

WFP-UNICEF (RIVAF)-ZAMBIA

Final report of the:

ZAMBIA FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010

CONSULTANTS

DRINAH BANDA NYIRENDA-PhD

IVY DIMUNA NG'OMA-MBA

LUSAKA, ZAMBIA

March, 2011.

ACKNOWLEDGEMENT

The RIVAF Zambia consultants wish to thank WFP and UNICEF Zambia for facilitating the undertaking of the study. In Particular Mr. Alan Mulando of WFP for the great coordination, facilitation and for assisting the consultants with all the materials needed for the study, for availing documents, facilitating interviews with stakeholders and for handling and ensuring all the necessary administrative work relating to the study was taken care of.

The consultants also wish to thank the many other organizations that graciously provided information about their vulnerability and food and nutrition security data collection, analysis and reporting systems and granted interviews to the consultant. In particular *the consultants wish to thank and recognize the cooperation from the following organizations and their respective representatives;*

- 1 WFP- Mr. Alan Mulando and Mr. Chishimba
- 2 FEWS NET- Ms Chansa Munshinge and Ms
- 3 Food and Nutrition Commission of Zambia (NFNC) - Mr. Ward Siamusantu and Ms Beatrice Kawana and Mrs Raider Mugode
- 4 Oxfam Zambia.-Ms Dailies Judge
- 5 Food and Agricultural Organization (FAO)-Dr Jim Belemu
- 6 UNICEF: Ms D. Brunet and Mr. I. Conteh
- 7 Disaster Management and Mitigation Unit- The Permanent secretary Mr. Mulenga
- 8 WFP Rome- Dr. Joyce Luma.
- 9 The International consultant- Dr Patricia Bonnard

The consultants also wish to thank all persons and organizations, not mentioned above, but who in like manner cooperated, facilitated and assisted in the study and without whose cooperation and assistance the work would have been rendered challenging and difficult to accomplish.

TABLE OF CONTENTS

Acknowledgement	2
List of Tables	5
List of Figures.	5
Acronyms	6
EXECUTIVE SUMMARY	7
1 INTRODUCTION	11
1.1 Background.....	11
1.2 Hypotheses.....	11
2 REVIEW OF THE SYSTEM.....	12
2.1 ZVAC In-depth Vulnerability Assessment.....	12
2.1.1 Rationale for Reviewing the ZVAC’s In-Depth Vulnerability Assessment	12
2.1.2 Description of the ZVAC In-depth Vulnerability and Needs Assessment.	13
2.1.3 Objectives of the ZVAC’s In-Depth Vulnerability and Needs Assessment.....	14
2.1.4 Data Collection.....	14
2.1.5 Sampling.....	15
2.1.6 Duration of study-	22
2.1.7 Data analysis	22
2.1.8 Early warning.	22
2.1.9 Capacity of the System to track changes in indicators.....	22
2.2 Zambia Emergency, Preparedness and Response Information System (ZEPRIS)	22
2.2.1 Purpose of ZEPRIS.	23
2.2.2 Description of the System.....	23
2.2.3 Strengths of the system.	24
2.2.4 Weaknesses of the system	25
2.3 Community and Household Surveillance (CHS)	26
2.3.1 Description of the System.....	26
2.4 WFP EARLY WARNING SYSTEM.....	27
2.5 UNICEF system.	28
2.5.1 Comparison of WFP and UNICEF Information gathering system	29
2.6 Other systems	29

2.6.1	National Food and Nutrition Commission.(NFNC).....	30
2.6.2	FEWS NET	30
2.6.3	FAO system.	31
3	FOOD AND NUTRITION SECURITY FIELD ANALYSIS	32
3.1	Introduction.....	32
3.2	Analysis of ZVAC information on selected Indicators	34
3.2.1	Food Production and Food Balance Sheet over a 5 Years Period of ZVAC.....	34
3.2.2	Types of Disasters, affected areas and households.....	37
3.2.3	<i>Sources of Food and coping strategy in disaster time</i>	41
3.2.4	Food insecurity: Disaster Sensitization and Arable Land Cultivated	43
3.2.5	Food insecurity and severe malnutrition and other under-five children	43
4	SUMMARY OF THE MERITS OF THE ZVAC SYSTEM.....	44
5	CHALLENGES AND GAPS of the ZVAC system.....	45
6	CONCLUSION	46
7	RECOMMENDATIONS	52
8	REFERENCES.....	55
9	INTERVIEWS.....	56
10	ANNEXES	57

LIST OF TABLES

Table 1 Comparison of WFP and UNICEF Information gathering system.....	29
Table 2 Food Production and Food Balance Situation.....	35
Table 3a Types of Disasters, affected areas, Households and Assessment of Food Requirements.....	37
Table 3b Districts and Provinces Prone to disasters by year and impact	40
Table 4 Incomes Sources, coping strategies,	

LIST OF FIGURES.

Figure 1: Images of flooding in affected townships in Lusaka.....	21
Figure 2: School children floated on a rafter through flooded roads and opens spaces.....	21
Figure 3: Screen shots of the first page of the ZEPRIS information system.	24

ACRONYMS

ART	Anti- Retro Therapy
CHS	Community and Household Survey.
CSA	Census Supervisory Area.
CSO	Central Statistics Office
DDMC	District Disaster Management Committee.
DMMU	Disaster Management and Mitigation Unit
FAO	Food and Nutrition Organization
FEWS NET	Famine Early Warning Systems Network. .
FRA	Food Reserve Agency
GIVAS	Global Impact and Vulnerability Alert System
JCTR	Jesuit Center for Theological Reflections.
Kcal	Kilo calories.
MACO	Ministry of Agriculture and Cooperatives
MT	Metric Ton
MCDSS	Ministry of Community Development and Social Services
MOE	Ministry of Education
MOH	Ministry of Health
MT	Metric Tons
MUAC	Mid-upper arm circumference
NFNC	National Food and Nutrition Commission
NNSS	National Nutrition Surveillance System.
NPVG	<i>Nutritional program for Vulnerable Groups</i>
SEA	Standard Enumeration Area
SMP	School Meals Program
UN	United Nations
UNICEF	United Nations International Children’s Emergency Fund
WFP	World Food Program
ZEPRIS System.	Zambia Emergency Preparedness and Response Information
ZVAC	Zambia Vulnerability Assessment Committee

EXECUTIVE SUMMARY

Back Ground

The World Food Program (WFP) - United Nations International Children's Emergency Fund (UNICEF) food and nutrition security Field Analysis was commissioned to study the potential for triangulation of data systems between WFP and UNICEF with an attempt to assess whether these data systems picked up the effects and provide a better understanding of the global financial crisis on the most vulnerable in five countries, including Zambia.

This field study was born out of Global Pulse, (formerly; Global Impact and Vulnerability Alert System- GIVAS) a recently launched United Nations system. Global pulse was established to serve as a UN system wide vulnerability monitoring and alert mechanism which will track developments and report on the political, economic, social and environmental dimensions of the global financial and economic crisis. Global Pulse will therefore be a compilation of real time information and analysis from a variety of sources covering various dimensions of vulnerability.

Summary Scope of Work

As a means to establish the areas of potential information systems available and collaborations, the study covered a review of information gathering, analysis and reporting systems employed by WFP and UNICEF, individually and jointly, as well as examined other systems utilized by the government and a selection of other stakeholder systems.

The analysis was expected to establish whether the data reported under the indicators from these systems (WFP, UNICEF, Government, etc.) is compatible for cross linking, integration, triangulation and joint analysis and to what extent data are able to inform decision makers in a timely manner on food and nutrition security, household response and the changing vulnerability of communities impacted by shocks.

The Findings

The WFP uses more than one information system, which include:

- i. The Zambia Vulnerability Assessment Committee (ZVAC) "In-depth vulnerability assessment" survey (this is the main information source),. In addition to the in-depth vulnerability assessment surveys, the ZVAC may conduct rapid assessment surveys. When warranted the ZVAC commissions a rapid assessment (done in two weeks) to assess the extent of the disaster and the immediate response required. After the rapid assessment is done, the ZVAC conducts an in-depth Vulnerability assessment and issues a report within two months period. The survey is carried out only in districts affected by floods, and drought. The rapid assessment is not conducted every year, but is only conducted when there is a disaster whereas the in- depth assessment is a yearly exercise .A review of the 2010, 2009, 2008, 2007 and 2005 In-depth Vulnerability and Needs Assessments reports shows that these reports contain historical data and information and the assessment only focuses on two main disasters or crises, namely drought and floods. This is also validated by the objectives of the studies for instance in 2010 the objective was; to determine

the impact of the adverse rainfall and/ or dry spell on different sectors and recommend appropriate actions for mitigation response. 2007, the objective was to determine the extent and effects of the floods and/or water logging on infrastructure and habitations, health and nutrition, water and sanitation, education, crop and livestock.

- ii. In addition to the ZVAC, WFP has a Monitoring and Evaluation tool called the Community and Household Survey (CHS) which is solely used to monitor the impact and effect of WFP programs on the beneficiaries of the programs.
- iii. In addition to the ZVAC' in- depth vulnerability assessment and the CHS, WFP also collects information used for conducting early warning analysis. The information used for early warning analysis is real time and it is collected on a continuous basis. The early warning information is used mainly to track (1) Flooding and drought and (2) Evolution of food security

When necessary, WFP triangulates its early warning information and analysis with FEWS NET to validate or compare findings. The sources of WFP early warning data are;

- 1 Central Statistics Office-(monthly price data)
- 2 Ministry of Agriculture and Cooperatives-(monthly crop forecast, crop pricing data)
- 3 Meteorological department and (Daily weather forecast and crop weather bulletin done every ten days)
- 4 Jesuit Center for Theological Reflections.-(Monthly Basic need Basket).

The ZVAC information collection system predominantly used by WFP is the most comprehensive information collection and analysis system which encompasses a wide range of indicators on food and nutrition security, however this information is not forward looking as it measures the effects the flood and/ or drought had on the affected communities. The surveys target only districts affected by the drought or flood. This sampling scope ignores districts and areas affected by other disasters such as the financial and economic crisis of 2008 and 2009. The survey also does not track the effects of other disasters on the chronically affected and vulnerable people. It reports static information about the effects of the drought or flood in the passing season For instance the financial and economic crisis led to a massive decline in the price of copper, (the major contributor of Gross Domestic Product in Zambia). The negative externality of the reduction in copper prices was reduced copper production and closures of some mines in the mining towns which led to lay- offs and increased an employment in these towns consequently affecting the food security of the affected families. During the economic and financial crisis period of 2008 and 2009, food prices inflation rose from 5.9% in 2007 to 20% in 2008. The huge food price increases affected mostly the vulnerable communities in urban and peri-urban areas. These and other effects of the financial and economic crisis were not captured because the focus of the ZVAC surveys is drought and flood disasters and their effects on vulnerable people especially in rural areas.

The ZVAC information system is therefore limited in scope (flood & drought) and focuses on rural areas. *It is a* historical information system as it refers to what happened in a disaster situation that has passed. (See ZVAC reports summarized in table 2 on food production and food balance sheet.)

Although UNICEF is a member of the ZVAC, unlike WFP, for its data and information collection UNICEF uses data collected and analyzed by;

- i. NFNC. The NFNC tool does not have real time information. NFNC collects predominantly nutrition data from all districts in the country in both urban and rural areas. The NFNC system uses a much larger sample size (9,000HH) than the ZVAC system (3,000 HH) The NFNC surveys are carried out twice a year and ZVAC once a year. The NFNC system the National Nutrition Surveillance System (NNSS) is fairly recent as it was commissioned in 2007 which makes the trend shorter compared to ZVAC.
- ii. According to the UNICEF representative interviewed, another source of information for UNICEF is the Government of Zambia's Situation Analysis conducted once every five years. UNICEF supports the government of Zambia with technical and financial support in conducting the situation analysis. The findings of the situation analysis provide UNICEF with information for formulating strategy and programs for the next five years. It is important to note that other UN agencies and other non-governmental organizations utilize information contained in the situation analysis for formulation of programs.

All information gathered validates the finding that UNICEF does not have an own system for collecting and analyzing data on food and nutrition security.

This report therefore informs Global Pulse and the country office that WFP does collect real time agro climatic data used to monitor and track likelihood of flooding and it also collects current agriculture crop forecasting and food price information used to track evolution of food security. UNICEF currently does not have an own information collection system for collecting and analyzing food and nutrition security data, it relies on (1) NFNC for information on food and nutrition security and (2)the situation analysis to guide its programs. It goes without saying therefore that UNICEF does not have a real time information system

WFP and UNICEF Collaboration for Improving the ZVAC information System.

The study found that the survey instruments used in the ZVAC's in- depth vulnerability assessment (the most comprehensive collection of food and nutrition security indicators) are questionnaires (see Appendix 1 & 2, ZVAC, 2010): (1) Household questionnaire and (2) Community questionnaire. The two questionnaires are administered to the community and the household level. The district level interviews are unstructured information gathering with respect to disasters or any potential thereof.

In addition to collecting data through questionnaires and interviews, quantitative data such as anthropometric data used for nutrition analysis are gathered by taking

children's height, weight, height/weight, and assessing for the presence of bilateral oedema and Mid-upper arm circumference (MUAC) measurement. With these measurements, an analysis of the levels of malnutrition, wasting and stunting is done using the statistical package SPSS. This would be useful data if they had been collected on a continuous basis in the same area to develop trends while using the areas that are not hit by the disaster as control data. According to some interviewed stakeholders, the data in the ZVAC surveys are challenged by the caliber of enumerators or survey workers who administer the questionnaires, interviews and take anthropometric measurements. The enumerators need to be well trained and survey instrument streamlined to enable enumerators to collect accurate data within the time constraint.

In conclusion the current data and information in the ZVAC reports covers many indicators but it is narrow in scope (focuses on flood and drought, it is predominantly collected from rural areas while ignoring the effects of disasters on urban areas and it is not real time information) and has some gaps. It therefore cannot inform global pulse as it is. For it to be useful for informing global pulse it would need to (a) have a wider focus and capture all disasters (b) include both rural and urban areas and (c) should be in real time and collected on a continuous basis so as to be useful for developing trends, monitoring indicators, analysis effects and impact of various disasters and vulnerabilities.

1 INTRODUCTION

1.1 Background.

The WFP-UNICEF food and nutrition security Field Analysis was commissioned to study the potential for triangulation of data systems between WFP and UNICEF with an attempt to assess whether these data systems picked up the effects, and provide a better understanding of, the food price crisis and the global financial crisis on the most vulnerable in five countries, including Zambia.

This field study was born out of Global Pulse (formerly; Global Impact and Vulnerability Alert System- GIVAS), a United Nations system that was recently launched by the United Nations secretary General's office, together with participating United Nations (UN) agencies. Global pulse was established to serve as a UN system wide vulnerability monitoring and alert mechanism, which will track developments and report on the political, economic, social and environmental dimensions of the global financial and economic crisis.

Global Pulse will therefore be a compilation of **real time** information and analysis from a variety of sources covering various dimensions of vulnerability. This report is expected to inform Global Pulse and the country office on setting up a social monitoring system around the indicators of interest to WFP and UNICEF. Through this field analysis report, WFP and UNICEF are seeking to understand how they can better collaborate in monitoring the impacts of global economic crisis on vulnerable people.

As a means to establishing the areas of potential collaboration, the study covered a review of information gathering, analysis and reporting employed by WFP and UNICEF, individually and jointly, as well as examined other systems utilized by the government and a selection of other stakeholder systems. The analysis was expected to establish whether the data from these systems (WFP, UNICEF, Government, etc) are compatible for cross linking, integration, triangulation and joint analysis and to what extent these data are able to inform decision makers in a timely manner on food and nutrition security of households, response, and changing vulnerability of the vulnerable when impacted by shocks.

Recommendations on the challenge and gaps for remedial action to enhance the information utility and improve the information system are presented at the end of the analysis.

1.2 Hypotheses

The hypotheses underlying the study were:

- Data regularly collected by WFP and UNICEF can be triangulated and jointly analyzed in order to make inferences about changing vulnerability and impact on vulnerable households due to global shocks.
- Joint analysis of this data will allow analysts, to a certain extent, to make inferences about status and change in certain negative coping mechanisms such as changes in food consumption or reduction in school attendance and use of health care services.

The study further sought to:

Assess the methods of data collection, accuracy of the data and indicators validity, relevancy, specificity and actionability of the information.

The main system reviewed in this report is the Zambia Vulnerability Assessment Committee (ZVAC) information gathering, analysis and reporting system because it is the most comprehensive information system which gathers information on a wide range of indicators used to monitor food and nutrition security table 2 (Annex2). It is also, according to our findings, the only system that both WFP and UNICEF participate in.

2 REVIEW OF THE SYSTEM

In order to adequately review the system, it is important to define what a system is in the context of this study. A “system” is a methodical collection of information, analysis and reporting. The main system reviewed is the Zambia vulnerability and Assessment Committee (ZVAC)’s in-depth vulnerability assessment survey and report, which has been published annually since 2007 to date. Prior to 2007 publication of the report was irregular, i.e. in some years no survey was conducted.

2.1 ZVAC In-depth Vulnerability Assessment

2.1.1 Rationale for Reviewing the ZVAC’s In-Depth Vulnerability Assessment Report System.

The Zambian Vulnerability Assessment Committee (ZVAC) is a National committee composed of government (Office of the Vice President- under the Disaster Management and Mitigation Unit (DMMU), Ministry of Community Development and Social Services (MCDSS), Ministry of Tourism and Environment (Metrological Department), donor bilateral and multilateral community, local and international NGO’s who work together on issues of vulnerability across sectors, and of food and nutrition security in Zambia. The government of Zambia, through the Disaster Management and Mitigation Unit (DMMU) is the secretariat for the ZVAC. World Food Programme (WFP) and United Nations International Children’s Emergency Fund (UNICEF) are both contributors and prominent members of the ZVAC.

When a disaster happens, the ZVAC commissions a rapid assessment (duration of two weeks) to assess the extent of the disaster and then proceeds with an in-depth data collection and analysis and issue a report within two months period. The ZVAC has instituted a system of conducting in-depth vulnerability and needs assessments of districts that experienced floods and or dry spells.

The rapid assessment is not conducted every year. It is only conducted when there is a disaster where as the in-depth assessment is a yearly exercise. This in-depth assessment has been implemented for the past 7 years since 2003. Prior to 2007 the ZVAC’s in-depth assessment was done irregularly and only when there was a disaster. Since 2007 it has been conducted annually. It serves as a continuous source of information that can be utilized to annually track the food and nutrition security in the country. It is the major reference point for information relating to household vulnerability, in general, and food and nutrition security in particular. As members of

the ZVAC both WFP and UNICEF contribute and utilize, though in varying degrees, the ZVAC rapid survey and the in- depth Vulnerability Assessment report.

WFP is more involved in the ZVAC than UNICEF. WFP has staff dedicated to the ZVAC collaboration. UNICEF works more closely and independently with the National Food and Nutrition Commission (NFNC), yet another member of the ZVAC under the Ministry of Health. UNICEF financially supports the NFNC in its data collection, analysis and reporting. The NFNC reports are the main source of UNICEF information on nutrition security in Zambia. On the other hand, WFP is a core member of the ZVAC. WFP greatly utilizes information collected and analyzed through the ZVAC as input for formulating and adapting its programs. UNICEF contributes expertise to the ZVAC in the water and sanitation area but utilizes the ZVAC reports minimally. It instead relies heavily on the data and reports on nutrition from NFNC for formulation of its programs.

Despite heavy reliance on the ZVAC's in-depth vulnerability assessment, WFP also collects its own information through the Community Household Survey (CHS). The CHS is conducted twice a year and is utilized and referred to as a monitoring tool used to monitor the trend of vulnerability in communities where WFP is undertaking intervention programs like food relief distribution.(see CHS section.) It is also used to monitor the impact and effect of WFP programs on the beneficiaries of the programs although it is a biannual survey, in some years it is conducted only once a year due to financial resource constraints. In addition to the ZVAC' in- depth vulnerability assessment and the CHS, WFP also collects information used for conducting early warning analysis. The information used for early warning analysis is real time and it is collected on a continuous basis. The early warning information is used mainly to track (1) Flooding and drought and (2) Evolution of food security

The sources of WFP early warning data are; Central Statistics Office-(monthly price data),Ministry of Agriculture and Cooperatives-(monthly crop forecast, crop pricing data),Meteorological department and (Daily weather forecast and crop weather bulletin done every ten days) and Jesuit Center for Theological Reflections.-(Monthly Basic need Basket).

2.1.2 Description of the ZVAC In-depth Vulnerability and Needs Assessment.

The ZVAC In-depth Vulnerability and needs Assessment Survey is conducted yearly, in some years (severe disaster years) it is preceded by the rapid vulnerability and needs assessment. The rapid vulnerability and needs assessment serves to inform during an emergency the extent of the emergency and the amount of immediate emergency response and relief required to alleviate or ease the impact of the disaster in the short term.

The In-depth Vulnerability and Needs Assessment collect vulnerability data across sectors and, in particular, data and information on food and nutrition security in the disaster affected areas of the country in the given season.

2.1.3 Objectives of the ZVAC's In-Depth Vulnerability and Needs Assessment.

A review of the 2010, 2009, 2008 and 2007 In-depth Vulnerability and Needs Assessments reports shows that these assessments only focus on two main disasters or crises, namely

- a. Flood
- b. Drought or dry spells.

For example the objective of the 2010 report was “to determine the impact of the adverse rainfall and/ or dry spell on different sectors and recommend appropriate actions for mitigation response.” (2010 In-depth Vulnerability and Needs Assessment Report, pg 2). The 2009 objective was no different. It was to determine the impact of 2008/2009 floods on various sectors of the economy and the 2007 study objective was equally “to determine the extent and effects of the floods and/or water logging on infrastructure and habitations, health and nutrition, water and sanitation, education, crop and livestock.” (See Annex 2)

2.1.4 Data Collection.

The in- depth Vulnerability and needs Assessments are conducted at three (3) levels,

- i. the district level through the District Disaster management Committee (DDMC)
- ii. community level where community leaders are interviewed in a group, and
- iii. The household level.

The survey instruments used are questionnaires (Appendix 1 & 2, ZVAC, 2010). The two questionnaires are administered to the community and the household level. The district level interviews are unstructured information gathering meetings and discussions.

In addition to collecting data through questionnaires and interviews, quantitative data such as anthropometric data, used for nutrition analysis, is gathered by taking children's height, weight, height/weight, and assessing the presence of bilateral oedema and Mid-upper arm circumference (MUAC) measurement. With these measurements, an analysis of the levels of malnutrition, wasting and stunting is done.

The data are collected by enumerators or survey workers who administer the questionnaires, the interviews and take anthropometric measurements.

2.1.4.1 Observed Issues with data collection

Interviews with stakeholders pointed to elements in the data collection process that potentially have an adverse effect on the quality of the data and, in some instances, the stakeholder interviewees consultants talked to questioned the integrity of the data collected. Some of the issues pointed out were;

- a) Insufficient training of enumerators or data collectors. As a result some enumerators are alleged to not have a good understanding and appreciation of the measurements they are required to take. For instance, the anthropometric measurements. Incidents were reported were wrong heights of children are

recorded, one such example was the height of a one and half year old child recorded to be 30 centimeters or 12 inches. Other similar discrepancies in anthropometric measurements are encountered.

- b) No screening and evaluation of data collectors, which would be necessary in order to retain only the well qualified enumerators.
- c) Inaccurate data collected leading to higher than normal amounts of data rendered unusable and hence discarded.
- d) Disagreements among stakeholders on the size of the sample sufficient to capture statistics with a high enough confidence level, which would be representative of the real situation. This seems especially true of nutrition data, which require a large sample size.
- e) Inadequate sample size for nutrition data. For instance, in 2010 the number of households surveyed for the ZVAC survey was about 3, 099 Households in 208 Standard Enumeration Areas SEAs (2010 In-depth Vulnerability and Needs Assessment pg ix) while the data set in the National Food and Nutrition Commission (NFNC) study was about 9,000 Households. The implication is that for this particular set of data (Nutrition), the NFNC data are more comprehensive than the ZVAC data and the NFNC can statistically analyze their data with statistical package SPSS. Unresolved issues relating to data collection have a potential of bringing into question the accuracy, reliability and validity of the information collected and reported.

The alleged questioning of the accuracy, reliability and validity of the information is further vindicated by findings in the FEWS NET-Zambia Food and Nutrition Security Outlook report of October 2009 to March 2010. On page 2 it reports that “ Although in June (2009) the VAC (ZVAC) had recommended food assistance amounting to 8,295 Metric Tons (MT) of cereal for an estimated 110,651 people in the seven districts,(see 2009 ZVAC report pg 64), no emergency food distribution was carried out during August or September **as the situation on the ground did not warrant it.** The fact that there were no reports of food needs confirmed that food security is generally good”. This contradiction between the ZVAC report and the FEWS NET report and the lack of potentially validating data on the ground is a point of concern regarding the accuracy, validity and actionability of the data and information collected.

2.1.5 Sampling

The sampling and coverage of the survey and the location varies from year to year. Only districts or areas that are reported to have experienced either a drought or floods are targeted and sampled for the survey. “The target population is the number of people living in the districts identified to have been affected by the floods that occurred during the 2009/2010 rainy season” (2010 In-depth vulnerability Assessment pg 3). The 2009 and 2008 survey only targeted districts that experienced above normal rainfall. The same is true of the other years, which equally targeted only districts affected by either drought or flood. (Annex 2)

2.1.5.1 Coverage and capture of crises and vulnerability.

The fact that only districts affected by either drought or floods are sampled clearly implies that the survey is not tailored to capture disasters other than the two natural disasters; flood and drought. The geographic scope or coverage of the survey is also very limited as it only surveys those districts affected by flood, drought or both.

Furthermore, the objectives of the ZVAC reports are the same for all the years reviewed. It is either looking at the impact of flood or drought on the districts reported to have experienced the same. With such a narrow focus of objectives, it may be safe to deduce that the In-depth vulnerability and needs assessment surveys are less likely able or designed to capture effects of disasters other than flood and drought. Disasters like the global food price and financial and economic crisis of 2008 and 2009 are not captured in these studies and surveys.

Although, the global economic crisis is mentioned in the narrative of the economy in general (2009 In-depth Vulnerability and Needs Technical Assessment Report, pg12). The findings of the survey do not bring to light the effects of the economic crisis on the vulnerable population. A good case with respect to the financial and economic crisis is the fact that it resulted in a major decline in the price of copper on the international market. (Copper is Zambia's main source of GDP and foreign exchange) The price of copper plummeted in 2008 reaching its lowest point in November of 2008 when the price of copper was about 1.7 USD per pound compared to a range of 3-4 USD per pound at the beginning of 2008. (World Bank, 2008-Effects of the Global Financial crisis on Zambia) As the price of copper plummeted so did the value of the Zambian currency (Kwacha) against the dollar and other major currencies. The devaluation also led to increased cost of fuel, transportation costs, cost of production and increase in food prices due to high production cost and high cost of importation for imported foods. This culminating in high inflation rates reaching about 16% in 2008 compared to 9% in 2007 " The food inflation rate rose from 5.9% in 2007 to 20.5% at the close of 2008." .(ZVAC 2009 pg 12)

The lower copper prices affected mining companies some of which closed down or significantly reduced production and labor force. As a consequence there were massive lay-offs especially in mining towns. Low production in mines affected companies that depend on mines for their business and contracts leading to a multiplier effect of lay -offs in other manufacturing and service industries, exposing affected families to food and nutrition insecurity.

The urban and peri urban population is likely to have been more affected by the global economic and financial crisis, but this was not picked from the respondents of the ZVAC surveys mostly due to the rural nature of the sampling and also due to the fact that the ZVAC's objective is to measure the effects of either drought or flood on vulnerable communities.

2.1.5.2 Sampling method

The sampling is done with the help and involvement of statisticians from the Central Statistics Office (CSO). The sampling units are derived from the census units called standard Enumeration Areas (SEAs).

A SEA is the smallest statistical unit into which the population of the country is divided and is derived as follows: Zambia is divided into nine (9) provinces; the provinces are in turn divided into seventy two (72) districts. Each district is in turn subdivided into constituencies resulting in one hundred and fifty (150) constituencies, and each constituency is divided into wards, resulting in one thousand, two hundred and eighty nine (1,289) wards. Each ward is divided into Census Supervisory Areas (CSAs) and each CSA is further subdivided into Standard Enumeration Areas (SEAs). The SEAs are also stratified by urban and rural strata. Each SEA shows the number of households and the population in the given SEA. All the reviewed reports use the SEAs developed from the 2000 population census as the sample frame. (2009 In-depth Vulnerability and Needs Technical Assessment Report pg3; 2010 In-depth Vulnerability and Needs Assessment Report pg3 and 2007 In-depth Vulnerability and Needs Assessment Report pg2)

There is no record of a statistical sampling method used to choose districts that are surveyed in any given year. As such the number of sampled districts differs depending on the extent and coverage of the disaster. In 2007 45 districts were sampled, in 2008, 39 districts were sampled; Twenty were sampled in 2009 and 15 in 2010. In each district SEAs are sampled in order to come up with the specific survey areas and households to be surveyed. (See Annex 2)

Generally two stage stratified cluster sampling is done for all the reviewed years.

- i. Stage one - involves selecting of the SEAs and
- ii. stage two - involves the selection of the households to be surveyed (in the years reviewed a synopsis of the sampling method is presented below):

2010- Two stage stratified cluster sample design used.

(Stage 1)-14 SEAs **were selected using the probability proportional to estimated size procedure.** (2010 In-depth Vulnerability and Needs Assessment, pg 3)

(Stage 2)-15 households **randomly selected** from each of the selected SEAs.

2009- Two stage stratified cluster sample design used

(Stage 1)-14 SEAs **selected across two strata (flooded and non flooded)** from each of the 20 districts.

(Stage 2)-households **randomly selected** from each of the selected SEAs.

2008- Two stage stratified cluster sample design used.

(Stage 1)-**14 SEAs selected from each** of the 39 districts.

(Stage 2)-households **randomly selected** from each of the selected SEAs

2007- Two stage stratified cluster sample design used.

(Stage 1)-**20 SEAs selected** from each of the 45 districts.

(Stage 2)-households **randomly selected** from each of the selected SEAs

These sampling years show some differences as to number of districts, SEAs and number of households selected.

2.1.5.3 Sample size.

The sample size is determined by the coverage of the specific disaster. There is no agreed sample size as can be seen from the differing sizes from year to year. For instance in 2010, the sample size was 208 SEAs with 3,099 households surveyed in the affected 15 districts. In 2009 a total of 280 SEAs were surveyed in 20 districts. The number of households is not provided. In 2008, 518 SEAs were sampled and 5,188 households were surveyed, while in 2007, 603 SEAs were sampled and 12,000 households in 45 districts surveyed. (See Annex2)

The reports do not indicate the general criteria used for determining the size of the sample. As such the adequacy of the sample size to capture the indicators is difficult to independently argue either way.

Another argument to be made with respect to the accuracy of the information to inform the nation on the food and nutrition security status is the question of how representative the information gathered is expected to be if only areas affected by the drought and flood are sampled always? How would this system capture the food and nutrition status of other vulnerable people living outside the drought/flood areas?

In order to be able to give a more adequate picture of the vulnerability levels across the country, it may be worthwhile to sample the flood / drought districts as well as other districts not reported to have experienced either of the two disasters.

2.1.5.4 Determination of vulnerable and food insecure households.

The ZVAC 2009 pg 10 indicates the following method for determining vulnerability and food insecurity. "The number of affected persons in need of food support was derived through a proportional pilling method validated by the percentage of households affected as depicted in the Rapid Assessment in May 2009." A look at the 2010 report indicates the use of the same method word for word including referring to the May 2009 rapid assessment. (2010 pg8). Use of the same method is expected to yield consistent results from year to year, although in this case an argument can be made and questions asked as to why the 2010 determination uses the May 2009 rapid assessment? In 2009, 20 districts were surveyed while in 2010 15 districts were surveyed. Furthermore in 2009 the provinces surveyed were Central, Eastern, Luapula, Northern, North Western and Western Province. While in 2010 the provinces surveyed were Central, Eastern, Lusaka, North Western and Southern province. Three of the provinces (Luapula, Northern and western) represented in 2009 were not surveyed in 2010. In like manner, two of the provinces represented in 2009 (Lusaka and Southern) were not surveyed in 2010.

It is therefore obvious that not the same districts were affected in both years. For instance not all of the 15 districts affected in 2010 were all part of the 20 affected in 2009. With this scenario in mind, use of the 2009 rapid assessment in 2010 to determine the number of vulnerable and food insecure households in 2010 would seem to be a less accurate measure compared to using the 2010 rapid assessment to

determine vulnerable and insecure households in 2010. The use of the 2009 rapid assessment in 2010 has a potential of casting a shadow of doubt over the accuracy of the calculation made, and consequently the number arrived at.

2.1.5.5 Sentinel sites.

No sentinel sites have been established yet for purposes of collecting data on the vulnerability and needs assessment. Interviews with various stakeholders and representatives of ZVAC revealed that sentinel sites are in the process of being established. No indication was given as to whether the sites will be ready to be used in the 2011 surveys.

2.1.5.6 Observed issues with sampling

- i. Generally there is, to a great extent, some uniformity in the sampling method used over the years. Two stage stratified cluster sample is used. The first stage is the selection of SEAs, and the second stage is the random sampling of the households in the SEA. Despite the general uniformity, there is some observed deviation or variation. For instance in 2009 in stage 1, 14 SEAs were selected across two strata, the flooded and non flooded areas. Whereas during the other years the sampling does not segregate the strata between flooded and non flooded or drought and non drought areas. In 2009 again, in stage two of the sampling, for the nutrition component, in the quest to capture the minimum number of children required in order to calculate for required indicators with estimates of 95% confidence level, the sample size was increased and this necessitated a “departure from simple random sampling” (2009 In-depth Vulnerability and Needs Technical Assessment Report, pg8). The other years reviewed, report having used random sampling for selection of households. Random sampling across two strata, being flooded and non- flooded or drought and non drought areas would appear to be more superior to the other methods used in that although the focus of the survey is the affected areas, the non affected areas serve as a control. If similar situations exist in both the affected and non affected areas, then it would not be accurate to attribute these situations or findings to drought or flood. Other causes can be explored. The two strata random sampling minimizes biasness in interpreting the results of the survey and establishing causality.

In 2009, the report indicates a departure from simple random sampling with respect to nutrition data. This would imply that the surveyed population was not scientifically sampled hence increasing the chance of biasness in the chosen respondents which in turn affects the representativeness of the results.

- ii. The sampled districts differ from year to year depending on areas affected by either drought or flood. Some districts seem to be chronically affected by one

or both of these disasters. For instance in 2009 and 2010, twenty (20) and fifteen (15) districts made up the sample size, respectively. The names of the districts for each of these years are given, For instance, Serenje, Mambwe, Chavuma, Mongu, Kalabo, senanga, Sesheke, Shang'ombo, Lukulu and Kalabo were sampled in both 2009 and 2010 implying they experienced flooding in both 2009 and 2010. However in 2008, 2007 the number of districts sampled is given, but the actual names of the districts are missing. (See Annex 2) The missing data in the other years makes it difficult to conduct a thorough trend analysis of the effects of the disaster, the recovery, improvement or worsening of the food and nutrition security situation in chronically vulnerable districts. It further makes the identification of these districts challenging since they are not readily and conspicuously reported in some reports.

- iii. Another important observation regarding sampling is the sampled populations. These are predominantly rural with very little urban representation. For instance in 2009, 87% percent of the sampled lived in the rural areas. In 2010, 95% of the sampled lived in the rural areas. (See Annex 2) This survey only looks at the vulnerable in rural areas and not in urban or peri urban areas, creating a skewed perception that only rural communities are likely to be vulnerable, a case which can be disputed and thus brings into question the adequacy of the coverage of the survey in so far as determining food and nutrition security status of the vulnerable is concerned. For instance the 2010 floods resulted in a number of compounds and town ships in Lusaka being flooded. In one report, more than 100 families had registered for evacuation (<http://www.lusakatimes.com/2010/02/24/lusaka-flood-victims-relocated>). The evacuated families were accommodated in temporal shelters at the Independence stadium, in Lusaka. More than six (6) town ships were affected in Lusaka city alone. The affected townships had impassable roads, including roads leading to schools and health care facilities. A number of homes collapsed and some fatalities were recorded. Despite these urban town ships being affected, they were not sampled in the 2010 ZVAC which was predominantly rural in coverage. The exclusion of urban areas affected by floods fails to highlight in the ZVAC, the effects of floods on urban and peri urban vulnerables. For instance the Lusaka floods affected access to schools (education), health care facilities and inevitably affected the supply and quality of water, health care and food and nutrition security of the affected populations.

Figs (1 and 2) show the extent of the 2010 floods in Lusaka town ships affecting access to schools and other facilities.

Figure 1 Images of flooding in affected townships in Lusaka.



Figure 2: School children floated on a rafter through flooded roads and opens spaces.



- iv. The lack of sentinel sites affects the ability to benchmark and be able to consistently and closely monitor changes in food and nutrition security and identify anomalies. Although there is information provided in various reports as to the food and nutrition security in the country as at reporting time, the use of sentinel sites would enhance the consistency and regular collection of data, which can more accurately be used to track changes

Sentinel sites would enhance the ability to monitor food and nutrition security of a population over time, down to the household level in a given area, their response to short term intervention and long term resilience building interventions. In order to capture the food and nutrition security of the country, the sentinel sites would be spread across the country with proportionally equal coverage for both urban and rural areas. The sentinel sites would cover both areas that are chronically affected by flood and drought disasters as well as areas that are not vulnerable to these two typical disasters. The inclusion of non disaster (prone) areas would serve as a baseline, and would also be useful in bringing out the effects of other disasters not normally captured currently, like the economic and financial crisis, when they occur. For instance if there is food insecurity and general economic and financial distress in an area that was not affected by drought or flood in a given year, then further investigation during the survey would most likely

bring out the source of the distress and spell out the effects of the distress on the population.

2.1.6 Duration of study-

The ZVAC in-depth vulnerability Assessments are done over a period of two months which covers the period from start of the survey, data analysis and reporting.

2.1.7 Data analysis

All of the reviewed reports do not give a clear description of the methods used to analyze the data. A thorough review of the reports point to heavy reliance on qualitative analysis and reporting. Quantitative analysis is done, but seemingly sparingly.

2.1.8 Early warning.

The ZVAC surveys are historic. They capture information about a disaster that has already occurred (flood and drought) and try to assess the extent and the amount of response and relief that may be required to assist the affected population. It is not an early warning tool that can be used to predict a disaster and what is likely to occur as a result of the disaster, it instead conducts surveys or assessments of the disaster and the required response to assist the population affected by the disaster. It is not used to predict future occurrences that are likely to affect the food and nutrition security of the population.

2.1.9 Capacity of the System to track changes in indicators.

The ZVAC system collects, analyses and reports mostly static or one time historic data for the given year. In limited instances, the report compares a particular finding to the previous year or finding but the main focus of the ZVAC report is to report the effect of the just ended disaster on the affected districts. As such it does not go far enough to sufficiently track indicators such as changes in access to health care, changes in access to food distribution, education, safety net programs, etc. Instead the system has the capacity to report static data about these indicators. Another challenge with respect to tracking changes in indicators is the fact that the sampled districts change in any given year compared to the previous year. Only districts affected by the disaster are sampled in the given year. Although some districts are affected in consecutive years, and surveyed, the rationale for repeated survey is not to track or monitor changes in indicators but simply to survey affected areas. As a result little attention is paid to monitoring and tracking changes in indicators.

2.2 Zambia Emergency, Preparedness and Response Information System (ZEPRIS)

WFP was tasked by the ZVAC to develop an information management system on behalf of the Zambian government. The new system, called the Zambia Emergency, Preparedness and Response Information System (ZEPRIS) was scheduled to be launched and handed over to the government (Disaster Management and Mitigation Unit) on December 1, 2010. However the launch of the ZEPRIS is behind schedule. At the time of revising this report (March 2011) the system had not yet been transferred to the DMMU where it will be housed and managed. Once fully operational this system

will become the source of national standardized information on food and nutrition security, vulnerability and early warning.

Unlike the ZVAC system, which is a systematic and methodological collection, analysis and reporting of information, ZEPRIS is an information management system or interface which will be housed on a server at the DMMU and accessible via the internet. The ZEPRIS is an information technology tool designed in the likeness of a website.

2.2.1 Purpose of ZEPRIS.

The purpose of ZEPRIS is to provide one information platform in the country, which will house all data, which will provide early warning and vulnerability information in food and nutrition security. In addition to information on food and nutrition security, the ZEPRIS is also expected to be the authoritative source of vulnerability information relating to the six core sectors namely.

- 1 Agriculture
- 2 Education
- 3 Health and Nutrition
- 4 Infrastructure
- 5 Water and Sanitation
- 6 Human shelter and Habitation.

2.2.2 Description of the System.

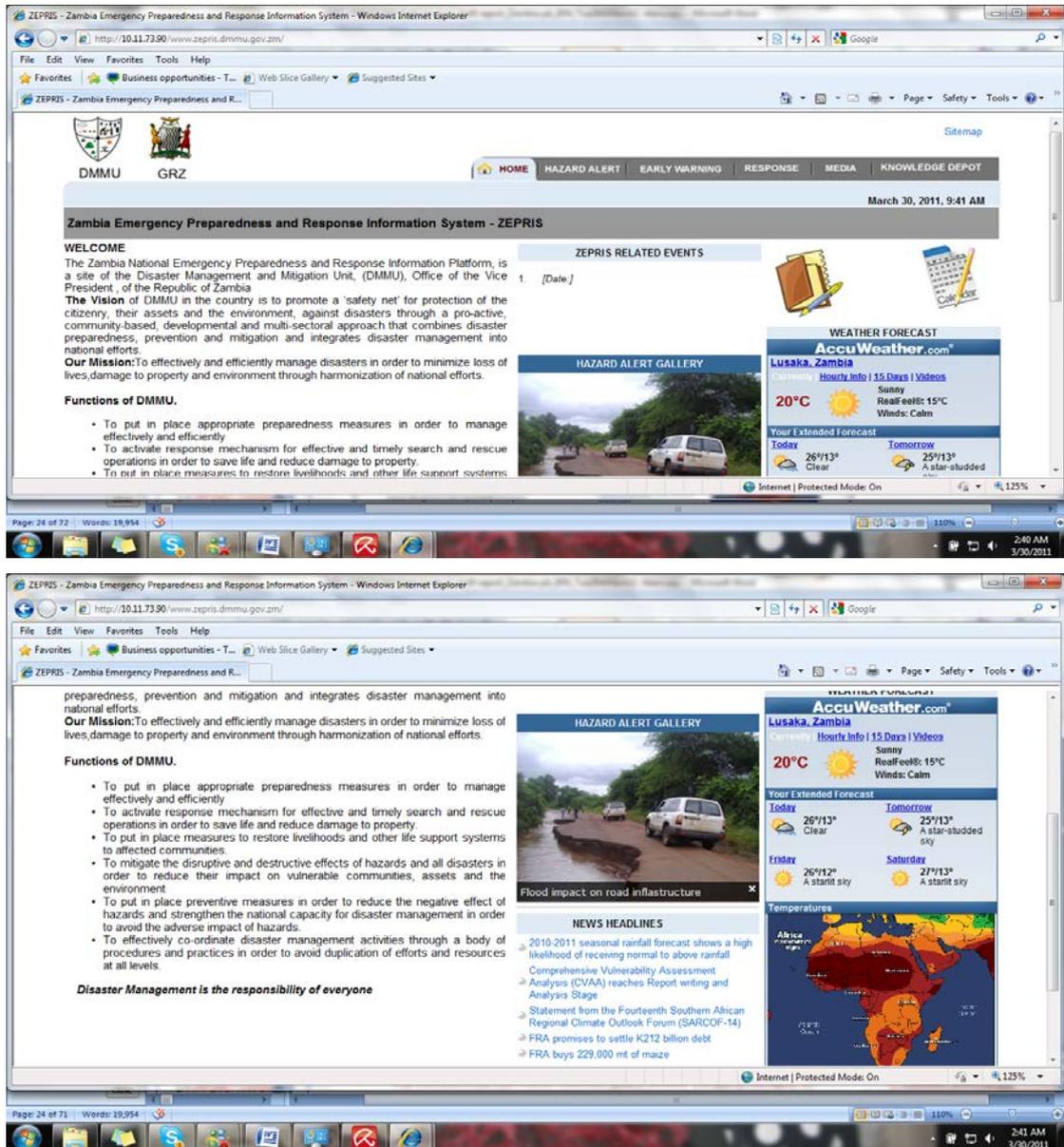
The ZEPRIS is an information management system or interface which will be housed on a server at the DMMU and accessible via the internet. The ZEPRIS is an information technology tool designed in the likeness of a website. It has been designed with the expectation that it will be the 'one stop' source for all information relating to all aspects of vulnerability and information that affects and or relates to food and nutrition security. All organizations, dealing in one way or another in food and nutrition security will be expected to upload their information and reports into the ZEPRIS. Not only is the ZEPRIS expected to house information on food and nutrition analysis but all information relating to vulnerability like infrastructure, health, education, etc. Data in the ZEPRIS will mostly be secondary data uploaded by stake holders under DMMU authority.

A small number of designated individuals in relevant ministries will be authorized and granted access to input data and to make changes when necessary in the system. The designated officers will be responsible for the credibility of the data and also for ensuring that data are uploaded in a timely manner. Since the ZEPRIS has been designed to house information, it will serve as an information repository. A platform where all stakeholder information is expected to be uploaded and found. Uploading of data and information will be done by designated persons.

In addition to housing documents the ZEPRIS also has real time agro climatic data from the meteorological department, it posts images of disaster areas as the images are received, and posts information of the water levels of most rivers as provided by the department of water affairs. It also has a link which feeds real time information specific to Zambia from the global flood detection system. Figure (3) gives a snapshot

of the ZEPRIIS system’s home page. The two screen shots show two views of the same home page. More snapshots of the ZEPRIIS page are presented in Annex (7) which shows additional web pages on the ZEPRIIS site and highlight of the information in the ZEPRIIS.

Figure 3: Screen shots of the first page of the ZEPRIIS information system.



2.2.3 Strengths of the system.

Analysis of the strengths and weaknesses of the ZEPRIIS, though necessary is premature owing to the delayed hand over to DMMU and launch which should have taken place about four months ago to the day of preparing this report. It is hoped that once operational the system will continue to adapt, evolve and improve to satisfy the objectives for which it was set up.

Some of the observed strengths of the system are;

- a) It is an IT platform and IT supported system of collecting and storing data. This is an improvement in the information collection system because, if properly managed, all relevant information from all stakeholders can be found on one platform without having to seek this information separately from respective stakeholders which can be time consuming and inefficient.
- b) It provides a platform for receiving real time information like the weather forecast, and agro climatic data on accumulated rainfall amounts in different parts of the country. This information provides early warning and analysis for likelihood of flood and drought and which areas are likely to be affected.
- c) Provides some information which can be useful in early warning.
- d) Setting up the ZEPRIS is a step in the right direction in that it will allow for easy, fast and efficient sharing and circulation of relevant information among stakeholders. Although not all information expected to be on the ZEPRIS has already been populated, but never the less, it is a major positive stride.
- e) It is expected to house all data thus providing one source for all information relevant to food and nutrition security and vulnerability in all sectors of the economy.
- f) Will save time as information will be found in one place.
- g) Has the potential to enhance standardization of the information.
- h) Other stakeholders in the ZVAC welcome the idea of one source of information and standardized system. Interviewed representatives of institutions like, FEW NET, WFP, DMMU, FAO, and Oxfam all welcomed the creation of the ZEPRI.
- i) Hazard alerts will be posted on the ZEPRIS, this too will serve as an early warning tool.

2.2.4 Weaknesses of the system .

Analysis of the weakness is equally premature because it has not yet been launched, however in its current state the following preview weaknesses have been observed.

- a) It is mostly a database of information, which cannot be queried.
- b) The system is unable to analyze, interpret or correlate the data inputted.
- c) The analysis and interpretation will still depend on the user. This could lead to varying interpretations and increase the chances of errors in interpretations of data and information.
- d) Although there is a tab for early warning on the ZEPRIS, further improvement and adaptation will need to be made in order for it to provide real early warning information. Information on the early warning tab appears to mostly be reports

and documents which would require one to have sufficient time and motivation to read through and interpret.

- e) It does not have a system of ensuring all expected data are inputted and inputted on time. Although this will better be judged after it is operational.
- f) There is no standard of inputting information since most information in the form of documents which may have similar information reported in different styles and standards.
- g) Most information will be in the form of uploaded documents, maps and survey reports.
- h) The system will be as good as the information inputted. The coverage and regularity of data and information collection remains woefully inadequate for monitoring and tracking vulnerability, food insecurity, nutrition and household resilience, unless it improves and adapts after it is launched and operational.
- i) It seems the design of the ZEPRIIS is weak in bringing out food and nutrition security issues in the country. It would be advisable for the ZEPRIIS to have two additional pages dedicated to food security and Nutrition security respectively which would provide snap shot information on indicators , statistics and vulnerability mappings on food and nutrition security. The pages would also provide information or links to food and nutrition security related projects and programs being undertaken by all stake holders among vulnerable communities.

2.3 **Community and Household Surveillance (CHS)**

2.3.1 **Description of the System**

The community and Household Surveillance (CHS) is a WFP program monitoring tool which gathers information used to monitor WFP programs only. It has been conducted regularly since 2004. It is essentially a biannual survey although in some years when financial resources are insufficient, it is conducted only once in a year.

Some of the programs that WFP is currently running include; the Anti Retro Therapy (ART), School Meals Program (SMP) and *Nutritional program for Vulnerable Groups (NPVG)*. As earlier mentioned, the CHS only monitors WFP programs and is therefore conducted only in district were these programs are being undertaken. A look at the 2007 CHS report (the only report availed) shows information that is indeed monitoring in nature.

The CHS monitors the food and nutrition security of households and communities that are beneficiaries of the WFP food assistance program. In addition to surveying beneficiaries, the survey also captures non beneficiaries within the catchment of the target community as a control group. Comparisons in vulnerability are made between beneficiaries of the assistance program and non beneficiaries. A comparison is further made of the coping strategies employed, resilience build up or decrease over time and other relevant indicators. It further looks at livelihood sources, income and expenditure, asset levels and changes between beneficiaries and non beneficiary groups. In addition to comparing between beneficiary and non beneficiary, a

comparison is also made within beneficiary groups (beneficiaries of the food assistance are further grouped into subgroups like ART households, OVC households, FFA, OBC, etc). The CHS is not tailored to monitor or track effects of disasters neither can it be used as an early warning tool, only perhaps as a warning tool for indicators of WFP programs.

For Nutrition data the 2007 CHS report shows only a small sample was surveyed, (400 women aged between 15-49 years) CHS 2007 page 3. Obviously this sample size points to a very localized survey covering a very small source of data. The nutrition data are in like manner, a comparison between beneficiaries and non beneficiaries. The nutrition data compare levels of undernourishment, overweight or obesity, stunting, etc.

The CHS further tries to establish relationships between asset ownership, livestock ownership, income levels, education level, household headship, with presence or absence of stunting, undernourishment, wasting, overweight, etc. (2007, CHS pg 3).

Similar to the number of women surveyed,, the survey covered only 325 children. The small sample size of children equally points to a localized survey in which comparisons similar to the adults sample were made.

The CHS further assesses the type of assistance the community prefers (pg 4). It further draws a map of vulnerability characteristics (i.e. different vulnerability levels between different population groups like the elderly women, elderly headed households, households with chronically ill household heads, families hosting orphans, disabled, etc.(pg 4).

If the 2007 report is a representative of other surveys and reports, then the review reviews all the hallmarks of a localized monitoring and evaluation system or tool for the food assistance program of WFP.

2.4 **WFP EARLY WARNING SYSTEM.**

Independent of the ZVAC and the CHS, WFP does collect information used in early warning analysis. The early warning information is used mainly to track

- i. Flooding and drought and
- ii. Evolution of food security

In tracking flood and drought, WFP collects real time agro- climatic data from the meteorological department. WFP also collects weather forecasts which are done twice a day and information on inception of rain across the country, the rainfall pattern and amount of rainfall across the country. This information is collected as raw data and with this data, WFP is able to analyze the data and monitor for likelihood of drought or flood in given areas and how it is likely to impact food security.

In monitoring evolution of food security, WFP uses real time or current data and information on crop forecasts from MACO. MACO conducts monthly crop monitoring. Other information and sources are the monthly price data from CSO, the monthly Basic Needs Basket from the JCTR and crop pricing data from the MACO (Agricultural information marketing center).WFP analyses the information to prepare analysis and

maps like the food price trend Basic Needs Basket (BNB) trend, rainfall departure maps and rainfall concentration maps as seen in Annex 7.

WFP sometimes triangulates its early warning information and analysis with FEWS NET to validate or compare findings.

In summary, WFP gathers information used for early warning from the following institutions;

- i. Central Statistics Office-(monthly price data)
- ii. Ministry of Agriculture and Cooperatives-(monthly crop forecast, crop pricing data)
- iii. Meteorological department and (Daily weather forecast and crop weather bulletin done every ten days)
- iv. Jesuit Center for Theological Reflections.-(Monthly Basic need Basket).

2.5 **UNICEF system.**

An interview was conducted with the Nutrition specialist in UNICEF to learn about the information management system that UNICEF employs with respect to food security and nutrition security.

The interview revealed that UNICEF in its own recognizant does not have or maintain any food and nutrition security related information management system. UNICEF depends heavily on information and data from the National Food and Nutrition Commission (NFNC). Instead of generating its own nutrition data, UNICEF supports the NFNC financially to collect data, analyze and prepare reports. UNICEF uses the NFNC report as a source of information on Nutrition security system in the country. The findings in the report serve as a basis for UNICEF's response or intervention strategies.

Although UNICEF is a member of the ZVAC, it seems from the interviews and other sources that unlike WFP, UNICEF does not participate actively in the ZVAC and in like manner does not rely that much on surveys, analysis and vulnerability reports generated by the ZVAC, but instead works and supports NFNC to conduct surveys and analyses that UNICEF utilizes. According to the UNICEF representative interviewed, the main reason for UNICEF's dependence and support to NFNC for data and information on nutrition security and not the ZVAC is mainly because, the ZVAC surveys focus on disasters and emergencies while UNICEF's focus is on development programs and NFNC is seen as a development program which tries to monitor nutrition security in the country in general and not only in a disaster situation as the case is with the ZVAC surveys. The upside of UNICEF's approach is that it is building capacity in a local institution for long term sustainability and availability of such data.

Since UNICEF depends heavily on NFNC systems, a review of the NFNC system was done and a synopsis is given in the section the section on NFNC.

2.5.1 Comparison of WFP and UNICEF Information gathering system

Table 1 Comparison of WFP and UNICEF Information gathering system

WFP	UNICEF
Has own system through the CHS	Does not have own information collection system.
Collects real time agro climatic, price and crop information used for early warning analysis in projecting floods and evolution of food security.	Does not collect any early warning related information.
Actively involved in the ZVAC data and information collection	Not actively involved in ZVAC data and information collection and analysis
Relies and utilizes ZVAC data and information on food and nutrition security.	Relies on data/ report from NFNC nutrition surveillance
WFP and UNICEF seem to be working in isolation of each other, i.e. UNICEF relies on NFNC, and WFP relies on ZVAC.	
Inadequate internal coordination between WFP and UNICEF, which might lead to duplication however currently UNICEF/NFNC data compliments ZVAC on nutrition content.	
Other than the ZVAC report, which is circulated to all stakeholders, Information sharing between the two organizations seems scanty.	

Zambia does not have a continuous nutrition emergency surveillance system. This is due to the prohibitive cost of operating such a system. The nutrition emergency surveillance system requires large sample sizes (9000 households) which are very costly to execute.

2.6 Other systems

In addition to reviewing the information collection, reporting and analysis system at WFP and UNICEF, other stake-holder systems were reviewed. The other stake holders whose information gathering, analysis and reporting was reviewed were:

- National Food and Nutrition Commission (NFNC)
- FEWS NET- Famine Early Warning Systems Network
- Food and Agriculture Organization (FAO)
- Disaster Management and Mitigation Unit (DMMU) in the Office of the Vice President

A brief synopsis of these stakeholder systems is given below. WFP and UNICEF collaborate with other institutions and organization in terms of sharing information e.g. in the ZVAC or merely by being an organization working in the same field of food and nutrition security.

2.6.1 National Food and Nutrition Commission.(NFNC)

As reported in the section discussing the system UNICEF financially supports NFNC to collect, analyze and report data on food and nutrition security, UNICEF depends on the data and information collected and reported by the NFNC. The system is called the National Nutrition Surveillance system (NNS). It is supported by UNICEF and DFID. It is a relatively recent system, which was set up in 2007.

2.6.1.1 Description of NNS system.

- System focuses on nutrition security, although it also collects data on food security such as the coping mechanism in time of food distress, number of meals regularly consumed, types of foods consumed in the last 24hrs, types of crops grown and how long previous year's harvest is expected to last.
- Collects data at the district level
- Was set up in 2007?
- Has a large coverage, 32 districts.
- The data set has about 9000 HH.
- Data are collected mostly through primary data collection
- System is based on 2 surveys per year.
- Does not use sentinel sites for data collection, although NFNC is in the process of setting up sentinel sites for continuous data collection so as to be able to monitor the situation and any changes in vulnerability.
- The system reflects past situation not future information i.e. the indicators are not accurate for prediction or forecasting.
- System does not give picture relating to emergency and information, which can be used to respond to emergency.
- The information collected does not answer the questions like, why is there malnutrition in instances where it is present.
- System still evolving - NFNC is now trying to discuss with partners to make the system into a continuous surveillance system

2.6.1.2 Challenges of NNS

- 9000 household dataset is insufficient to collect information to assess the nutrition status of the country.
- Cost of survey and sampling is very high.
- System still evolving and requires adequate financial support.

2.6.2 FEWS NET

WFP, DMMU and FEWS NET are the core members of ZVAC. According to information from the interview with WFP, FEWS NET and DMMU, these three organizations are the drivers of the ZVAC. FEWS NET's main activity is maintaining Food Security Information System for early warning purposes. WFP and FEWS NET have been collaborating since the inception of FEWS NET, more than fifteen (15) years ago. WFP collaborates with FEWS NET and makes use of data and information collected by FEWS

NET. This is especially true for early warning information on Food and nutrition security.

2.6.2.1 Description of the system

FEWS NET collects information, analyses it to come up with a picture of what the food security situation is and refer to what it should be. With this comparison, FEWS NET is able to be forward looking into what the food security situation is likely to be and be able to identify possible food deficits early. The information collected is mostly secondary data about the crop forecasts from MACO, Basic needs Basket from JCTR and other sources as deemed necessary.

FEWS NET produces monthly update reports which monitor the situation and keep track of any anticipated changes in the food and nutrition security situation. In addition to the monthly update, FEWS NET produces the 'Zambia Food Security Outlook' twice a year. It relies heavily on secondary data for its analysis. This data includes information on prices of maize and other staple foods on the market, crop production information, informal trade, cross border trade.

Their sources of primary data include:

- Ministry of Agriculture and Cooperative (MACO) which provides the crop forecast data and marketing data.
- NFNC – The nutrition data, which is done bi-annually depending on resources.
- Uses VAC partners to collect data and information annually and biannually in drought and flood prone areas.
- Has an excellent networking environment with ZVAC stakeholders and share information.

2.6.3 FAO system.

An interview was conducted with FAO representative to discuss the system utilized by FAO. Data contained herein were not validated by any reports as efforts to collect reports were unsuccessful within the time frame of the study. FAO uses a number of data collection systems, depending on the subject matter of interest.

The Interview reviewed the following;

- FAO's underlying goal is to empower vulnerable communities to become self-reliant and break dependency on food handouts.
- FAO works with farmers and rural communities by helping improve their production capacity and encourage mechanization and low labor intensive agriculture.
- With this system, FAO has enrolled farmers and households in 28 districts where the facility is being implemented.
- FAO is also working with the private sector especially input suppliers.

2.6.3.1 Description of the FAO system.(Voucher system)

Farmers have been enrolled in the program and their names and identification is captured in the IT system. FAO gives these farmers vouchers, which are redeemable at the selected agro-input dealers. With these vouchers, farmers are able to buy inputs and implements. The farmers are also expected to top up with own resources when buying inputs and implements.

The agro dealers utilize a real time information capturing system, which is connected to the FAO system. When a farmer goes to redeem the voucher, he is expected to carry along his/her national identification card. Upon identification, his/her details are pulled out in the system. At the point of purchase, the system captures, real time, what the farmer bought, how much of own resources he added (topped up) and what additional implements he bought. With this system, FAO is able to track agricultural activities of individual farmers and the activities of farmers in a given locality. This data are used to track progress in the size of fields grown, diversity of crops grown and purchase of farm implements .This is measured by comparing the amount of seed, fertilizer and different types of seeds bought for different crops and the type and use of implements bought. They also gauge whether the farmers is able to increase expenditure related to production over time. This information is also used to compare progress and activities of farmers in different areas. The increases in farmer contribution or use of own resources is one of the measures / indicators used to measure increased resilience of the farmers and the community. The program also encourages the farmers to diversify and grow crops other than maize only. With this real time system, FAO is able to monitor the extent of crop diversification by monitoring what other seeds and fertilizer type the farmers are buying.

In addition to working with the private sector, FAO also works with agriculture extension officers in the areas where this program is running. The extension officers are expected to assist farmers with agricultural knowledge and to help promote benefits of mechanization, crop diversification, etc. When there is an observed deviation in the input procurement pattern of the enrolled farmers in a given location, FAO gives feedback to the extension officer who is expected to give feed back to the farmers and improve on extension service provision in order to equip the farmers with knowledge that is expected to enhance their productivity. FAO supports the extension workers with training and operation costs.

3 FOOD AND NUTRITION SECURITY FIELD ANALYSIS

3.1 Introduction

The Food and Nutrition Security field analysis has revealed that the Zambia Vulnerability Assessment Committee (ZVAC) information system is the most robust system, that has a more consistent coverage over the past five years, including the years of the global financial and economic crisis and covers most of the indicators in table 1 presented as annex 1. The tools for collecting data under ZVAC information system are being standardized to ensure compatibility and comparability of results. These tools have recently been agreed on by all stake holders who are involved in

producing data incorporated in the ZVAC. The standardization of the reports allows for easy adaptation, reference and interpretation of the results and analysis.

There are some common information tables or figures and qualitative information that have been used to analyze the indicators used in this field analysis. The information and tables are being used to compare similarities and validity of information reported in different years on the same indicators. The indicators used in this analysis are part of the indicators in table 1 which is the food security and nutrition indicator data inventory (output 2) presented in annex 1.

The ZVAC information system (which WFP and UNICEF support financially and logistically and are prominent members of), reports on many indicators, from which the consultants have picked the major and more relevant ones in illustrating the objective of the field study analysis. Using this reported information the consultants have picked a number of these indicators to show the challenges, gaps and to highlight whether the information in these reports is compatible for cross linking, integration, triangulation and joint analysis in order to inform decision makers about the impact and changing vulnerabilities of households in response to shocks and global economic crisis.

The analysis presented in this report is based on selected indicators listed below (a to k) to illustrate the validity, representativeness and comparability of the data sets of the ZVAC information system report. It also shows gaps existing in the analysis and data presented. It further highlights the challenges for manipulating the data.

The following are sample indicators to illustrate the gaps and comparability of the data for the last five years (2005, 2007, 2008, 2009 and 2010):.

- a) Food production and food balance sheet
- b) Coping strategies)
- c) Changes in food and commodity prices,
- d) income sources,
- e) types of disasters,
- f) food security in affected districts,
- g) household vulnerability, assessment of food requirements
- h) vulnerability response,
- i) comparative food shortfall or surplus
- j) Malnutrition situation
- k) Geographical presentation of vulnerable districts,

3.2 **Analysis of ZVAC information on selected Indicators reported over a five year period**

The data on these indicators are summarized in tables 2,3a, 3b and 4. Each table contains several indicators. The tables highlight the indicators listed above (a-k) and also serve to facilitate the analysis. These include:

- Table 2: Food Production and Food Balance Sheet Situation in Zambia for the five year period of ZVAC information system reporting
- Table 3a: Types of Disasters, Affected areas, Vulnerable households and Assessment of Food Aid requirements
- Table 3b: Districts most prone to disasters
- Table 4: Sources of cash income, Food Price changes and coping strategies and Five year Data on Malnutrition.

Some of these indicators have been extracted from the ZVAC reports to illustrate the disparities in the reporting.

3.2.1 Food Production and Food Balance Sheet over a 5 Years Period of ZVAC

Food production and food balance sheet comparison of five years of ZVAC reports is given in table 2. The table was developed in order to show trends in food and nutrition security and whether the data reporting is consistent year by year, without gaps and if the same indicators are reported all the time. And for the reader's verification, information on a few indicators has been extracted from the ZVAC report in Annex 3.

The ZVAC information system relies on other systems for certain important data, which are obtained from different sources, (i.e. Food Production and Balance Sheet from MACO; Prices from CSO). The presentation of data from individual institutions varies (The food production and balance sheet table is labeled "forecast" in 2010/2011 and as production in 2009/2010; In 2010 MACO presented production data in a table form and,2009 &2007 . as histograms (see annex 3), thus rendering understanding of "forecast" and further manipulation of histogram data to get more information, challenging. As a result of these discrepancies the people interviewed (WFP, NFNC, Ox-farm) stressed that the stakeholders of the ZVAC had agreed to standardize the data collection tools, analysis and reporting. We feel this will be important if it can be achieved so that each indicator is arrived at in the same way for all stakeholders involved in contributing to the data and information.

Table 2: Food Production and Food Balance Sheet Situation

Crop Year	10 2010/11	9 2009/10	8 2008/09	7 2007/08	6 2006/07	5 2005/06	4 2004/0 5
Maize opening Stock mt.	298,681	62,035	390,350	433,032			
Gross Productn mt./	2,795,483	1,888,733	1,211,566	1,366,158			
Total mt.	3,094,164	1,950,808	1,601,916	1,799,188	1,840,000	1,520,000	866,187
Reqts mt	2,008,455		1,458,916	1,480,880			951,187
Kcal/day intake							1470 kcal =70% reqt
Net Surplus mt.	1,085,709	203,271	143,000	250,000	250,000	200,000	(85,000mt)
Order of Severity of Drought			1 Central 2 Eastern 3 Southern	1 Central 2 Eastern 3 North 4 C/ Belt			
Sorghum and millet	70,796	75,629					48,297
Rice	51,656	41,292				(12,000)	324,247
Cassava	Production 1,179,657 Surplus 614,576	1,151,700 629,482	1,160,853 596,678	1,044,768 537,011			
Protein							

The food production and balance sheet the ZVAC report uses is obtained from MACO's annual crop forecast reports. The presentation of these MACO Crop Forecast reports differ from year to year, in title, design or as crop forecast (Table 2 in annex 3) without quantitatively confirming crops actually produced. Sometimes MACO reports crop production in histograms (annex 3) which are hard to quantify in the absence of the actual data or a graphic scale and this may increase error of interpretation of this data.

Table 2 shows more detailed crop production data only for 2009 and 2010 harvests. Before 2009, only maize details were reported. The older reports (2005-2008) do not have information on requirements, or net surplus or deficit on cassava on the balance sheet. In 2005 they attempted to report average energy intake in kilocalories per day, but never repeated it again. The measure showed a low average energy intake of 1470kcal versus the FAO recommendation of 2000-2200 kcal for women and 2400-2600 kcal for men.

The ZVAC reports have been able to show a trend that Zambia has improved its general carbohydrate food security at national level consistently in the past 4 years (2010, 2009, 2008, and 2007) as shown in summary table 2. The reports for year 2006, 2005 and 2004 were not available but some incomplete information was picked up from the documents analyzed (2007 to 2010).

The highest national food security as measured by total maize production was attained in the last season of 2010, where surplus was over one million metric tons of maize. In addition cassava recorded the usual static surplus close to half a million metric tons due to its lack of market in the major maize staple areas. The global update Food Security Monitoring by WFP recorded Zambia among the most improved food security (WFP Jan-June 2010 issue no.3) countries. The ZVAC reports show Zambia's total maize production positive balance of 200,000-250,000 (year 2005-2009) from the food deficit of 2004/5 season (-85,000mt.) to current year record surplus (1,085,709mt.) recorded in the history of Zambia's maize production (ZVAC 2010, Table 2, data source, MACO Cereal Crop report 2010).

However, the other cereals such as sorghum and millet and rice, show a very low increment or no increment and there is a gap in the data as they are not reported in years 2005 to 2008. This shows the improvement in food security is mainly due to maize.

The cassava production and consumption shows no change which agrees with the national understanding that cassava has not successfully penetrated non- traditional cassava consuming areas like Eastern, Central and Southern province as a major staple food crop. While the highest production is in Northern, Luapula and North Western provinces, other provinces' consumption is limited to fresh cassava and a few members of society from those provinces which consume cassava as a staple.

In addition examining the protein sources such as pulses and animal protein show a decline and this information is only reported over a two year period (2009 and 2010), there is no data on consumption or balance sheet of these food groups, hence we cannot analyze further.

Livestock populations are only reported in the ZVAC reports of 2009 and 2006 with the same value of 2,790,985 Heads of Livestock inclusive of the traditional village chicken, goats and pigs. The largest proportion being cattle owned by the traditional sector whose numbers are static due to poor disease control and lack of good management practices that lead to very low productivity at household level. No household level data is given except for district and national aggregates referring to households.

This information is obtained from MACO reports. All the production data does not give raw data as annexes and no data collection statistical design is given in the introduction of the reports. Therefore, we assume that even if we looked at the original interview records from MACO it may be hard to get extra information such as hectare land use to show whether increase in food production is due to expanding area of production or improved agricultural practices.

The global food crisis of 2008-2009 is not felt in total national food production as this coincided with the presidential elections of 2008 when the budget for maize input subsidies were more than tripled as reflected in the almost doubled production of the staple commodity. In the same year the government Food Reserve Agency's (FRA) budget was increased for purchasing maize from rural areas and FRA was also permitted to export the excess. The government intervention has been repeated in the past three years at a higher level of subsidy each year. The situation is different in urban areas as inflation increased and the cost of the food basket increased. According to the Jesuit Theological Center for Reflection Food Basket bulletin the

Basic needs basket increased from ZMK1,750,000 (USD350) per month in 2008 to ZMK2,850,000 (USD550) in 2009. Such information is not captured by the ZVAC information system which is rural based because the basic needs basket reflects prices in urban areas.

3.2.2 Types of Disasters, affected areas, displacements, Households and Assessment of Food Requirements

Major Disaster and Vulnerability Trends

A summary of major disasters and vulnerability trends such as affected number of people and house hold, and those in need of assistance over the five years (2010, 2009, 2008, 2007 and 2005) compared to food balance and local prices of these years of the ZVAC information system is given in table 3a. The disasters reported consists of floods year 2008 and 2009; drought in 2005 and a combination of drought and floods in 2007 and 2010. The severity and area coverage of the disaster determines the effect on household and their vulnerability. The frequency of these disasters in an area have major impact on outcomes of food and nutrition insecurity and severity of vulnerability of households (table 3b).

In table 3a, column 1 gives the year under consideration; column 2 gives the type of disaster that manifested that year; column 3 gives both the total number of districts affected and districts affected to the extent of requiring food aid; column 4 gives the total number of estimated households affected in that year and column 5 gives the people or number of households in need of food aid. Column 6 shows food surplus or deficit compared to the need created by the disaster. The last column is an attempt to see whether the data provides adequate information on food prices.

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

Table 3a Types of Disasters, affected areas, Households and Assessment of Food Requirements.

	Type Disaster	District affected		Affected and HH	People affected negatively in need of food	Production surplus	Price
Year		Total Affected	negatively				
2010	Floods and or dry spells	15	Sesheke Luangwa Lukulu	283,333 (1,7million people)	938,254 people or 39,709 HH	1,085,709 maize 506,098 cassava	Cassava lowest choma
2009	Floods Eastern & Northern Lundazi, Chama, Isoka and later country wide (see list table 3b)	20	7	83,227 (499,359 people)	18,442	Maize 203,271 Cassava 464,633	Heist Dec Max lowest Lundazi
2008	Floods in Southern part of the country rapid assessment February '08 Infrastructure damage to basic services, water logging	39	21		74,104 HH Or 444,624 people needed 33,333 mt food for 9 months	143,000 maize Cassava	Started falling after may more rural
2007	Floods and prolonged dry spells with marginal crop reduction. Western Eastern Northwest Central and North province parts	45	14 Luapula Northern Western Nwest		440,866 people 31,742 mt maize 6months 80% labor based relief		Hi maize prices Kalabo 58% FRA Mpika, Lukulu Shangombo 80% Gwembe, Kazuyu Mazabuka Monze 60% Mporokoso Kaputa
2006			13 under monitoring				
2005	Rapid assessment May '05 drought entire southern subregion erratic rain 2/3 zambia in crop for native stage	27 LSK, S, W, Eastern province	13 reg monitoring	1,233,661 likely reg. 118,335 mt for 8 months		9 gives surplus maize	Deficit maize 85,000 mt Rice 12,000 mt Cassava 324,854 mt

In general table 3a shows some inconsistencies and gaps in information reporting. The years 2009 and 2010 have the most complete information except 2010 only reports

cassava price reduction in Choma district of Southern province the other prices are general except for mention of Lundazi and yet the disasters affected many districts. The prices are not given in data form but just words. The disaster of 2007 is reported as provinces most severely affected and number of people in need of food aid or estimated amounts of food stuff required are not given. In year 2005 they reported provinces as disaster and number of districts given (27) without names and the number of people in need of food were not given. This shows that as the ZVAC information exists currently, it is incomplete and has gaps that make it difficult to do a trend analysis on some indicators.

Similarly, in 2009 floods affected districts in Eastern and Northern parts of the country particularly Lundazi, Chama, and Isoka. A total of 20 districts were affected and 7 more severely with 18,442 households in need of food assistance. The food balance sheet indicated surpluses of 203,271mt maize and 629,482mt cassava. In both years, there is no information showing how much relief food was distributed. This shows lack of follow up on previous estimation to show what really happened, despite having another ZVAC Information report for the following year. This would also indicate that the data is collected from different areas as indicated to be in a disaster and no follow ups from past years disaster.

Most Disaster Prone and Vulnerable Districts

The most vulnerable districts by year are given in table 3b (*star means high extent of disaster proneness). The table shows discrepancies that shows not all districts affected by disaster named. Table 3b which shows over half the country (42 districts out of 72 districts) experience some form of disaster: flooding and dry spells or droughts. Some of these districts appear in at least one or more severe disasters of the five years reviewed (2010, 2009, 2008, 2007 and 2005), these districts include Lukulu (in 4 years) Kalabo (3 years). It is important that such information is captured in a system that will capture the disaster and link each year to compare the vulnerability and showing whether people are developing resilience and coping strategies that reduce the impact of each disaster. Therefore choosing areas that are disaster prone and those that are less prone to disaster is important for comparison purposes and showing lessons learned or providing food assistance with a purpose for mitigation to reduce vulnerability. Lukulu and Kalabo are known for floods in valley and droughts in upland areas, the data should capture coping strategies that should make up the package of total assistance.

Table 4b: Districts and Provinces Prone to disasters by year and impact.

List of Disaster prone Districts	Disaster Type/ Year					
	2010	2009 floods	2008 floods/dry spells	2007 Floods	2006 Not availed	2005 Floods/ dry spells
	10 districts	28 districts	6 provinces Central,CB, Lsk, Luapula Southern, Western	Western, NWest, Eastern, Central, Northern (14 districts)		
Mambwe		√*				
Luangwa	√*	√	√*			
Kafue	√	√				
Chavuma		√*				
Zambezi		√*				
Mwinilunga		√				
Lukulu	√*	√*	√*	√*		
Kaoma		√*				
Mongu	√	√	√*			
Kalabo	√	√*	√*	√*		
Shang'ombo		√	√*	√*		
senanga	√	√				
Sesheke	√*	√	√*			
Namwala	√*	√	√**			
Gwembe		√		√*		
Sinazongwe	√	√	√**			
Kazungula	√	√		√*		
Lundazi		√				√*
Chama		√				√*
Isoka			√**			
Kapiri-mposhi		√				
Kawambwa		√				
Mpika		√				
Mungwi		√				
Mporokoso		√		√*		
Kabompo		√				
Kasempa		√*				√
Mufumbwe		√				√
Mazabuka			√	√*		
Mumbwa		√	√			
Lufwanyama						√

*, **Severity of flooding/ dry spells

3.2.3 Sources of Food and coping strategy in disaster time

Sources of food for the vulnerable people and coping strategies are another area where only one report (ZVAC 2007) provided Information (table 4). Coping strategies reported include: eating meals with vegetables, (65% respondents), reducing number of meals (55% respondents), eating less preferred food or foods of low quality and less quantity (41% of respondents), taking children out of school while others preferred to sale large assets such as cattle and eventually sale of productive assets (Fig 3.1.3.4, ZVAC report 2004).

The most vulnerable households' main sources of energy comes from own production which provide food ranging from 20 – 60% of food requirements. This augmented with in-kind labor payments, food purchases, food relief and gifts. Sale of livestock is a coping strategy as most poor will preserve their large animals as an investment and some will prefer to take a daughter out of school instead of selling livestock to pay her fees, or eating wild foods in times of food distress instead of selling cattle.

Incomes Sources, Food prices

Main cash source is the sale of maize (table 4), which is mainly sold to the Food Reserve Agency (FRA) which sets up its commodity (maize) buying depots in the rural areas. Also many individual companies and brief case entrepreneurs (middlemen/women who go around the rural areas buying maize on cash basis from cash distressed farmers in need of quick cash.) usually offer lower prices than the government flow prices offered by FRA, then they resale to millers or FRA at a margin. The briefcase entrepreneurs sometimes bring barter items such as clothing, food stuffs which can be exchanged for the maize the farmers are selling. As a result many farmers do sell below production cost due to desperation for cash. The low prices disadvantage the farmers, especially the most vulnerable who are often cash distressed and easily fall prey to brief case entrepreneurs. The low prices contribute to chronic vulnerability and failure to build reasonable resilience necessary for withstanding shocks among the rural vulnerables.

Table 4: Incomes Sources, coping strategies, food prices, displacements, food insecurity and severe malnutrition and other under five children diseases in affected districts

Items	2010	2009	2008	2007	2006	2005
Income source	Cash crop	Cash crop	NO INFORMATION	Cash/food crop	No access	Cotton, tobacco, g.nuts. cattle pork pig,
Coping strategies	casual labour petty trading fishing	casual labor petty trading fishing		casual labor exchange petty trading wild foods		beer brewing major crafts for poor crop sales and labor exchange
Maize prices/ Livestock prices	Dropped March to May. Luangwa highest Kitwe lowest Choma	Generally hi high price Break Fast and Roller Meal slight drop	Hi prices maintain some maize increase over 70%, livestock prices rose also in December	Hi prices in the disaster areas by 40-80%		Drop in livestock# 11% 2, 341, 970 prices of maize stable compared to other foods farmers got low prices
Displacements		10%	82,662 HH most southern province 33%, 28%, northern			
Food Insecure HH		18,442 HH	72,104 HH	31,742 HH		1,232,661 people HH not give affected
Severe malnutrition	No specific reported just causes and impacts from secondary data	Severe acute malnutrition (SAM) 1.4% w/ 0.3% bilateral edema Global acute malnutrition 3.6% not change w/ country situation	2.3% SAM w/ 0.6% bilateral edema GMA was 7.7% an increase of 2.1% from 2007 5.6% Hi immunization coverage	Acute malnutrition wasting global 5.6% (1.09-1.62CI) (<- ZScore) edema Worst 6-17 months (42%) under wt 18-29(34.7%)		Malnutrition by MUAC = 15.5% 21% male children Z-score <-2 + 2.2% with edema females 9.5% w/ Z-score +1.6% edema. Most affected in mufumbwe - Kasempa (Zone 3A) chavuma lundazi rice (Zone 4B) EP cash crop zone
Under 5 diseases	Malaria respiratory EXT	69.7% malaria, diarrhea, infection, cough, skin infection	Trauma, skin, eye	Pneumonia, nose infection, ear,		

Prices in the 2010 maize harvest show all prices ending relatively higher at end of the March before harvest and at the beginning of harvest season in May of 2010 maize

prices being lower in all areas reported. In 2008 maize prices were lower in May '07 to November '07 and rose in urban November to April 2008 and dropped after harvest in May.

Food prices usually change at harvest time when prices drop and then gradually increase as the months approach December as most people who depend on own produced harvests have reduced food stores. Thus, in rural areas this seasonal phenomenon obscures the global financial crisis. In urban areas as captured by other information systems such as the Jesuit Center for Theological Reflection Food Basket bulletin (November and December 2009) and the Central Statistics office inflation analysis show the global financial crisis impact through the increased inflation rates (2007-2009) and increased cost of the living conditions.

3.2.4 Food insecurity: Disaster Sensitization and Arable Land Cultivated

Arable land cultivated is only referred to in ZVAC 2008 showing that 59% of farmers cultivate very small parcels of land (< 0.5 to 1ha) and the middle level 19% (1 – 2ha) and those cultivating 2ha or more were 20%. The other reports do not bring out this vital information that can bring out why certain areas have low productivity. Yields per hectare would be a useful figure to show vulnerability (Fig 3.13, 2008).

The ZVAC reports bring out some indicators in some reports and not in all reports. Examples of indicators that are not regularly represented and reported in all ZVAC reports are; :

- coping strategies,
- social protection
- relief food and labor for food program,
- food security in-put packs (GRZ, FAO, WFP) and
- Cash transfer programs (GTZ, USAID).

These are important programs which ought to be reported in terms of the extent, the size in terms of Kwacha value (cash transfers) hectare covered (on input programs), etc. Such information can assist in the estimation of intervention magnitudes that would steadily increase people's resilience to disaster situations.

It is extremely important that people understand the possible disasters to be prepared for in their areas of residence in order to reduce impact and develop resilience mechanisms to reduce their vulnerability in disasters prone areas. The information dissemination and sensitization (ZVAC, 2007) in times of disasters is limited to people living along river banks that need to move to upland dry areas, to plant early-maturing and drought resistant varieties. The fact that such information is only found in one ZVAC report shows gaps in data collection, which makes drawing of trends, comparisons between reporting system impossible.

3.2.5 Food insecurity and severe malnutrition and other under-five children diseases in affected districts

The persistent high malnutrition levels in each year of the ZVAC reports covered in table 4, indicates that National Food Security based on a single commodity does not translate into household or individual food security. Each ZVAC report year of surplus

on the food balance sheet has been dogged by areas of floods or dry spells, stagnant or declining protein sources such as pulses and small livestock production for dietary balance and consequently the high malnutrition in the reported year. The persistent droughts and floods and low coverage of agricultural inputs (Farmer Input Pack (FSP) under MACO each year ONLY targets 125,000 out of about 850,000 small scale viable farmer households; the vulnerable but viable input support pack (Food Security Pack, under MCDSS) targets only 25,000 per year) partly accounts for persistent food insecurity in each year.

The lack of total diversification of crops (cereals and pulses) and animal protein needed to provide a balanced diet at household level may explain the high chronic (stunting) and severe malnutrition rate that is so prevalent in the rural areas (table 4) in under-five children in the country (CSO, 2010).

The severe malnutrition is more comprehensively reported on in the years 2009, 2008, 2007 and 2005. The other years' mention high levels without the actual numbers given and the statistical values.

This shows that ZVAC information system has a great potential to provide information that can be used to provide interventions and inform policy but there is need to be consistent in ZVAC and collaborator information sources. And as partners have agreed to standardize data tools and information reporting into the ZVAC they should also agree on a template of indicators to be collected and how to analyze and follow up on action items planned to be done in response to the disaster.

4 SUMMARY OF THE MERITS OF THE ZVAC SYSTEM.

- The ZVAC being a collection of institutions and stakeholders with a common interest creates a platform or forum for information sharing and collaboration in the area of vulnerability in general and food and nutrition security in particular.
- The ZVAC reports include information from many sources like the meteorological department, living conditions information from the Central Statistics Office (CSO) , food production data from Ministry of Agriculture and Cooperatives (MACO), Ministry of Health, Ministry of Education and many other sources that provide supporting information and triangulation of the survey findings.
- Assessment of the aftermath of disasters by all stakeholders working or interested in issues relating to vulnerability and food and nutrition security serves as a joint evaluation and assessment which provides an opportunity for stake holders to assess the effects of the disaster and share responsibility in responding to the disaster. The joint effort has a potential to reduce duplication of programs among organizations..
- There has been an improvement in standardization of information reporting in the ZVAC recent reports compared to the reports before 2008..

- Data collection instruments (questionnaires) are being standardized.

5 CHALLENGES AND GAPS OF THE ZVAC SYSTEM.

- a) Data collected is not consistent. Some sections of the report in one year are missing in other reports as shown in tables 3-6 above).
- b) Data analysis method not clearly stipulated, seemingly, the system relies heavily on qualitative analysis and descriptive information.
- c) Lack of standard baseline data against which indicators can be measured.
- d) Lack of sentinel sites for data collection .The sentinel sites would allow for continuous collection of data from the same communities over a long period of time and the data would be used for trend setting and monitoring of indicators.
- e) Sampling is very localized to only districts affected by drought or flood in any particular year.
- f) Narrow view of crises (drought and flood) and the system cannot capture data on other crises like the global financial and economic crisis of 2008-2009.
- g) Focuses mainly on rural vulnerable households, excluding vulnerable households in urban areas.
- h) Disagreements among member on data collection and sample .
- i) Perpetual use of a small data sets, especially for nutrition, which calls into question the accuracy of the nutrition data and indicators.
- j) Inconsistent measurements for nutrition data across years. e.g. in certain years the weighing of children is substituted for MUAC measurement rendering analysis and comparison across the years challenging because the unit of measurement differs with the differing measurements
- k) The indicators for food security are not consistent over the years although there is some effort to standardize by standardizing the research instruments.
- l) Insufficient training of enumerators or data collectors as a result some enumerators are alleged not to have a good understanding and appreciation of the measurements they are required to take, for instance in taking anthropometric measurements unrealistic measurements were allegedly observed by some interviewed stakeholders, an example given was ‘a height of a child recorded as 30 centimeters.
- m) Alleged lack of proper screening of data collectors, which would help retain only the well qualified enumerators.

- n) Inaccurate data collected leading to higher than normal amounts of data rendered unusable and hence discarded.
- o) Inconsistent sampling methods and observed deviations between years.
- p) Mostly collects historic data and is not forward looking. Some measurements are done which are current at the time of measuring.
- q) Cannot be used for early warning because it is mainly focusing on the effects of the previous disaster. This is also reflected in the objective of the study or surveys.
- r) No mention of how the sample size is arrived at giving room for speculation that the samples size is arrived at arbitrarily or biasly.
- s) Insufficient funding partly attributed to the cause of insufficient sample sizes.

6 **CONCLUSION**

Systems used

WFP-

- ZVAC's in depth vulnerability and Needs Assessment -WFP, despite having other information collection systems, depends and utilizes greatly the ZVAC's in-depth Vulnerability and Needs Assessment Survey for data on food and nutrition security in rural disaster prone areas. WFP is a core member of the ZVAC, has staff dedicated to the ZVAC, it is actively involved in the ZVAC and participates actively in ZVAC activities, data collection, analysis and report writing. The ZVAC focuses on two disasters (1) flood and (2) drought. It only focuses on the effects of these two disasters on the affected communities
- Community and Household Surveillance (CHS)- is a WFP program monitoring tool which gathers information used to monitor WFP programs only. The CHS monitors the food and nutrition security of households and communities that are beneficiaries of the WFP food assistance program. It is not tailored to monitor or track effects of disasters neither can it be used as an early warning tool, only perhaps as a warning tool for indicators of WFP programs.
- Early Warning System- WFP does collect information used in early warning analysis. The early warning information is used mainly to track (1) Flooding and drought and (2) Evolution of food security.

UNICEF-

UNICEF does not have an own system for collecting data on food and nutrition, it instead relies heavily on NFNC for data on food and nutrition security information collection and analysis.

- ZVAC's in depth vulnerability and Needs Assessment - UNICEF's involvement and participation in the ZVAC is minimal and in like manner it utilizes data and information from the ZVAC surveys and reports minimally.
- NFNC- UNICEF relies heavily on NFNC's data collection, analysis and reporting for information on nutrition security in Zambia. It supports NFNC financially in its effort to collect analyze, and report the data and information.

6.1 **Joint data analysis and triangulation.**

The data collected by WFP and UNICEF/NFNC cannot be sufficiently and completely triangulated and jointly analyzed in order to make inferences about changing vulnerability and impact on vulnerable households due to global shocks because;

- WFP/ZVAC is tailored to investigate effects of flood and drought only, hence its sampling is targeted only at districts affected by these two disasters, while UNICEF/NFNC data covers a wider national scope and is more likely open to notice effects of global shocks. Some food security indicators (e.g. coping strategies, amount of grain grown, etc) in the ZVAC are similar to the food security indicators in the NFNC survey but the findings are significantly different.
- Sample sizes are significantly different (3,099 HH in ZVAC 2010, 9000 HH in NFNC survey). This leads to the two systems coming up with different results and findings on certain indicators.
- Data collection points being statistically different .e.g. WFP /ZVAC collect data only in districts affected by drought/ flood in the previous season while UNICEF/NFNC collects data across the country (32 districts).Some of these districts overlap with the ones chosen by the ZVAC. The overlap is coincidental and not by design.
- The ZVAC predominantly targets rural areas (87% of 2010 survey, 92 % of 2009 survey) while NFNC sample area covers both urban and rural areas-making the findings potentially different. Examples of differences in findings are;
- In the ZVAC 2009,(pg 37) the most common coping strategy is eating meals with vegetables while in the NFNC 2009 the most common coping strategy is begging for food and relying on help.
- ZVAC 2009 reported Vitamin A supplements at 16.6% in under five children while NFNC reported 81% for the same age group of children in Zambia.
- ZVAC 2009 reported that 50% of the population draw water from unprotected sources while NFNC reports that 92% have access to improved water sources.

Despite the different findings highlighted in the above bullet points, some findings are similar between the WFP/ZVAC system and the UNICEF/NFNC system. For example, both include eating less preferred foods as one of the coping strategies and the, ZVAC reported 16% of children to be underweight while NFNC reported 18%. Some data can be triangulated between the two institutions and some Joint inferences can be made for some data which have similar findings.

6.2 **Current Food and Nutrition Security**

The current food and nutrition security on a national level is classified as good mostly due to the bumper harvest of maize in the 2009/2010 season with surplus production of over one million tons of maize. Due to surplus production, the increase of maize prices has been minimal. Despite the national food and nutrition security being good, some districts experienced flooding and therefore low yields leading to localized inadequate food. This also shows that the national bumper harvest does not translate in overall household food and nutrition security as the malnutrition levels are still unacceptably high (Stunting or chronic hunger as 45% and severe malnutrition at 5%).

6.3 **Most reported indicators used to assess food security and nutrition condition in the study**

The indicators used to illustrate data collection similarities, possibility for comparisons, possibility for triangulation selected from the table 2 (Table of Indicators in food and Nutrition Security) some are presented:

- Maize cereal produced-by households but reported at national aggregates
- Arable land cultivated
- Sources of Food
- Change in assets
- Cost of staple food basket
- Dietary diversity/food consumption.
- MUAC
- Stunting
- Wasting
- Underweight
- Retail price of food crops
- Income sources
- Type of assets and number owned
- Access to arable land
- Size of arable land
- Vulnerable households
- Coping strategies
- Types of disasters

6.4 **Ability to track changes in vulnerability**

The data collected by both the ZVAC and NFNC systems is not real time. The ZVAC only reports the effects of the disaster in the preceding year or season and as such cannot be used, for continuous tracking of the food and nutrition security in the country. The fact that the ZVAC only collects static data which has no continuity on the same subjects relating to the effects of the disaster in the preceding year makes the system unable to track changes in access to health care, education, food relief and other social safety nets.

6.5 **Ability to capture effects of disasters**

The ZVAC system cannot capture effects of disasters like the global economic crisis because it only captures the effects of either floods, drought or both in a given year or season.

6.6 **Accuracy, validity and integrity of the system**

Despite being the main source of food and nutrition security data, the accuracy and validity of some findings in the ZVAC can be questioned, due to alleged,

- Insufficient training of enumerators or data collectors as a result some enumerators are alleged not to have a good understanding and appreciation of the measurements they are required to take, for instance in anthropometric measurements.
- Lack of screening of data collectors which would help retain only the well qualified enumerators.
- Inaccurate data collected leading to higher than normal amounts of data rendered unusable and hence discarded.
- In sufficient sample size especially for nutrition data.

6.7 **Adequacy and validity of indicator.**

The analysis shows that the indicators in themselves are adequate and valid for purposes of assessing food and nutrition security, save for concerns of inadequate sample size, narrow geographic coverage, covering only drought and famine affected areas, inadequately trained enumerators and exclusion of urban areas in the sample..

6.8 **Sentinel sites and baseline data.**

The system does not have sentinel sites and no baseline data are used. The lack of baseline data allegedly leads to subjective judgments on vulnerability and food and nutrition insecurity causing lack of agreements among stake holders on what constitutes vulnerability and who is vulnerable and needs relief or social safety net system.

6.9 **Use of data from other sources.**

The system adequately uses data from other sources like MACO, Ministry of Health, Meteorological department, ministry of education, FEWS NET, CSO, (DHS, Living conditions).

6.10 **Uniformity of sampling methods.**

Generally there is, to a great extent, some uniformity in the sampling method used over the years two stage stratified cluster sample is used. The first stage is the selection of SEAs and the second stage is the random sampling of the households in the SEA. But there is some observed deviation or variations that require to be eliminated for cross tabulation and comparativeness of the data analysis.

- For instance in 2009 in stage 1 14 SEAs were selected across two strata, the flooded and non-flooded areas. Whereas during the other years the sampling does not segregate the strata between flooded and non-flooded or drought and non-drought areas. In 2009 again, in stage two of the sampling, the sample size was increased and this necessitated a “ departure from simple random sampling geographic coverage of Survey.
- Throughout the years of the ZVAC the target population is the people living in disaster (flood, drought) affected districts only. The vulnerable people living in districts not affected by either drought or flood are not captured. The ZVAC also surveys people mostly in rural areas, e.g., 87% in 2010 and 92% in 2009.

There has been over the years progress towards uniformity of the instruments and the questionnaires

The analysis has establish that the data from information systems by WFP, UNICEF, Government, and other stakeholders is partially compatible for cross linking, integration, triangulation and not for joint analysis. The data are able to, in a historical way, inform decision makers on food and nutrition security, household response, and changing vulnerability when the vulnerable are impacted by shocks. The fact that it is historical data, means the ZVAC cannot inform in a timely manner in other words it is not an early warning tool.

This seems especially true of nutrition data where the NFNC uses the required large sample size and the ZVAC data samples being relatively low for meaningful statistical analysis (For instance in 2010 the number of households surveyed for the ZVA survey was about 3, 099 Households in 208 SEAs while the data set in the National Food and Nutrition Commission (NFNC) study was about 9,000 Households. The implication is that the NFNC can be statistically analyzed with statistical passage SPSS and provides confidence in the data set to support interpretation.

Some interviewed stake holders in the ZVAC questioned the accuracy, reliability and validity of some data and information in the ZVAC report. This statement is further vindicated by findings in the FEWS NET-Zambia Food and Security Outlook report of

October 2009 to March 2010, page 2 which reports that “ Although in June (2009) the VAC (ZVAC) had recommended food assistance amounting to 8,295mt of cereal for an estimated 110,651 people in seven districts,(see 2009 ZVAC report pg 64), no emergency food distribution was carried out during August or September as the situation on the ground did not warrant it.

The lack of none functional sentinel sites for real time validation of data on the ground is a potential point of concern regarding the accuracy, validity and utilization of the data and information collected. There are plans to develop and commission sentinel site by WFP.

There is disparity, some minor but important reporting detail. In some years the number and names of districts sampled are given (2009 and 2010) and in others only, the number (2008 and 2007) is given. Though insignificant, this detail can provide information on which districts are always having a disaster and what type.

Perpetuity of Vulnerability.

Vulnerability is self-fueling in that it affects all classes in particular affected area and slowly makes a community more vulnerable. For example the price pattern affects the vulnerability of households because when food prices are higher in a disaster area, the better off people become worse off in terms of money and food reserves, and when that happens, they are unable to provide work for the poorer ones who become even more food insecure and vulnerable.

ZEPRIS System

In its current state though not yet launched and operational, the ZEPRIS

- Has early warning data and real time agro climatic data and weather forecasts from the meteorological department which can be used to forecast for likely wood of flood and or drought.
- It functions mainly as a data depository or library where documents and reports from stakeholders are expected to be lodged or uploaded. This would mostly be documents and data on food and nutrition analysis and vulnerability.
- Does not have real time information on vulnerability and food and nutrition analysis.
- Analysis and interpretation of data will depend on data mining and interpretation by the user.
- Lack of standardization of data input in some interfaces rendering manipulation of data challenging.
- Does not have the capability to question or reject wrong data, if inputted.

A good step in the direction of setting up a national vulnerability and food and nutrition security system, though needs to be adapted and modified into a real time system which reports adequately on what is happening now. Again a point worth noting here is that the review of this system is premature because the launch is behind schedule therefore it is not yet fully functional or accessible to stake holders

7 RECOMMENDATIONS

The study covered a review of information gathering, analysis and reporting employed by WFP and UNICEF, individually and jointly, as well as examined other systems utilized by the government and a selection of other stakeholder systems. In order for WFP, UNICEF and other stakeholder systems to provide information that will be useful and meets the objectives of global pulse, the consultants, recommend the following;

- a) There is need to Institute a system to enhance information sharing between WFP and UNICEF on food and nutrition security. One of the observations of the consultants has been an apparent disconnect between the two UN organizations with respect to food and nutrition security. Triangulation of data systems between WFP and UNICEF can be facilitated through systematic information sharing which may also in turn benefit the 'one UN' agenda.
- b) In order to have information that can be useful for Global Pulse, there is need to develop or enhance one or more of the existing systems (e.g. ZEPRIS, ZVAC, NFNC, etc) with capability to collect real time data on various crises (updated regularly like the meteorological data), data on all indicators that are necessary for measuring changing food and nutrition security in households, vulnerability, resilience and responses to respective crises.
- c) Data collection systems by WFP, UNICEF, government and other stake holders need to be, continuous ,consistent and accurate in data collection and measurement in order to enhance the ability for the data to be compatible for cross linking, integration, triangulation , joint analysis, and also for it to accurately be useful for informing decision makers on food and nutrition security, household response, and changing vulnerability . This can be achieved by standardizing tools, measurements and units used and creating a uniform data collection template.
- d) Increase sample size to make data more representative and statistically adequate for analyzing with high level of confidence so as to provide validity and give an adequate picture of vulnerability across the country.
- e) There is need to develop sentinel sites in both disaster and none disaster prone areas and urban areas to allow for continuous collection of consistent data that can help with tracking and monitoring changing vulnerability of communities especially those in disaster prone areas. The sentinel sites would serve as a constant site for data collection and the data would be much more useful in tracking changes in food and nutrition security, vulnerability, and resilience build-up of the responded households over time.
- f) Government needs to increase its will power through appropriately funded disaster management and mitigating unit.

- g) DMM should setup and maintain these continuous data collecting systems and enhance the capacity for analyzing the data as it comes into the system.
- h) Need for government to seriously focus on disaster preparedness instead of focusing on responding to emergencies, some of which are chronic in nature like flooding in areas that are chronically prone to flooding..
- i) The ZVAC reports should be consistent in data collection, analysis and reporting so that a lot more parameters in their data can show a trend. The example is the maize production reporting that Zambia has improved its general food security at national level consistently in the past 4 years (2010, 2009, 2008, 2007) an example of lack of consistency is reporting of food prices on value added crops other than maize.
- j) There is need to promote dietary total diversification of cereals, pulses and livestock production at household level and discourage the consumption of maize meal or cassava meal as major and daily component of food intake. This will help reduce the high under five malnutrition particularly, stunting, wasting and acute malnutrition which may eventually affect intellectual development, future manpower output and hence low economic development.
- k) The ZVAC should evaluate their analysis to see if the predictions made were valid for classifying households as vulnerable and in need of food and to validate if they did receive the food and how much in order to be able to investigate if not, why not.
- l) The ZVAC needs to invest in the adaptation of the ZEPRIS in order to develop it into an multiple use early warning system that includes meteorological data, capturing information on all disasters and the associated effects in vulnerable communities. Need to improve the functionality of the ZEPRIS into a system that can be queried and bring out answers to queries instantly.
- m) The consultants recommend investing in improving the ZEPRIS for it to be capable of analyzing inputted data and present possible expected scenarios e.g. depending on rainfall pattern, the system could analyze the data and give an indication of likely scenarios of food and nutrition security in the country in the next coming months.
- n) Increase the scope of the ZVAC Surveys to adequately cover both urban and rural areas both drought/flood affected areas and those that are not affected for comparison purposes.
- o) Provide adequate training of the enumerators in order to enhance the quality, usability and credibility of the data collected.
- p) In the ZVAC, Institutions with expertise and technical capacity in certain specialties should be responsible for managing data collection, analyzing and interpreting for their respective areas of specialization, e.g. nutrition data be

spearheaded by NFNC from sampling, data collection analysis and reporting., Food security be spear headed by WFP and DMMU.

- q) The ZVAC should consider establishing a reporting manual or guidelines to ensure consistent reporting of key indicators and variables in every year to avoid variations in reporting of the same indicator or information. For instance some years' reports, the names of the sampled districts is given while in other years only the number of districts sampled is given, but the actual names of the districts are missing. (See Annex 2) The missing data in the other years makes it difficult to conduct a thorough trend analysis of the effects of the disaster, the recovery, improvement or worsening of the food and nutrition security situation in chronically vulnerable districts. It further makes the identification of these districts challenging since they are not readily and conspicuously reported in some reports.
- r) WFP and UNICEF should commission a study or phase two of this study which would be aimed at taking a close look at stakeholder systems that collect real time data like the FAO system, learn from its implementation, set up and data collection mechanism. Phase two would also study the list of indicators to be captured in the system, and standard of data entry.

8 REFERENCES

- 1 The Zambia Vulnerability Assessment Committee (ZVAC)- 2010 In-Depth Vulnerability and Needs Assessment Report.-July 2010
- 2 The Zambia Vulnerability Assessment Committee (ZVAC)- 2009 In-Depth Vulnerability and Needs Technical Assessment Report.-June 2009
- 3 The Zambia Vulnerability Assessment Committee (ZVAC)- Multi-Sectoral In-Depth Vulnerability and Needs Assessment- June 2008.
- 4 The Zambia Vulnerability Assessment Committee (ZVAC)- The In-Depth Vulnerability and Needs Assessment Report on the Impact of the Floods and/or prolonged dry spell.-August 2007..
- 5 The Zambia Vulnerability Assessment Committee (ZVAC)- 2005 Vulnerability and Needs Assessment – June 2005..
- 6 FEWS NET; Zambia Food Security Outlook- October 2009 to March 2010
- 7 FEWS NET; Zambia Food Security Update- November 2009
- 8 FEWS NET; Zambia Food Security Update- September 2010.
- 9 FEWS NET; Informal Cross Boarder Food Trade in southern Africa- Issue 54 ,September 2009.
- 10 FEWS NET; Informal Cross Boarder Food Trade in southern Africa- Issue 62,August 2010.
- 11 Central Statistics Office; The Monthly, Volume 85, April 2010
- 12 Central Statistics Office; Consumer Price Index- December 2009 Release.
- 13 WFP-Community and Household Surveillance, October 2007.
- 14 NFNC- National Nutrition surveillance Report, 2009- Status of Nutrition in Zambia
- 15 NFNC- National Nutrition surveillance Report, 2009- Key Nutrition Indicators by District.
- 16 WFP-Emergency Food Security Assessment Hand book, Second edition/ January 2009.
- 17 WFP- Global Update Food Security Monitoring-January-June 2010.
- 18 Jesuit Center for Theological Reflection-JCTR-Monthly Basic Needs Basket-Lusaka –November 2009.
- 19 Jesuit Center for Theological Reflection-JCTR-Monthly Basic Needs Basket-Lusaka -December 2009
- 20 Jesuit Center for Theological Reflection-JCTR-Monthly Basic Needs Basket-Lusaka –March2010.
- 21 DMMU- Comprehensive Vulnerability Assessment Analysis- Concept Note (Unpublished)
- 22 Lusaka times-<http://www.lusakatimes.com/2010/02/24/lusaka-flood-victims-relocated>
- 23 World Bank- Effects of the Global Financial Crisis on Zambia. December 5, 2008.

9 INTERVIEWS

- i. WFP-Mr. Allan Mulando
- ii. UNICEF- Ms. Dominique Brunet and Ibrahim Conteh
- iii. FEWS NET- Ms Chansa Mushingi
- iv. National Food and Nutrition Commission- Mr. Ward Siamusantu, Mrs Raider Mugode.
- v. FAO- Dr Jim Belemu
- vi. Oxfam- Ms Dailes Judge
- vii. DMMU-Mr. Mulenga

10 ANNEXES

Annex 1: Indicator Inventory Table.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Change in cost of living	Consumer price index	National	Capital city	Monthly	15 years	Ministry of Finance	Yes, monthly	Two weeks, middle of following month	Only available for capital city. Need to extract the data from regularly monthly bulletins. Government website posting appears two months after bulletins are released.
Cost of staple food basket	Average monthly cost of basic staple foods consumed in an average household Consumer price index	National	Major cities	monthly	15 years	CSO	Yes,	One month?	This index involves tracking the price of basic staple foods collected from different retail outlets and then an aggregate average used as an index.
Cost of Basic needs basket	This is the cost of basic food items, essential non food items and other additional costs for a family of six	Capital city	Capital city	monthly	10 years +	Jesuit center for theological reflection (JCTR)	Yes	2 weeks	This looks mainly at the changes in the cost of living for a family of six in terms of (a) basic foods that compose a nutritional diet based on three meals a day. (b) Essential non food items like basic accommodation, water, fuel, energy and basic toiletries. (c) Other costs such as education and health.

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Dietary diversity/Food consumption	House Hold access to balanced diet	District	Sample sites or districts	Bi annual	10 years	NFNC/ UNICEF	Yes	6 months	The NFNC is consulting with stakeholders to modify the data collection and surveillance system to make it continuous rather than biannual
Change in assets	The Increase or decrease in the number of assets owned.	House hold	National	Bi annual/ annual	10 years	NFNC and ZVAC	Yes	6 months(NFNC)/ 9 months (ZVAC)	The change in assets tries to assess whether the house hold has been selling assets as a coping mechanism and depending on the extent would indicate increasing vulnerability and reduced resilience. This data exists in the ZVAC at a district level hence showing which districts are more vulnerable. The primary data is collected on a community level down to the household.
MUAC	Measure of thinness and wasting	National	National	Biannual and annual	15 year+	NFNC/ MOH and CSO	Yes	Biannual – NFNC/ clinics as presented.	It's a fast method but it does not pick out severe malnutrition

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Acute Malnutrition	Protein and energy malnutrition	Under five	National and district	Biannual	15 years +	NFNC/ MOH	Yes	Biannual (NFNC) Clinics(as presented/ under five)	It's data that hospitals and clinics routinely collect when children come for under five clinics or when they go to remote areas for clinic sessions, where as NFNC collects it biannually.
Under 5 mortality rate	Number of deaths per thousand births	Under 5	National	As deaths occur	15 years +	MOH	Yes	Annually	The data depends on user of the information. It is used to highlight the severity of malnutrition in the country among children. It is also used for lobbying for food and nutrition programmers in the country.
Crude mortality rate	The number of all deaths in the community /population. The rate can be per 100,000	Population	District, national	As deaths occur or when the MOH reports are ready	20 years +	MOH,	Yes	Annually	The data is used to triangulate the effects of adverse health, food, drought, flooding etc conditions. E.g. the mortality rate in areas hit by cholera pandemic which may be an after effect of flooding.

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
School attendance by education level	Number of students regularly attending class	school going children by gender and class level	National	Regular roll call of class attendance	15 years +	CFAM, NFNC, MOE, ZVAC	On going	ZVAC- 2 .5 months. Annual reports or as needed	Its policy and requirement that children school attendance at all levels be recorded regularly and daily if possible. It helps the teacher in assessment of performance and recommendations in communities that are food insecure or vulnerable in other sectors, the school going children are engaged in coping mechanisms.
School attendance in schools with feeding program	Monitoring school attendance due to provision of supplementary food.	Day school going children by gender & class level	Sites of intervention	Regular roll call of class attendance	As and when project is in progress	WFP, UNICEF, NGOs, Bilateral aid	According to Project plan	ZVAC- 2 .5 months. Project reports	In communities with severe food insecurity or hunger situation, the school attendance drops severely due to starvation. Pilot projects are undertaken to help children stay in school.
Ante-natal care (visits to clinic)	Care for fetal and Pregnant Mothers attending ante-natal clinic	Pregnant women attending clinic	National	As mothers attend fetal & mother monitoring clinic	15 years +	MOH, CSO	On going	ZVAC- 2 .5 months. End of year	As pregnant women attend clinic this data is collected. CSO will collect data from clinic and analyze if for specific parameters measured on child before birth and up to 5 yrs after birth

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Access to health services	Distance to nearest clinic and capacity to buy or receive drugs	Men, women and children at various ages	National	As and when needed	Always	GRZ, MOH, Private sector clinics	On going	ZVAC- 2 .5 months.	This is an important indicator in poor and vulnerable communities where clinics are few and people walk or are carried long distances to health facilities. These may have few or no drugs available or client not able to pay
# of Orphans	Number of children whose parent or both parents have died	Male and Female children	National	AT CENCUS or as needed in baseline or assessment to vulnerability DHS- Every four yrs	Annually or as per project needs assessment or baseline	CSO, MOH, NGOs	On going	DHS- 12 months	Important for assessing vulnerability and beneficiary targeting needs
Market price of food crops (e.g. staples, pulses, oil seeds and vegetables.)	One of the measures of food availability especially for households depending on the market	Local market to household level	Area specific	Monthly-	Annually or specific intervals e.g. DHS	CSO, MACO, JCTR, Early Warning – FAO, VAC	On going	About 2 weeks- Monthly, quarterly as needed depending on source	An important indicator in showing inflation level and vulnerability of the low income segments of the community on food access. The markets covered are retail, community markets, and also wholesale markets.

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Income sources	An activity which brings income to the household.	Household and individual level	National	Annually	Annually and as needed	GRZ-CSO NGOs	On going	JCTR- 2 weeks. NFNC-6 months. Monthly, quarterly and as needed	The income source of the house hold can have a direct effect on the food and nutrition security of the family. E.g. Households that end up selling their maize reserve to have access to; income may end up being food insecure because of a depleted reserve. Depending on the use of the realized income, the family may end up with neither money nor food. In this situation, the HH becomes both food and nutrition insecure.
Maize cereal production	Maize cereal production at community and National level	HH, Community, district provincial, National	National and area specific	seasonal	annually	CSO, MACO	On going	annual	Not a good indicator for food access at individual level. Only shows what is available in the community or country and not who can access it.

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Severe malnutrition rate in under fives	Number of children suffering from PEM and needing hospitalization	>-5SD,-3SD Or -1SD, AGE, SEX	National	At visit to under five clinic	Continuous at clinics	MOH, Private clinics	On going	As and when measured ZVAC-2.5 months	If over one percent of children in country have severe malnutrition it's too high. In Zambia it stands at 5% and survival rate of these children in hospital is only 50%
Inability to work due to chronic illness in adults	Indicates the number of chronically ill adults in a community,	Sex, head or not of HH,	National	Annual and as people visit hospital	Continuous at clinics & hospitals	MOH, Clinics,	Ongoing employer and health center assessments	ZVAC-2.5 months Continuous survey & As situation presents itself at clinics or CSO-	Chronically ill adult are unable to work in the fields or to earn a living and drain household resources in the quest for medical care leading to food insecurity. . Heavy prevalence of diseases and conditions like HIV Aids, malaria, TB and malnutrition affects the food security of the household especially when head of household is affected.

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
# of school drop outs in HH over two year period	When students do not attend school due to hunger at home and have to engage in coping activities of the Household.	Living standards of HH, Sex of Head of HH Income level, Sex of child	National	Annual returns	Long-term	MOE, School registers and reports to MOE	On going	ZVAC- abt 2.5 months	Households with chronic food insecurity will encourage kids leave school in order to engage in child labor, prostitution or other activities in order to help supplement the household's access to food. Can show whether more girl children drop out and at what age and which communities it is higher and their livelihood status
Type of lighting used in HH	Wealth-Social status and livelihood standard	Solar, National grid, candle or kerosene	National grid major towns & various other areas	Annual, and Census	Annual and as need rises in some areas	MEWD, CSO	On Going	ZVAC-2.5 months Annual or Census time	Lighting can indicate wealth and secured food and nutrition as affording expensive living Even at rural community level graduating to solar energy from candle or kerosene is improved living status
Type of housing occupied	Poverty or wealth status	Iron roof, asbestos, grass thatch, walls, floors	National	Annual reports, baseline studies	Annual and as need	CSO, MCDSS	On going	ZVAC-2.5 months Annual reports, seasonal	Is an indicator of poverty or affluence, thatch roof mud walls and floors are for the poor. Mud wall and floors, un burnt bricks denote poverty at high levels

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Type of assets and number owned (e. g chickens, goats, cattle , hoe , plough, irrigation equipment, etc)	Poverty or wealth status	Household assets, farming inputs	National	Annual and seasonal Livelihood data	Annual and needed by programs + projects	CSO, MACO, Partners	Regular or annual	ZVAC-2.5 months NFNC-6months. Annual reports, baselines	What households own has a bearing on the wealth level. Depending on the asset, it can provide sufficient coping mechanism.
Change in number of assets owned compared to previous years	Improvement in livelihood status or deterioration	Increased or reduction in levels of assets	National and more in shock areas	Annual and seasonal	Short for rapid assessment and VAC 7yrs	DMMU, WFP, FAO, MACO	Annual	7 TO 9 Month or a year	When asset numbers reduce it means the HH has increased its vulnerability. Opposite is true for when assets increase, it means the farmer has more resource to address an adverse situation.
Access to arable land	Asset that determines ability to produce food	Male or Female farmer, Class of land and where situated production	National	Annual and seasonal	Seasonal, Annual	CSO, Sentinel sites, surveillance	On going	ZVAC-2.5 months As reports comes available	Access to arable land is important for increasing productivity

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Size of arable land owned	Determines the amount of food crop that can be produced	Subsistence (2lima) Small Scale less than 2Ha, Medium scale to 10 ha	National	When data collected on	Over the years	MACO Ext., CSO, DMMU-VAC, EWS	On going	Annual or semi -annual depend on agency- 6 months	Size of arable land is important in determining amount of food crop that can be produced Too small e.g. women may not have enough land for crops and that perpetuate Food Insecurity. It is an issue of capacity to produce adequate quantities needed to assure food security or livelihood for the house hold.
Change in size of arable land over the years	Diminishing or increasing of production asset or capacity.	Reduce to small or to larger for increased production	National	CSO, VAC, EWS,MAC O Data collection	Annual, semi-annual	MACO Ext., CSO VAC, EWS	On going	Annual or semi -annual depend on agency- 6months	As size of land cultivated shrinks so does livelihood and as the land cultivated increases so does the livelihood especially when there is no other economic activity engaged in as an alternative.

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Type of crops grown	Cash crops for increased income or non-cash crops for food and increased nutrition diversity.	Men usually cash crops and women non-cash or minor crops	Rural and coverage is national	Annual or whenever such data is being collected	Over the years	MACO Ext., CSO	On going	Seasonal and annual surveys- 6 months	The type of crop grown can either provide a source of income to the house hold or provide nutrition security for the house hold and can also be because of its nutrient content. E.g. pulses provide protein while cereals provide energy.
Quantity of crops grown	Measure of FS at HH and National	House hold needs, national target needs	National	Annually, Seasonal	Annually over many years	MACO Crop market,	On going	Crop Marketing, Crop Surveillance	If high at HH level it's a measure of food security
Food secure	The number of meals eaten per day by individual household members.	Morning (breakfast), lunch, dinner and mid-morning and afternoon snacks	National	Annual	Over 7 years	VAC, DMMU, FAO, MACO	On going	ZVAC-2.5 months NFNC-6months	Number of meals eaten per day has a bearing on food availability and food security I deal is three meals a day and 2-3 snacks One meal means food insecurity, because not enough food for HH

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Cost of Basic Needs basket Cost of Living	Income required to provide for a family of six, adequate; food, shelter, other basic needs	Monthly income amounts & quality of Food, shelter, education	National	Monthly, QUARTERLY, Semi-annual	15+	CSO, JCTR, MOH	On going	Monthly-JCTR, Quarterly CSO	The ever increasing inflation requires that the minimum wage be set at a level where the lowliest paid can afford food, education and shelter. It is hard especially in a country where only about 10% have formal employment
Most common disease in HH	Diseases that affect most people in households regularly	Men, Women and children, female headed, male headed	National	Annual, as people visit clinics and needed data collectors	15+	Surveillance, VAC MOH	On going	ZVAC-2.5 months NFNC 6 Months	Increased common diseases in a HH reduce productivity and resource for food security and improving livelihoods
Chronic wasting	Persistent under weight	Men, women, youths and children	National	Annual, clinic visits	Over the past 15 years	NFNC, MOH, ZVAC	On going	ZVAC-2.5 months, NFNC, MOH	Most rural adults suffer from chronic wasting where they improve in when sufficient food can be accessed and waste away when food runs out. In Zambia rural energy intakes are very low estimated at 1600 Kcal and even lower
Stunting	Extremely low growth height for age of under five	Under five children, males and females	National	Annual	Over the past 15 years	NFNC, MOH	On going	ZVAC-2.5 months	It is an acute level in Zambia as 48% of under five children are stunted. Most weaning diets are low in protein, vitamins and minerals (Zn, Ca, P)

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

INDICATOR INVENTORY TABLE									
Indicator	Definition of the indicator*	Level of Dis-aggregation	Geographic Coverage	Collection Frequency	Time series duration	Source (tool and/or agency)	On-going monitoring?	Time From Data Collection and Availability of Indicator	Comments
Under weight	Low weight for height	Under five children, male and female	National	Annual	Over the past 15 years	NFNC, MOH	On going	ZVAC-2.5 months	Over 25% OF ZAMBIAS Under five children are under wt. Due to low food intake particularly energy and protein
How soon the children recover	Response of children to good adequate nutrition and response to medication	Under five , male and female	National	Annual	Over the past 15 years	NFNC, MOH as	On going	Depends on data source.	Children take time to recover from stunting and underweight when they grow older. When still at under five they can recover most of their growth if feed balanced diet

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

Annex 2 **Analysis of ZVAC in-depth vulnerability assessments**

WFP-UNICEF Food and Nutrition Security Field Analysis-2010.

ZVAC Report	2010	2009	2008	2007	2006	2005
Objective	To determine the negative effects of the flood/ dry spell 2009/2010 as reported by District Disaster Management Committee	To determine the impact of 2008/2009 floods on various sectors of the economy.	To determine the extent and effects of the floods and/or water logging on infrastructure and habitations, health and nutrition, water and sanitation, education, crop and livestock.	To determine the effects of the floods or prolonged dry spells on food access, crop and livestock, water and sanitation, health, education, infrastructure and habitation in 45 districts.		To determine the impact of inadequate rainfall on house hold live hoods in affected areas (southern half of country) during the 2004/2005 Agricultural season
Districts sampled	1. Luangwa	1. Kapiri Mposi				
			List of districts not provided			
	2. Serenje	2. Serenje				
	3. Mambwe	3. Mambwe				
	4. Namwala	4. Kawambwa				
	5. Gwembe	5. Mpika				
	6. Kafue	6. Mungwi				
	7. Sinazongwe	7. Mporokoso				
	8. Chavuma	8. Chavuma				
	9. Mongu	9. Zambezi				
	10. Kazungula	10. Kabompo				
	11. Shang'ombo	11. Kasempa				
	12. Lukulu	12. Mufumbwe				
	13. Kalabo	13. Mwinilunga				
	14. Senanga	14. Lukulu				
	15. Sesheke	15. Kaoma				
		16. Mongu				
		17. Kalabo				
		18. Shang'ombo				
		19. Senanga				
		20. Sesheke				

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

ZVAC Report	2010	2009	2008	2007	2006	2005
Sampling-size	1. Sample size- 208 SEAs in 15 affected districts.	1. Sample size- 280 SEAs in 20 affected districts.	518 SEAs representing 5,180 hh in all the 39 districts. (14 SEAs per district.)	630 SEAs covered , representing 12,000 hh in 45 districts.		1. Sampled 105 SEAs falling in 17 food Economy zones
	2. Total of 3,099HH	Total # of hh missing.	5,180 hh			2. Total 1,690 hh in rural areas of southern half of country.
	3. Population samples 1.7 million.					1. HH questionnaire
	(4.) 87% of sampled area in the 15 districts are rural	92% of the surveyed population in the 20 districts were rural- which shows once again that the survey targets mostly the country side.				
Sampling-criteria	_ Criteria for choosing districts included (1) rainfall distribution	Not provided				
	2.Rainfall accumulation Dec-Feb					
	3.Duration of dry spell					
	4. Percentage crops and livestock damage					
	5. Comparison of production figures between current and last season.					

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

ZVAC Report	2010	2009	2008	2007	2006	2005
Sampling-method	The target population for this survey was the people living in districts that were identified to have been affected by the floods of 2009/2010 season (ZVAC 2010 pg 3)	Equal sample method allocation method (ESAM) was used, resulting in 14 SEAs per district.		Equal sample method allocation method (ESAM) was used, resulting in 20 SEAs per district.		
	1. ONLY Districts reported to have experienced the flood/ drought spell selected.	ONLY districts reported to have had above normal rainfall where selected.	ONLY districts reported to have had above normal rainfall where selected.	45 districts which were affected by floods or dry spell.		
	2. Two stage stratified cluster sampling used. (Stage 1) 14 SEAs selected using probability Proportional to size estimate- (stage -2) .Random selection of 15 households in the selected SEAs within the chosen districts.	Two stage stratified cluster sample design used.(stage 1)-14 SEAs selected across two strata (flooded and non flooded) from each of the 20 districts. (stage 2)-hh randomly selected from each of the selected SEAs	Two stage stratified cluster sample design used.(stage 1)-14 SEAs selected from each of the 39 districts. (stage 2)-hh randomly selected from each of the selected SEAs	Two stage stratified cluster sample design used.(stage 1)-20 SEAs selected from each of the 45 districts. (stage 2)-hh randomly selected from each of the selected SEAs		
	2	" Equal sampling allocation Method was used. Pg 3. Within each district 14 SEAs were selected. 7 in flood affected areas and 7 in the non flood affected areas.		" Equal sampling allocation Method was used. Pg 3. Within each district 20SEAs were selected and these were divided to cover areas affected by the floods and those not affected by the flood.		

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

ZVAC Report	2010	2009	2008	2007	2006	2005
Research Instrument	Questionnaires and interviews.	questionnaires and interviews.	questionnaires and interviews	questionnaires and interviews	questionnaires and interviews	questionnaires and interviews
	Anthropometric measurements done for children between 6-59 months to reflect nutritional status of kids in districts affected by floods.	Anthropometric measurements done for children between 6-59 months to reflect nutritional status of kids in districts affected by floods.	Anthropometric measurements done for children between 6-59 months to reflect nutritional status of kids in districts affected by floods.	Anthropometric measurements done for children between 6-59 months to reflect nutritional status of kids in districts affected by floods.		
Data collection /	1. District level-meetings held with District Disaster Management committees	1. District level-meetings held with District Disaster Management committees	1. District level-meetings held with District Disaster Management committees	(1) Focus group discussion at district level and some District key informants		
	2. Community level-community leaders interviewed focused group discussion using questionnaire	2. Community level-community leaders interviewed focused group discussion using questionnaire	2. Community level-community leaders interviewed focused group discussion (fad) using questionnaire	Qualitative- Total of 180 community focus group discussions and 45 district key informants interviews undertaken.		
	3. HH level-HH questionnaire	3. HH level-HH questionnaire	3. HH level-HH questionnaire	3. HH level-HH questionnaire		
Base line	-2008/2009 hh production data as base for determining gap	2007/2008 HH production data was used as a base for determining production gap (pg 9). The production estimates of 2008/2009 were compared to 2008/09 and 2007/08 estimates.	2006/07 HH based production used as a base to determine a drop or increase in cereal production. 2007/08 production gap or surplus were calculated by taking the diff in the hh base production with that of 2006/07.			

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

ZVAC Report	2010	2009	2008	2007	2006	2005
HH Food security	pg 38- The report does not give a clear indication of the food security situation but instead narrates the production levels overall for the sampled districts.	The food security condition in most parts of the country is good owing to the above average harvest in the 2008/09 season. (FEWS net, Zambia food security outlook Oct2009- March 2010 pg1)				2. Household questionnaire approach (HEA) ^x (VAC 2005 pg 3)
	pg17 " total national maize supply exceeds demand by ,1085,709 MT	pg17 " total national maize supply exceeds demand by ,203,271 MT	maize production reduced by 11% from 1,366,000MT to 1,212,000MT during 2007/08 season. Total national surplus est. at 143,000MT . This at national level signifies adequate maize supply to meet the country's need. Despite that being the case, the southern part of the country with about 30% production due to excessive rainfall.			

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

Identifying desperate districts	-All districts with 10% or less production increase were flagged as district that did not recover from impacts of 2007/2008 floods.	-All districts with 10% or less production increase were flagged as district that did not recover from impacts of 2007/2008 floods.	Districts which were found to have food gap of 60% from base year 2006/07, asset poor, over reliance on consumption of veggies and working long hours in other people's fields			
ZVAC Report	2010	2009	2008	2007	2006	2005
Identifying desperate people	(1)-" The number of affected persons in need of food support was derived through a proportional pilling method and validated by percentage of hh affected as depicted in the rapid assessment in May 2009" (pg8)	(1)-" The number of affected persons in need of food support was derived through a proportional pilling method and validated by percentage of hh affected as depicted in the rapid assessment in May 2009" (pg10)	An inventory is done on the number and types of disposable productive assets the sampled hh possessed. The HH were grouped in 3 groups comprising(a) asset poor (b) asset moderate (c) asset rich. 30% were deemed asset poor and could not manage to offset the food gap.			
	Asset ownership among the sampled hh was one of the determinants of the ability of the affected hh in cushioning the food gap. (pg8)	Asset ownership among the sampled hh was one of the determinants of the ability of the affected hh in cushioning the food gap. (pg10)				
Number of affected people	238,254 people(39,709) hh negatively affected.(pg ix)	499, 359 people negatively affected (83,277 hh)	444,624 people negatively affected, i.e. 74,104 households.	440,866 people found to be food insecure - ZVAC 2007 pg ix		

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

ZVAC Report	2010	2009	2008	2007	2006	2005
Data Analysis	The methods of analyzing the data used was not indicated in the report. (b) Talks about the percentages of children with wasting without providing the bench mark for conclusion- Same thing done in 2008	The methods of analyzing the data used was not indicated in the report.	More elaborate description of stunting levels with given corresponding MAUC classification. Pg 32. More thorough analysis and reporting in 2008 compared with 2009 and 2010.	The methods of analyzing the data used was not indicated in the report.		1. House hold economy approach (VAC 2005 pg 3)
Reporting	53,629 people found to be food insecure (peg's)	Food support recommended for 110,618 people amounting to 8,295.5 MT for 9 months	440,866 people found to be food insecure needing 31,742 tons of maize.			A total pop of 1,232,661 people in rural areas likely to be food insecure (ZVAC 2005 pg Vii)
Main coping strategy	eating meals with vegetables .pg.x	eating meals with vegetables (46%) .pg 37 and reliance on less preferred foods.	reducing meals to 2 per day. This is diff from the 2009 and 2010 where 2 meals was normal.(2) borrowing food or money to buy food			
Other comments	same limitations as for 2009 word for word (see pa 9 of 2010 ZVAC)	same limitations as for 2010 word for word (see pa 11 of 2009 ZVAC)				

UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

	2010	2009	2008	2007	2006	2005
		<p>Although the sampling included hh that were affected by the flood as well as those that were not, the report does not seem to draw any comparison in food and nutrition security issues between the two groups. As such it is hard to see what the effect of the shock is on the affected households and on the non affected ones.</p>				
		<p>Food support recommended for 110,618 people amounting to 8,295.5 MT for 9 months, ,but not distributed</p>	<p>sample size not large enough to have estimates at district level to have key nutrition indicators pg7</p>			

Annex 3: Five year ZVAC Reports on Food Production and Food Balance Sheet Situation in Zambia

- Food Production and Food Balance Situation 2010

Table 7: National Cereal and Cassava Balance Situation 2010/11 Marketing Season

Item	Maize (MT)	Rice (MT)	Wheat (MT)	Sorghum & Millet (MT)	Cassava Flour (MT)
Opening Stocks (May1,2010)	298,681	1,151	53,097	2,610	0
Gross Production	2,795,483	52,937	172,256	75,729	1,179,657
Total Availability	3,094,164	54,088	225,352	78,339	1,179,657
Human Consumption	1,318,681	60,682	206,387	74,553	614,576
Strategic Grain Reserves	200,000	0	0	0	0
Industrial Requirements	230,000	0	0	0	0
Seed	40,000	0	0	0	0
Losses	139,774	2,647	8,613	3,786	58,983
Informal Cross Border Trade	80,000	0	0	0	0
Total Requirement	2,008,455	63,328	215,000	78,339	673,559
Surplus/Deficit	1,085,709	-9,240	10,352	0	506,098

Source: MACO

2a. Food Production Situation 2009**Table 6: Expected Production based on the 2009/2010 Crop Forecast Survey**

CROP	Expected Production (Mt)		
	2009	2010	% change
Maize	1,887,010	2,795,483	48
Sorghum	21,829	27,732	27
Rice	41,929	51,656	23
Millet	48,967	47,997	(2)
Sunflower	33,653	26,420	(21)
Groundnuts	120,564	164,602	37
Soya beans	118,794	111,888	(6)
Cotton	87,018	72,482	(17)
Irish potatoes	21,285	22,940	8
Virginia tobacco	18,487	22,074	19
Burley tobacco	8,758	9,809	12
Mixed beans	46,729	65,265	40
Cowpeas	7,462	2,722	(64)
Sweet potatoes	200,450	252,867	26
Paprika	1,020	533	(48)
Wheat	195,456	172,256	(12)
Barley	**	1,089	
Popcorn	**	7,846	

MACO, 2010

** Data not available; not collected

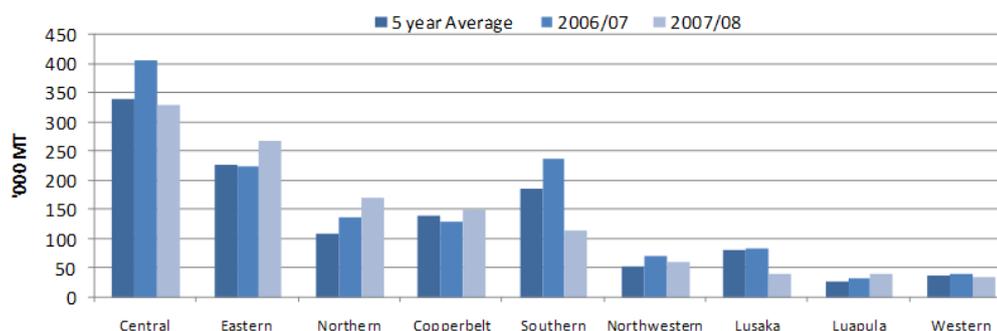
2b. Food Balance for 2009/2010**Table 2: National Cereal and Cassava Balance Situation 2009/10 Marketing Season**

Item	Maize (MT)	Wheat (MT)	Rice (MT)	Sorghum & Millet (MT)	Cassava Flour (MT)
Opening Stocks (May1)	62,035	65,060	178	1,485	0
Gross Production	1,888,773	195,456	41,927	70,796	1,151,700
Total Availability	1,950,808	260,516	42,107	72,281	1,151,700
Human Consumption	1,263,098	200,227	52,011	68,741	629,482
Strategic Grain Reserves	110,000	0	0	0	0
Industrial Requirements	200,000	0	0	0	0
Seed	20,000	0	0	0	0
Losses	94,439	9,773	2,096	3,540	57,585
Informal Cross Border Trade	60,000	0	0	0	0
Total Requirement	1,747,537	210,000	54,107	72,281	687,067
Surplus/Deficit	203,271	50,516	-12,000	0	464,633

Source: MACO

Maize production comparison by province

Source of data: MACO



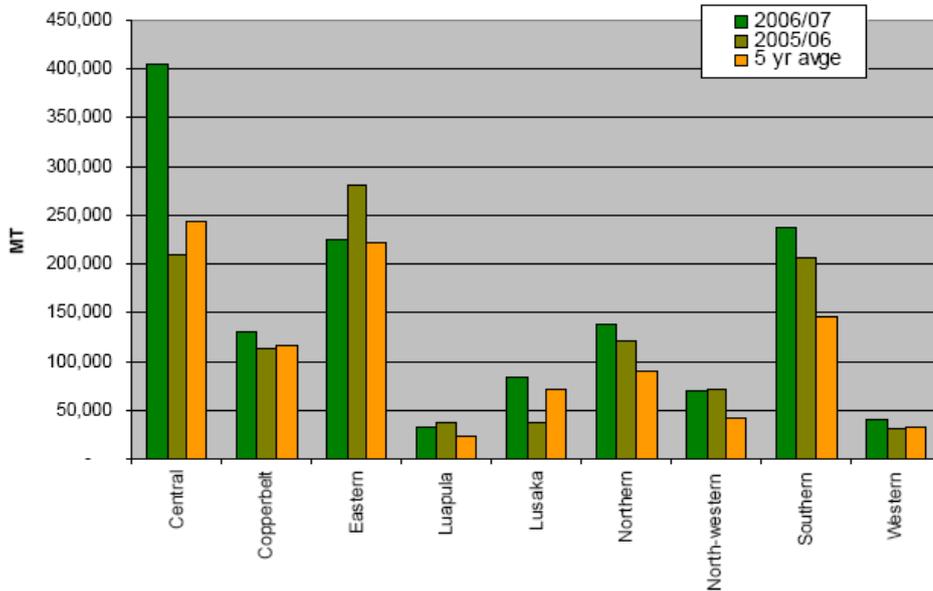
Source: MACO

National Maize Balance Situation 2008/09 vs. 2007/08 marketing season

	2008/09 (MT)	2007/08 (MT)
Opening stocks (May 1)	390,350	433,032
Gross production	1,211,566	1,366,158
Total availability	1,601,916	1,799,188
Human consumption	1,140,560	1,132,880
Strategic grain reserves	157,000	250,000
Industrial requirement	82,268	80,000
Seed	18,510	18,000
Total requirement	1,458,916	1,480,880
Surplus/Deficit	143,000	250,000

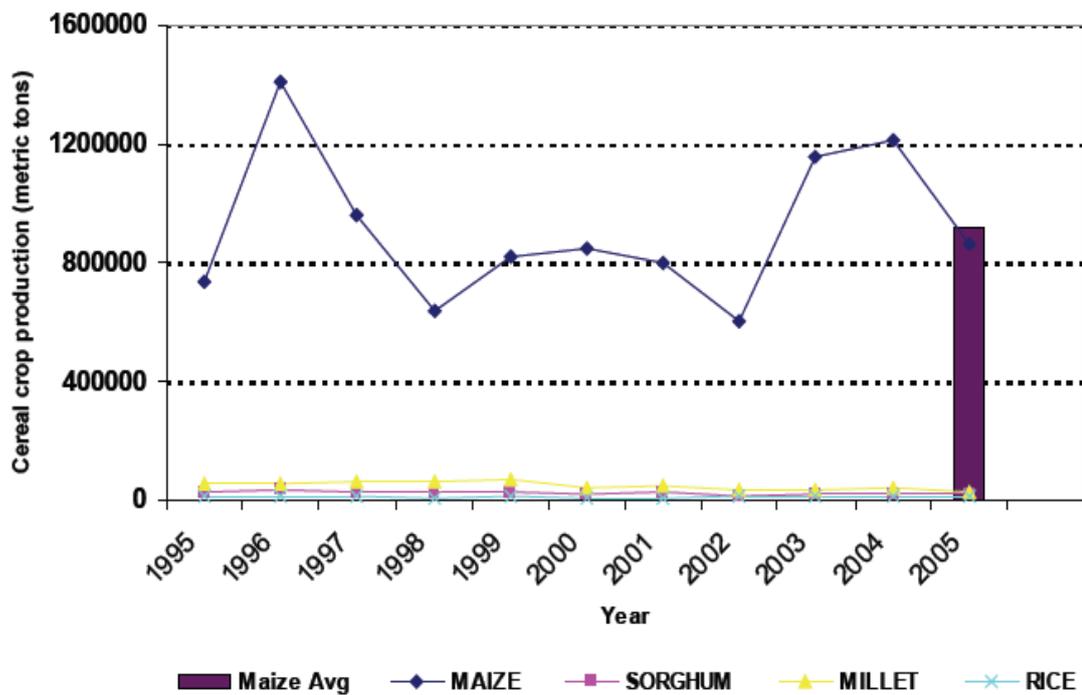
Source: MACO

Figure 1 Maize Production for 2006/07 vs. 2005/06 and Average



Source: MACO

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



Source: MACO

Annex 4 ZVAC Reported Food Price changes over a five year period (2005-2010)

- Maize prices in 2010 in selected districts

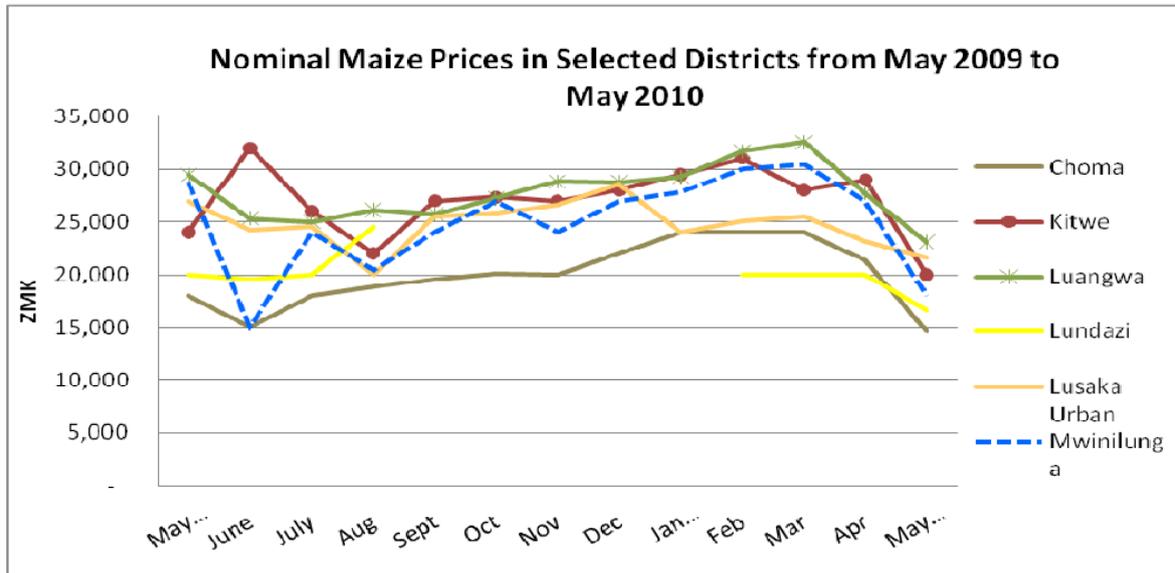
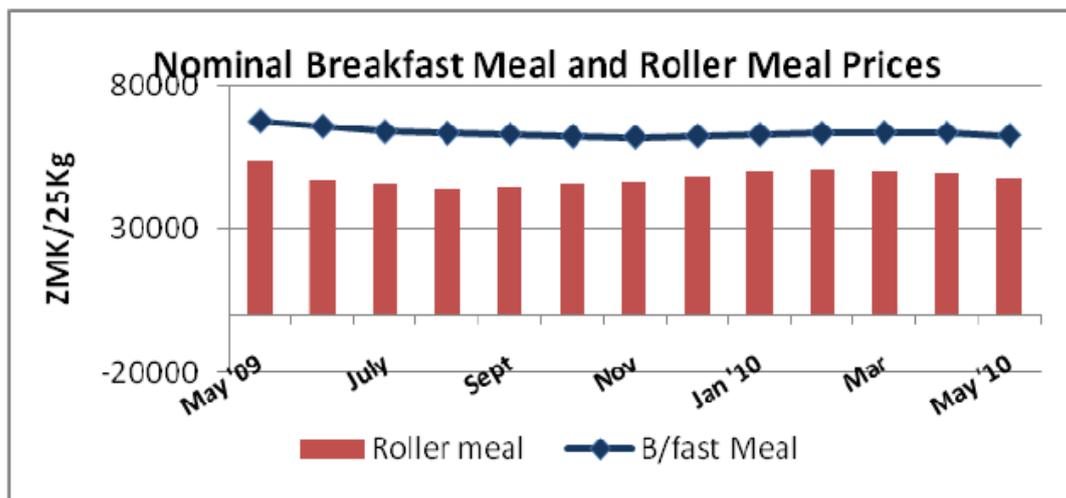


Figure 4: Nominal Breakfast Meal and Roller Meal Prices



- Maize prices in 2009 in selected districts

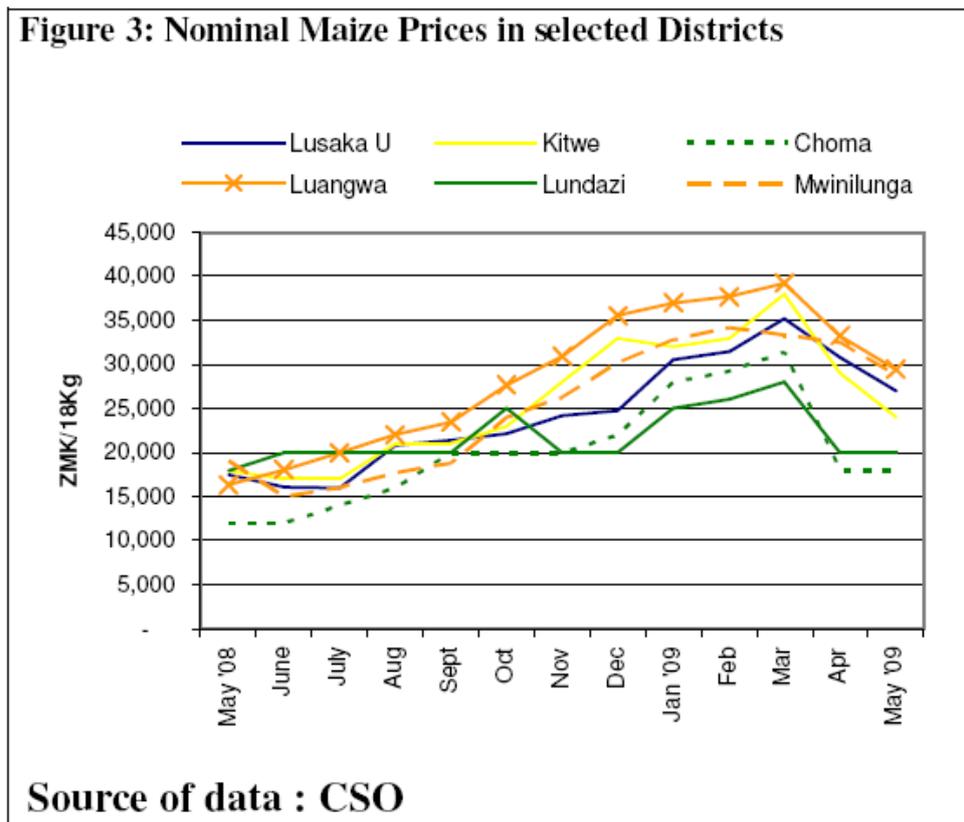


Figure 4: Nominal Maize Meal Price Trend

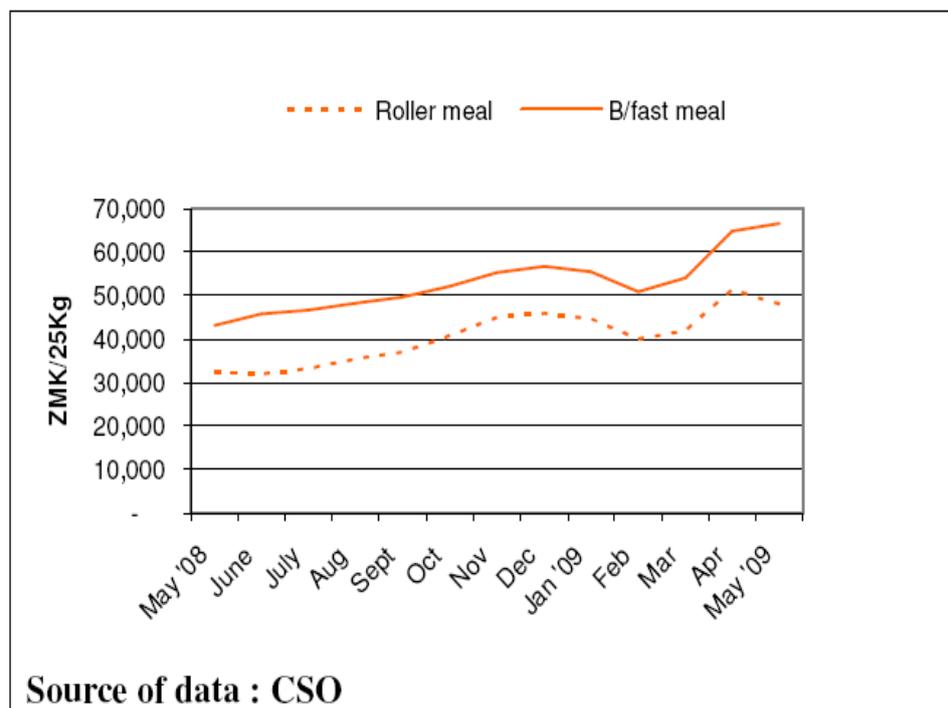
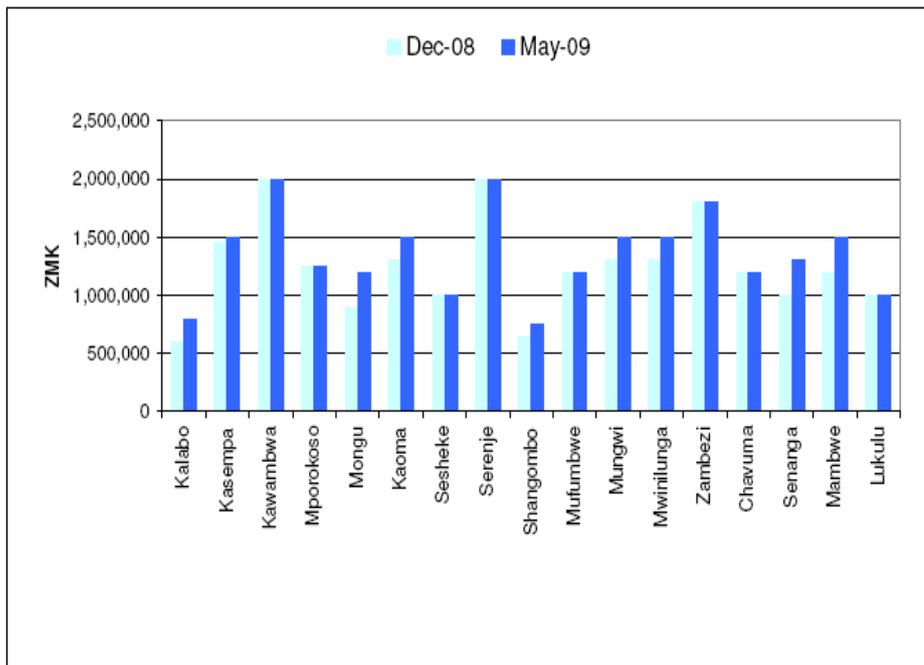
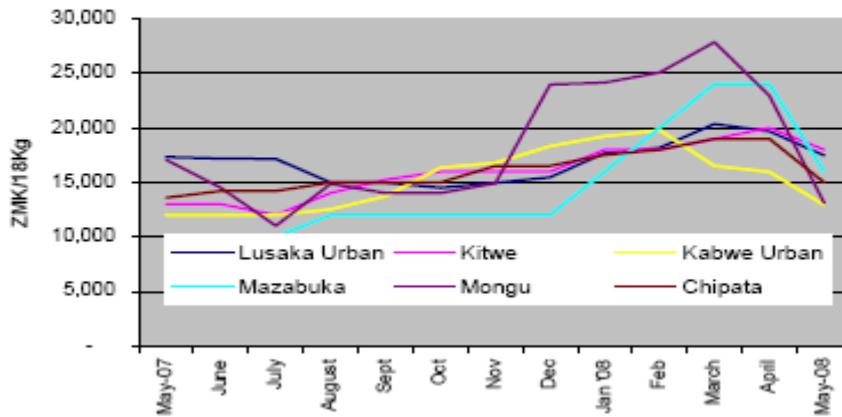


Figure 13: Cattle Prices in Affected Districts – Dec. 2008 to May 2009



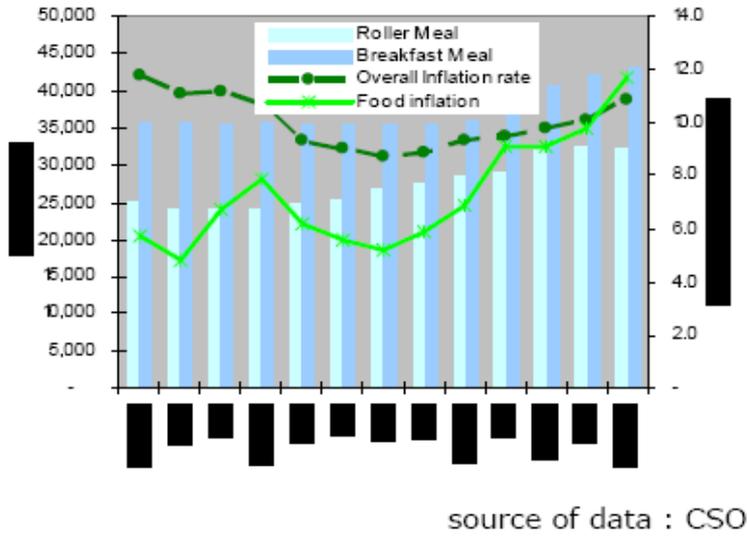
- Maize prices in 2008 in selected districts

Figure 2.2. Nominal maize prices in selected districts



- Maize prices in 2007 in selected districts

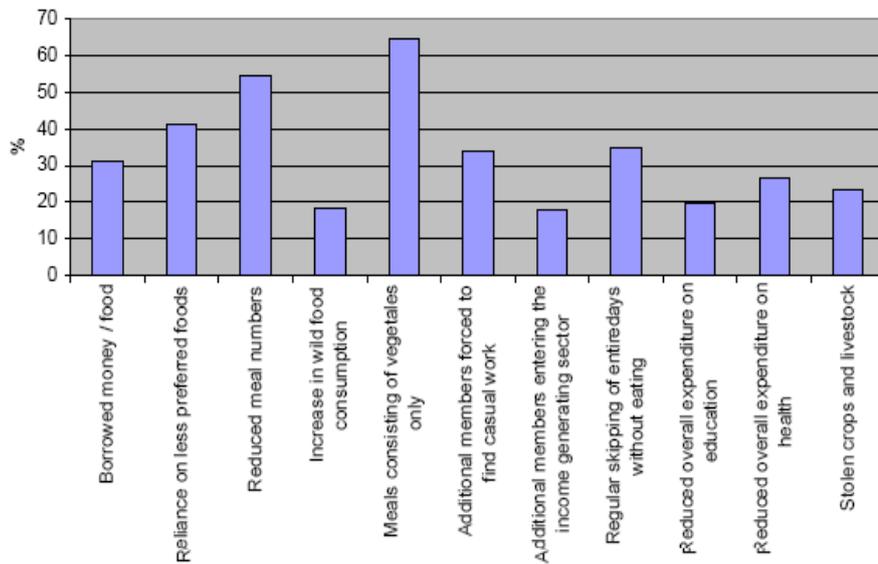
Figure 2.3. Maize meal prices and inflation



Coping Strategies reported in 2007 ZVAC report

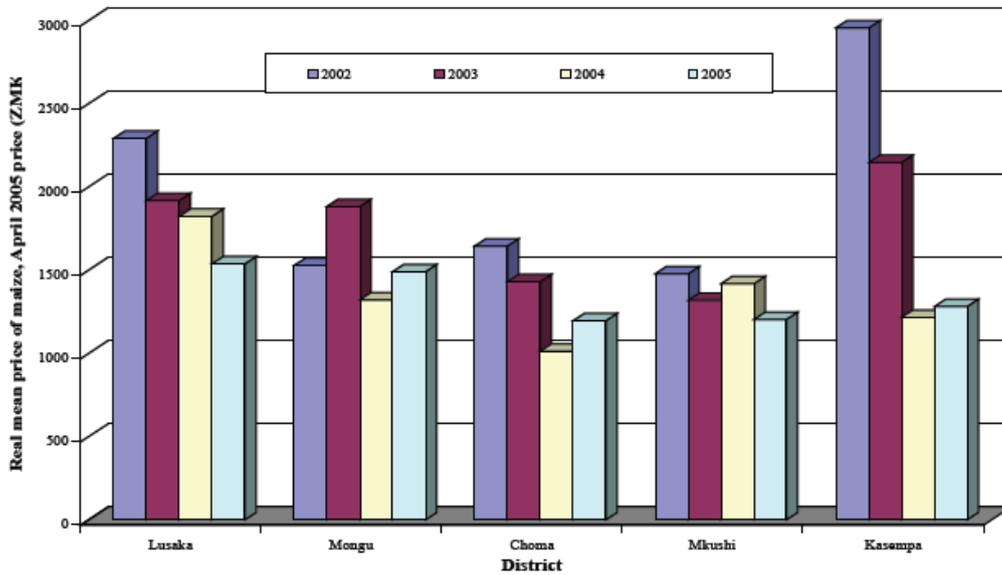
Figure 8: Coping Strategies

Figure Coping Strategies



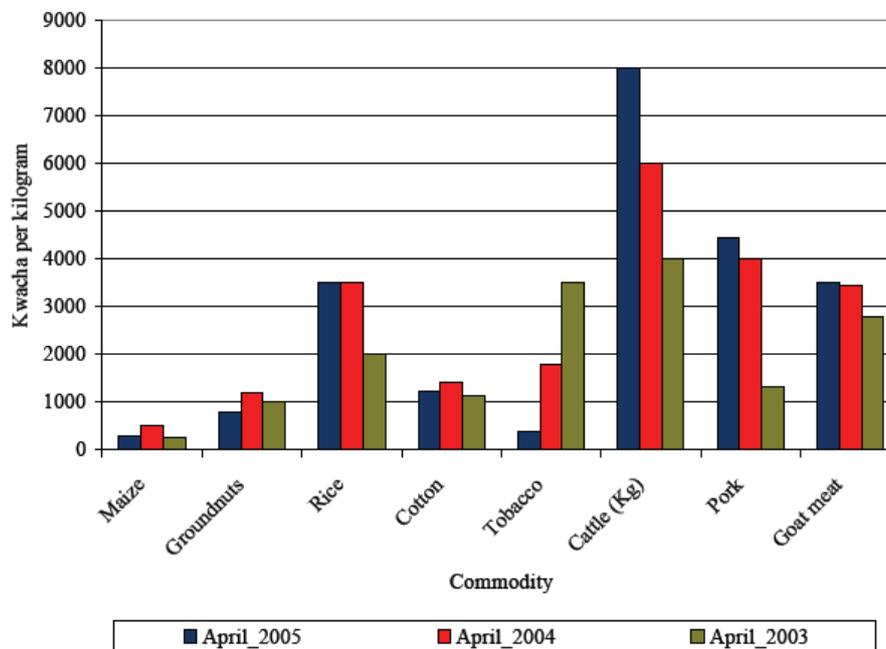
- Retail Price of Maize in 2005 compared with 2002-2004

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



Source: Data from Central Statistical Office, 2005

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



Annex 5: Reported Summary of Malnutrition Data extracts over the 5 five years (2005-2010) of ZVAC reports

1. Malnutrition in ZVAC report 2010

Table 20: Child Malnutrition by Age Group

Age in months	Stunting		Wasting		Underweight	
	Moderate (N)	Severe (N)	Moderate (N)	Severe (N)	Moderate (N)	Severe (N)
6-11	4.8 (6)	10.5 (13)	3.4 (4)	8.5 (10)	10.9 (15)	2.2 (3)
12-23	17.0 (60)	22.9 (81)	5.4 (18)	6.9 (23)	7.6 (29)	3.4 (13)
24-35	21.6 (63)	21.6 (63)	3.3 (9)	5.5 (15)	12.2 (39)	6.3 (20)
36-47	22.0 (59)	27.6 (74)	1.2 (3)	4.7 (12)	9.9 (29)	11.6 (34)
48-59	16.8 (23)	22.6 (31)	4.7 (6)	1.6 (2)	10.1 (14)	10.1 (14)

Table 21: Child Malnutrition by District

Districts	Stunting (<-2 SD Z-score)		Wasting (<-2 SD Z-score)		Underweight (<-2 SD Z-Score)	
	(N)	%	(N)	%	(N)	%
Serenje	49	64.5	7	10.0	19	21.3
Mambwe	44	52.4	6	7.6	21	23.6
Kafue	34	58.6	4	7.7	9	15.0
Luangwa	33	34.0	8	8.7	16	16.3
Chavuma	30	44.1	1	1.6	9	10.7
Gwembe	37	43.5	4	5.0	14	16.1
Kazungula	26	30.6	14	17.5	17	16.2
Namwala	17	17.5	27	28.7	16	15.4
Sinazongwe	27	58.7	4	9.5	8	15.7
Kalabo	33	51.6	5	8.5	12	18.2
Lukulu	16	42.1	0	0.0	5	13.2
Mongu	20	30.3	5	7.8	12	14.3
Senanga	34	35.1	8	8.7	13	13.1
Sesheke	38	33.3	3	2.8	19	17.0
Shang'ombo	35	35.4	6	6.2	20	19.2

- Malnutrition Trends Reported in ZVAC Report 2009

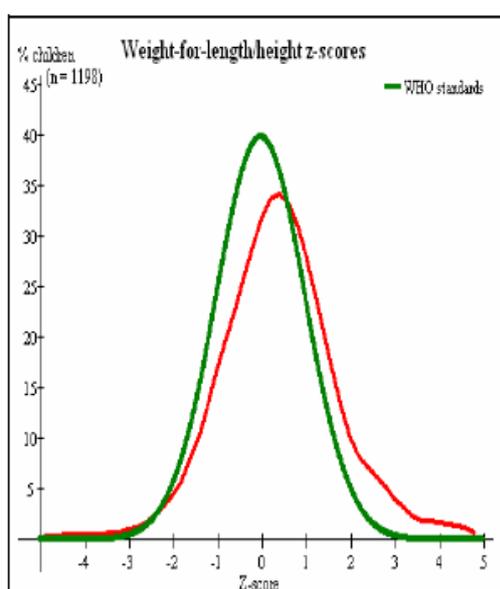
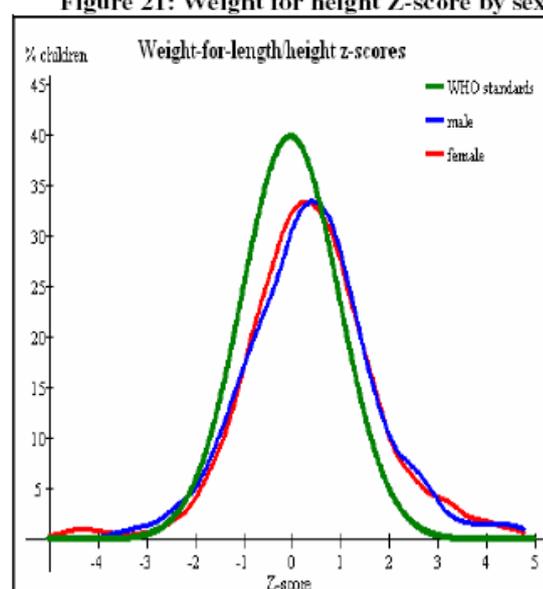
Table 7: Prevalence of Child Malnutrition

Type of Malnutrition	Total Number of children	Severe (% <-2SD)	(95% CI)	Moderate (% <-2SD)	(95% CI)
Wasting	1026	1.4	(0.6%, 2.1%)	3.6	(2.4%, 4.8%)
Stunting	1026	20.7	(18.1%, 23.2%)	45.5	(42.4%, 48.6%)
Underweight	1026	5.1	(3.7%, 6.5%)	15.2	(13.0%, 17.5%)

Prevalence of Acute Malnutrition (Wasting)

Table 8: Prevalence of Acute Malnutrition by Age Group based on weight-for-height z-scores

Age groups (months)	Total Number of children	Wasting (%)			
		Severe (% < -3SD)	(95 % CI)	Moderate (% < -2SD)	(95 % CI)
(0-5)	13	0	(0.0%, 3.8%)	0	(0.0%, 3.8%)
(6-11)	125	1.6	(0.0%, 4.2%)	4	(0.2%, 7.8%)
(12-23)	300	0.7	(0.0%, 1.8%)	3	(0.9%, 5.1%)
(24-35)	248	1.2	(0.0%, 2.8%)	2.8	(0.6%, 5.1%)
(36-47)	214	2.8	(0.4%, 5.2%)	5.6	(2.3%, 8.9%)
(48-60)	126	0.8	(0.0%, 2.7%)	3.2	(0.0%, 6.6%)
Total:	1026	1.4	(0.6%, 2.1%)	3.6	(2.4%, 4.8%)

Figure 20: Weight -for-Height Z-score for all Children

Figure 21: Weight for height Z-score by sex


- Malnutrition Trends Reported in ZVAC Report 2008

Table 3.2.1: Distribution of age and sex

Age Group (Months)	Boys		Girls		Total		Ratio Boys: Girls
	No.	%	No.	%	No.	%	
6 - 17	72,427	55.6	57,759	44.4	130,186	100	1.25
18- 29	61,993	51.1	59,321	48.9	121,314	100	1.05
30 - 41	51,227	47.5	56,516	52.5	107,743	100	0.91
42 - 53	60,957	58.4	43,445	41.6	104,402	100	1.40
54 - 59	4,334	38.5	6,929	61.5	11,263	100	0.72
Total	250,938	52.8	223,970	47.2	474,908	100	1.40

Table 3.2.2: Prevalence of Acute malnutrition based on weight-for-height z-scores (and/or oedema)

Malnutrition Type	%	95% CI
Severe Acute Malnutrition (<-3 z-score weight for Height)	2.3	(1.8%- 3.0%)
Global Acute Malnutrition (2 z-score weight for Height)	7.7	(6.5%- 8.6%)
Mean weight for height z-score - 0.32		

Table 3.2.3: Prevalence of acute malnutrition by age group based on weight-for-height z-scores and/or oedema.

Age Group (Months)	Total	Severe wasting (<-3z-score)		Moderate wasting (≥-3and<2zscore)		Mild		Normal (≥ -2 z-score)	
		No.	%	No.	%	No.	%	No.	%
6-17	125,466	2,618	1.2	10,540	8.4	19,261	15.4	93,047	74.2
18-29	114,626	1,839	1.6	8,116	7.1	19,414	16.9	85,257	74.2
30-41	104,630	390	0.4	2,584	2.5	13,610	13.0	88,046	84.1
42-53	101,917	613	0.6	3,633	3.6	15,293	15.0	82,378	80.8
54-59	11,055	90	0.8	368	3.3	919	8.3	9,678	87.5
Total	457,694	5550	1.2	25,241	5.5	68,497	15.0	358,406	78.3

Table 3.2.4: Prevalence of chronic malnutrition amongst children 6-59 months old,

Malnutrition Type	%	95% CI
Global Stunting (<-2 z-score height for age)	56.6	(36.1%, 40.0%)
Mean height for age z-score - 1.28		
Global underweight (<-2 z-score weight for age)	20.1	(13.7%, 16.5%)
Mean weight for age z-score - 0.71		

Distribution of prevalence of acute and chronic malnutrition based on weight-for-height (wasting and/or oedema) and weight-for age (underweight) z-scores

Figure.3.2.1.a: Z-score distribution Wasting All children 6-59 months

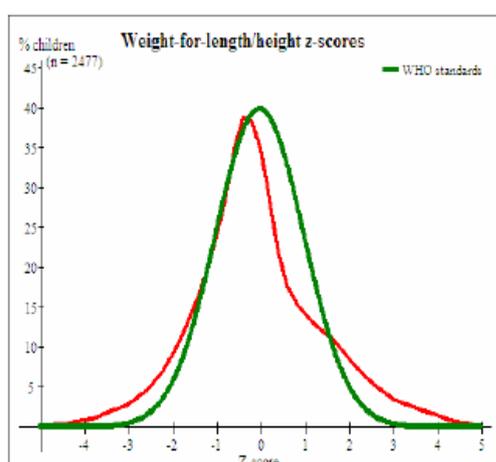


Figure 3.2.1.b: Z-score distribution underweight Children 6-59 months by Sex

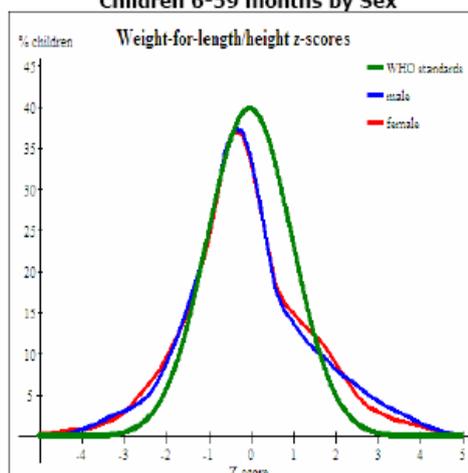


Figure 3.2.1.c: Z-score distribution underweight All children 6-59 months

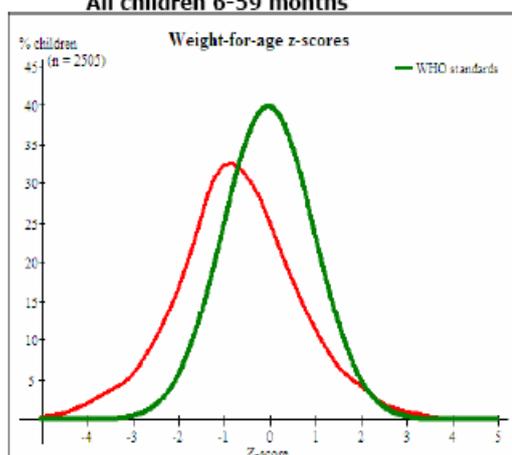
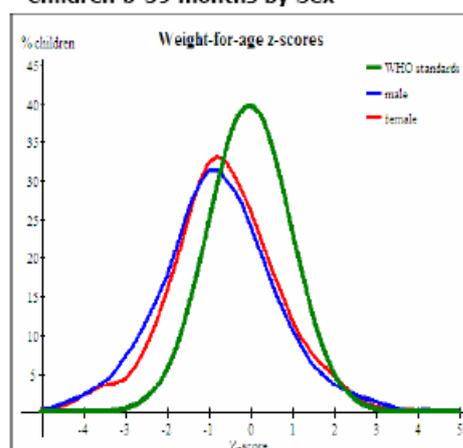


Figure 3.2.1.d: Z-score distribution underweight Children 6-59 months by Sex



Mid upper arm circumference (MUAC)

Table 3.2.5: MUAC distribution according to nutritional status

MUAC (cm)	Height < 74.9 cm		Height between 75 to 89.9 cm		Height > 90 cm		Total	
	No.	%	No.	%	No.	%	No.	%
< 11	782	24.1	713	22	1,749	53.9	3,244	100
11 ≤ MAUC < 11.9	1,368	43.1	851	26.8	958	30.2	3,177	100
12 ≤ MAUC < 12.4	5,745	67.5	2,235	26.3	532	6.3	8,512	100
12.5 ≤ MAUC < 13.5	16,009	51.8	13,334	43.1	1,588	5.1	30,931	100
>13.5	70,674	17.9	163,343	41.5	160,027	40.6	394,004	100
Total	94,578	21.5	180,476	41.0	164,854	37.5	439,908	100

Classification for MUAC

MUAC < 11cm **severe malnutrition and high risk of mortality**

MUAC ≥ 11cm and <11.9 cm **moderate malnutrition and moderate risk of mortality**

MUAC ≥ 12cm and <12.4 cm **high risk of malnutrition**

MUAC ≥ 12.5cm and <13.5 cm **moderate risk of malnutrition**

MUAC ≥ 13.5cm **"adequate" nutritional status**

- Malnutrition trends in ZVAC Report 2007

2.5.1. Trends of Malnutrition at National Level

According to the Zambia Health Demographic Survey (ZDHS), chronic malnutrition has declined, by about 8% over the years. Stunting levels have reduced from 47% in 2001 to 39% in 2007. Acute malnutrition (wasting) has remained the same (5%) while the proportion of underweight children has also reduced from 28% percent to 19 percent in 2007.

Analysis by rural - urban shows a decline for both rural and urban populations. In rural and urban areas stunting has declined from 51 % in 2001-2 to 42% in 2007 and from 37 % to 33% respectively during the same reference period.

Table 3: Provincial Trends in Malnutrition 2001/2-2007

Province	2001/2*			2007*		
	Stunting	Wasting	underweight	Stunting	wasting	Underweight
Central	45.9	4.2	26.6	45.7	6.9	20.0
Copperbelt	39.9	6.5	29.0	37.3	3.4	19.2
Eastern	59.4	5.2	32.1	44.1	7.6	17.1
Luapula	57.6	3.8	33.0	50.4	9.5	21.8
Lusaka	35.6	5.1	21.7	31.4	5.4	13.7
Northern	54.8	7.6	33.8	42.3	4.2	22.2
North-Western	44.8	2.8	27.1	38.8	3.0	26.6
Southern	40.2	3.9	23.6	29.8	3.3	17.1
Western	42.6	2.5	23.7	30.7	2.9	18.6

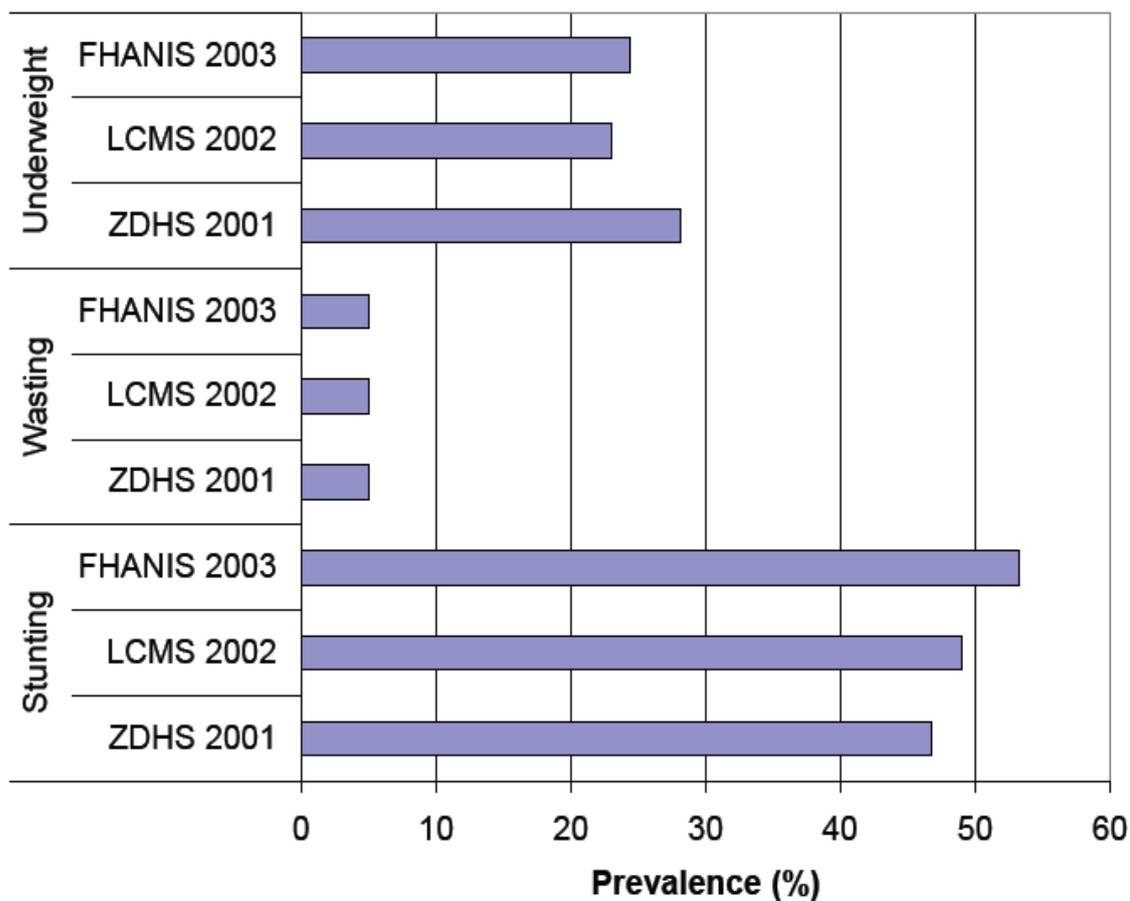
*Each of the indices is expressed in standard deviation units (SD) from the median of the NCHS/CDC/WHO international reference population.

- Malnutrition ZVAC Information Report 2005
 - 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.



Source: ZDHS 2001, LCMS 2002, FHANIS 2003

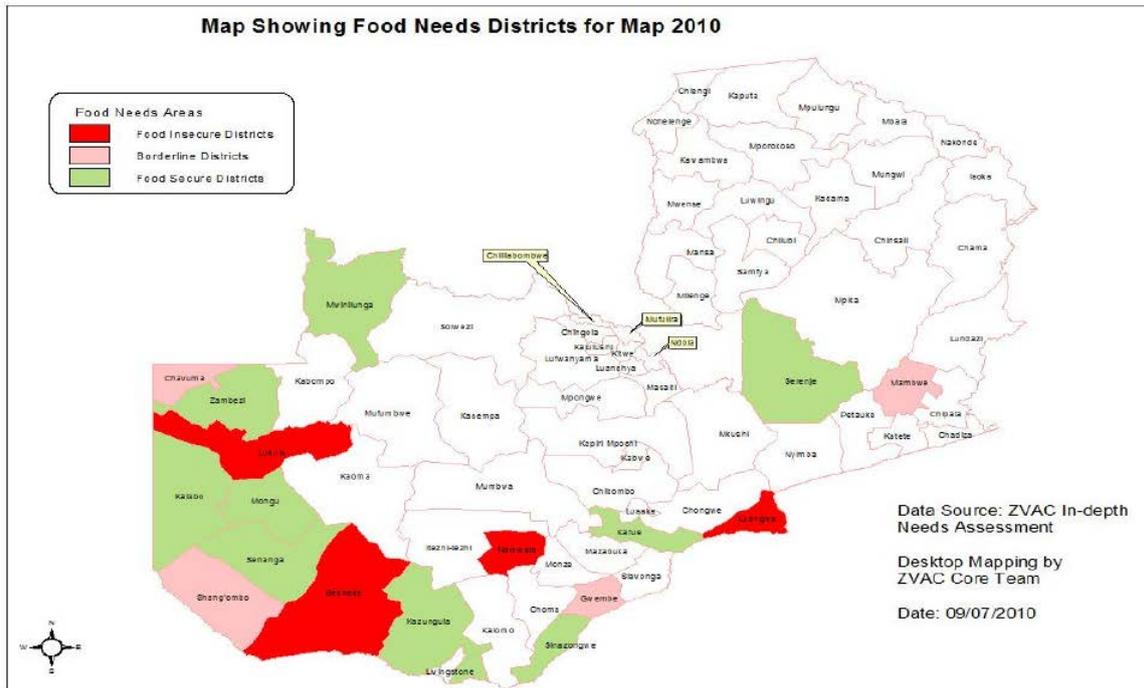
Prevalence of Malnutrition by Province reported in 2005**Table 2-2.2. Percentage of Underweight Among Under-fives**

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

Source: HMIS 2003-2004

Annex 6:: Affected districts in the five years (2005-2010) of ZVAC Information system Reporting

Annex 6: Food Security Phase Classification Map



Most Disaster Prone Districts

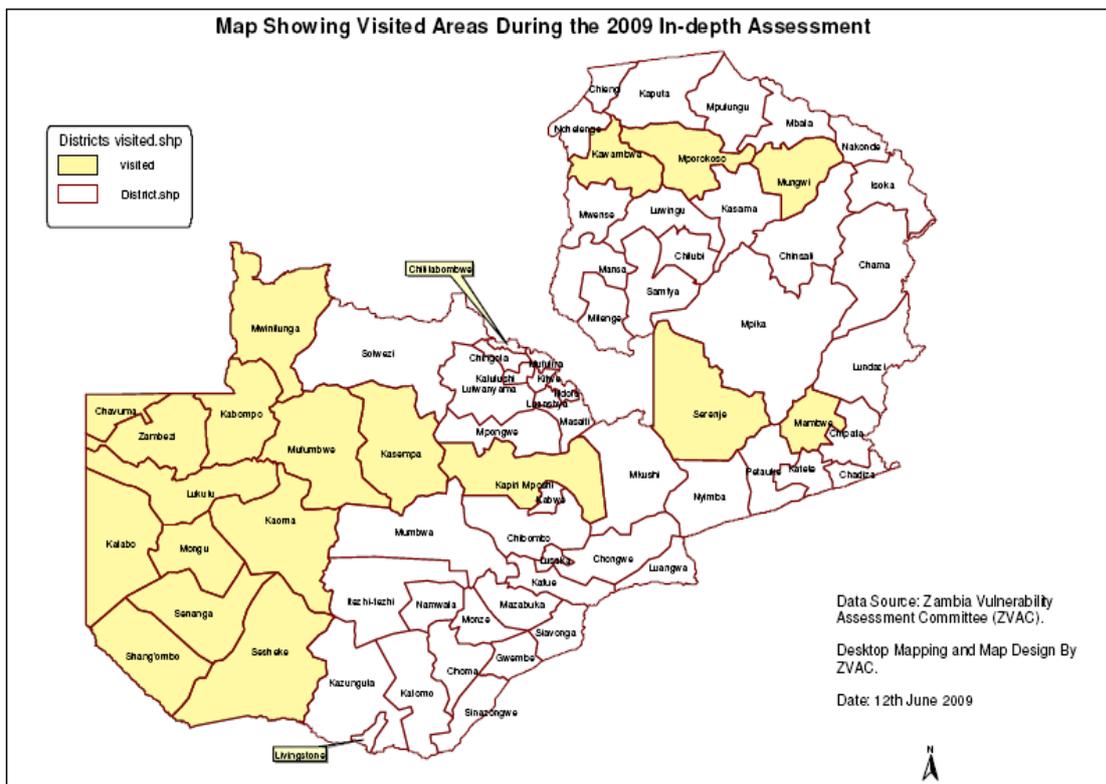
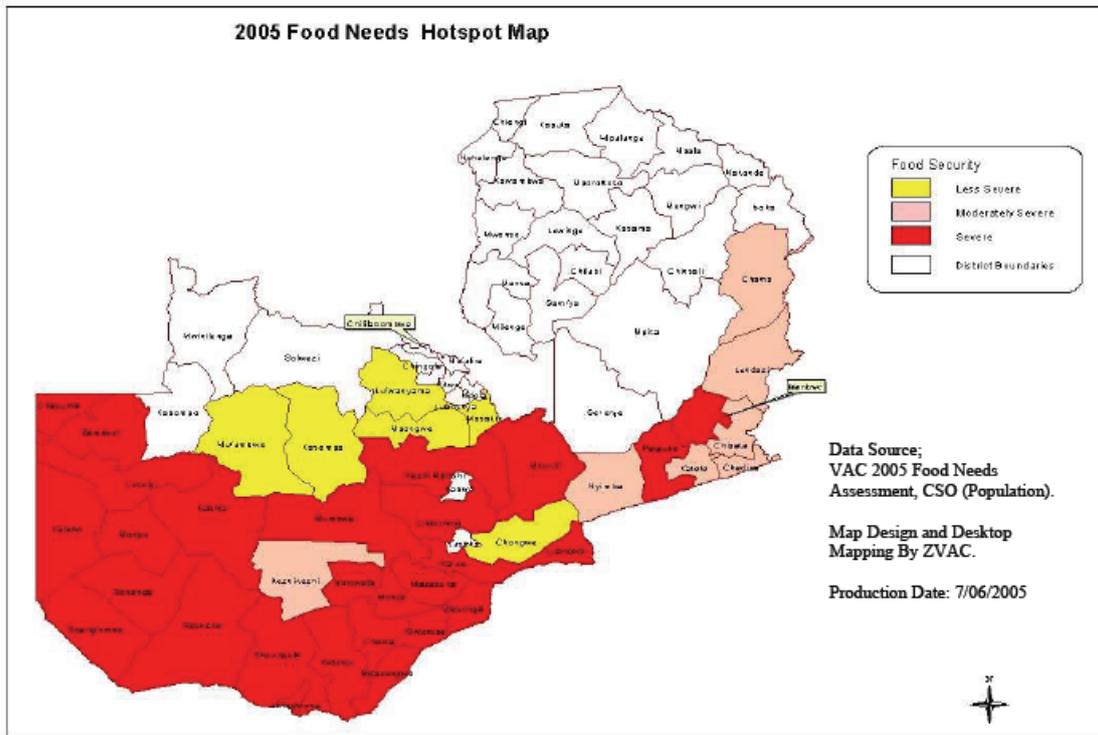
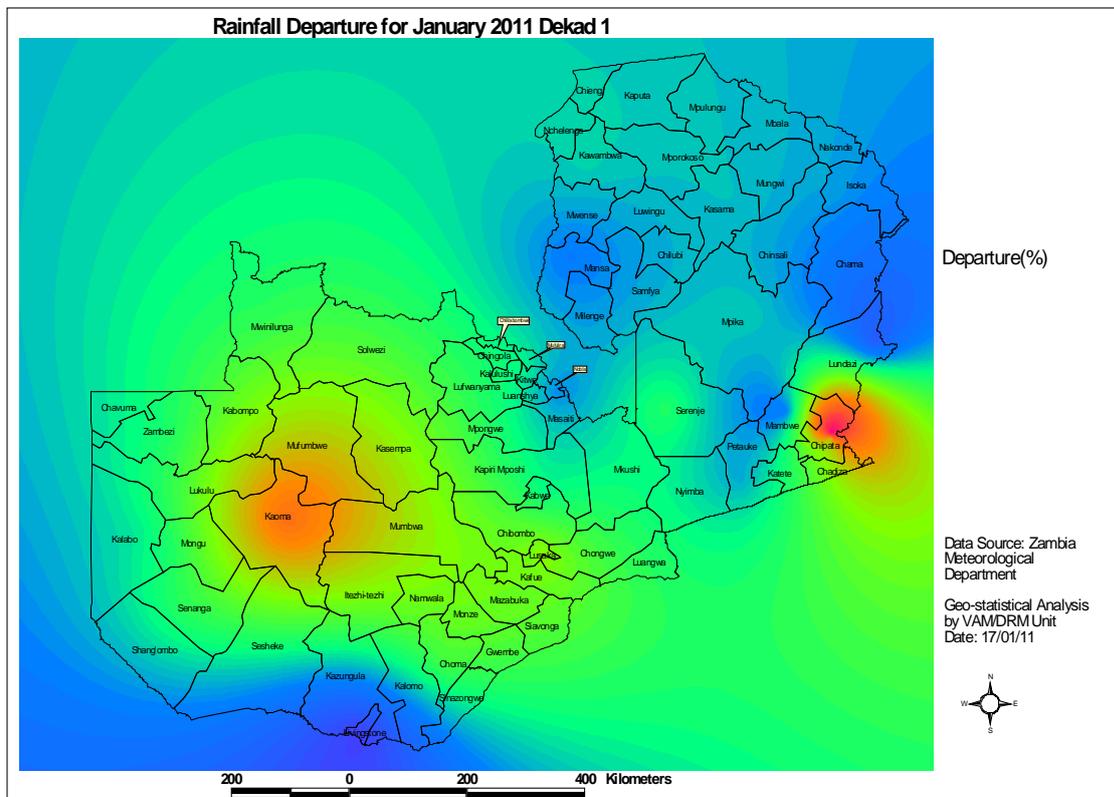
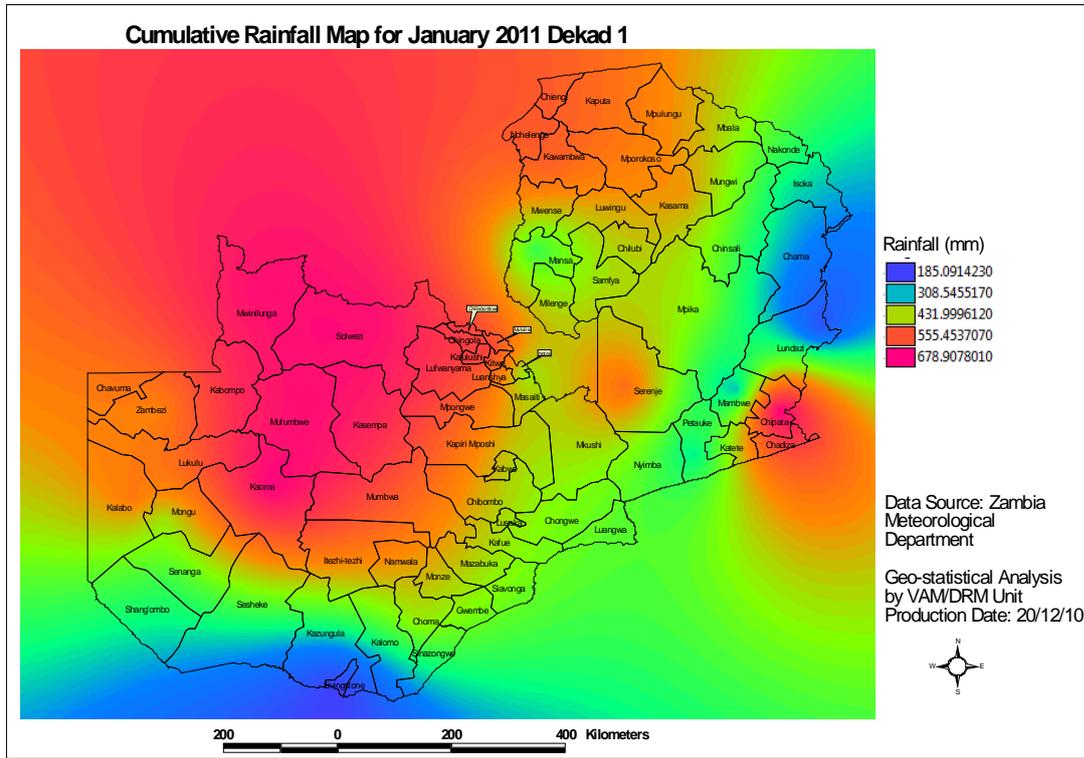


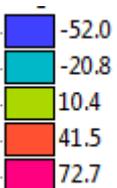
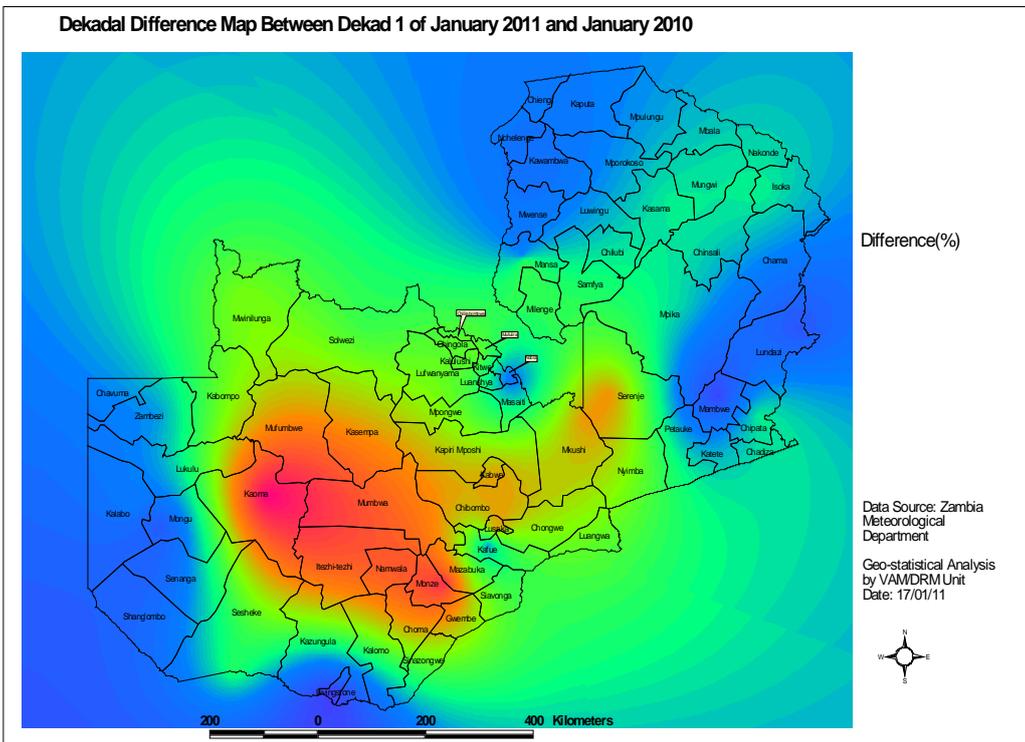
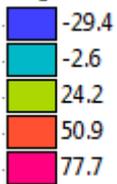
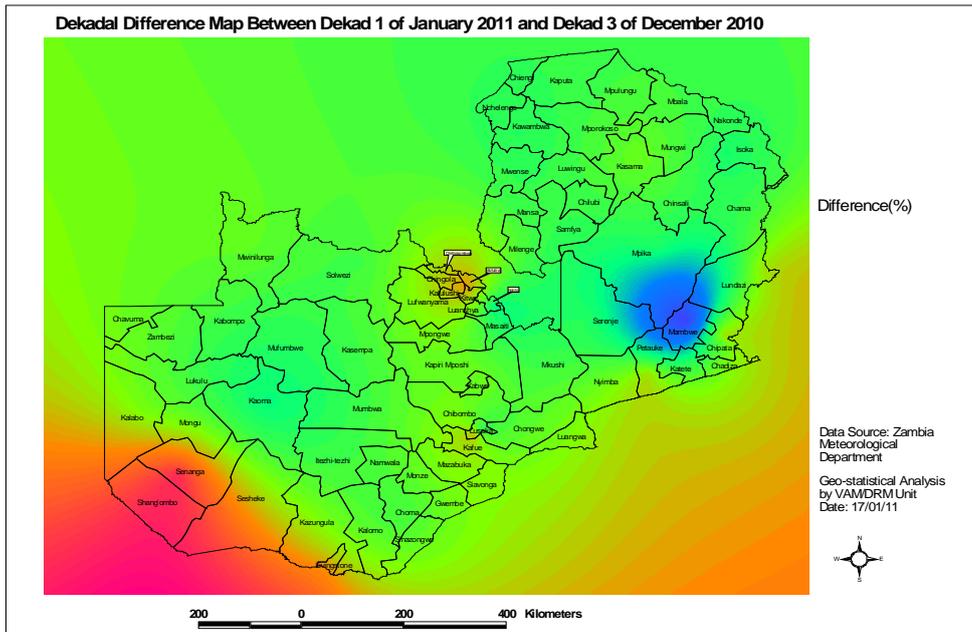
Figure 3-21. Food needs hot spot map, 2005/06 marketing season



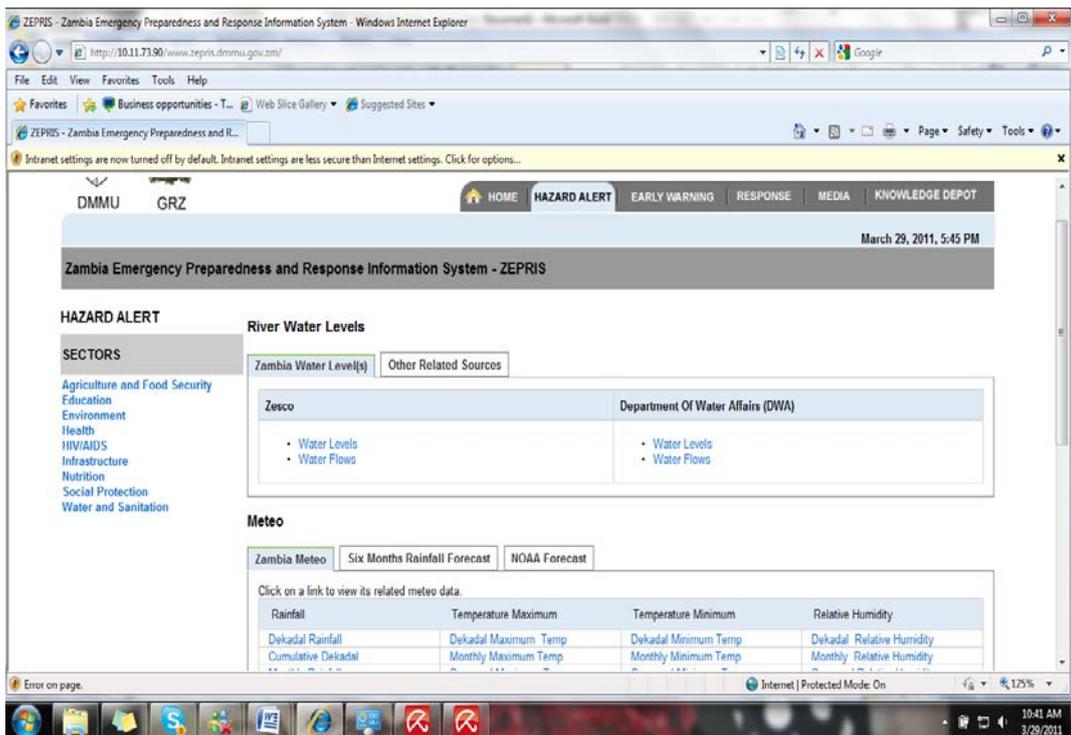
Annex 7: Early Warning Agro- climatic maps.



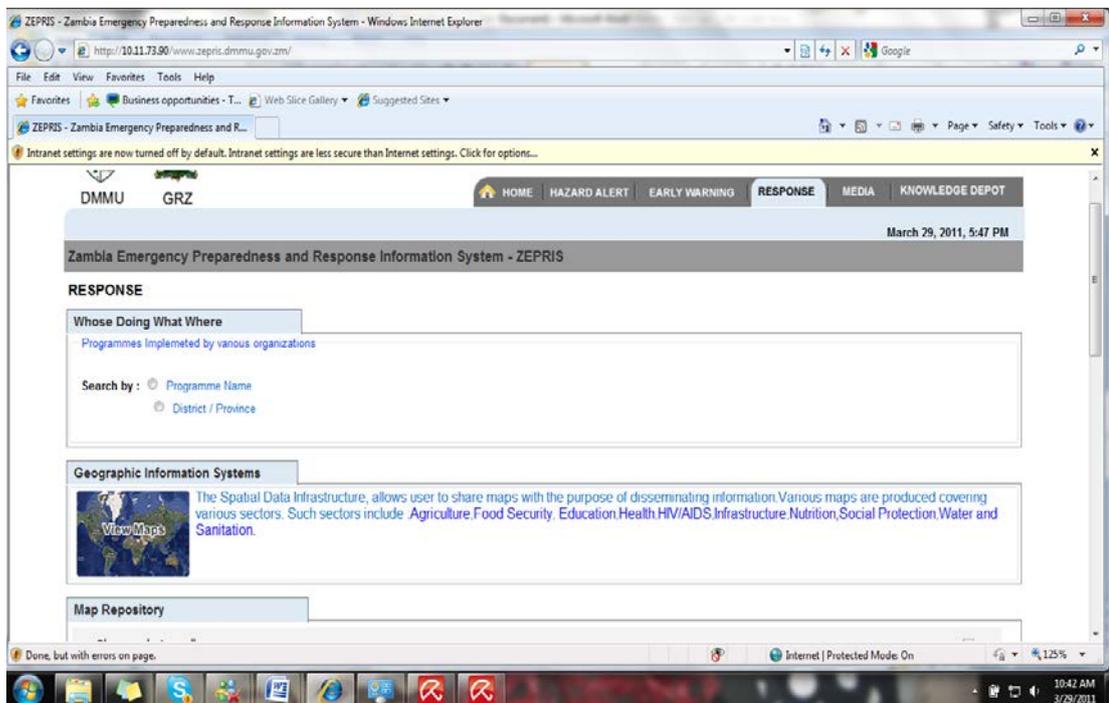
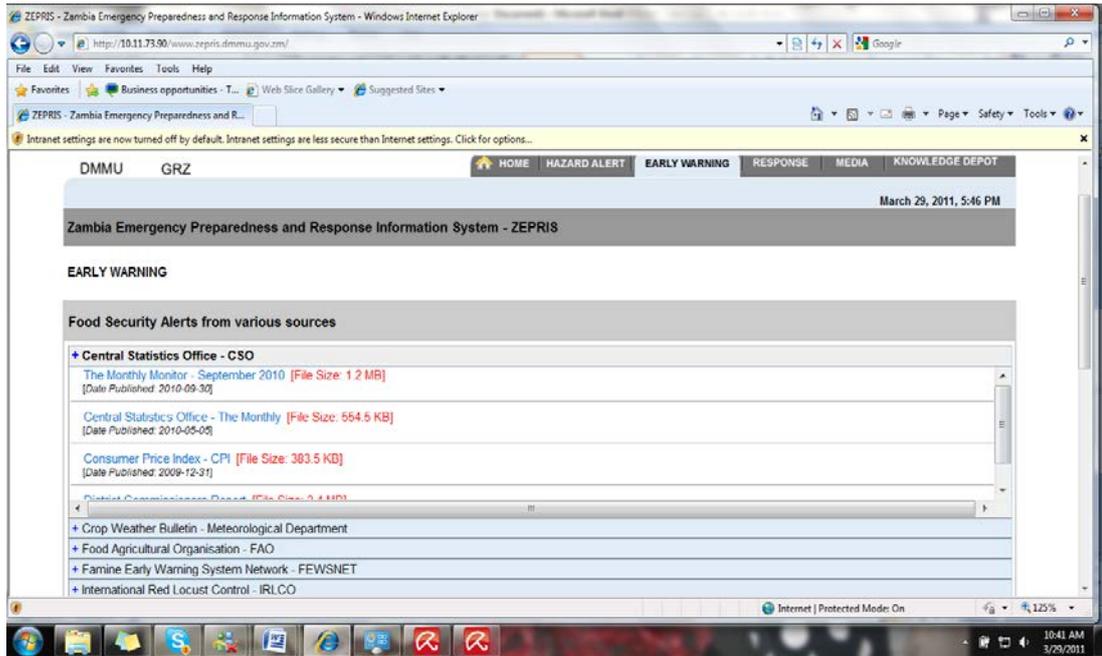
UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.



Annex 8: Screen shots of the the pages of the ZEPRIIS



UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.



UNICEF-WFP: FOOD AND NUTRITION SECURITY FIELD ANALYSIS-2010.

