children (pupils) to do piece work and earn money or food instead of encouraging them to go to school.

In Mufumbwe-Kasempa zone, the poors' response to erratic rainfall is mainly by selling off their labour for food. In extreme cases the selling of labour goes beyond the normal agricultural labour calendar. Reducing the number of meals is very common amongst the wealth groups. The middle wealth group mainly relied on their livestock and some cash crops to meet food deficits that may arise. The major forest product among this wealth group was honey from bee keeping.

Sale of livestock, and barter for food were common response strategies for all wealth groups. In Chama-Lundazi zone, the common strategies for the poor were beer brewing and cross border trade with Malawi. The middle and wealthier groups engaged in livestock sales. In Mambwe-Petauke zone, the poor households responded to hazards by seeking casual labour on several tourist lodges in the game park. Others engaged in limited fishing and sale of bush products. The middle households engaged in casual labor on better off farms and tourist lodges. In the Eastern province cash crop zone coping strategies for the poor households included beer brewing and mat making. The middle and better off households hired out their assets, like scotching carts and also engaged in cross border trade with Malawi.

### 3.2.8 Indicators of imminent crisis

Key crisis indicators in the zones revolved around the rainfall pattern. Each time the rainfall delayed in coming or became intermittent or inadequate, it spelt potential problems for the agricultural season. In the valley areas, like Luano valley, too much rainfall indicated an impending crisis that normally happens in the months of January and February. Drought indications in Luano valley show when there is a delay in the start of the rain season and long dry spells in January and February.

Another key indicator of a crisis is reduction in uptake of casual labour employment by the medium and the well off. High staple food prices after harvest season is also an indicator of a pending crisis. In some cases increased cattle movement to wetlands is another indicator. In other zones, crisis indicators included increased livestock sales after the staple crop harvest and reduced livestock prices as the season progressed. Increased wild food collection, especially after harvest, was another common indicator of a pending crisis.

In some zones that border urban areas, like Chongwe-Nyimba, migration of household members to neighbouring towns and commercial farm areas was another indicator of a crisis. In Chama-Lundazi and Kazungula-Mwandi zones some individuals migrated to Malawi and Namibia respectively in search of work on better off farms.

The likely deficits as a result of the poor performance of the current season will, however, would be mitigated by the stated coping strategies that households employ. In some cases the entire deficit could be covered completely.

## **3.3 Rural vulnerability**

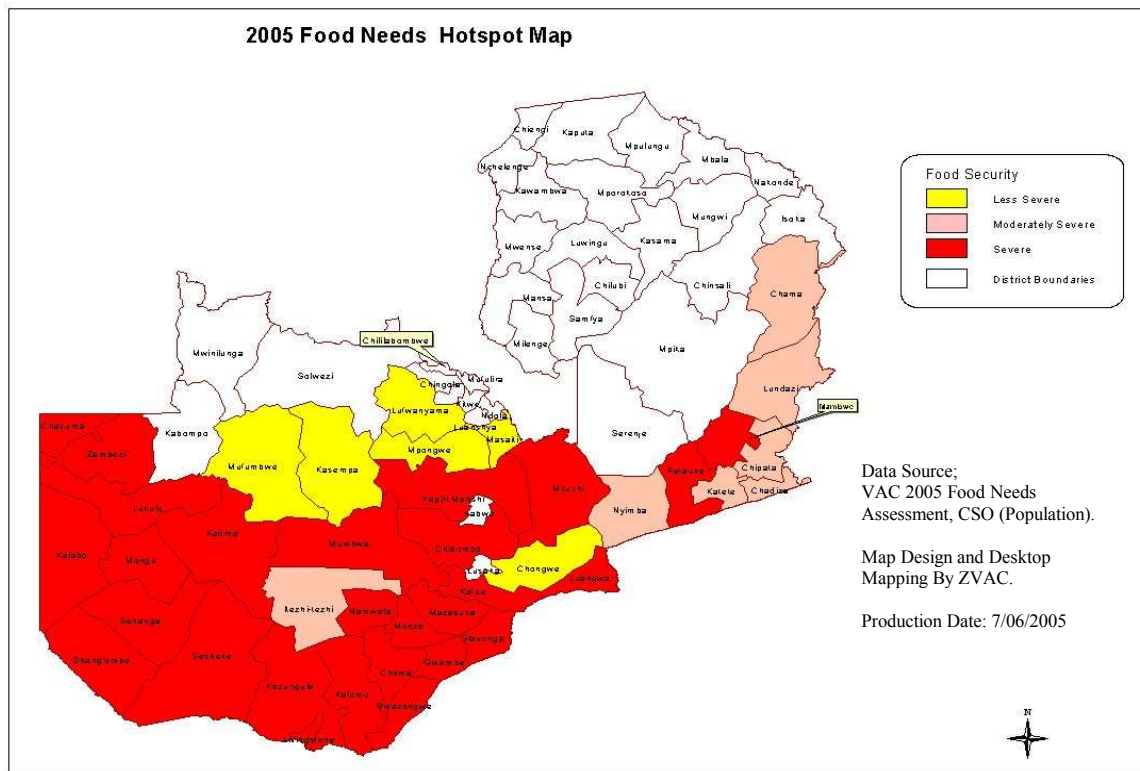
### 3.3.1 Cereal Gap Analysis

Requirement for external food aid is determined by the degree of access to local foods. This in turn is influenced by the availability of local foods (e.g. in the market or from own production) and the purchasing power. Further it is also influenced by the opportunities available to the affected population (e.g. for direct purchase from local sources or for the purchase of food where production is possible and allowed). The interplay of these attributes assist to determine the population in need.

Using a food gap analysis, the assessment established that a total population of 1,232,661 people would require assistance in the districts shown in Table 3.6 (see also Figure 3-21).

A total of 118,335 MT of cereal is required for a period of 8 months, from July 2005 to February 2006. This food intervention will provide 70% of the recommended 2100 kilocalories per capita requirement. Therefore in addition to cereal, it is recommended that those planning to assist these affected households programme for additional foods rich in protein and oils, consistent with nutritional needs. Table 3-6 shows the actual breakdown, in terms of cereal needs, per district. The month of June 2005 is reserved for logistical preparation by concerned agencies.

**Figure 3-21. Food needs hot spot map, 2005/06 marketing season**



The proposed period of intervention is meant to coincide with the start of the green harvest which normally contributes substantially to filling the food gap.

The highest population at risk are in Chibombo and Petauke with over 100,000 person. The districts with fewer people at risk are Livingstone, Luangwa and Chavuma.

Seven (7) districts have been recommended for monitoring in terms of evolving food security situation. Some districts (six) that were equally affected by the hazard were found to be less severely impacted and may not require immediate attention (Table 3-7). The districts under monitoring have access to contract farming and their seasonal calendars portray consistent cash inflows through out the year. These factors contribute substantially to their incomes and food needs.

**Table 3-3.6. Estimates of district cereal needs (metric tons) and number of persons at risk, 2005/06 marketing season**

<b>District</b>	<b>Number of persons at risk</b>	<b>Cereal requirement (MT)</b>
Mambwe	16,823	1,615
Zambezi	17,537	1,684
Chavuma	6,237	599
Mkushi	44,375	4,260
Petauke	101,820	9,775
Kapiri Mposhi	60,346	5,793
Lukulu	23,034	2,211
Kaoma	84,150	8,078
Kalabo	54,156	5,199
Mumbwa	65,154	6,255
Chibombo	107,757	10,345
Mongu	45,291	4,348
Luangwa	4,827	463
Kafue	44,850	4,306
Senanga	50,148	4,814
Mazabuka	82,019	7,874
Sesheke	36,920	3,544
Namwala	40,865	3,923
Monze	61,911	5,943
Shang'ombo	40,105	3,850
Siavonga	18,461	1,772
Kazungula	40,639	3,901
Choma	85,039	8,164
Kalomo	80,044	7,684
Gwembe	11,267	1,082
Sinazongwe	6,944	667
Livingstone	1,943	187
<b>Total</b>	<b>1,232,661</b>	<b>118,335</b>

**Table 3-3.7. Districts under monitoring and those less affected, 2005/06 agricultural marketing season**

<b>Districts under monitoring</b>	<b>Districts less affected</b>
1. Itezhi-tezhi	1. Mufumbwe
2. Nyimba	2. Kasempa
3. Katete	3. Mpongwe
4. Chadiza	4. Lufwanyama
5. Chipata	5. Masaiti
6. Lundazi	6. Chongwe
7. Chama	

The seven listed districts will remain under monitoring during the 2005/06 marketing season. Indicators to monitor include cereal prices (sharp price increases), unusual sale of productive assets and reduction in livestock prices (panic selling). The less affected districts will be able to cope without outside assistance through employing their normal

coping mechanisms. Most of the districts which are least affected historically receive relatively more rainfall even in bad years.

### 3.3.2 Targeting

Targeting of the most vulnerable should use a combination of social and economic criteria. For district wise targeting, there is need for coordination among the key players (Government, NGOs, UN system and community representatives) to agree on appropriate targeting guidelines. According to survey results there is need to carry out post distribution monitoring in areas that will be targeted for food aid. In dealing with targeting, the survey recommends that the following aspects are considered:

#### *3.3.2.1 Protecting lives for those within the rural (cash and barter) economies*

While a food intervention in the months ahead will certainly compensate for food losses resulting from drought, the loss of income due to drought for those within the rural cash economy must be mitigated as well. The survey recommends that targeting modalities, local purchase, and seed availability choices should reinforce changes in the pattern of production, and income incentives that reduce risk through the increased production of agro-ecologically suitable crops in combination with greater crop and income diversification. For example, those living within the rural barter economy, livestock provide some measure of protection.

#### *3.3.2.2 Protecting lives for the economically vulnerable*

Recognizing that there are high and low income groups among the geographically vulnerable, the primary benefit of a risk reduction approach would accrue to those with access to land and other attributes of wealth. Therefore those facing labour shortages through taking care of the chronically ill (e.g. HIV AIDS affected households) would require other forms of protection. In addition, low income households in rural areas facing higher food prices will also require protection that would be afforded through expanded access to lower cost food items.

### 3.3.3 Programming Strategies

#### *3.3.3.1 Free Food or Food for Work*

Within the Government's policy to encourage food for work, a focus on work that reduces the production risks should be emphasized with modifications where necessary. Free food should be accessed by socially and economically disadvantaged such as the chronically ill, aged, child headed households, widows and disabled and not able to work.

#### *3.3.3.2 Choice of commodity*

There is need to provide food aid in a form that might help to encourage consumption diversification where possible blending of foods should be encouraged.

### 3.3.3.3 *Cash transfer*

Since food aid needs by definition are intended to address the consumption shortfall, the question that still needs to be addressed is what should be done to offset the income loss that also occurs in most vulnerable households. As such options for cash transfers would make sense where markets are available. For example, the WFP Local Purchase Program of 2005 could assist to provide a stimulus in such markets.

## 4. CONCLUSIONS AND RECOMMENDATIONS

The fact that there is a high dependency on own production as a source of food (accounting for at least 80 percent of all cereals used by the household) suggests that rural households are highly vulnerable to factors that affect production, such as poor rains. This fact has been underscored by the fact that the poor rains received this (2004/05) agricultural season have resulted in substantial reductions in quantity of cereals produced in all the livelihood zones. Therefore, it is important for the government, the private sector and all other agricultural stakeholders to re-look at their strategies and consider, among other things, medium- to long-term interventions that could improve these farmers' abilities to forecast the drought and/or to implement technologies and management practices that could reduce production risk. Irrigation and other management practices (early planting, conservation agriculture, and other water-conserving technologies) might be some of the interventions to be considered.

The study has identified a substantial number of households that might be in need of direct intervention, given the effects of this year's poor rains. Although specific interventions can best be identified and their effectiveness measured through a comprehensive appraisal exercise, an attempt is made in the lines that follow to provide some suggestions, drawing from experiences and lessons learnt through this study.

### 4.1 Food based interventions in the short term

#### 4.1.1 Food Relief

- Preparations for food relief intervention should commence in line with the recommended time frame of July 2005 to February 2006 in the districts highlighted in Figure 3-21. The options on interventions should aim to protect livelihoods for those within the rural (cash and barter economies) and should also protect those economically vulnerable. Programming strategies should encompass options related to free food or food for work, choice of commodity and cash transfer options.
- Phase down strategies should not disrupt the built capacities and livelihood options resulting thereafter.

##### 4.1.1.1 Targeting/Monitoring of food relief

- Targeting of the most vulnerable should use a combination of social and economic criteria
- Coordination of GRZ/UN/NGO and communities in targeting.
- A review of targeting guidelines to improve the following aspects; criteria for beneficiary selection and verification; guidelines for use of community based structures for distribution; clear structures for monitoring a) distribution b) post-distribution and c) impact and guidelines for joint monitoring by organizations at each level: community, district and national level (bottom up).
- Re-orient all stakeholders (Government, NGOs, community leaders, satellite committees, District Disaster Management Committees (DDMC) on targeting guidelines.

#### 4.1.2 Nutrition

- Enhancement of supplementary feeding programmes using HEPS and therapeutic feeding programmes following international standards in serious and risky zones (See Annex 6).

### **4.2 Non food based interventions in the short term**

#### 4.2.1 Food Security

- Conduct an impact assessment of the input support programmes to ascertain their benefit in improving livelihoods.
- Promotion of organic farming to reduce the risk of disease outbreak.
- Immediate cattle vaccinations as animals share limited water resources.
- Support and enhance disease control programmes especially for cattle (CBPP, FMD).

#### 4.2.2 Water

There is need to enhance the current interventions in water treatment such as use of chlorine and boiling of water before drinking since two thirds of the respondents in the survey used unsafe water sources. There is a need to sustain water availability in the affected zones through water monitoring. Develop programs for provision of safe water to valleys and far flung areas.

#### 4.2.3 Education

- Sustain girl child education programs especially in the valley areas.
- Sensitize guardians on equal access to education for both gender and discourage early marriage for girls.
- Reduce drop outs through extending programmes such as school feeding.

#### 4.2.4 Nutrition

- The results of under five malnutrition rates shows the need for urgent attention in the following identified zones; Mambwe-Petauke Valley (12B), Mufumbwe-Kasempa (3A), Chama-Lundazi rice (4B) and Eastern province cash crop (5B), Zambezi East (10B), Sioma plain (6) and Chongwe-Nyimba plateau (7B). Capacity should be built for health care providers in the management of moderate and severe cases of malnutrition in the identified zones. Management of childhood illnesses in those affected areas should also be prioritised. In addition nutrition programs that target households in the area of diet diversity and food processing should be enhanced.
- In addition there is need for improved management of child illnesses. Emphasis should be on children aged 6 to 23 months.

### **4.3 Medium and long term interventions**

#### 4.3.1 Food security

- For recurrent floods and droughts, permanent solutions to be sought through integrated water management schemes such as simple irrigation techniques for agriculture and small dams for livestock. In addition promotion of drought-tolerant crops and water harvesting techniques must be intensified.
- Support for sustainable agricultural production that are based on food security such as conservation farming. Cassava based research to be intensified for continued



availability of the crop through out the year through superior varieties that are high yielding.

- Promote restocking schemes and other agricultural loans schemes that are carefully tailored to areas with frequent bad years. This however should go hand in hand with promotion of good animal husbandry practices.
- Appropriate road rehabilitation programs must be pursued in areas with poor road infrastructure to promote production and marketing.

#### 4.3.2 Nutrition

- Further assessment should be conducted to investigate the high proportions of bilateral oedema in Kazungula-Mwandi plain (zone 7A).
- A baseline investigation of the inter-linkages between food security, health and nutrition in areas where prevalence of under-five malnutrition is low such as the Central Maize-Cotton (zone 4A) is recommended.
- Existing nutrition programmes should be enhanced to promote / include training in food processing and diet diversity.

#### 4.3.3 Health

- Implementation of activities in on-going programmes that are addressing management and treatment of chronic illnesses including preventative health care must be enhanced.
- Management of child illness in redspot areas with child malnutrition.

\*\*

## REFERENCES

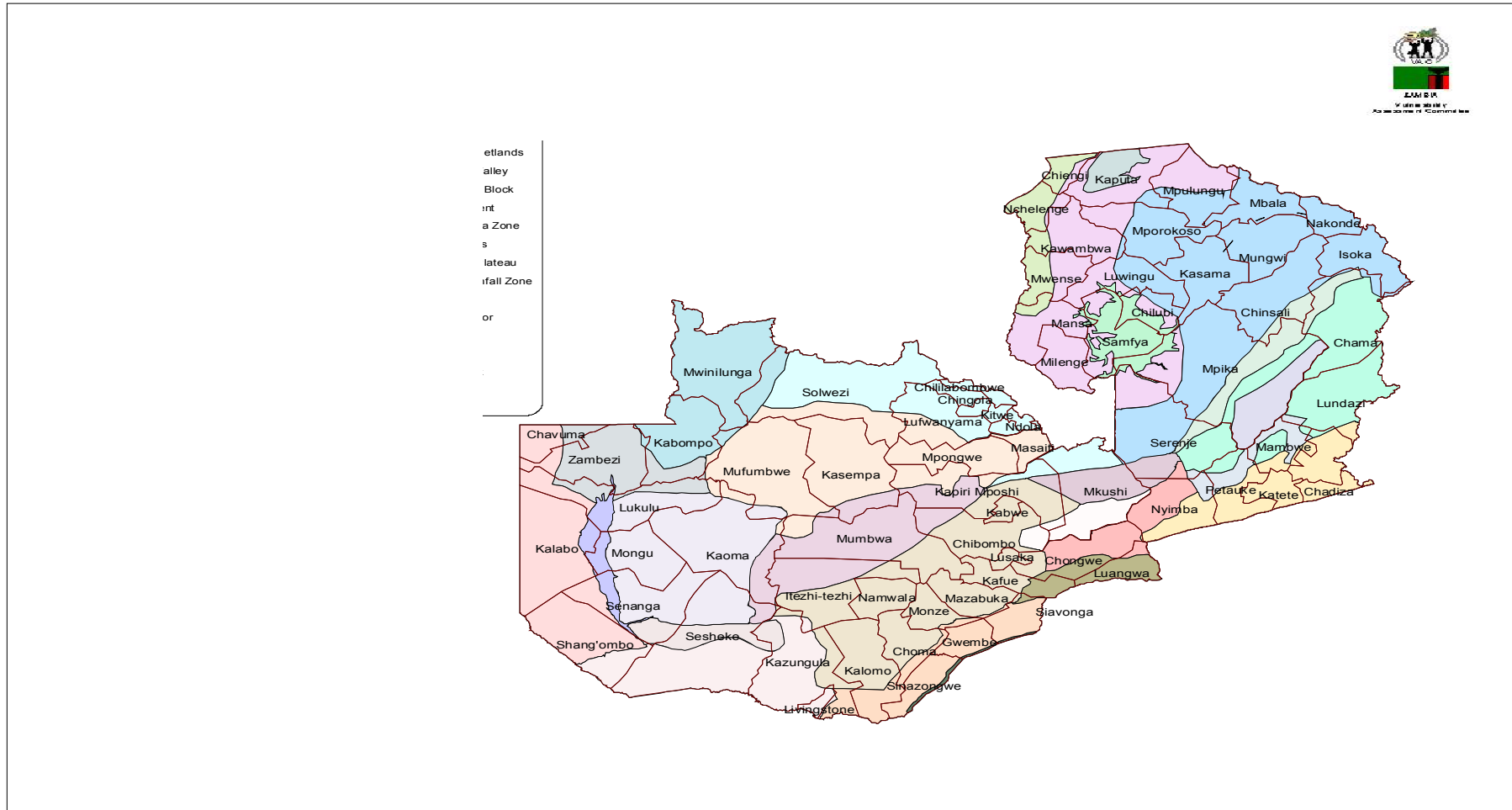
1. Agriculture Commodity Exchange (2005) Market Bulletin May 27<sup>th</sup>, 2005
2. Central Statistical Office (2000) 2000 Census of Population and housing, GRZ
3. Central Statistical Office (2003) Food security, Health and Nutrition Information System, GRZ
4. Central Statistical Office (2002) Living Conditions Monitoring Survey, GRZ
5. Central Statistics Office (1992, 1996, 2002) Zambia Demographic and Health Survey, CSO/CBoH/USAID/ORC.
6. FANTA (2005) Household Dietary Diversity Indicator Guide for Measurement of Household Food Access, FANTA
7. FAO. Nutrition in the Developing World, Rome, Italy: Food and Agriculture Organization of the United Nations (FAO),
8. Ministry of Energy and Water Development. (2005) National Water Policy Draft Report, GRZ
9. Ministry of Finance and National Planning. (2005) Budget Speech for 2005, GRZ
10. UNICEF (2002) Mid term review of country program (2002-2006)
11. World Food Programme (2003) Country Programme Activity no 1: Assistance to Basic Education 2003-2006, WFP.
12. World Health Organisation (2000) The management of Nutrition in Major Emergencies, WHO
13. ZVAC (2003) January 2003 Zambia Emergency Food Security Assessment
14. ZVAC (July 2003), April 2003 Livelihood and Vulnerability Assessment Report
15. ZVAC (May 2004) Flood Impact Assessment Report
16. ZVAC (Oct 2004) Zambia Livelihood Map Rezoning and Baseline Profiling
17. ZVAC (Jan 2005) Rapid Food Needs Assessment
18. ZVAC (Mar 2005) Rapid Crop Assessment

## ANNEXES

### Annex 1. Primary Sampling Units (SEAs) by Food Economy Zones and District, 2005

	Food Economy Zones	Zone Code	Zonal population	Target District	Number of primary sampling units (PSUs)
1.	Chama-Lundazi Rice	4B	289,315	Lundazi	8
2.	Chiawa-Zambezi Lowlands	12A	21,515	Luangwa	3
3.	Chongwe-Nyimba Plateau	7B	132,460	Chongwe	6
				Nyimba	4
4.	Eastern Province Cash Crop	5B	832,509	Chadiza	5
				Katete	7
5.	Gwembe Valley	11A	157,661	Gwembe	4
				Siavonga	4
				Sinazongwe	4
6.	Kazungula-Mwandi Plain	7A	87,811	Kazungula	4
7.	Line of Rail Commercial	5A	1,157,428	Kalomo	6
				Chibombo	7
				Mazabuka	6
8.	Luano Valley	7C	20,934	Mkushi	4
9.	Central Maize-Cotton	4A	137,612	Mumbwa	4
10	Mambwe-Petauke Valley	12A	32,030	Mambwe	4
11	Mulobezi Woodlands	9	51,794	Sesheke	4
12	Sioma Plains	6	257,178	Kaoma	6
13	Zambezi East Bank	10B	63,596	Zambezi	4
14	Zambezi Flood plains	14	163,961	Senanga	5
				Mongu	3
15	Zambezi West Bank	10A	136,510	Kalabo	7
				Shan'gombo	5
16	Mufumbwe-Kasempa	3A	241,771	Kasempa	4
				Mufumbwe	4
17	Mkushi Commercial Block	13	91,844	Mkushi	2
	Total		4,620,505		105

## Annex 2. Livelihood Economy Zone Map



**Annex 3. Zambia National Food Balance for 2005/06 marketing year,**

Crop Production Estimate (Metric Tonnes)								
		Maize	Paddy rice	Wheat	Sorghum/ millet	Potatoes	Cassava flour	Total (Maize mealie meal equivalent)
<b>A. Availability:</b>								
(i) Opening stocks (May 2003)	1/	190,702	103	156	2,445	0	380	174,305
(ii) Total production (2004/05)	2/	866,187	13,338	136,833	48,297	82,489	1,056,000	1,932,498
<b>Total availability</b>		<b>1,056,889</b>	<b>13,441</b>	<b>136,989</b>	<b>50,742</b>	<b>82,489</b>	<b>1,056,380</b>	<b>2,106,803</b>
<b>B. Requirements:</b>								
(i) Staple food requirements:								
Human consumption	4/	1,024,080	24,673	131,658	46,327	78,364	709,926	1,754,712
Food Reserve Stocks (net)	5/	0	100	0	1,000	0	500	1,406
(ii) Industrial requirements:								
Stockfeed	6/	52,000	0	0	0	0	0	46,800
Breweries	7/	15,000	0	0	0	0	0	13,500
Seed	8/	7,500	0	1,500	1,000	0	0	8,733
(iii) Losses	9/	43,309	667	6,842	2,415	4,124	21,120	67,241
<b>Total requirements</b>		<b>1,141,889</b>	<b>25,440</b>	<b>140,000</b>	<b>50,742</b>	<b>82,488</b>	<b>731,546</b>	<b>1,892,392</b>
<b>C. Surplus/deficit (A-B)</b>	10/	<b>-85,000</b>	<b>-11,999</b>	<b>-3,011</b>	<b>0</b>	<b>0</b>	<b>324,834</b>	<b>214,411</b>
<b>D. Commercial import requirements</b>	11/							

Source: MACO/CSO, June 2005

Annex 3 Continued

Notes on the Food Balance Sheet	
<b>E.</b>	Food aid import requirements <i>12/</i>
<i>1/</i>	Stocks expected to be held by commodity traders, millers, FRA and commercial farmers as at May 2003, NOT including stocks held by small-scale farmers in rural areas.
<i>2/</i>	Production estimates from MACO/CSO. Cassava production is based on the total area under cassava, using an annual yield figure of 11.7 tonnes per hectare (MAFF Root and Tuber Improvement Programme, 1996). A flour extraction rate of 25% is used. Other tubers are sweet potatoes and Irish potatoes.
<i>3/</i>	Urban production of maize is estimated at 6.61% of rural smallholder production, based on 1998 Living Conditions Monitoring Survey's urban respondents who cultivated one hectare of maize or less.
<i>4/</i>	Staple foods are assumed to represent 70% (1,421 kCal/person/day) of total diet (2,030 kCal/person/day), converted to crop requirements for the national 2003/04 population of 10.11 million people. The maize grain and cassava meal surplus represents an overall surplus of staple foods. Cross-substitution may make this surplus partly available in the form of other crops.
<i>5/</i>	Locally purchased FRA stocks expected to be carried over into the next season.(this does not indicate total FRA purchases on the local market nor imports)
<i>6/</i>	Estimated requirements by major stockfeed producers.
<i>7/</i>	Estimated requirements by industrial breweries.
<i>8/</i>	Estimated seed crop grown for seed companies.
<i>9/</i>	Post harvest losses are estimated at 5% for grains and sweet potatoes, and 2% for cassava.
<i>10/</i>	Expected surpluses or deficits that arise after meeting minimum overall staple human consumption requirements as well as industrial requirements. Cassava and maize surpluses may be substitutable with other crops and may result in different exportable volumes than the ones indicated here.The rice deficit is based on what is known to be imported each year, as indicated under D.The wheat deficit is based on the estimated market size as indicated in B, less availability as indicated in A.
<i>11/</i>	Imports required to be made by the private sector to meet the commercial market demands.
<i>12/</i>	Total estimated requirement for food relief among vulnerable groups, to be imported. This could be met with maize or other grains.

#### Annex 4. Child health and nutrition characteristics per sex

Sex	MUAC/Age (Z-Score)		Presence of bilateral oedema	MUAC <11 cm	Recent illnesses (one week)						Dietary diversity score	
	<-2	<-3			Diarrhoea	Fever	Cough	Difficulties in breathing	Other illnesses	No illnesses	Inadequate (IDDS<=3)	Adequate (IDDS>3)
<b>Percentages %</b>												
Female	9.5	1.4	1.6	0.6	20.6	33.8	32.1	7.3	6.6	27.5	45.0	55.0
Male	21.2	3.2	2.2	1.2	27.5	39.6	41.7	11.3	6.7	25.3	51.9	48.1
Total	15.5	2.3	1.9	0.9	24.2	36.8	37.1	9.4	6.7	26.4	48.6	51.4

### Annex 5. Child health and nutrition characteristics per livelihood zones

Livelihood Zones	MUAC/Age (Z-Score)		Presence bilateral oedema	MUAC <11 cm	CMR (Deaths per 10,000 per day)	Recent illnesses (one week)						Dietary diversity score	
	<2	<3				Diarrhoea	Fever	Cough	Difficulties in breathing	Other illnesses	No illnesses	Inadequate (IDDS≤3)	Adequate (IDDS>3)
Percentages %													
10B	15.2	0	2.6	0	0	12.5	22.5	17.5	10	12.5	15	67.6	32.4
11A	8.4	1.5	2.3	0.7	0.6	7.7	26.3	15.4	1.9	7.7	48.7	64.3	35.7
12B	21.4	5.4	0	6.9	0.4	43.6	50	54.8	22.6	4.8	14.5	45.8	54.2
13	9.5	0	0	0	1.3	11.5	46.2	26.9	0	0	38.5	50.0	50.0
3A	26.2	5	0	1.1	0.1	12.6	24.2	15.8	7.4	16.8	44.2	60.5	39.5
4A	1.7	0	0	0	0.8	13.7	8.2	16.4	0	5.5	30.1	47.5	52.5
4B	26.6	7.6	1.1	3.2	0.7	33.7	33.7	55.1	13.3	6.1	17.3	42.0	58.0
5A	7.4	2.1	3.3	0	0.8	18.3	20.9	26.4	1.7	8.1	33.2	61.3	38.7
5B	20.8	1.9	0	0	0.9	39	61	54.2	20.3	3.4	18.6	39.6	60.4
6	16.7	0	0	2.4	0.6	14	46.5	37.2	2.3	4.7	18.6	35.5	64.5
7A	0	0	3.8	0	1.2	16.7	26.7	30	6.7	10	0	39.3	60.7
7B	6.5	0	20	3.9	0.4	19.1	27.9	30.9	4.4	1.5	22.1	45.8	54.2
7C	15.4	0	0	0	0.5	21	26.3	15.8	0	10.5	36.8	28.6	71.4
9	3.9	0	0	NA	1.2	12.5	22.5	27.5	0	15	5	45.7	54.3





## Annex 7. Report writing and editorial team

<ol style="list-style-type: none"><li>1. Ms. Chantal Gegout WHO</li><li>2. Mr. Peter Kasonde Consultant-Data Analyst</li><li>3. Mr. Lawrence Michelo WPF</li><li>4. Mr. Allan Mulando WFP</li><li>5. Mr. Dominiciano Mulenga DMMU</li><li>6. Ms. Chansa Mushinge FEWSNET</li><li>7. Mr. Clement Mwafulirwa NFNC</li><li>8. Mr. Alfred Mwila FEWSNET</li></ol>	<ol style="list-style-type: none"><li>9. Mr. Ward Siamusantu NFNC</li><li>10. Mr. Isaac Sichivula NRDC</li><li>11. Mr. Oscar Silembo DWA</li><li>12. Mr. Goodson Sinyenga CSO</li><li>13. Dr. Gelson Tembo, Consultant, Orion Consult – statistics</li><li>14. Mr. Philip Koni NFNC</li></ol>
---	---

## Annex 8. Study areas and field research teams

<p><b>North-Western Province</b></p> <ol style="list-style-type: none"><li>1. Mr. Clement Mwafulirwa</li><li>2. Mr. Philip Koni</li><li>3. Mr. Victor Kabanda</li><li>4. Mr. Anderson Banda</li><li>5. Mr. Gevas Malibata</li><li>6. Mr. Hambayi Mweetwa</li></ol> <p><b>Central Province</b></p> <ol style="list-style-type: none"><li>1. Ms. Chansa Mushingwe</li><li>2. Ms. Chantal Gegout</li><li>3. Mr. Douglas Mwasi</li><li>4. Mr. Peter Ng'ona</li><li>5. Mr. Lawrence Michelo</li><li>6. Mr. Stephen Chkwanda</li><li>7. Mr. Nkandu Kabebwa</li></ol> <p><b>Southern Province</b></p> <ol style="list-style-type: none"><li>1. Mr. Oscar Silembo</li><li>2. Ms. Mary Mukwavi</li><li>3. Mr. Richard Mwanza</li><li>4. Mr. Fred Moonga</li><li>5. Mr. Francis Banda</li><li>6. Mr. Makoselo Bowa</li></ol>	<p><b>Western Province</b></p> <ol style="list-style-type: none"><li>1. Mr. Isaac Sichivula</li><li>2. Mr. Mukata Lubinda</li><li>3. Mr. Alex Muwaya</li><li>4. Mr. Chalo Cosmas</li><li>5. Ms. Monica Neta</li><li>6. Mr. Fred Kalowa</li><li>7. Mr. Pumulo Mubita</li></ol> <p><b>Eastern Province</b></p> <ol style="list-style-type: none"><li>1. Mr. Alfred Mwila</li><li>2. Mr. Allan Mulando</li><li>3. Mr. Robert Tabana</li><li>4. Dr. Gelson Tembo</li><li>5. Ms. Chisuwa Sandu</li><li>6. Ms. Lilian Jere</li></ol>
--	--