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AGRICULTURAL DEVELOPMENT AND FOOD SECURITY IN SUB-SAHARAN AFRICA (SSA)

Building a Case for more Public Support

The Case of Zambia

Prepared for the

Policy Assistance Unit of the FAO Subregional Office for East and Southern Africa

by

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ACRONYMS

ACP	Agriculture Commercialisation Programme
ASCA	Accumulated Savings and Credit Associations
ASIP	Agriculture Sector Investment Programme
BOZ	Bank of Zambia
CSO	Central Statistical Office
DAC	District Development Committees
DMMU	Disaster Management and Mitigation Unit
FAO	Food and Agriculture Organisation
FHANIS	Food Security, Health and Nutrition Information System
FRA	Food Reserve Agency
GART	Golden Valley Agricultural Research Trust
GDP	Gross Domestic Product
GMO	Genetically Modified Organisms
GRZ	Government of the Republic of Zambia
INESOR	Institute of Economical and Social Research
LCMS	Living Conditions Monitoring Survey
MACO	Ministry of Agriculture and Co-operatives
MAFF	Ministry of Agriculture, Food and Fisheries
MMD	Movement for Multi-Party
MTEF	Medium Term Expenditure Framework
NAMBoard	National Agricultural Marketing Board
NGO	Non-governmental Organisation
NTE	Non-traditional exports
PAM	Programme Against Malnutrition
PPM	Programme to Prevent Malnutrition
PRSP	Poverty Reduction Strategy Paper
TNDP	Transitional National Development Plan
UNDP	United Nations Development Programme
UNZA	University of Zambia
VAC	Vulnerability Assessment Committee
WFP	World Food Programme
ZAM	Zambia Association of Millers
ZCF	Zambia Cooperative Federation
ZNFU	Zambia National Farmers Union

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FOREWORD

It has been the case that most African Governments have been taxing farmers and subsidizing urban consumers, while at the same time doing very little in terms of policy and investment to favour the rural sector. The ratio of investment to GDP in most Sub-Saharan Africa (SSA) has been well below the ratios attained in Latin America and Asia. Similarly, Africa's private sector investment in agriculture has been curtailed by a combination of financial capacity, and lack of security, financial services and regulatory framework.

However, Africa needs to investment more and encourage increased private sector investment - both domestic and external - to ensure agriculture based economic growth and sustain it. This notion seems to have been understood by African Governments when the Heads of State and Governments have, in approving the New Economic Partnership for Africa's Development (NEPAD) Comprehensive Africa Agriculture Development Programme (CAADP) at their Summit in Maputo in 2003, committed themselves to increase resource allocation to agriculture to 10 percent of the national budget by 2008. In this context, the Policy Assistance Unit (SAFP) of the FAO Subregional Office for East and Southern Africa, in collaboration with the Agriculture Policy Support Service (TCAS) of the FAO Policy Assistance Division (TCA) embarked in 2004 on a study to analyze the status of food security and agricultural development.

Implementing the Maputo commitment of budgetary increase is however likely to be difficult in view of resource constraints of counties against daunting challenges, especially in the public service sectors. One of the main objectives of the study was therefore to provide objective rationale why agriculture should be supported in the African context.

The study had four components: (a) preparation of 10 country studies representing Central, East, West and Southern Africa, (b) preparation of a background document that looks into the conceptual issues and development paradigms and the prioritization of agriculture, review of relevant lessons from developed and developing countries who have successfully eliminated food insecurity, (c) organization of high-level workshop to discuss the findings of the study and (d) preparation of a report based on the above as well as extensive desk based research by Senior FAO Officers. The paper represents one of 10 case studies.

EXECUTIVE SUMMARY

Introduction

This study explores Zambia's state of food import dependency as a means for mitigating her failure to meet food requirements from domestic sources. It asks and seeks to answer three main questions. The first is why the trend of food import dependency exists. This question is explored by examining trends in food security indicators and the underlying factors giving rise to this situation. In this context, the performance and constraints of the agriculture sector are examined. The second is what the impact of food import dependence on food security and agriculture development has been. The third is the possible directions for an exit strategy to ensure sustainable food security and agriculture development.

These issues are examined through analysis of various variables that necessitated collection of data from various sources. The study takes 1990 as the base year because most data goes up to that date although in a few cases trends have been built up for dates earlier than 1990. Personal interviews and use of other studies supplement the data collected.

Food Security and Import Dependency

Various indicators show that Zambia is consistently failing to meet her food needs from her domestic production. Even in a good year such as 2003/04 when a bumper harvest was being expected, the Zambia Vulnerability Assessment Committee (VAC) expected that 60,960 people in six districts would fail to have adequate access to their staple food and would need food relief. The situation in four other districts is being monitored which could raise the number of people that would need food relief in 2004. In a drought year, figures can dramatically go up. In 2001/02 when Zambia experienced a drought, between 2.3 and 2.8 million people were expected to need food relief. Besides commercial cereal imports, it was estimated that Zambia would need 240,000 metric tonnes in food aid. Between 1999 and 2003, Zambia had an annual average of 311,000 metric tones domestic cereal gap partially met by 111,000 metric tones commercial food imports and 71,000 metric tones food aid imports. This left an uncovered gap of 129,000 metric tonnes.

The domestic cereal gap on the ground translates in food shortages for many households. More than 50 percent of rural households expected to run out of their staple food by September 2003, despite the fact that 2002/03 was a good harvest year. With food stocks running low just at the start of the agricultural season when disease prevalence is also very high, household food insecurity becomes self re-enforcing. Hungry and sick, household's farm productivity goes down which builds up the situation for food shortages in subsequent months.

This situation of food shortages has translated into an unacceptably high incidence of malnutrition. The Living Conditions Monitoring Survey (LCMS) found that 53 percent children under five years in 1998 were stunted, 25 percent were underweight and 5 percent were wasted. The Food Security, Health and Nutrition Information System

(FHANIS) survey conducted in August 2003 found similar results which could indicate that the situation has not improved over time. Stunting is a good indicator of long-term exposure to food insecurity and thus illustrates the fact that Zambia has consistently failed to meet her food needs.

The vulnerability context producing the high levels of food insecurity is complex and is attributable to long term and seasonal factors as well as occasional shocks. The immediate direct causes are the decline in incomes in both urban and rural areas and the failure of the agriculture sector to produce enough food to meet national and household food requirements. Many other factors underlie these identified causes and include Zambia's economic crisis traced to the fall of copper prices and production starting the mid-1970s, severe agronomic difficulties in some areas of the country, the devastating consequences of HIV/AIDS, droughts and floods and the rise in disease prevalence during the agriculture season. All these factors combine to undermine people's livelihoods in both urban and rural areas such that many people increasingly have a declining resilience to withstand the impact of shocks such as a crop failure or a sudden rise in food prices.

In an attempt to overcome the chronic food deficits she suffers, Zambia has become dependent on food imports. In all the years between 1986 and 2002, Zambia imported cereals in the hope of closing the gap arising from inadequate domestic production but this fluctuated from year to year. The biggest amount of food imports was in 1992 after Zambia suffered one of the worst droughts leading to a maize deficit of 584,000 metric tonnes. A total of 680,000 metric tonnes of food was imported in 1992 of which 92.2 percent was maize. In addition, 366,000 metric tonnes of food was imported the following year in 1993 with maize accounting for 83.3 percent despite Zambia recording a maize surplus of 340,000 metric tonnes. After this is the importation of 230,000 metric tonnes of food in 2002 following another drought season. Commercial food imports made up 60.4 percent of total food imports while 39.6 percent came in as food aid between 1992 and 2002.

The indicators in food insecurity presented above are serious and require urgent intervention measures to rectify the situation. Initiatives will need to focus on building the agricultural sector by raising production that matches its potential. However, exposure to food insecurity has gone on for a long time now that targeted interventions aimed at reducing vulnerability in the short term are also required particularly targeted measures to rebuild people's livelihoods. Although the vulnerability context giving rise to food insecurity is complex, long term and seasonal factors as well as occasional shocks have worked to devastate people's livelihoods. Therefore, measures should be taken to help people rebuild these livelihoods. The support systems should be diverse enough to encompass all livelihoods, including non-farm activities and not just those that are agriculture based.

Support to the Agriculture Sector

The national and household food insecurity and the high levels of malnutrition described above is paradoxical when Zambia's agricultural potential is considered. Although agronomic conditions are harsh in some areas, for most of the country the climate and soils are supportive of production of a diverse range of crops and livestock. Only 14 percent of Zambia's land with agricultural potential is currently being utilized while only 50,000 hectares out of the 423,000 hectares of known irrigation potential has been

Zambia has potential both to feed herself and produce surplus for export to other countries. It is recognized that agriculture has special merits for broad based and equitable growth that could facilitate the tackling of some of Zambia's greatest economic challenges including high levels of poverty and food insecurity.

However, agriculture's performance belies its great potential. In the last 15 years, agriculture has faced various constraints that has made it difficult to establish a more sustainable growth path in the sector. Some of these factors include the uncertainties caused by the change in policies at the beginning of the 1990s, particularly the removal of subsidies and the dismantling of marketing institutions that had served rural farmers, and the unfavourable agricultural prices in more remote areas that followed the removal of the uniform price policy. Labour constraints especially given the rising impact of HIV/AIDS and declining farm power mechanization and the climatic variability are some of the other constraints.

Whereas government in its policy documents recognises agriculture as important, particularly in its role as the engine for broad based and equitable growth, its support to the sector has not matched this stated position. As a share of total expenditure, agriculture received an average of 3 percent between 1994 and 2002. What is more is the consistent shortfall of disbursement amounts compared to the budgeted expenditure. This factor has undermined the budget as a tool for planning. Both the Agriculture Sector Investment Programme and the Agriculture Commercialisation Programme have not redressed the under-funding of the sector, particularly when compared to the funding of the social sectors.

The liberalization of the agricultural sector in the 1990s, undertaken without carrying out a core functions analysis to determine the roles of the private and public sectors, may have instigated a mindset within government that the sector could be largely funded outside public resources. Therefore, whereas liberal policies are now irreversible, there is an urgent need for government to carry out a core functions analysis to determine the functions that would be carried out by the public sector, those that should be left to the private sector and those in which the public sector would retain a role but which could be commercialised. A core functions analysis would also lessen the confusion in allocation of roles and the conflicting policy signals that characterised the past 10 to 15 years and worked to undermine policy actions of the government.

The importance of agriculture to Zambia's economy, to meeting food security and to the reduction of poverty calls for increased support by government to the sector. An effective expenditure system for agriculture needs to be established. Not only should the level of public sector expenditure be increased, a framework for expenditure effectiveness and efficiency should be established. And because agriculture is a productive sector, the private sector and civil society have a significant role in the funding of sector activities. The environment should be created to enable them play this role. With this in view, the necessary actions required to effectively support the sector would constitute the following elements:

1. **Achieve a stable macroeconomic environment.** This is important to allow long-term investments in agriculture to take place. Given the fact that both producers and intermediaries are private sector players, most expenditure would occur outside public sector sources and can only take place if these players are assured that their investments would not be wiped out by high rates of inflation. Further, the extent to

which these players are able to mobilise investments is dependent on a stable macro-economy particularly low and stable interest rates. As the economy has been stabilising in the last two years and interests rates have been dropping, commercial banks are exploring ways in which they can resume their lending to the agricultural sector which hitherto had almost stopped. Therefore, the GRZ should consolidate actions for a stable macroeconomic environment.

2. **Strengthen the regulatory framework.** A weak regulatory environment makes players like the marketing and financial intermediaries tentative in making investments that would expand their activities. It blocks off critical services that could be provided by the private sector leaving only the public sector as the only alternative. Because the public sector is ill suited to carry out these roles, resources tend to be wasted as they are inefficiently applied.

3. **Obtain clarity in the allocation of roles and functions.** This will be aided by a core functions analysis to establish what should be undertaken by the public sector, what should be left to the private sector and what roles the public sector should commercialise. Government should stick to its core functions which it should then properly fund.

4. **Undertake an analysis of expenditure efficiency and effectiveness.** This should examine the functions preformed and identify opportunities for cost saving, including options for contracting out.

5. **Resolve problems of policy inconsistence.** A core functions analysis should help in this regard. Adoption of the National Agricultural Policy by Cabinet would go a long way in ensuring that public actions and pronouncements are consistent.

6. **Move towards a medium-term approach in the allocation of resources within government.** The recent adoption of a Medium Term Expenditure Framework (MTEF) may help in this regard. This should lead to a replacement of the cash release approach that has undermined the credibility of the budgetary system. It should also allow for a periodic assessment of the expenditure requirements of each sector including agriculture. However, MTEF needs to be accompanied by an overhaul in the public expenditure management system to enhance accountability

Although there may be difficulties in presenting a causal relationship between food imports and agriculture development in Zambia, the failure of the policy of reliance on food imports is clear from the results shown above. In particular, the high malnutrition levels in the population have indicated that an import food policy has failed to mitigate the failure of domestic cereal supply to meet Zambia's cereal requirements. The difficulties of relying on food imports arise from three factors. The *first* is that the Zambian economy does not generate sufficient foreign exchange to assure timely and adequate food imports. Even if the non-traditional exports have been on the rise, the slump in mineral revenue has been too drastic and will not be compensated for in a long time to come. The s*econd* is that people's livelihoods have been devastated by a series of shocks, seasonal factors and long term trends including the negative effects of HIV/AIDS and economic decline that they are unable rely largely on purchased foods. Particularly in rural areas, the consumption of own produce will remain the only meaningful option for a long time to come. This undermines their access to commercially imported foods. The *third* is the unreliability of food aid given that the country cannot adequately determine

the amount, type and timing of food aid she receives. Food aid, like all types of aid, is subject to Zambia's relations with other countries which can easily deteriorate when circumstances not favourably perceived by these countries arise.

Given this situation, there is a strong case for the Zambian Government to increase support to the agriculture sector for the production of food. This assertion is based on the widespread difficulty a very big proportion of the population has in accessing adequate food as seen above. It is also based on the fact that food insecurity vulnerability is deepening due to a variety of factors. Increased support to agriculture rather than relying on food imports also makes sense when it is considered that agriculture holds the most viable key to the reduction of the high levels of poverty. In addition, agriculture has very high potential to contribute to sustainable economic growth as well as help to resolve the country's trade balance problems through generating of exports to regional and international markets and by helping the country reduce on food imports. Therefore, the question of increased support to agriculture transcends the issue of food security, which in itself is very firm ground, and encompasses broader considerations. There are no viable alternatives other than the developing of the agricultural sector to its full potential for Zambia to make progress in human and economic development.

The Impact of Food Imports

Measuring the impact of food imports on various variables in the economy has not been easy because of the difficulty in getting quality and consistent data to provide the direction of a causality effect. However, the direction of the impact can be established even if it may not be conclusively resolved. Four main impacts are highlighted below.

First, although the magnitude of the direct impact on both food production and nutrition is small because food imports relative to a set of key variables is small, it is significant for those areas that have been declared vulnerable where food aid is distributed consistently. This is the case in particular in the areas of Agro-ecological Zone I consisting of the Luangwa, Gwembe and Zambezi Valleys that are prone to floods and some parts of the flood plains in Western Province. In these areas, because food relief compared to food requirements is high, the impact of food relief on production decisions both as a result of psychological or price effects seems high even though there is little evidence to resolve the issue conclusively. This is heightened by the fact that the effectiveness of targeting of food aid to vulnerable households is questioned on grounds of how to actually identify these households. The 2001/02 experience after Zambia rejected GMO maize and only 121,000 metric tonnes food relief was brought in rather than the estimated 240,000 metric tonnes has raised the additional issue of overestimating the food relief requirements. The ability of people to cope with food shortages, the role of small grains and tubers, the role of other starch such as potatoes in urban areas and the functioning of social networks are not properly factored in when estimating food requirements.

Second, food aid seems to be perpetuating the situation of maize dependency given that it is mainly maize that is imported and distributed as food relief even in areas where cassava has been remerging strongly as the staple and main production crop. The distribution of maize in Western Province where cassava is the main staple is a case in point.

Third, the timing of food imports which go through until shortly after harvest of the local produce begin to get to the markets, could be undermining long-term investments in

agriculture. The Zambia National Farmers Union stresses this fact. Specifically farmers irrigating their maize crop to time peak prices in March/April are uncertain of the outcome because of the importation of food. At times this is worsened by the fact that there is an export ban at the same time. Based on what farmers themselves have stated, the uncertainty that food importation induces among local producers is perhaps one of the strongest negative direct effects.

Fourth, the less direct effects are perhaps much more compelling. It is observed that the importation of food which exists as an implicit policy to supplement domestic food supply has failed to meet the nutritional requirements of the country. The high incidence of malnutrition cited above points to this fact. Although the food aid being brought into the country may not be as significant, it nevertheless could be undermining the urgency to stimulate increased support for a more diversified and well performing agriculture. It has introduced a complacency in the policy making process because it exists as an alternative to domestic food production and agriculture does not receive the necessary support as a result. Given the importance of the sector in affecting many other important economic parameters such as poverty reduction, export revenue and economic growth, food imports turn out to be a big cost to the economy in the end.

Policy actions for sustainable agricultural development and food security

The high levels of food insecurity are neither inevitable nor irreversible and, with properly implemented actions, can be overcome to allow Zambia to meet her food requirements and probably be an exporter of food to other countries. Any exit strategy from the current situation must build on emerging opportunities in the sector which include the following:

- Increased diversification away from maize which is creating a stronger base for coping with rainfall failure at critical times of the season;
- The rising share of roots and tubers and small grains, which require low inputs and which farmers have a long history of cultivating, in the total area cultivated;
- The rising entry of traditional crops into markets, which is helping to consolidate what has been stated in the previous two points;
- Rising agricultural exports through contract farming, which is important in raising farm incomes in rural areas and thus giving farmers the ability to purchase food when food crops fail
- Some change in farming practices, especially the adoption of conservation farming; and
- Improvements in the macroeconomy, which are necessary for increased investment in the sector.

The challenge is to find strategies that will help to scale up what is already working to obtain greater impact. Five action areas are proposed below.

1 Creating a conducive environment for agricultural development and food security ***This*** has a number of aspects to it. First, the high rates of inflation must be brought down to single digits to encourage long term investment in the sector, particularly through a reduction of government domestic borrowing. Second, there must be increased funding to the agriculture sector. However, there is a dilemma in this from agriculture's point of view. For Government to achieve this, it must firstly

rationalise its overall spending, which should take place within the context of better priority-setting and then great fiscal discipline to spend according to the set priorities. Experience with the Poverty Reduction Strategy Paper (PRSP) has shown that Government has not abided by the priorities set, with the estimated PRSP cost only receiving 50 percent funding. Then the spending within the agriculture sector itself must be rationalised and focused on areas where government intervention would have greatest impact. Third, Government must invest in good sector policies, including on food security, which must be properly implemented to send a consistent signal to other players in the sector. In particular, a well-functioning regulatory framework must be put in place. Fourth, rural infrastructure, such as roads, electricity and telecommunications should be improved. Fifth, is the need for improving access to agricultural finance, providing frameworks that support such access by small farmers and addressing the problems that have undermined rural credit in the past.

2 Improving livelihood security for the vulnerable groups ***Increasingly*** issues of food security are being seen in the context of the sustainability of people's livelihoods. From this viewpoint, food security exists alongside other livelihood outcomes that may include increased incomes, reduced vulnerability to various shocks and better and more sustainable utilisation of the natural resource base. The whole vulnerability context must be taken into account in devising actions to improve livelihood security. The search is for policies, institutions and processes that help to augment people's livelihoods, taking into account the different levels of vulnerability. There are at least three aspects of rebuilding people's livelihoods each of which requires its own specific policy actions as presented below.

In the first instance, it is necessary to help households to cope with hunger. This could be a response to an immediate crisis. It could also apply to those groups that have found themselves in a situation of chronic hunger and who cannot reasonably come out of the vulnerability trap. In this phase the preoccupation is with helping households overcome the hunger situation, preventing them from falling further into vulnerability. Food relief could play an important role. Initiatives such as the Food Security Pack, which help the vulnerable to produce food in the following season, can be considered as part of this component but should be well-targeted and not extended to households that are not deserving.

Secondly, it is important to raise the productivity of available assets in the face of persisting constraints. The greatest challenge of Zambian agriculture is to institute a technological revolution that would raise both labour and land productivity. In the face of a severe depletion of physical assets, such a revolution will only come about with the change in the coefficient of production of the same level of technology as is available. For most households, this means that they should produce more with hand hoes. An example of a technology helping to address this is conservation farming, which allows farmers to raise their labour productivity (i.e. expand area cultivated) and improve yields with the same low levels of technology. With an improved production base, farmers would then invest in other technologies.

Finally, increased integration into markets is needed. Actions to address this are discussed further under commercialisation.

3 Increased diversification of agriculture A drawback to the observed trends in increased diversification is that it is partly being accounted for by the stagnation in maize production. There is room for diversification to occur even in a context where maize production is increasing, such as through the promotion of irrigation. Irrigation, for which there is great and yet untapped potential, would smoothen out the seasonality effects of agriculture, help farmers produce crops other than maize on the same land and raise the yields through supplementary irrigation. Zambia needs to place great priority on the promotion of irrigation, given its great advantages in facilitating increased farm incomes, food security and a diversified agricultural base. It has been shown that expanding the area under irrigation could enable Zambia to meet her cereal requirements, as well as produce surplus for exports within the region. At the same time, actions to consolidate the rising production of roots, tubers and small grains for food security must be adopted. Such actions would need to focus on raising consumption of these food crops in urban areas so that their market base expands.

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4 Greater commercialisation of smallholder agriculture The results of actions to raise food security will be easily reversed if production does not rise high enough to generate a substantial surplus that can be absorbed by the market. Where there is a surplus, shocks are more likely, at least in the medium term, to cut production to levels still high enough to satisfy household food security. Helping farmers to take a more commercial approach to their activities is important and this must be deliberately promoted. It will necessitate raising the entrepreneurship skills of small farmers and reorienting the mindset of small producers towards markets, as well as adopting policy actions that help the markets to work for the poor. In addition, contract farming should be facilitated even further as it is important in raising the linkages of small farmers to the markets.

CHAPTER 1: BACKGROUND TO THE STUDY

1.1 Study Questions and Approach

This study asks why Zambia finds itself in a situation of long-term high exposure to food insecurity at both household and national levels. It also examines the desirability of the country's dependence on food aid and commercial food imports as means for long-term mitigation of failure to meet food requirements from domestic production. Furthermore, the study examines the strategies that might be required for Zambia to come out of the situation of chronic food import dependency.

The study has taken 1990 as the base year because most of the information obtained only goes back to that year. The year is also a watershed one regarding agricultural policy and development in the country, besides the acceleration of economic and social problems in the country that had been building up for sometime before then. Therefore, an attempt has been made to distinguish trends from 1990 where this has been possible, and in a few cases, for years before 1990.

Data collected was from secondary sources and includes.

- Food balance sheets for maize, wheat, rice, sorghum, millet and cassava (1990 to 2003);
- Central Statistical Office (CSO) Food Security, Health and Nutrition Information System (FHANIS) Survey of August 2003, providing information on child health and nutrition, food security and consumption, and coping strategies of households;
- Crop production figures (1987 to 2003);
- Grain prices (1996 to 2003);
- CSO and Bank of Zambia (BOZ) grain imports (1993 to 2003);
- World Food Programme (WFP) food imports and local purchases, including distribution and operational costs;
- Vulnerability maps;
- Food calendars, labour calendars, disease prevalence from a socio-economic survey in three areas of the Kafue river basin;
- CSO social indicators, including malnutrition and hunger;
- BoP and movements in foreign exchange (1992 to 2003);
- Contribution to GDP by sector;
- GRZ budgeted and actual disbursements to different sectors (1994 to 2003);
- Consumer price indices (1994 to 2003); and,
- Macroeconomic indicators (1992 to 2003).

In Zambia, the Ministry of Agriculture and Cooperatives (MACO), and the CSO jointly collect data pertaining to agricultural production and trade. Most of the data are collected from primary sources through agricultural surveys but some are obtained from secondary sources, through reports and other published documents.

Two main types of agricultural surveys are conducted each agricultural season to generate crop production estimates – the Crop Forecasting Survey (CFS) and the Post Harvest Survey (PHS). The former is carried out in March/April, before the maize harvest, while the latter is undertaken around September/October, after the harvesting period. The information

generated from the CFS is mainly used for early warning purposes. The data generated from the PHS are more detailed but dissemination of results tends to be very slow. Because of funding problems, the CSO has also not been able to conduct post-harvest surveys as regularly as in the past. Despite this, both the crop forecasting and post-harvest surveys provide a sound planning base for assessment of Zambia's food security situation.

The researchers also interviewed respondents from key institutions, such as the MACO, WFP, Food Security Research Project, CSO, the Bank of Zambia (BOZ), ZNFU and the Food Reserve Agency, to obtain specific insights. A number of reports on agricultural production, vulnerability, poverty and related issues were also collected and utilised.

Significant difficulties were faced with regard to the poor quality of data. The first was missing data for some years, resulting in failure to establish clear trends. For example, crop production figures other than for maize were missing for some years, especially for cassava, which is considered an important crop and a significant element for the exit strategy. Second is inconsistency in the data. It was difficult to reconcile data between different sources, and sometimes from the same source. For example, the crop production figures given in the food balance sheets were, in some cases, different from those in the agriculture statistical bulletin, even though both are produced by the Early Warning Unit of the MACO. Third, food import figures obtained from CSO and BOZ were not disaggregated into food aid and commercial imports.

The report follows the sections outlined in the terms of reference to the study. Section 2 analyzes trends in Zambia's food security status using different indicators, particularly malnutrition indicators but also qualitative indicators of food availability in rural areas. This section also examines trends in food relief and commercial food imports. The vulnerability context giving rise to food insecurity in Zambia is also discussed. Section 3 is an examination of agricultural policies and programmes, and the funding of the agriculture sector. This is followed by Section 4 which seeks to analyse the impact of food imports on domestic agriculture production, food security and economic development. Section 5 provides policy actions to address food insecurity, reduce import food dependency and achieve more sustainable agriculture development. Section 6 contains the main conclusions of the study.

CHAPTER 2: DESCRIPTION AND ANALYSIS OF THE FOOD SECURITY SITUATION

2.1 Introduction

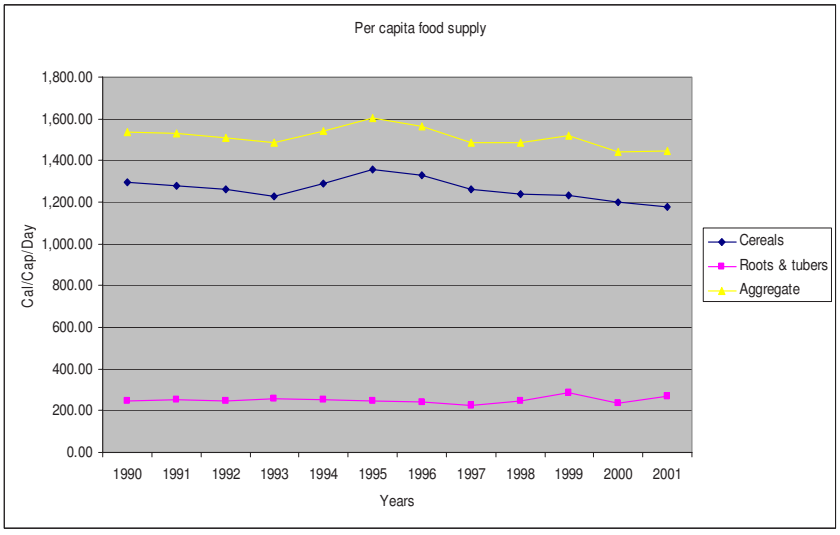
A large part of Zambia's population has lost secure access to adequate food since 1990. This development is attested to by a number of indicators including rising malnutrition levels. Malnutrition as viewed from the nutritional indicators of children aged 59 months and below are at unacceptably high levels. Both urban and rural populations have had serious problems to meet their food requirements on a continuous basis. For the rural population, the underlying problem has been difficulties to attain sustainable food sufficiency from own production due to a number of problems including variations in rainfall patterns and inability to access inputs for increased production. Many households in rural areas who mostly depend on "own produce consumed" report serious scarcity of their staple food with stocks unable to last the whole year. For urban households who must rely on markets for food purchases, the problem has been the rising urban unemployment, rising food prices and falling real earnings from both formal and informal sector employment. It is recognized that urban poverty has been rising more steeply in rural areas in recent years than in rural areas.

This chapter sets the context for the study of food import dependency by analysing trends in the food security situation as manifested in nutritional indicators and staple food availability. Using data from various sources, the chapter analyses the extent and sources of vulnerability in Zambia. It also examines the trends in food aid and commercial food imports and the proportion of the domestic cereal gap both of these meet.

2.2 The Food Security Situation

According to **Figure 2.1**, food available for Zambians was 1,445 Calories per capita per day in 2001,[1] 36 percent below the recommended 2,250 calories per day. About 81 percent of the total calories came from cereals in 2001, while the rest (19 percent) came from roots and tubers. It is also striking to note that food supply decreased over the years, from 1,539 Calories per capita per day in 1990 to 1,445 in 2001.

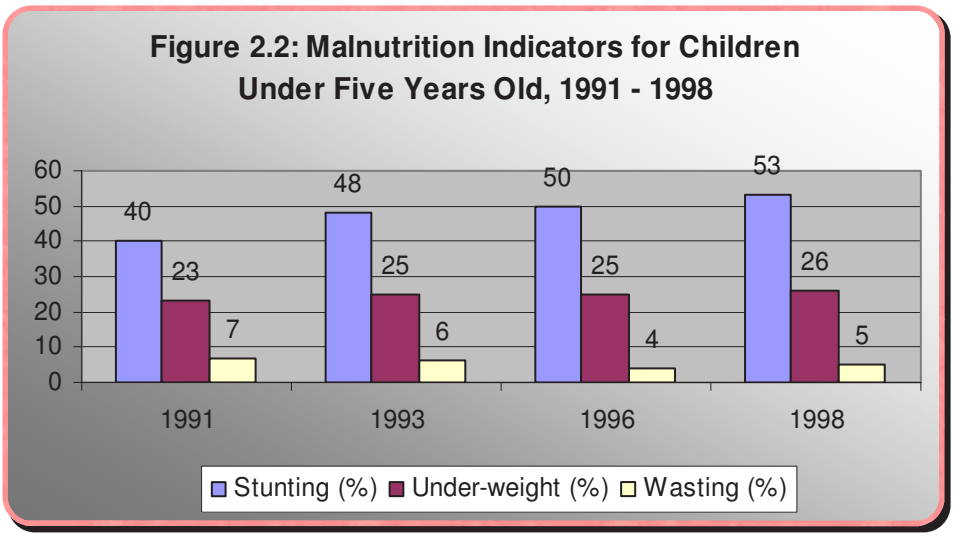
Figure 2.1: Food supply of cereals, roots and tuber (Cal/ per/ day)



Source: FAOSTAT Food Balance Sheet http://atps.fao

[1].org

This low and declining food availability has led to inadequate nutrition in the country. Zambia has faced deep human wellbeing deterioration since the beginning of the 1990s. **Figure 2.2** that provides the anthropometrical measurement on children under five years of age for stunting, underweight and wasting paints a very gloom picture. In the four national surveys conducted between 1991 and 1998, both stunting and underweight deteriorated, particularly the former although wasting showed some improvement. Trends in the malnutrition indicators show that Zambia has faced a long-term failure to meet her food requirements. The importation of food from abroad has not redressed the situation.

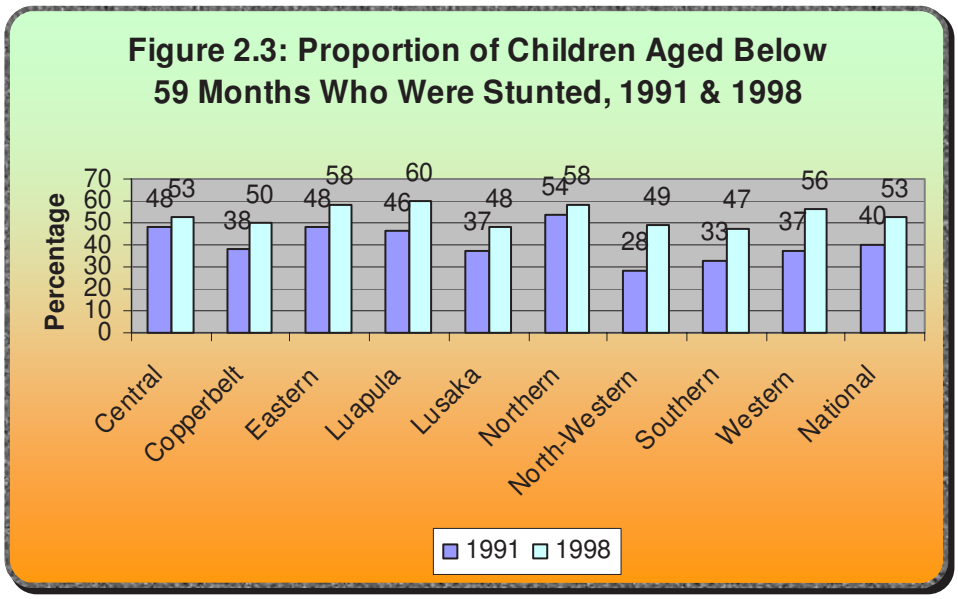


Source: Tables 2.1, 2.2 and 2.3

Table 2.1: Trends in Stunting by Province (1991 to 1998)

	1991	1993	1996	1998	percent Change 1991-98
Central	48	53	46	53	10
Copperbelt	38	48	46	50	32
Eastern	48	53	51	58	21
Luapula	46	54	55	60	30
Lusaka	37	40	44	48	30
Northern	54	53	62	58	7
North-Western	28	45	54	49	75
Southern	33	41	50	47	42
Western	37	48	50	56	51
National	**40**	**48**	**50**	**53**	**33**

Source: PSI, PSII, LCMS 1996 and LCMS, 1998



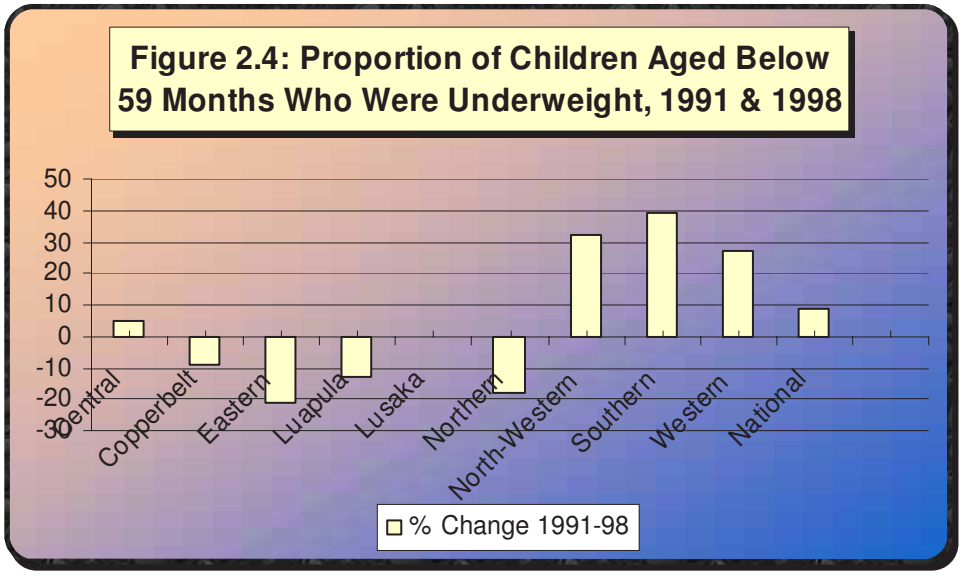
Source: Table 2.1

The proportion of children that were stunted - an important indicator of long-term exposure to food insecurity - increased from 40 percent in 1991 to 53 percent in 1998 (**Table 2.3**). Provincial figures do not provide a clear patter to indicate the underlying factors explaining the deterioration. It is nevertheless seen that the sharpest increase in the proportion of children who were stunted was in North-western, Western and Southern Provinces in that order. Northern and Central Province had the least deterioration.

Table 2.2: Trends in Under-weight by Province (1991 to 1998)

	1991	1993	1996	1998	percent Change 1991-98
Central	22	26	21	23	5
Copperbelt	23	22	22	21	-9
Eastern	28	28	19	22	-21
Luapula	30	31	36	26	-13
Lusaka	21	17	19	21	0
Northern	34	31	33	28	-18
North-Western	19	16	32	25	32
Southern	18	22	25	25	39
Western	22	33	27	28	27
National	**23**	**25**	**25**	**25**	**9**

Source: PSI, PSII, LCMS 1996 and LCMS, 1998



Source: Table 2.2

Table 2.2 and **Figure 2.4** show that the same provinces with the highest proportions of stunting – Southern, North-Western and Western – also had the highest increase in the proportion of children who were under-weight which may occur as a result of acute food shortages resulting from a short-term term inability to access sufficient amounts of food such as during a famine. The fact that these two indicators deteriorated mostly in the same provinces could be indicating a series of episodes of failure by populations in these areas to access sufficient food resulting in long term consequences depicted by stunting. It is easy to explain this in the case of Southern and Western Provinces where agronomical conditions have been unsupportive of food production in the last fifteen years, i.e. reoccurrence of rainfall failure in Southern Province and floods and poor soils in Western Province. It is difficult to explain this in the case of North-Western Province which receives sufficient rains and the soils although acidic still do support agriculture production. It is nevertheless noted that North-Western Province showed some improvement in the case of the proportion of children who were wasted between 1991 and 1998. Three provinces that showed deterioration in wasting were Eastern, Southern and Western. Therefore, all three indicators point to a grim situation in Southern and Western Provinces.

Table 2.3: Trends in Wasting by Province (1991 to 1998)

	1991	1993	1996	1998	Change 1991-98
Central	5	3	5	3	Improved
Copperbelt	8	5	7	5	Improved
Eastern	5	7	3	7	Deteriorated
Luapula	9	6	5	5	Improved
Lusaka	10	8	4	5	Improved
Northern	8	4	6	6	Improved
North-Western	14	3	4	8	Improved
Southern	5	7	4	6	Deteriorated
Western	3	5	3	6	Deteriorated
National	**7**	**6**	**4**	**5**	Improved

Source: PSI, PSII, LCMS 1996 and LCMS, 1998

Unfortunately, information from the LCMS conducted in 2002 is yet to be published to appreciate how malnutrition has developed since 1998. Other evidence indicates that this situation has not improved. A survey conducted by the Programme Against Malnutrition revealed that 69 percent of Zambia's farm households were food insecure in 2001 (see **Table 2.4**). This was based on the quantity of food produced and the number of months the food would last. Again the highest proportions were in Western and North-Western Provinces with 79 percent each. The lowest proportions were the urbanized provinces of Lusaka and the Copperbelt with 57 percent and 56 percent, respectively.

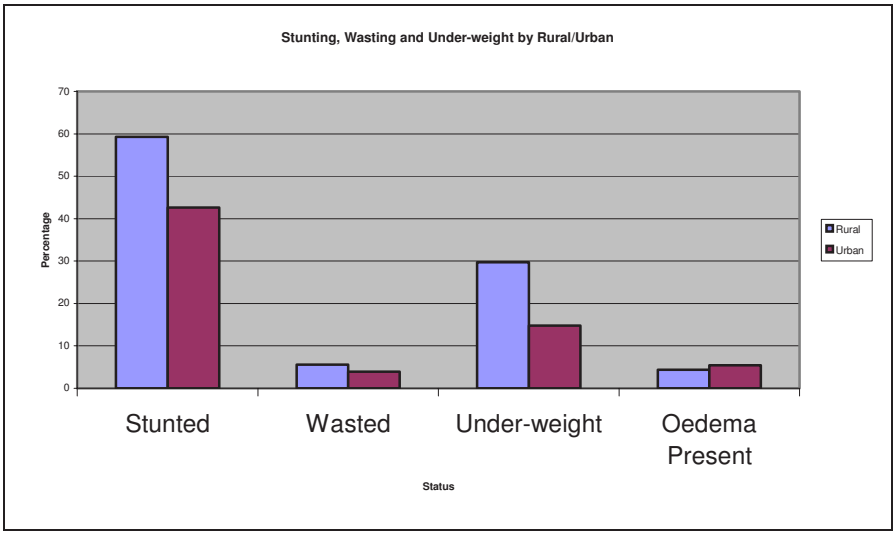
Table 2.4: Food Insecurity (HFnS) Status in Zambia by Province

Province	Farm households	% Food insecure households	Number of food insecure HHs
Central	80 236	69	56 813
Copperbelt	45 152	56	29 908
Eastern	224 017	75	166 428
Luapula	120 266	70	85 481
Lusaka	20 369	57	12 614
Northern	161 328	71	115 253
North-Western	57 274	79	44 927
Southern	120 008	69	80 617
Western	96 585	79	75 200
Total	**925 235**	**69**	**667 241**

Source: Programme Against Malnutrition (PAM) 2001

The fact that the poor nutrition status of the country has not improved, and that it may even have become worse, is also attested to by the results of a survey of the Food Security, Health and Nutrition Information System (FHANIS) conducted in August 2003 which found similar figures as the 1998 LCMS for stunting, wasting and under-weight (see Figure **2.5).** In particular, it demonstrated that household food insecurity is more severe in rural areas than in urban areas. There was a 16.7 percent gap between rural and urban areas in relation to children under 5 who were stunted.

Figure 2.5: Children aged between 3 and 59 months who were stunted, wasted and underweight by Rural/Urban, 2003



Source: Central Statistics Office, The Food Security, Health and Nutrition Information System (FHANIS) August 2003, Lusaka Zambia

The FHANIS survey also collected information on the proportion of community households that had already run out of staple food and the number of months those with stocks would last (see Table 2.5). More than half of the households residing in some parts of Eastern, Southern and Western Provinces had already run out of staple food stocks at the time of the survey in August 2003. These areas are located in the driest low-lying or flood prone areas of the country characterized by low-rainfall and poor soils. Therefore, agronomic conditions are unsupportive of food production and thus high exposure to food insecurity. For the country as a whole, 54 percent of households expected to have their staple food to run out by September 2003. For the Eastern, Southern and Western Provinces areas cited above, more than 80 percent expected to run out of their staple food by December 2003. These results may not be representative of the other years. However, it is noted below that 2003 was a relatively good year with respect to food production as the rains were sufficient. Difficulties to access food may thus be indicating an entrenched and long-term food insecurity situation in Zambia. The fact that 2003 followed two consecutive years of poor harvest shows that recovery to droughts do not come immediately with a good harvest in one year.

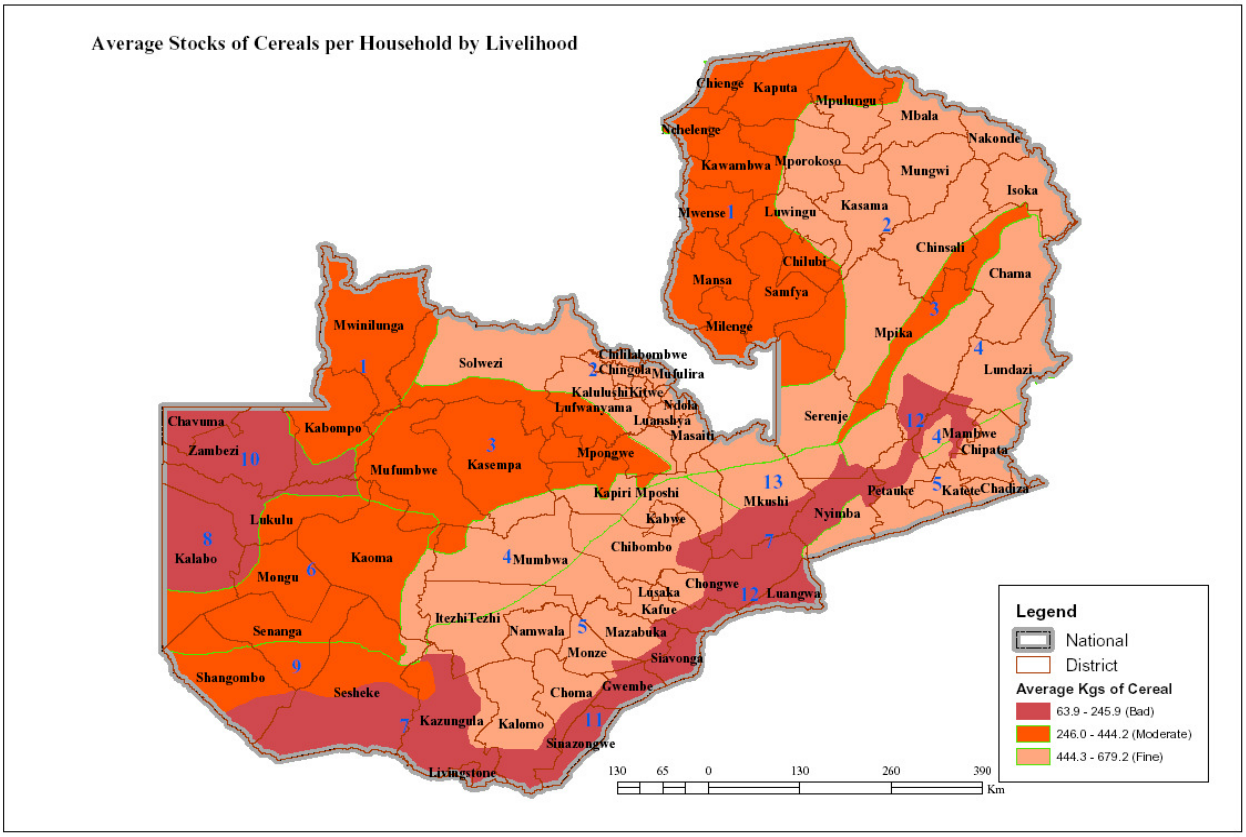
Table 2.5: Households' Staple Stocks by Livelihood Zone, August 2003

Livelihood zone	Agro-Ecological Region (AER)[2]	Already run out of staple stocks (%)	Staple stocks to finish < 1 month (%)	Staple stocks to last for 2-3 months (%)	Staple stocks to last for > 3 months (%)
Zone 1	AER III with cassava as main staple crop.	21	17	24	38
Zone 2	AER III with maize as main staple crop.	42	12	21	25
Zone 3	AER III with more diversified staple crop composition – maize and cassava	35	17	23	25
Zone 4	AER IIa with maize and cassava as staple crop base	18	26	28	28
Zone 5	AER IIa, non-Kalahari, medium rainfall (800–1 000 mm) plateau with maize and cassava as the main staples	17	13	29	41
Zone 6	AER IIb, Kalahari sandy soils medium rainfall (800–1 000 mm) plateau with maize almost the sole staple	31	34	15	20
Zone 7	AER II, driest part of AER. Both maize and cassava are important staples	53	23	21	3
Zone 8	AER IIb with cassava as main staple food	56	11	14	19
Zone 9	AER I with maize as main staple food	46	24	15	15
Zone 10	AER III	42	20	20	18
Zone 11	AER I, Low rainfall, low lying areas with sorghum as the main staple crop	58	22	17	3
Zone 12	AER I, Low rainfall, low lying with maize and cassava most important staples	44	26	15	15
Zone 13	AER IIa in the part where maize is the most important staple	-	-	-	-
Total		**34**	**20**	**22**	**24**

Source: Central Statistics Office, The Food Security, Health and Nutrition Information System (FHANIS) August 2003, Lusaka Zambia

[2] As explained in Section 3, Region I covers some parts of Southern, Eastern and Western Provinces, mostly the Luangwa, Gwembe and Zambezi Valleys. Region II has two main parts. Region IIa covers the plateau areas of Central, Southern and Eastern Province, while Region IIb covers the Kalahari sandy soils of Western Province. Region III, in the north, covers Copperbelt, Luapula, Northern and Northwestern Provinces.

Figure 2.6: Average Stocks of Cereals per Household by Livelihood Zone



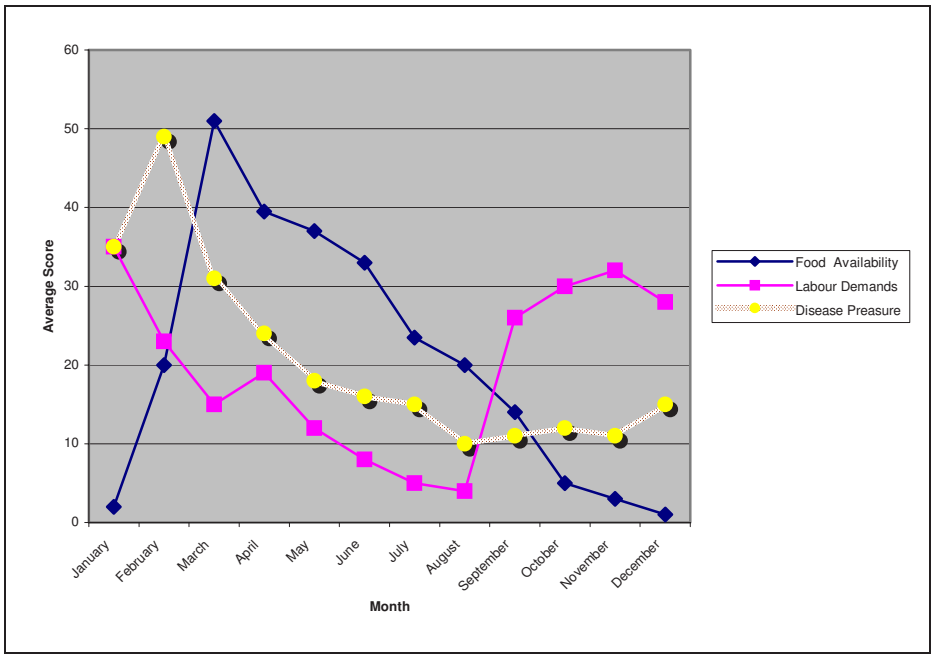
A study that focused on the Kafue river basin, which accounts for about 40 percent of Zambia's total population, confirms the grim picture painted by the FHANIS survey (Scott Wilson Pielsold, 2003). The food calendars generated during a socio-economic survey showed that the hunger months generally were from September with January and February being the most severe (see **Table 2.6**). During these months, extremely vulnerable communities relied on relief food. Responses to food shortages included piecework, food for work, honey collection in November, hunting, charcoal burning and collecting wild foods. The FHANIS survey had also indicated that, in response to the depletion of the staple food stocks, rural households reduced and substituted ordinary meals with fruits (e.g. mangoes) and other non-conventional meals.

Table 2.6: Food Calendar for Himankalu Community, Monze

Month	Score	Comments
January	0	Reliance on food relief, without which most households go for some days without food. To cope, households sell chickens or work for others for food. High cash need particularly for school fees
February	0	Same as in January
March	42	Most crops mature, including fresh maize, pumpkins, gourds and amaranthus
April	105	Plenty of food. People eating as much as possible to regain lost body condition. Nshima eaten twice a day with pumpkin leaves, fish, cleome, okra, sweet potato leaves
May	58	Some fresh produce finished
June	37	Nshima is consumed in the same quantities but other foods decrease
July	42	Increased eating of sweet potatoes
August	15	Nshima is consumed in the same quantities but other foods decreasing
September	7	Serious hunger starts, with meals reduced to once a day. Maize in storage finishes
October	5	Hunger problems intensify. Water becomes a problem as well
November	2	Households start missing meals going for a day without food at times
December	2	Same as in November

Source: Integrated Kafue River basin environmental Impact Assessment Study – Socio-economic survey June/July 2003

Figure 2.7: Food Availability, Labour Demand and Disease Prevalence as Perceived by Women in the Kafue Flats



Source: Scott Wilson Pielsod, 2003: ***Integrated Kafue River Basin Environmental Impact Assessment Study – Strategic Environment Report***

The study also found that conditions had developed into a self-reinforcing cycle where food finishes by September when households are preparing to cultivate their fields. Hungry and vulnerable to diseases, the ability of farmers to cultivate an adequate area as well as manage the cultivated crop to produce enough food to last for the whole year also reduces. It is seen from **Figure 2.7** that the prevalence of diseases is highest in the rainy season when labour demand for farming activities is high. This is also the time when household food stocks are low or sometimes would have run out. Due to body weaknesses resulting from hunger and tiredness, diseases increase, which in turn undermines labour productivity and lowers the production of food for the following season, entrenching household hunger and poverty even further.

Table 2.7 shows the sources of staple food other than own produce in rural areas. It is seen that 41 percent of rural households rely on cash purchase and 16 percent on payment in kind. Sources of cash include cash income generated through the sale of crops, casual labour and trading. According to the FHANIS Survey, 36 percent of rural households said sale of crops (including vegetable sales) was their main source of cash followed by casual labour (19 percent), beer brewing (10 percent) and fish sales and business trading (7 percent each). Only 6 percent of rural households mentioned formal sector employment as their main source of cash income. It is an important observation that, even in rural areas, a significant proportion of households rely on the markets for food when their stock run out. This of course is a mix of own produce and purchased consumption. Unfortunately the FHANIS survey did not determine the proportion of this mix.

Of the households that had no staple food from their own fields, 15 percent relied on food aid while 21 percent received donations from relatives or from their neighbours. Reliance on food aid was highest in the same low lying and flood prone areas identified above as suffering from food shortages. In these areas, 30 percent to 52 percent relied on food aid when a staple food ran out. It is, of course observed that households tended to use multiple sources to acquire the staple food once it ran out. Therefore, Zone 8 located in parts of Western Province with the highest proportion of households that said they relied on the markets to supplement staple food requirement also had the highest proportions that mentioned the other three sources.

Table 2.7: Households' Staple Stocks by Livelihood Zone, August 2003

Livelihood Zone	Cash Purchase	Payment in Kind	Remittances[3]	Food Aid	Number of Households
Zone 1	45	10	17	5	275,000
Zone 2	48	18	19	8	288,000
Zone 3	25	9	16	4	51,000
Zone 4	24	3	9	20	49,000
Zone 5	33	16	23	19	305,000
Zone 6	41	25	32	17	109,000
Zone 7	55	15	21	30	44,000
Zone 8	79	45	38	52	20,000
Zone 9	33	22	31	38	23,000
Zone 10	22	8	19	25	28,000
Zone 11	59	10	12	33	34,000
Zone 12	38	28	32	46	19,000
Zone 13	28	23	22	12	12,000
Total	**41**	**16**	**21**	**15**	**1,257,000**

Source: Central Statistics Office, The Food Security, Health and Nutrition Information System (FHANIS) August 2003, Lusaka Zambia

2.3 Demand and Supply of Staple Foods

The major staple foods in Zambia include maize, wheat, millet, cassava, sorghum and rice. Of these, maize and cassava are the more widely consumed (see **Table 2.8**). Following independence, agricultural policies favoured maize above all other crops. This resulted in increased dependency in maize by both urban consumers and rural producers in large parts of the country. In areas where maize was not traditionally grown or was unsuited to the climatic conditions, this maize bias induced a shift away from traditional more drought resistant crops, and increased reliance on maize as both the staple and a cash crop.

[3] These are food donations (gifts) from relatives/sympathizers within or outside the community.

Table 2.8: Households' Staple Stocks by Livelihood Zone, August 2003

Livelihood Zone	Main Staple Food	Main Livelihoods
Zone 1	Cassava	Crops, trading, fishing and crops
Zone 2	Maize	Crops, game meat, trading, charcoal, precious minerals, wages
Zone 3	Maize, cassava	Crops, game meat and cattle
Zone 4	Maize, cassava	Cattle, crops, game meat and trading
Zone 5	Maize, cassava	Cattle, crops, charcoal, mining and trading
Zone 6	Maize	Cattle, crops and timber
Zone 7	Maize, cassava	Cattle, crops, wages, timber, curios and cross-border trading
Zone 8	Cassava	Cattle, crops and fishing
Zone 9	Maize	Cattle, crops, small livestock, fishing an game meat
Zone 10	Cassava	Cattle, crops, fishing, small livestock and trading
Zone 11	Sorghum	Cattle, small livestock and trading
Zone 12	Maize, cassava	Crops and fishing

Source: Central Statistics Office, The Food Security, Health and Nutrition Information System (FHANIS) August 2003, Lusaka Zambia

However, this may have started to change. The liberalization of the agricultural sector and the subsequent collapse of markets and rural credit institutions has been a major factor. The area under maize has declined by 23 percent since its peak. With less maize being produced, the amount of surplus food for sale reaching urban markets has declined, while prices have risen. Some changes in consumption patterns are being noted. The consumption of cassava in rural areas is becoming more widespread. In urban areas, consumption of wheat products is also on the rise.

2.3.1 Supply and Demand for Maize

Based on the crop production figures, the crop food balance sheets are constructed by adding the carry over stocks from the previous agricultural season to the current year production to get the crop available for the domestic market. Upon ascertaining the national staple requirements, the food available for domestic purposes is deducted to determine whether the country is going to face a deficit or a surplus food production. The deficit/surplus estimate is then used to determine the import/export requirements.

As already noted above, maize production has fluctuated considerably. Taking the 1987 to 2003 period, the highest area cultivated under maize production was 1,020,574 hectares in 1989 while the lowest was 510,372 hectares in 1998. Within the year to year variations, a declining trend in total production is noticeable. Between 1987 and 1995, maize output averaged 1,018,919 metric tones but dropped to 905,211 metric tones between 1996 and 2003. This is despite the fact that the lowest production occurred in 1992 at 483,492 metric tones. Annual variations in weather is definitely the major factor. The drought years of 1992/92, 1994/95 and 2001/02 resulted in corresponding decline in production. However, to this should be added the erratic supply and declining access to inputs in the wake of the liberalization of maize markets.

Table 2.9: Trends in Maize Production, 1987 - 2003

Year	Hectares	Metric Tonnes	Yield (Tonnes/ Hectare)	Year	Hectares	Metric Tonnes	Yield (Tonnes/ Hectare)
1987	609529	1077449	1.77	**1996**	675565	1409485	2.09
1988	723087	1943219	2.69	**1997**	649039	960188	1.48
1989	1020574	1843180	1.81	**1998**	510372	638134	1.25
1990	763258	1119670	1.47	**1999**	597454	822057	1.38
1991	639390	1095908	1.71	**2000**	561491	850466	1.51
1992	661305	483492	0.73	**2001**	583855	801889	1.37
1993	633326	1597767	2.52	**2002**	575686	601606	1.05
1994	679356	1020749	1.50	**2003**	699276	1157860	1.66
1995	520165	737835	1.42				

Source: Ministry of Agriculture and Cooperatives, Early Warning Unit

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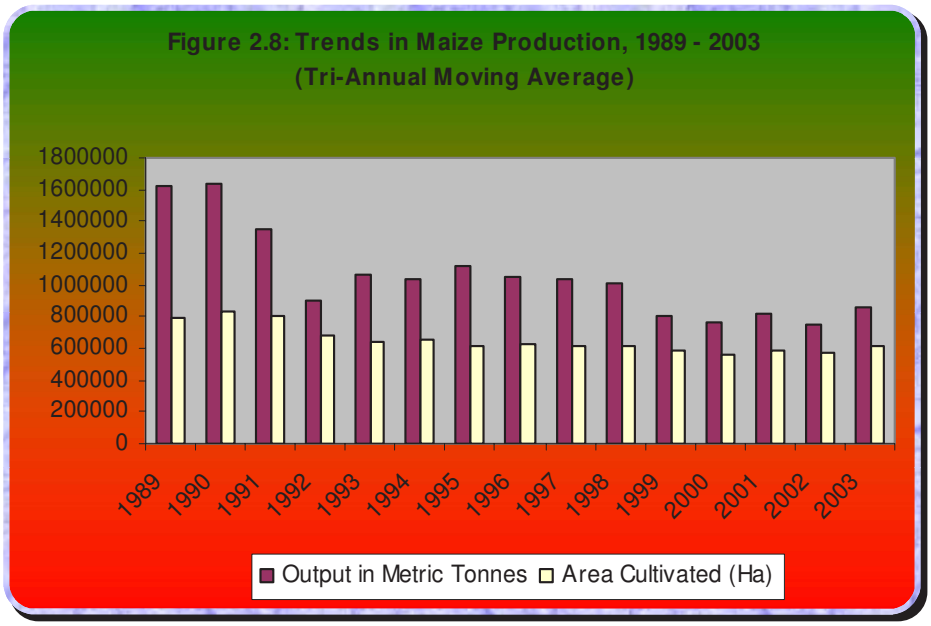


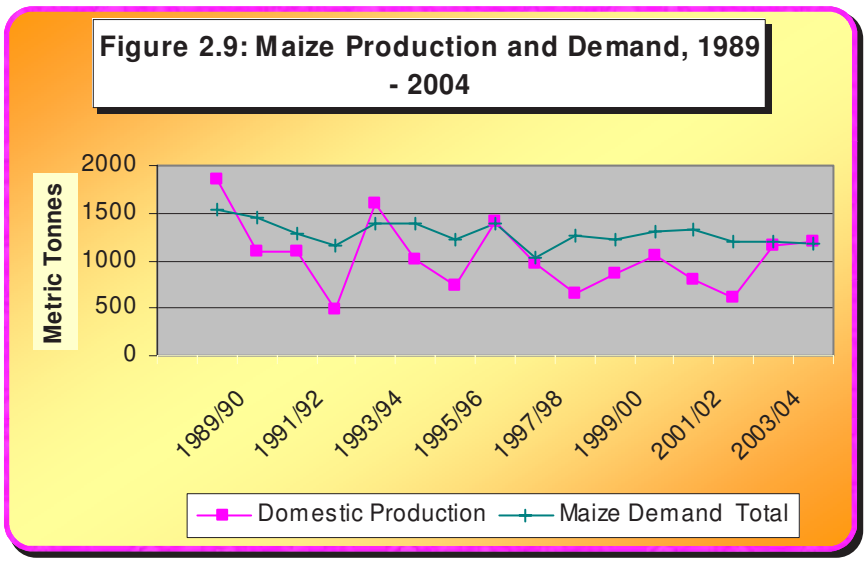
Source: Table 2.9

Table 2.10: Maize Staple Food Supply and Demand ('000 Metric Tonnes), 1989 -2003 [4]

Year	Opening Stock	Domestic Production	Total Available	Maize Requirements				Surplus/ Deficit
				Human Cons.	Stock-Feed	Other uses	Total	
1988/89	609	1,845	2,454	1,167	80	290	1,537	917
1989/90	767	1,093	1,860	1,215	80	165	1,460	400
1990/91	250	1,097	1,347	1,084	40	150	1,274	73
1991/92	101	483	584	1,048	20	100	1,168	-584
1992/93	140	1,598	1,738	1,108	50	240	1,398	340
1993/94	225	1,020	1,245	1,095	50	240	1,385	-140
1994/95	85	738	823	1,013	60	140	1,213	-390
1995/96	17	1,410	1,427	1,090	100	198	1,388	39
1996/97	50	960	1,010	900	77	60	1,037	-27
1997/98	80	649	729	1,110	30	122	1,262	-533
1998/99	35	855	890	1,031	60	125	1,216	-326
1999/00	60	1,053	1,113	1,054	33	228	1,315	-202
2000/01	61	802	863	1,061	35	225	1,321	-458
2001/02	20	601	621	1,008	35	160	1,203	-582
2002/03	20	1,158	1178	1,008	35	160	1,203	-25
2003/04	100	1,207	1307	981	50	156	1187	120

Source: Ministry of Agriculture and Cooperatives, Early Warning Unit

Zambia rarely recorded surplus maize production over the last 15 years period (see **Table 2.10**). In 9 of the 15 years, the country was not able to meet its maize requirements. In the 6 years when total requirement was met, domestic production wholly covered maize requirements in four years (see **Figure 2.8**). In the other 2 years, carry over stocks from the previous season including food imports helped to mitigate the shortfall in domestic production. These trends show a situation where the country is consistently not able to satisfy its food (maize) needs from own production and lends evidence to the grim picture of high food insecurity exposure seen above.



Source: Table 2.10

[4] Please note that some crop production figures in the food balance sheets may not be identical to those in the crop production tables. This is how they were obtained from the source and no adequate explanation was given as to what accounted for the difference.

The maize requirements that constitute the Maize Food Supply and Demand table consist of the following components:

- Human Consumption. Maize estimates for human consumption ranged from 900,000 MT to 1,215,000 MT. This includes locally purchased Food Reserve Agency (FRA) stocks expected to be carried over into the next season. It is important that this item is not confused with actual consumption but understood to refer to an estimate of nutritional needs, i.e. individual calorie needs multiplied by Zambia's population. Variations in the estimated requirements result from anticipated changes in the production of the different cereals that contribute to calories requirement of Zambia.

- Stockfeed. These are estimated requirements by major stockfeed producers which peaked at 100,000 tons during the 1996/97 agricultural season and while the lowest at 20,000 tons in 1992/93. Stockfeed consumption also showed a decline during the years starting 1998/99.

- Other Uses. Other Uses comprises estimated seed crop grown for seed companies, requirements by industrial brewers and post harvest losses. Post-harvest losses are estimated at 5 percent for grains in line with estimates from other SADC countries.

2.3.2 Supply and Demand for Wheat

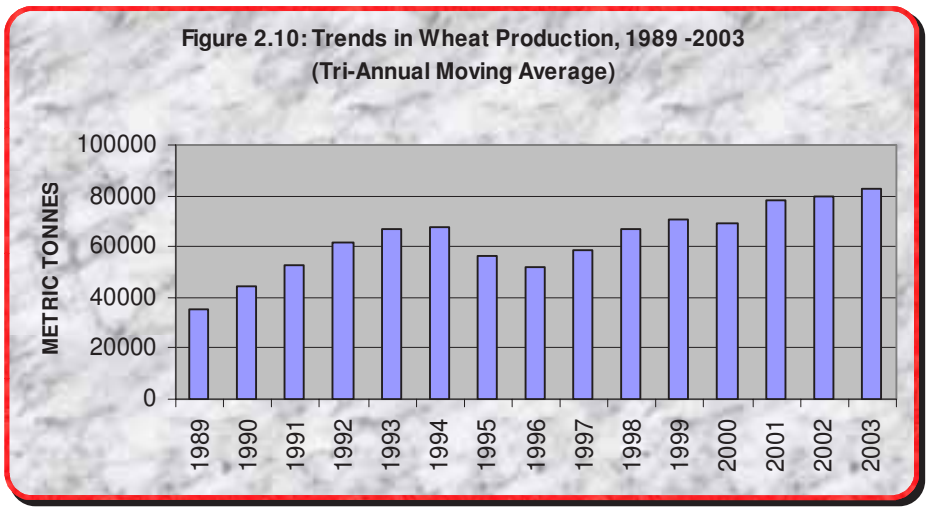
The production patterns for wheat cannot be fully analysed due to absence of data for area under cultivation for the year 2000 onwards. For the period 1987 to 1999 the area under cultivation peaked at 13,656 hectares in 1993, while the lowest was 6,925 hectares in 1988. Despite the lack of data on area under production and yield per hectare, it is seen that wheat production consistently improved in the late 1990s and early 2000s. The yield per hectare also showed an upward trend starting 1994.

Table 2.11: Trends in Wheat Production, 1987 – 2003

Year	Hectares	Metric Tonnes	Yield (Tonnes/ Hectare)	Year	Hectares	Metric Tonnes	Yield (Tonnes/ Hectare)
1987	7387	27408	3.7	1996	10327	57595	5.58
1988	6925	32914	4.75	1997	10693	79810	6.62
1989	9878	46614	4.72	1998	11278	63925	5.67
1990	11595	53601	4.63	1999	9921	69226	6.98
1991	11849	58732	4.96	2000	-	75000	-
1992	10964	72490	4.97	2001	-	90000	-
1993	13656	69286	5.07	2002	-	75000	-
1994	11566	60944	5.27	2003	-	75000	-
1995	7806	38019	4.87				

Source: Ministry of Agriculture and Cooperatives, Early Warning Unit

The total requirement for wheat has been rising gradually such that the rise in production seen in **Table 2.12** has still proved inadequate. Therefore, Zambia has always experienced a food deficit in wheat with 1996/97 recording a 53,000 MT deficit. There are expectations that Zambia could become self-sufficient in wheat in a few years time given the proposed investments being considered by farmers. In 2003, commercial farmers held discussions with the World Bank to provide a facility of US$50 million from which US$10 million was to be used to acquire 100 centre pivots to irrigate an additional 10,000 hectare (Wilson Scott Piesold, 2003). This was going to double the current output and fully meet the current wheat demand. These discussions did not bear fruit but it is reported that interest remains very high.



Source: Table 2.11

Table 2.12: Wheat Supply and Demand ('000 MT), 1989 -2003

Year	Opening Stock	Domestic Production	Total Available	Wheat Requirements				Surplus/ Deficit
				Human Cons.	Stock-Feed	Other uses	Total	
1989/90	2	47	49	95	0	5	100	-51
1990/91	8	54	62	85	0	5	90	-28
1991/92	8	59	67	78	0	5	83	-16
1992/93	8	62	70	70	0	5	75	-5
1993/94	30	71	101	113	0	5	118	-17
1994/95	10	75	85	100	0	7	107	-22
1995/96	28	50	78	100	0	7	107	-29
1996/97	5	50	55	101	0	7	108	-53
1997/98	25	71	96	121	0	7	127	-31
1998/99	25	69	94	107	0	3	110	-16
1999/00	10	75	85	107	0	3	110	-25
2000/01	10	90	100	110	0	7	117	-17
2001/02	5	75	80	111	0	6	117	-37
2002/03	2	75	77	105	0	6	114	-34

Source: Ministry of Agriculture and Cooperatives, Early Warning Unit

2.3.3 Supply and Demand for Sorghum/Millet

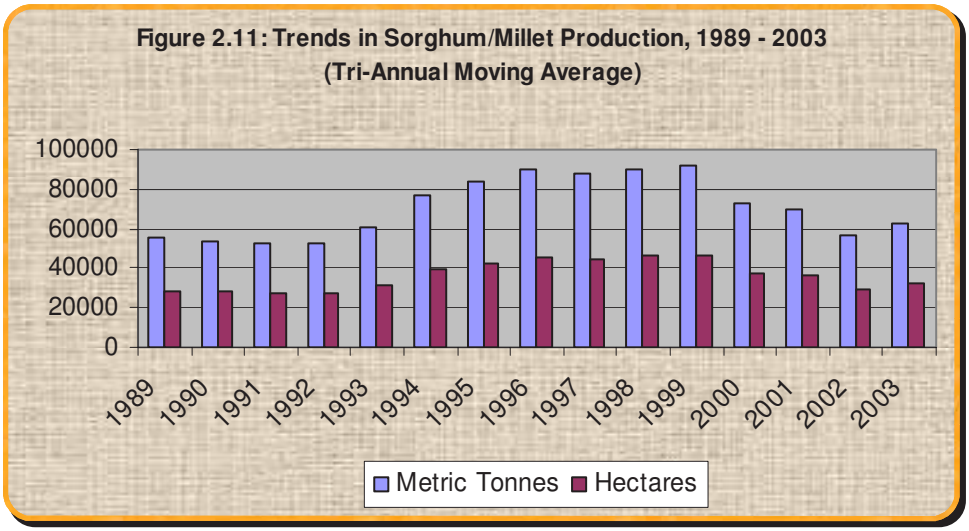
The area under sorghum/millet production showed an increase from its lowest of 77,060 hectares in 1991 to its highest 132,187 hectares in 1999. The period from 1994 to 1999 was characterised by stabilisation, with a decline thereafter from 2000 onwards. Similar trends were observed in the production volumes and yield per hectare (see **Table 2.13**). The increase in the area under cultivation after 1993 can be attributed to the liberalisation of the agricultural sector, which included the withdrawal of subsidies on fertiliser. This discouraged people from growing the staple maize crop in favour of crops like sorghum and millet which are drought tolerant and have a comparative advantage in dry areas.

Table 2.13: Trends in Sorghum/Millet Production, 19987 - 2003

Year	Hectares	Metric Tonnes	Yield (Tonnes/ Hectare)	Year	Hectares	Metric Tonnes	Yield (Tonnes/ Hectare)
1987	91053	56453	0.62	1996	124769	90498	0.73
1988	91521	48874	0.53	1997	130415	91885	0.70
1989	99424	61017	0.61	1998	125911	87635	0.70
1990	107335	51122	0.48	1999	132187	95111	0.72
1991	77060	46512	0.60	2000	93577	35705	0.38
1992	106921	61036	0.57	2001	128514	79120	0.62
1993	99217	72842	0.73	2002	96078	54417	0.57
1994	137547	97712	0.71	2003	86907	55632	0.64
1995	116174	81024	0.70				

Source: Ministry of Agriculture and Cooperatives, Early Warning Unit

Despite the information gaps, there is an upward trend in both the production and consumption of sorghum/millet. The highest consumption of sorghum/millet was 105,000 metric tons recorded in 2002/03. Zambia however has yet to become self-sufficient in sorghum/millet, as the total requirements outstrip availability. Other uses for Sorghum/millet include local beer brewing, post-harvest losses and seeds stored for the next season.



Source: Table 2.13

Table 2.14:Sorghum/Millet Supply and Demand ('000 MT), 1989 -2003

Year	Opening Stock	Domestic Production	Total Available	Sorghum/Millet Requirements				Surplus/ Deficit
				Human Cons.	Stock-Feed	Other uses	Total	
1989/90	0	61	61	29	10	22	61	0
1990/91		52	52	20	10	22	52	0
1991/92		47	47	12	10	25	47	0
1992/93		61	61	31	10	20	61	0
1993/94		72	72	37	10	25	72	0
1994/95		60	60	60	0	0	60	0
1995/96		82	82	90	3	12	105	-23
1996/97	2	89	91	71	3	13	87	4
1997/98		59	59	50	5	4	59	0
1998/99		0	0	0	0	0	0	0
1999/00		0	0	81		1	82	-82
2000/01	1	70	71	83		5	88	-18
2001/02		95	95	84		6	90	6
2002/03	2	75	77	105		6	111	-34

Source: Ministry of Agriculture and Cooperatives, Early Warning Unit

2.3.4 Cassava Production and Consumption

Though the official statistics available on cassava supply and demand are scanty, its production and consumption are obviously on the increase. As already observed in **Section 2.2**, cassava is undergoing something of a re-emergence and is considered as a main staple in as many rural areas as maize is. Of course, maize is still the country's main staple simply because the urban population is overwhelmingly reliant on maize. **Table 3.4** shows that cassava accounted for 50 percent of the total area cultivated in 2001/02. This was a drought year and as a result maize was pushed into second place and accounted for only 35.4 percent of the area cultivated. The leading provinces in the production of cassava are Northern, Luapula, North-Western and Western Provinces.

Table 2.15:Cassava Supply and Demand ('000 MT), 1995/96 -2003/04

Year	Opening Stock	Domestic Production	Total Available	Cassava Requirements				Surplus/ Deficit
				Human Cons.	Stock-Feed	Other uses	Total	
1995/96	0	50	50	0	0	0		
1996/97	3	137	140	103	14	23	140	0
1997/98	0	0	0	0	0	0	0	0
1998/99	0	1021	1021	868	0	153	1021	0
1999/00	0	968	968	566		19	585	383
2000/01		969	969	920		48	968	1
2001/02		815	815	582		16	598	217
2002/03	0	851	851	553		17	570	281
2003/04	0	958	958	589		20	609	349

Source: Ministry of Agriculture and Cooperatives, Early Warning Unit

The increase is a result of government and NGO intervention to promote crop diversification and drought resistant crops. As a result, cassava production has spread to areas where it has never been traditionally grown such as some parts of Eastern Province. Recognizing the rising importance of cassava, the FRA has started buying cassava chips, thereby providing an alternative market.

Whilst the cassava production programme seems to be growing, a survey[5] jointly conducted by MACO, ZNFU, FRA and FEWSNET found that there was very little that has been done in the area of promoting marketing, such as creation of allied industries like starch and stockfeed processing industries, with all the processing being done at household level. Sales have remained localized and there is no formal local and external market for cassava. The Root and Tuber baseline survey established that the common market problems included lack of enough buyers and unstable/unreliable markets. The FRA purchases may not guarantee a ready market as it is driven by relief and not commercial demand.

2.3.5 Do We Truly Know Zambia's Food Requirements?

The presentation above of production and food requirements figures for selected crops suggest a very a serious gap between the two. The SADC Early Warning Unit estimates suggest that Zambia had a five year average of 311,000 MT domestic cereal deficit or 28.4 percent of domestic production (see **Table 2.16**). This cereal balance by weight includes maize, rice, wheat, sorghum and millet on a standard measured weight basis and includes cassava with an appropriate adjustment. With food imports the cereal gap drops to 129,000 MT, 10.8 percent of production. It shows the significance of food imports in addressing the country's food security situation.

[5] ***Review of the Zambia National Food Balance Sheet*** – A report based on a rapid assessment by USAID/Famine Early Warning System Network (FEWSNET), Ministry of Agriculture and Co-operatives (MACO), Food Reserve Agency (FRA) and Zambia National Farmers Union (ZNFU)

Table 2.16: Zambia Cereal Balance Sheet, Five Year Average 1999 - 2003

ITEM	METRIC TONNES
Opening Stocks	95,000
Domestic Production	1,095,000
Total Availability	**1,190,000**
Domestic Requirements	1,467,000
Unplanned Exports	14,000
Desired Closing Stocks	20,000
Total Requirements	**1,501,000**
Domestic Cereal Gap	-311,000
Commercial Imports Received[6]	111,000
Food Aid Received	71,000
Total Imports Received	**182,000**
Unfilled Cereal Gap	**129,000**

Source: Zambia Vulnerability Assessment Committee, January, 2003

In recent years, controversy has surrounded figures estimates of food requirements. In mid 2002, for example, the WFP/FAO Crop and Food Assessment Mission reported a cereal shortfall (largely maize) of 240,000 MT affecting 2.3 million people in Zambia. Subsequent national vulnerability assessments increased the figure to 2.8 million across 46 districts, largely in the South of Zambia. Food consumption estimates were calculated using standard parameters: maize 93 kgs, wheat 10.2 kgs and rice 1.6 kgs per person/year which gave a domestic cereal requirement of 1.4 million MT based on a population of 10.86 million. The final production estimates of all the cereals for the 2001/2 season was 745,000 MT, leaving a gap of 650,000 MT to be met by commercial food imports and humanitarian aid.

When Zambia rejected the Genetically Modified Organisms (GMO) maize that had already been received and was ready for distribution, a humanitarian disaster was anticipated. Because the official rejection of GMO food was done only in August, there was little time to ship in food imports. Other countries in the region had been affected by the drought as well. The World Food Programme could only procure 121,000 MT instead of the required 240,000 MT. The anticipated humanitarian crisis failed to occur, raising the view that figures cited had been overstated.

A study commissioned by Care suggests a number of reasons why the figures of food requirements resulting from the 2001/02 were off the mark (McEwan, May 2003).

- Although a maize production deficit did indeed occur, this was equated to a food deficit and the need for food relief. In the process the contribution of cassava, other tubers and small grains were not adequately factored into the crop forecast estimates. Starches such as sweet and Irish potatoes, which are important in urban areas, are often excluded.

- The contribution of cotton to the cash economy in areas of drought was underestimated. Cotton did extremely well in 2001/02 and obviously helped many households gain some resilience to face drought conditions as they could buy food (not necessarily maize) form the market.

[6] Unfortunately this does not take into account informal cross border imports of cereal from neighbouring countries which in years of scarcity can be significant.

- Although ownership has significantly gone down, livestock (including small livestock) and milk remain important factors in household's resilience against drought in some of the areas affected.

- Estimates of the need for food relief failed to take into account the multiple livelihoods of the rural society and their capacity to survive crop failure without descending into a humanitarian disaster.

- The above oversights where not helped by the sampling methodological inadequacies in vulnerability assessments that "led to inappropriate extrapolation of the numbers affected and the severity of the problem" (p.7). Cereal consumption figures and the size of the cereal gap are based on inconsistent and often contradictory data.

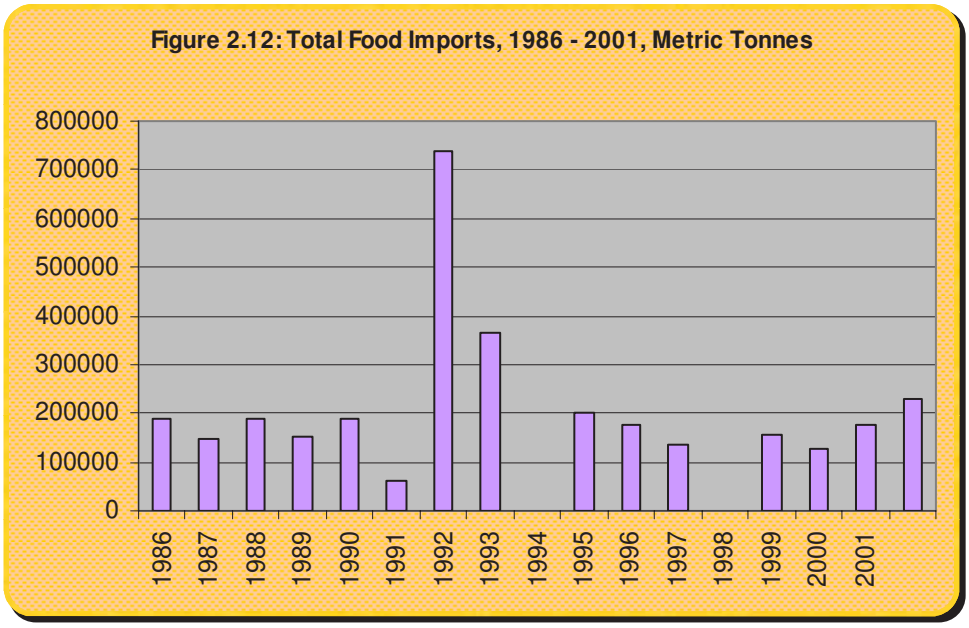
In addition to all this is the fact that organizations participating in food aid imports and distributions both in and outside government have strong institutional incentives to overstate the food scarcity problem. NGOs having established structures to distribute food relief are unwilling to dismantle them when the need for food relief ends as it means laying off some staff. The same could be said of government structures. It is observed that the food relief is the most visible substantive job of the country's Vice President under whom the Disaster Management and Mitigation Unit lies. The Office of the Vice President has an obvious interest in perpetuating this activity.

In **Section 4.2** we argue that the estimates for the national cereal demand (requirements) produced by the Early Warning Unit is perhaps not very much off the mark. However, the main problem is that the food balance sheet is not robust enough to take into account alternative foods consumed in the event of a huge unfilled cereal gap. Information on vulnerability should take into account the presence of alternative foods and which categories are unable to access even such alternatives when there is a shortage of cereals.

2.4 Structure and Trends of Food Imports

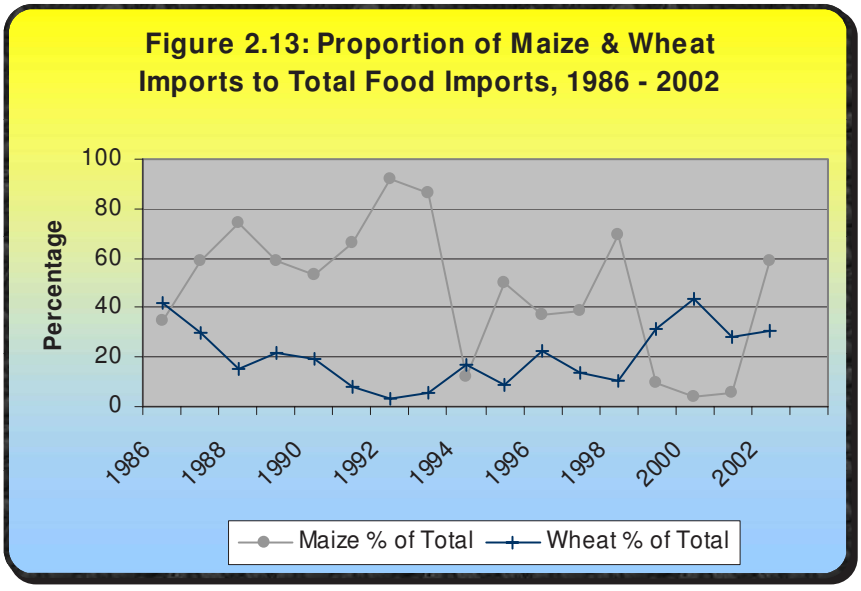
The analysis in this Section is based on data from the Bank of Zambia (BOZ), the Central Statistics Office (CSO), the Food and Agriculture Organisation (FAO) and the World Food Programme (WFP). The main weakness with the data is that there is no single data source that disaggregates between food aid and commercial food imports. CSO data when available were not disaggregated into commercial imports and relief food imports. Maize imports from the Bank of Zambia (BOZ) are only quoted in values and not the actual quantities imported. WFP data on relief food is expressed in quantity shipped without equivalent monetary values. Data from different sources have been difficult to reconcile. It has therefore been extremely difficult to develop a full picture of Zambia's actual staple food imports.

Figure 2.12 demonstrates that Zambia's total food imports over a 15 year period has fluctuated from year to year. The biggest amount of food imports was in 1992 after Zambia suffered the worst drought in living memory. As seen above, the country suffered a maize deficit of 584,000 metric tonnes. A total of 680,000 metric tonnes of food was imported in 1992 of which 92.2 percent was maize. Surprisingly, 366,000 metric tonnes of food was imported the following year in 1993 with maize accounting for 83.3 percent despite Zambia recording a maize surplus of 340,000 metric tonnes. After this is the importation of 230,000 metric tonnes of food in 2002 following another drought season.



Source: The Food and Agriculture Organisation (www.fao.org)

With respect to the composition of food imports, maize and wheat accounted for 70.2 percent, distributed as 48.6 percent and 21.6 percent respectively. It is seen from **Figure 2.13** that the proportion of wheat has been more stable than maize. In actual figures, wheat imports have ranged between 5,119 metric tones in 1991 and 78,000 metric tones in 1986 compared with an average annual import of 33,000 metric tones. This compares to maize whose annual imports ranged from 5,481 metric tones in 2000 to 680,000 metric tones in 1992 with an average of 146,169 metric tones.



Source: The Food and Agriculture Organisation (www.fao.org)

2.4.1 Food Aid

The fluctuations in food imports seen above, are driven by the variability in food aid from oneyear to another. WFP data shows that in 1992, Zambia received 451,200 metric tonnes (see Table 2.16). The Government of the Republic of Zambia had forecast food aid requirements of up to 550,000 metric tonnes (mainly maize cereal) during the same year.

During the following year, 354,400 metric tones of food aid imports were brought into Zambia. The continued importation of food aid on a large scale in 1993 after a bumper harvest season is a lagged response to the 1992/93 drought year. This is an indication that response to droughts may not move in harmony with the cycle of deficits followed by food surpluses and may thus work to dampen production in subsequent years by depressing the price of main crop commodities7. This lag occurred in the year when Zambia is said to have responded speedily to the crisis, declaring a national disaster much earlier than other countries in Southern Africa. This was the first year of the MMD Government that had assumed power on 1st November, 1991 through multi-party elections and was looked upon as heralding democracy in Africa by the international community. Zambia thus enjoyed immense goodwill from donors and international non-government organisations that responded quickly to the crisis. It has also been recognised that the institutional framework to import and distribute food relief functioned very well.

Table 2.17: Food Aid Imports into Zambia ('000 MT), 1992 to 2002

Year	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
WFP	26.6	47.3	16.4	33	21	8	21	22	20	29	121
Total Food Aid	451.2	354.4	21.1	59	27	11	28	42	27	49	121
WFP Share (percent)	6	13	78	56	78	73	75	54	74	60	100

Source: World Food Programme Zambia Office

The lag in food aid shipments despite all these advantages, seem to be pointing to the fact that there will always be a gap between food aid requirements and actual shipments. It is seen in **Table 2.18** that food aid only met 18.0 percent of the domestic maize cereal gap over the six year period up to 2001. This is mainly due to logistical problems, particularly the time it takes donors to mobilise their shipments as information is absorbed about a country's food crisis. Although this has not been a factor in Zambia's case, political considerations play a role in delaying the time the shipment of relief aid gets to the country.

Table 2.17 also confirms WFP as the biggest provider of food aid to Zambia as most multilateral and bilateral donors prefer to provide assistance through the organisation. Therefore, in 2002, WFP was the only organisation that brought in food aid. However, in 1992 and 1993, WFP food aid imports amounted to only 6 percent and 13 percent of total food aid imports. Again it is important to note the special circumstances of that season and the political good will that Zambia enjoyed at the time. Many countries sought to help Zambia without going through the WFP. In 2002, WFP was the only organisation that brought in food aid. However, this was because of the rejection of GMO maize by the government in October. There was little time to arrange for fresh imports and WFP was the only organisation that could bring in some food relief even though this was far short of the estimated 240,000 metric tonnes.

2.4.2 The Food Relief Process

Upon consultation and agreement with the GRZ on food relief requirements, the WFP initiates the procurement procedures. In case of emergency operations, government declares a disaster (man-made or natural) and requests WFP for help. Depending on the nature of the disaster, the level of the crop that represents the vulnerable households is established, in collaboration with NGOs that are already operational in the districts, hand in hand with the Disaster Management and Mitigation Unit (DMMU).

[7] There is however no data on maize price movements for the period in question. The Researcher's source of information on maize price movements is the Zambia Agricultural Commodity Exchange (ACE), which was set up in 1994.

Relief food distribution normally starts around the months of October and November during the year. This is also the time when the vulnerable households start experiencing hunger as their food stocks run low as seen in the food calendars presented in **Chapter 2**. The hunger period runs from October to March when maize stocks are extremely low for many households, with January and February as the most critical months.

Zambia has institutionalised the structure for food relief that was started in 1992 at the time of one of the worst droughts the country suffered. In that year, after government had declared the anticipated food shortfall as a national disaster, the Ministry of Agriculture, the Ministry of Health and the WFP launched the Programme to Prevent Malnutrition (PPM). This mobilised non-governmental organisations with a presence on the ground to participate in the distribution of food relief. It is recognised that action prevented a humanitarian disaster from taking place and the rebounding of food production the next season owes much to this intervention. A decision was reached that the structure that had worked well needed to be preserved for ongoing relief operations. This led to the creation of the Programme Against Malnutrition (PAM) to coordinate the activities of non-governmental organisations participating in food relief. PAM was registered on 11th November, 1993 as a non-governmental organisation itself.

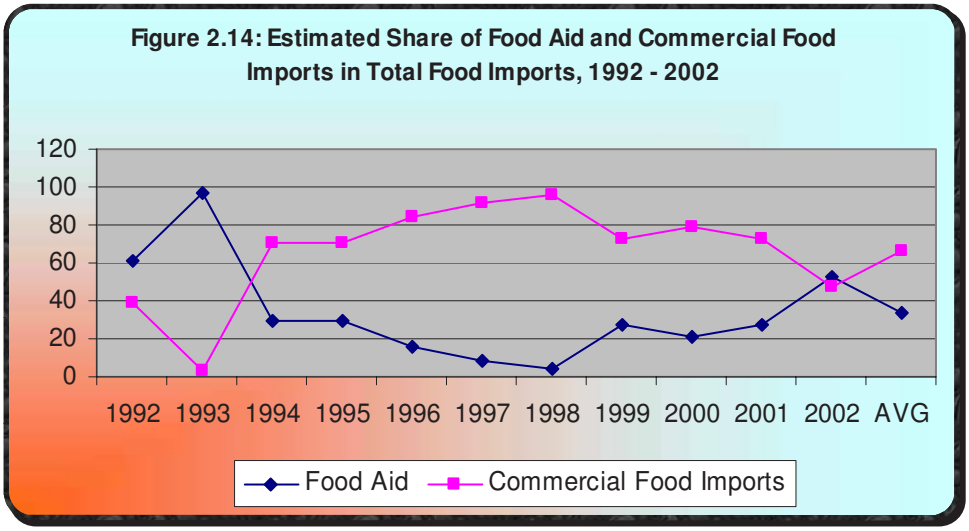
2.4.3 Commercial Food Imports

Data for commercial imports was only available for 1996 to 2001 and is presented in **Table 2.18**. It is seen that commercial imports met 23 percent of the country's maize gap compared to 18 percent for food aid. In all, maize imports met 41 percent of the domestic maize gap, meaning that as much as 59 percent of the gap went unmet. Further, **Figure 2.14** shows that the proportion of food aid to total food imports averaged 36 percent. **Figure 2.14** has been calculated from FAO figures on food imports and WFP data on food aid with commercial imports taken as the difference between the two. The two data sets are not exactly compatible and the proportions shown here are only indicative.

Table 2.18: Proportion of Food Imports to Domestic Maize Gap

Year	Total Supply	Total Demand	Maize Domestic Gap ('000 MT)	Total Maize Imports		Food Aid		Commercial Imports	
				'000 MT	As percent of Maize gap	'000 MT	As percent of Maize gap	'000 MT	As percent of Maize Gap
1996	1427	1388	39	48	n.a	11	n.a	37	n.a
1997	1010	1037	-27	133	493	28	104	105	389
1998	729	1262	-533	73	14	42	8	31	6
1999	890	1216	-326	69	21	27	8	42	13
2000	1113	1315	-202	72	36	49	24	23	11
2001	863	1321	-458	230	50	121	26	109	24
Total	6032	7539	-1,507	625	41	278	18	347	23

Source: MACO, Early Warning Unit, World Food Programme and Central Statistics Office, Unpublished Data



Source: Calculated from WFP and FAO data

2.5 Categorising Vulnerability and Food Insecurity

Assessing vulnerability to food insecurity is a description of the capacity of individuals, households and communities to cope with factors that threaten their proper access to adequate food on a continuous basis, whether from production or purchases. The immediate causes to food insecurity vulnerability in Zambia rises from poor harvests, animal losses and declines in incomes. Multiplicity of factors underlie these immediate causes. **Table 2.18**, categorises the underlying factors into three developments: long-term trends; occurrence of shocks; and, seasonality factors. The matrix is an attempt to categorize who the vulnerable are, where they are and why they are vulnerable. It indicates the complexity of the context creating vulnerability to food insecurity in Zambia. What it shows is that, although diminished ability by households to produce enough food is a major cause of rising food insecurity, weakened livelihoods systems are at the centre of rising vulnerability. Given that the majority of the poor in Zambia live in rural areas, most of the vulnerable to food insecurity are in rural areas.

Table 2.18: Vulnerability Context Giving Rise to Household Food Insecurity

Vulnerable Groups	Vulnerability Context		
	Long Term Trends	**Occurrence of Shocks**	**Seasonality Factors**
Urban formal sector workers	Fall in real wages Inflationary trends leading to rising food prices	Chronically ill workers unable to sustain jobs Occasional shocks (e.g. withholding aid) that worsen long term trends High food prices in drought years	Rise in food prices in the rain season before harvest
Urban informal sector workers	Decline in real earnings due to rising number of informal workers Rising food prices	Loss of labour due to HIV/AIDS Occasional shocks that worsen long term trends High food prices in drought years	Rise in food prices in months just before harvest
Urban unemployed	Declining jobs and other economic opportunities for income generation Rising food prices	Occasional shocks that worsen long term trends High food prices in drought years	Rise in food prices in months just before harvest
Fishing communities	Depletion of fish stocks leading to decline in incomes	Loss of labour due to HIV/AIDS	Loss of income during months of fishing ban (Dec to March)
Small scale farmers	Declining soil fertility in the south Removal of subsidies on inputs Sale of assets	Loss of labour due to HIV/AIDS Droughts and floods Animal losses due to diseases	Low prices at harvest Diseases during production months Seasonal access to food and income
Female headed households	Gender discrimination leading to low human capital characteristics Inadequate access to productive assets	Impact of HIV/AIDS Droughts and floods	Little resilience against seasonality factors
People Living With HIV/AIDS	Reduced ability to engage in productive activities Sell of assets	Little resilience against shocks	Little resilience against seasonality factors
Child-headed households	Few skills for enhanced livelihood activities	Little resilience against shocks	Little resilience against seasonality factors
Neglected Old People	Reduced ability to engage in productive activities	Little resilience against shocks Bearing greater burden of caring for orphans	Little resilience against seasonality factors
Areas based vulnerability			
Luangwa, Gwembe & Zambezi Valleys	Harsh agronomical conditions	Prone to droughts	
Barotse Flood Plains	Harsh agronomical conditions	Prone to floods	Annual floods
Kafue Flats	Building of Itezhi-Tezhi Dam to support power generation		Unpredictable annual releases destroying crops

Long term trends have mostly worked through the down turn in economic development and variable macroeconomic indicators. The impact has been felt keenly by urban communities because they depend on markets to buy their food. Their ability to continually access food is dependent on incomes from jobs and developments in food prices. Both formal and informal sector workers have experienced sharp declines in real incomes. Food basket surveys indicate that formal sector wages have increasingly become insufficient to meet household food and other needs. As a coping mechanism, formal sector households supplement incomes by engaging in informal sector activities. This, in addition to rising urban unemployment has raised competition in the urban informal sector, whose markets for products has in the meantime been stagnant, and has put further downward pressure on

informal sector earnings. The downturn in the economy hit the urban population most severely because of the demographic explosion that occurred in the first fifteen years of independence owing to the urban bias in economic policies of the post-independence era. Competition for economic opportunities was already very high at the time economic growth started to slow down. The unemployed in urban areas are particularly vulnerable because they lack the means to purchase food.

In rural areas, long term economic trends led to government failure to sustain agriculture input subsidies. Throughout the 1980s, there was a gradual reduction of input subsidies until they were completely stopped in 1992. The system of input subsidies in addition to the pan-territorial pricing system and other support mechanisms had led to a wholesale adoption of maize production throughout farming communities. Therefore, the liberalisation of agriculture premised on the removal of subsidies affected small farmers' ability to produce their own food or generate income to purchase food. Although farmers are switching to the production of low-input crops such as cassava, the transition is taking longer because these crops are not well supported and their markets are still undeveloped

Other long term trends that have affected people's access to food include depletion in natural resources at times due to more intensive utilisation as economic opportunities narrowed, and at other times due to the use of wrong production methods. The Southern Province has increasingly become vulnerable to food insecurity in part because the soils are said to be getting less fertile. The Province was traditionally the bread basket of Zambia and its lands have been more intensively cultivated than the rest of the country. Declining soil fertility, recurrence of droughts and reduced land access due to population growth have induced an outward migration to other areas in the country, particularly in the north where there is abundant unutilised land. Fishing areas have experienced depletion in fish stocks due to over-fishing and use of wrong fishing methods. Charcoal burning near more highly populated urban centres is depleting Zambia's forests. There are also contested environmental governance factors such as poaching by communities that have lost control over natural resources. Increasingly, therefore, natural resources are failing to supplement agricultural production as a source of food and incomes. The narrowing of the livelihoods matrix in rural areas induces a much deeper food crisis than would be the case and undermines prospects for quick recovery.

The occurrence of shocks have tended to deepen long term trends. Natural disasters such as droughts and floods are the most obvious. Using the Vulnerability Assessment Committee (VAC) mapping, the FHANIS survey and PAM survey it is obvious that the most hunger stricken areas in Zambia are located along the Luangwa, Gwembe and Zambezi valleys in Eastern, Southern and some parts of Western provinces as well as flood prone areas of Western Province. According to the VAC, more than 50 percent of the population in these areas are classified as hungry and in need of food relief. In these areas, agronomic conditions are unsupportive to crop production due to low average rainfall as well as frequent droughts. The VAC found a close relationship between food insecurity and the number of people who reported to be chronically ill in these areas. To crop failure is added shocks arising from animal losses due to diseases. This is linked to occurrence of droughts but results from poor animal husbandry and difficulties to access veterinary services.

Human health long term trends are also accentuating food insecurity for nearly all the categories of Zambia's population. The HIV/AIDS pandemic has been particularly devastating. Zambia has one of the highest prevalence rates, estimated at 16.5 percent in 2001/02. The rate is much higher in urban areas than in rural are but has peaked in the former and is still rising in the latter. In urban areas, HIV/AIDS chronically ill formal sector

workers are unable to sustain their jobs and earnings. The condition is known to turn relatively well food secure households into a situation of high vulnerability. Urban informal sector workers are losing labour due to chronic illness, looking after patients and attending HIV/AIDS related funerals.

The SADC VAC reports that the impact of HIV/AIDS on food security in the context of the 2002 food emergency is strong and negative. The report supports the notion that HIV/AIDS has contributed to the depth of problems faced by rural households in Southern Africa. It is argued that drought stricken households have sufficient resilience through use of coping strategies. But those households affected by HIV/AIDS no longer have these strategies available. This is also supported by De Waal et al (2003)[8] who describe this impact of HIV/AIDS on rural livelihoods. A key factor is the loss of household labour – both quality and quantity – to illness, caring for the sick, funerals, protracted nature of illness, psychological impacts of the illness and loss of skills and experience. Another factor is the reduction in available cash income and asset base, which results in reduction in food consumption, erosion of asset base to finance health needs, inability to hire labour, and buy inputs, sale of productive assets, consumption of seeds, sale of land, loss of land through dispossession, loss of remittance if affected person was the sources and limited access to credit. A third factor is the declining capacity of the social environment to offer support. The traditional extended family and non-formal networks are changing as their capacity declines, demand increases, and a reversal of roles between urban and rural. To this must be added the loss of knowledge of agricultural practices and skills as women (less exposed to agriculture knowledge for cash crops due to gender discrimination) and children take over agricultural tasks.

The HIV/AIDS pandemic is creating other food insecure categories. Orphanhood has risen sharply with orphans estimated at about 976,000 or 19 percent of children aged up to 18 years old by the 2003 FHANIS. This is putting stress on the extended family system as already vulnerable families take in more members, raising the burden of acquiring enough food. The phenomenon of child-headed households has been rising. The number of street children has also multiplied due to HIV/AIDS. Both of these categories are extremely vulnerable to food insecurity as they have neither the skills nor the economic opportunities to raise incomes. Female headed households are more likely to suffer the negative impacts of HIV/AIDS because women are the main care givers in Zambia's communities while they face a higher risk to be infected of HIV. The elderly are another category increasingly falling into food insecurity because they bear the biggest burden of caring for orphans, some of whom are also being neglected as economic hardships mount.

The impact of drought tends to deepen the seasonal crisis, where the November to March period is characterised by greater stress than usual. In this period, there is heightened demand for cash as food stocks run low and households have to buy food but at the same time meet annual education expenses, and cope with the impact of increased levels of sickness of the rainy season (malaria, diarrhoea, coughing). At the same time, the demand for family labour is at its highest, particularly for land preparation, planting and weeding (see **Figure 2.7 on page 10**). Small scale farmers often sale all the produce at once immediately after harvest when prices are lowest due to cumulative cash needs and inadequate storage facilities. Urban communities are affected by the seasonal rise in food prices as the country's stocks begin to run out and, in some years, food imports have to be brought in.

[8] Alex De Waal and J. Tumushabe, 1st February 2003: HIV/AIDS and Food Security in Africa. A report for DFID (www.sarpn.org.za)

In all these factors that create the country's vulnerability context, women are especially affected. Society defined roles tend to constrain women's access to productive resources (e.g. land, credit and assets) and economic opportunities. Female headed households tend to be labour scarce and thus can only cultivate small areas and find it difficult to manage their fields properly to maximise yields. Labour shortages are a more serious problem for women farmers than their male counterparts. When they produce marketable surplus, inadequate marketing skills means that women do not get favourable prices and maximum returns. The HIV/AIDS is known to affect women disproportionately more compared to men. The incidence of the disease among women is higher while they bear greater burden in looking after the AIDS patient or the sick in general. Women farmers are also affected by the unequal gender labour distribution.

2.6 National Food Security and Poverty Alleviation Strategy

Zambia does not have a clearly elaborated food security policy in place. The Poverty Reduction Strategy Paper (PRSP), adopted in 2002 to last until 2004 with an overall goal of reducing poverty from 73 percent in 1998 to 65 percent by the end of 2004 makes little reference to issues of food security. The PRSP is the most important policy document with respect to poverty reduction. It has the main aim of attaining average annual economic growth of 4.2 percent by improving the performance of sectors that have potential for broad based growth and good merit for poverty reduction. Agriculture is given high priority because it employs over 65 percent of Zambia's labour force. Other economic sectors are manufacturing, tourism and mining (with a specific focus on small mining). However, in describing the agriculture sector and elaborating the required strategies, the focus in the PRSP is on the commercialisation of the smallholder sub-sector. The underlying assumption appears to be that with commercialisation, household food security would be attained.

The PRSP nevertheless does mention without elaborating that one of the strategies to be pursued is the development of a "Targeted Support System for Food Security". Although it is not clearly stated, it would appear that this led to the adoption of the Food Security Pack in 2000/01 to last until 2004/05 under the Ministry of Community Development and Social Services and implemented through the Programme Against Malnutrition. It targets resource poor farmers cultivating less than one hectare giving them access to a package of yield-enhancing inputs and technologies. It also seeks to put in place institutional mechanisms to improve access to markets for inputs, agriculture and alternative livelihood products. The Food Security Pack has three components besides management and coordination: (i) Crop diversification and conservation farming; (ii) Market entrepreneurship, seeds and cereal banks development; and, (iii) Alternative livelihoods interventions. The third focuses on viable non-farm livelihoods activities such as bee-keeping. The Food Security Pack targeted 200,000 small scale farmers every agricultural season with a view to cumulatively reach 600,000 in four years in 72 districts.

No evaluation of the impact of the Food Security Pack has been made and hence independent judgement of how it has performed is not available. However, the model has generated a lot of interest such that a number of donor agencies (World Bank, FAO, SIDA/NORAD and EU) have come forward willing to provide assistance for its extension. The Programme Against Malnutrition claims that the programme has made most of the beneficiary households self sufficient in food, saved the GRZ and other agencies substantial sums that would have been spent in food relief and enabled many resource poor farmers to graduate and qualify for the Fertilizer Support Programme which subsidised the cost of

fertiliser by 50 percent. Only farmers that were deemed as able to pay back the fertiliser credit could qualify for the facility under the Fertiliser Support Programme.

2.7 Conclusions

Although there are difficulties with data used, the main conclusions of **Chapter 2** cannot be contradicted. At least five main findings are drawn out. *First*, Zambia is consistently failing to meet her food needs from domestic production. With respect to maize, which is the country's main staple, domestic production covered requirements only in six years out of fifteen years considered. In addition, Zambia had a wheat deficit in all the fourteen years considered. As a result, the country had a combined cereal gap in three years out of fourteen years represented in **Table 2.19**.

Table 2.19: Supply and Demand of Cereals (Maize, Wheat and Sorghum) in '000 MT, 1989 - 2003

Year	Opening Stock	Domestic Production	Total Available	Cereal Requirements				Surplus/ Deficit
				Human Cons.	Stock-Feed	Other uses	Total	
1989/90	769	1201	1970	1339	90	192	1621	349
1990/91	258	1203	1461	1189	50	177	1416	45
1991/92	109	589	698	1138	30	130	1298	-600
1992/93	148	1721	1869	1209	60	265	1534	335
1993/94	255	1163	1418	1245	60	270	1575	-157
1994/95	95	873	968	1173	60	147	1380	-412
1995/96	45	1542	1587	1280	103	217	1600	-13
1996/97	57	1099	1156	1072	80	80	1232	-76
1997/98	105	779	884	1281	35	133	1448	-564
1998/99	60	924	984	1138	60	128	1326	-342
1999/00	70	1128	1198	1242	33	232	1507	-309
2000/01	72	962	1034	1254	35	237	1526	-493
2001/02	25	771	796	1203	35	172	1410	-613
2002/03	24	1308	1332	1218	35	172	1428	-93

Second, is that Zambia has become dependent on food imports as a means to try and overcome the chronic food deficits she suffers. In all the years between 1986 and 2002, Zambia has had to import cereals in an attempt to close the gap arising from inadequate domestic production. Between 1992 and 2002, commercial food imports made up 60.4 percent of total food imports while 39.6 percent came in as food aid. *Third*, an unacceptably high proportion of Zambia's population is exposed to chronic food insecurity. The high levels of the proportion of under-five year old children that are stunted reveal that a big proportion of the country's population suffers long-term exposure to food insecurity. Therefore, both food imports and domestic production have been inadequate in assuring the country and households of adequate food.

The *fourth* finding is that the vulnerability context producing the high levels of food insecurity is complex. Immediate causes are declining incomes in both urban and rural areas and the failure of the agriculture sector to produce enough food to meet national and household food requirements. This is due to long term and seasonal factors and occasional shocks. Zambia's economic crisis traced to the fall of copper prices and production in the mid-1970s, severe agronomic features in some areas of the country, the devastating consequences of HIV/AIDS, droughts and floods and a number of other factors have all combined to undermine people's livelihoods in both urban and rural areas. Because of this, many people in the country have a declining resilience to withstand difficulties of accessing

food due to occasional shocks and seasonal factors. Therefore, in the event of crop failure in a season, the negative impacts are much more severe than would have been the case in previous times. Recovery for occasional shocks has become difficult for such households.

The indicators in food insecurity presented in the chapter are serious and require urgent intervention measures to rectify the situation. Initiatives will need to focus on building the agricultural sector by raising production that match its potential as discussed in **Chapter 4**. However, exposure to food insecurity has gone on for a long time now that targeted interventions aimed at reducing vulnerability in the short term are also required. Three of these are proposed below. In this regard, deliberate effort is required to help rural producers to rebuild livelihoods that have been devastated by the complex vulnerability context in which many factors have been at play. The Food Security Pack implemented by the Programme Against Malnutrition on behalf of Government appear to have worked may need to be consolidated. Support systems to rebuild livelihoods should be diverse enough to encompass all livelihoods. However, in so doing a clear phase-out strategy should be built in to avoid a dependency attitude creeping in.