Economic Commission for Africa
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Impact of Food Aid and Developed Countries' Agricultural Subsidies on

Long-Term Sustainability of Food Security in Southern Africa

Economic Commission for Africa (ECA)
Southern Africa Office (SRO-SA)

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Impact of Food Aid and Developed Countries' Agricultural Subsidies on Long-Term Sustainability of Food Security in Southern Africa*

* Southern Africa in this report is used interchangeably with the Southern African Development Community (SADC). SADC consists of 14 countries namely, Angola, Botswana, Democratic Republic of Congo (DR Congo), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. An effort has been made to cover all the countries where information is available

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Foreword

Southern Africa has experienced a steady rise in levels of vulnerability to food insecurity in recent years. While cereal production has been on the increase in general, there has been a downward trend in per capita cereal production. The region's cereal exports have also declined sharply, amounting to only 30 per cent of what they were at the turn of the 1990s. On the other hand, cereal imports and food aid, which had been on the decline after reaching the peak of 1992, have been increasing steadily over the past four years. Because of these and several other underlying structural, socio-economic and socio-political factors, the sub region now has the highest proportion of food insecure people in the world. The rising levels of food aid in the sub region during the past decade have become a cause of concern especially their potential impact on domestic production.

In addition to the challenges caused by food aid on long term food security sustainability, subsidies imposed by developed countries also impact on food security in the developing world in general, and the sub region in particular. Therefore, the impact of developed countries' agricultural export subsidies and domestic farm supports on the African economies and welfare is central to the debates at the Doha Round of multilateral trade negotiations. Agricultural export subsidies and domestic farm supports in developed countries contribute to global overproduction of wheat, corn, beef, sugar, cotton and other basic food commodities that create trade distortions on the world market. The concern has been the potential negative impact that these subsidies could have on agricultural production and food security in the Southern Africa.

This publication provides important empirical evidence on the impact of food aid and developed countries' subsidies on long-term sustainability of food security in Southern Africa. The report provides recommendations and strategies to enable countries and the sub region to overcome the challenges posed by food aid and subsidies by developed countries.

The report consists of six Chapters. **Chapter 1** provides an introduction to the food aid and food security challenges in Southern Africa and gives the context within which the study was commissioned. The discussion in **Chapter 2** provides a conceptual framework of the link between food aid, developed countries' subsidies and longterm sustainability of food security. **Chapter 3** presents an overview of the methods used to assess the impact of food aid and developed countries' agricultural subsidies on long-term sustainability of food security in Southern Africa. Food aid flows and food security in the sub region and sources of food insecurity and policy choices are presented in **Chapter 4**. **Chapter 5** presents an analysis of the impact of food aid on long-term sustainability of food security in the sub region and reviews national and sub regional food aid policies. The empirical findings of the impacts of food aid on sustainability from a combination of literature

reviews, country case studies and econometric modeling are presented in **Chapter 6**. The potential welfare impacts on Southern African countries of the removal of developed countries' export subsidies and domestic support, the food security implications and policy recommendations to safeguard food security in the sub region are outlined in **Chapter 7**. The main conclusions and recommendations emerging from the study are presented in **Chapter 8** together with national and sub regional strategies to strengthen food security sustainability.

ECA-SA is grateful to Mr Matthews Mwale (Malawi), Dr. Moses Sithole (Swaziland), Mr Elias Kuntashula (Zambia), and Dr Jesimen Chipika (Zimbabwe), for preparing national reports and to Dr Gelson Tembo for preparing the sub regional report. Oliver Maponga supervised the consultant and prepared this report in collaboration with Gladys Mutangadura and Jean Luc Mastaki Namegabe. The ECA-SA professional team of Ernest Dhliwayo, Alfred Latigo, Wilfred Lombe, Mzwanele Mfunwa, Kampion Banda and myself provided valuable input through review of drafts of the report. The contribution of ECA-SA support staff is acknowledged.

The final report benefited from experts who took part in the Ad Hoc Expert Group Meeting to review the outcome of the study. The experts are; Messers Haretsebe Mahosi (Lesotho), Idrissa Mwale and Mattews Mwale (Malawi), Higino Marrule (Mozambique), Uuyuni L. Thomas (Namibia), Dr Moses Sithole and Ms. Thabsile Mlangeni (Swaziland), Christian Chomba, Leornard Nkhoma, Moses Zeggetti, Mukelebai Ndiyoi, Masiye Nawiko, Elias Kuntashula and Mrs Yande P. Mwape (Zambia), Kudzayi Kariri, Dr Jesimen Chipika and Dr. Reneth Mano (Zimbabwe), Dr. Janet Edeme (African Union), Salim Shamseldin and Ms. Gloria Phiri (COMESA), Bentry Chaura (SADC), Alfred Hamadziripi (SARPN), Maurice Tankou and Ms. Gladys Mutangadura (ECA) and Ms. Sylvie Montembault (WFP). ECA-SA thanks Dr Jones Govereh for reviewing and editing the report.

ECA-SA gratefully recognizes the collaboration with and insights from SADC and COMESA in completing this study.

It is my sincere hope the recommendations in this report will be useful to all stakeholders and to our member States and development partners.

J. Kargbo
Director
United Nations Economic Commission for Africa
Southern Africa Office

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Executive Summary

This report presents the findings of a study on the impact of food aid and developed countries' agricultural subsidies on long-term sustainability of food security in Southern Africa. Chapters 1 to 3 present the introduction, the conceptual food aid and agricultural subsidies framework and the methodology used in the study. Chapter 4 is an overview of the food security in Southern Africa highlighting the major sources of the sub region's vulnerability to food insecurity. The review alludes to the rising levels of food insecurity in the sub-region as indicated by rising food gaps and high levels of malnutrition. The major sources of food insecurity are identified to include adverse weather conditions, HIV/AIDS pandemic, poor transport infrastructure, institutional weaknesses, high poverty levels and limited support to farmers.

The analysis of the impact of food aid on the sustainability of food security in the sub region and on the policies for managing food aid presented in Chapters 5 and 6 shows that the major food aid received in Southern Africa is emergency food aid followed by project and programme food aid. The analysis shows that bad agricultural seasons are followed by increases in food aid, mostly emergency food aid. Trends in food aid procurement reveal that although the proportion of direct procurement is still high, there has been a steady increase in the proportion of locally procured food aid and a decline in triangular procurement. Experience from four country studies highlighted national food aid policies and provided the basis for the synthesis of the impacts and policy implications related to food aid. A questionnaire administered to SADC and COMESA enabled the study to extend the lessons from the country-level studies to the sub-regional level as well as to identify existing regional efforts and facilities for handling food aid. The study used a comprehensive region-wide econometric model, involving 8 Southern African countries and 25 years of data (1980-2005), to test the theory that food aid has production disincentive effects.

The evidence from the country case studies and literature confirm the existence of price-depressing effects of food aid but that such effects exist in the local markets in and around the distribution points. The case studies on Malawi, Swaziland, and Zambia confirmed this. Such effects arise because of increases in supply are not matched, at least in the short run, with effective demand. Besides increasing availability, food aid lowers prices and this improves accessibility by poor households. Access to food enables poor households to reallocate their time and resources away from activities related to immediate survival to more productive field operations. However, this latter effect reduces labour supply while increasing local wages to traditionally surplus households.

Because food aid uses market facilities such as storage sheds and transport from the open market, it affects availability and cost of hiring such facilities in areas of implementation. At national level, there are no significant effects arising as the food aid so delivered is in quantities too small to influence production in a significant way. Consistent with other country-level studies, the region-wide econometric analysis also confirmed the non-existence of production disincentive effects at national level. On the contrary, what influences production in these countries are the underlying structural and institutional inadequacies. Every production boom is followed by sustained reductions in production in the next 3-4 seasons. This points to the existence of an inadequate infrastructure and institutional capacity that can foster improved price elasticities of demand. In particular, poor market infrastructure and marketing policies make transaction costs too high for profitable domestic and external trading. Restrictions on exports during production booms and import duties taxes worsen the amplitudes and lengths of the 'boom' and 'bust' production cycles. The end result is low prices during booms and very high prices during low production with adverse effects on future production and investment in export processing.

Disease outbreaks and changes in rainfall are other factors that influence production, according to the empirical evidence produced in this study. Therefore, besides the need for policy realignment, and investment in marketing and processing infrastructure, the study recommends investment in public health and irrigation. In particular, intensifying the fight against HIV/AIDS and other health threats is important given the impact on smallholder agriculture in the sub region.

While in the past food aid procurement was through direct transfers, it has become increasingly flexible in recent years. More food aid is obtained through local purchase programmes and triangular buys than direct transfers. Thus, food aid is now more likely to move within the region and to use some of the same facilities used by commercial imports and exports. The movement of food between countries in the sub region is complicated by differences in laws against genetically modified organisms (GMOs). Regional economic communities have a major role to play in ensuring the harmonization of food aid and commercial trade policies.

Trade is one of the strategies used for stabilizing production and prices. Thus, trade improvement should be a key objective at both national and regional level. Thus, there is need for the regional economic communities to broker trade negotiations through existing and new trade agreements. Current efforts by both the SADC and COMESA in producing and providing market and other types of information across the region are important. Formalizing additional trade corridors will boost trade within the sub region.

Having identified rainfall as a key factor in explaining the variations in production in Southern Africa, both the individual countries and the region as a whole, need to explore technologies that will sustain production even in times of poor rains. The development of sustainable medium and small-scale irrigation schemes has to be intensified through appropriate technical and financial support.

Chapter 7 examines the impact of removal of developed countries' agricultural subsidies (both domestic and export) on food security in Southern Africa. The analysis suggests that overall Southern Africa will benefit from an elimination of subsidies on sugar, wheat, rice, beef and maize. Producers in Southern Africa gain as they increase production and exports of the agricultural products they have a comparative advantage in. Products that benefit most include sugar, maize, and bovine meat. However, total welfare results differ across countries, in more than half of the countries in the sub region the overall welfare is negative in the short run. The consumer loss from removal of subsidies is greater than producer benefits. Consumers in net importing Southern African countries suffer from higher food prices and will thus lose. Overall, these findings are consistent with other studies, which show that consumers in net food importing countries will become vulnerable to food insecurity as they face higher prices because of eliminating subsidies in developed countries. The most affected crop is wheat, a temperate crop whose imports will continue in the sub region, followed by rice and maize. Given that the impact on prices is low, the region should, therefore, negotiate for a gradual removal of import tariffs developed countries impose on exports from the region. Removal of import tariffs will promote more penetration of agricultural exports than removal of subsidies.

In the long run, countries should aim to improve their domestic supply capacity to improve availability of food by adopting deliberate policies that address the underlying structural factors that increase their vulnerability to food insecurity. Priority areas of intervention are; increase and improvement of small-scale irrigation facilities, promotion of appropriate technologies, improved infrastructural support, improved role of women and investment into agricultural research, skills training and health.

The study shows that the competitiveness of Southern Africa's agricultural products will be improved by the elimination of subsidies especially for sugar, beef, and maize. Southern Africa must therefore create a production capacity in order to take full advantage of this incentive. However the study indicates that supply side constraints and lack of ability to meet the required Sanitary and phytosanitary measures (SPS) usually prevent countries in the sub-region from positively responding to the improved competitiveness. An important policy implication is the need for countries to address the supply side constraints and improve their capacity to meet the SPS standards.

The Regional Economic Communities (RECs) in the sub-region have a major role to play in ensuring that the positive and negative distributional impacts of trade liberalization are addressed in the current negotiations. They also have a role to play in helping countries foster export competitiveness in products that will experience increases in world prices following liberalization in developed countries and in revisiting trade policy instruments within the context of the Economic Partnership Agreements. The RECs also have an important role to play in supporting member states in addressing the underlying structural factors that increase the vulnerability of the sub region to food insecurity.

In conclusion, the study notes that although developed countries have reduced trade distorting farm support from 37 percent in 1986-88 to 30 percent in 2003-05, there is still need for more substantial reforms to achieve the market orientation required by the World Trade Organization's Agreement on agriculture for developing countries to reap substantial benefits. The progress made so far in negotiating for agricultural trade liberalization in developed countries needs to be taken a step further. Reviewed studies estimate that reduction of tariffs by developed countries will yield greater benefits to developing countries' when compared to reduction in agricultural subsidies. An important policy implication is the need for Southern African countries to continue negotiating for greater market access, as it will yield more welfare gains.

I. Introduction

Southern Africa has experienced a steady rise in levels of vulnerability to food insecurity in recent years. While cereal production has been on the increase in general, there has been a downward trend in per capita cereal production. The region's cereal exports have also declined sharply, amounting to only 30 percent of what they were at the turn of the 1990s. On the other hand, cereal imports and food aid, which had been on the decline after reaching the peak of 1992, have been increasing steadily over the past four years. Because of these and several other underlying structural, socio-economic and socio-political factors, the region now has the highest proportion of food insecure people in the world (Barrett and Maxwell, 2006).

Food aid has become a major mode of intervention during periods of crises due to inadequate or total lack of alternative social protection systems in the sub region. However, the observed trends of declining per capita cereal production and exports, and rising cereal imports and food aid have raised concerns about the possible adverse effects of food aid on long-term sustainability of food security in the sub-region. Indeed under certain conditions, food aid can cause disincentive effects through depressed producer prices, and distortion of markets for service and reinforce dependency (see, for example, Tembo, 2006). However, the extent to which these effects will take root is a function of several factors. These include economic characteristics of the commodity in question, economic conditions of the target area including; the state of infrastructure, and the existence of markets, for example, and the procurement, targeting and timeliness of food aid.

The findings of previous analyses of the impacts of food aid on markets, trade and agricultural production remain heavily contested. As noted in Lentz (2004), anecdotal, rather than, empirical evidence is the basis for debate as few studies have produced compelling evidence. Abdulai, et al (2005) used data on 42 sub-Saharan African countries to estimate the relationship between levels of food aid and food production. They found that, while food aid impacts negatively on local producer incentives, food aid also builds capacity for production in following seasons. This in a way leaves the debate still open for Sub-Sahara Africa.

Because part of food aid, comes from surplus production in developed countries, could domestic policy in those countries influence the operations and impacts of food aid in Southern Africa? Could recent WTO negotiations towards total eradication of production and export subsidies in developed countries affect the supply of food aid to Southern Africa? Reduced world surpluses and increased world prices of food are some of the results of implementing the Doha Round recommendations. The

combined effect of reduced supply of food aid and increasing world prices are likely to influence the production incentives that food aid influences.

The impact of developed countries' agricultural export subsidies and domestic farm supports on the African economies and welfare is central to the debates at the Doha Round of multilateral trade negotiations. Agricultural export subsidies and domestic farm supports in developed countries contribute to global overproduction of wheat, corn, beef, sugar, cotton and other basic food commodities that create trade distortions on the world market. The concern has been the potential negative impact that these subsidies could have on agricultural production and food security in Southern African as well as the other underlying causes.

The impact of food aid on production and sustainability is assessed through empirical analysis. To the best of our knowledge no study has measured the impacts of food aid on the sustainability of food security in Southern Africa. Maunder et al (2006) reviewed the evidence in the literature and generated information on general opinions through local market case studies in Lesotho, Malawi and Zambia. They found that food aid disincentives existed in specific seasons, citing weak food aid management as a major contributor. In Malawi and Zambia, government involvement in maize and fertilizer markets is an even bigger constraint than food aid by itself.

Although internationally, there is progress in negotiating for agricultural trade liberalization in developed countries, this process should be encouraged and sustained. The consensus that emerged from Hong Kong negotiations in December 2005 was to end farm subsidies by the end of 2013, and to end export subsidies on cotton by the end of 2006. However, there is no agreement on trade-distorting domestic farm supports. In fact, this is one of the most contentious issues in the current WTO negotiation round. Negotiations are not progressing because of marked disagreement between the EU and the USA on the issue of domestic subsidies and market access in agriculture. These developments on eliminating domestic and export subsidies in developed countries have potential positive and negative impacts on food security in Southern African countries. Conceptually, the removal of export subsidies and domestic support will result in a decrease in production of agricultural commodities subsidized in developed countries by lowering supply on world markets. This will result in higher world prices. In the short-term, increases in prices of agricultural food commodities such as maize, wheat, and rice may reduce the accessibility of local population to food because of increased costs. For countries in the sub-region dependant on imports as their main source of food, this becomes a food security concern. However, for those with a competitive advantage in producing these agricultural commodities, the high international prices will stimulate production, improve national food availability and income and result in increased export earnings.

1.1 Justification

The declaration on agriculture and food security in the SADC region adopted in Dar-Es-Salaam in May 2004 noted with concern that in the past thirteen years food production in the SADC region has declined and food aid had increased. The SADC food security Summit stressed the need to analyse the impact of recurrent food aid on sustainable agricultural development and food security. Such analysis helps design suitable short and long-term policies to foster sustainable food security (SADC, 2004). The Dar-Es-Salaam Summit reiterated the need to call on developed countries to eliminate their agricultural subsidies, as they constitute unfair trade practices. They distort trade by displacing the surplus production from countries that do or cannot finance them. The meeting highlighted the need to provide empirical results on the impact of eliminating developed countries' agricultural subsidies on food security in Southern Africa.

The Ninth Meeting of the Intergovernmental Committee of Experts (ICE) in Maseru, Lesotho in February 2003 raised a similar concern. At that meeting, the ICE directed ECA-SA to undertake a study on the impact of agricultural subsidies in developed countries on the sub region and identify the implications on food security sustainability (UNECA-SA, 2003).

1.2 Objectives

The objective of this study was to assess the impact of food aid and developed countries' agricultural subsidies on long-term sustainability of food security in Southern Africa.

In particular, the study was to;

- Identify and isolate the impacts of food aid and developed countries' agricultural subsidies on long-term food security sustainability in Southern Africa,
- Critically analyse the national and sub regional policies used to manage food aid in Southern Africa, and identify and outline the food security implications, and
- Suggest policy recommendations to safeguard long-term food security sustainability in the sub-region at national and sub-regional levels.

1.3 Scope of the Report

The rest of the report is structured as follows: Chapters 2 and 3 provide the conceptual framework used for the analysis and the analytical methods employed; Chapter 4 presents an overview of food security in Southern Africa highlighting the major sources of the sub region's vulnerability to food insecurity. Chapters 5 and 6 empirically analyse the impact of food aid on food security sustainability in Southern Africa. The discussion in Chapter 7 focuses on the impact of developed countries' agricultural export and domestic subsidies on food security in Southern Africa and the policy implications for food security sustainability in the sub-region. Chapter 8 presents conclusions and recommendations to reinforce long-term food security in the sub-region.

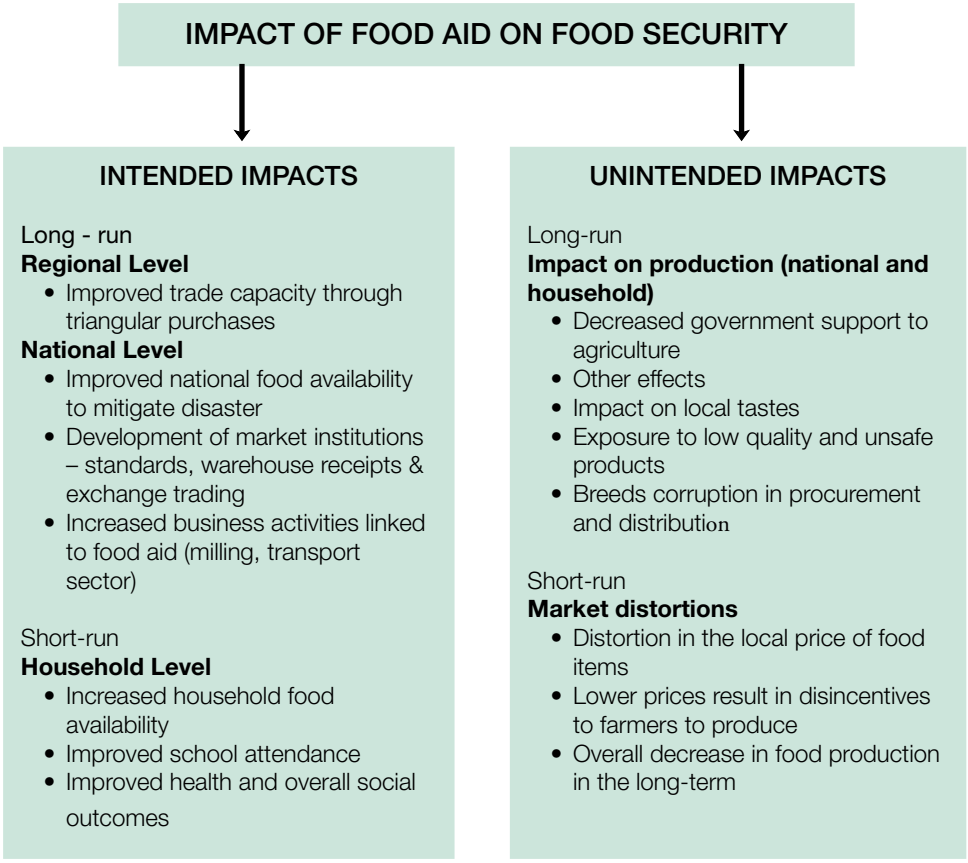
II. The Food Aid, Subsidies and Food Security Conceptual Framework

2.1 Linkages between food aid and food security

The purpose of food aid is to bridge the gap between food access and food needs, thereby preventing asset depletion and promoting asset build-up among households. Yet food aid has other unintended impacts. Barrett (2006) categorises the potential impacts of food aid into intended (short run) and unintended (long-term) effects. These effects have food security implications that are felt at household, national and regional levels. Figure 1 summarizes the possible effects of food aid under each of these categories. By increasing the supply of food in the affected communities, for example, food aid could improve food availability at household and national levels but could dampen prices, create dependency, and lower production.

> ***"Food aid bridges the gap between food access and food needs"***

Figure 1. Intended and unintended effects of food aid



Source: Adapted from Barrett (2006)

While the intended effects reflect the direct objectives food aid, unintended effects are often not fully expected, let alone internalized, in planning and implementing of food aid programmes. Local procurement has lessened pressure on local producer prices and provided an artificial subsidized marketing channel. Unintended effects could have direct impacts on the sustainability of livelihoods and food security than do the intended effects of food aid.

The linkages, however, are far more complex. First, food aid may not add to excess domestic supply if there is either an overall increase in consumption, or if food aid displaces commercial imports. Second, it may be excessively simple to assume that producer disincentives follow from product price changes. The seasonality of price effects – whether amid the lean season or at harvest – and price levels are important reasons. The nature of the food aid intervention (emergency, project, or programme; in-kind or cash transfer; direct international transfers, locally, or triangularly bought), the economic nature of the commodity used (own price, cross price, and income elasticities of demand) (Donovan et al. 2005; Dorosh and Haggblade, 2005), food aid management (targeting, timeliness), and market development (Tembo, 2006) are some of the other factors that could influence the farmers' responsiveness to food aid. Tastes and the degree of urbanization and commercialization, could affect the exact shape and size of the impact. In countries that are rural with heavy dependency on subsistence agriculture, for example, the market effects of food aid may not mean much in the short-term. However, in the long-run these effects may have significant negative impacts on developing the local markets and on transformation.

2.2 Linkages between developed countries' export subsidies and domestic support with food security in Southern Africa

The domestic price supports and export subsidies on agricultural products in developed countries have direct implications to Southern African countries and other developing countries. Agricultural export subsidies and domestic support in developed countries contribute to global overproduction of maize, wheat, cotton, beef, sugar, and dairy products resulting in lower world commodity prices. The reduction in export subsidies and domestic support, that is likely to result from the Doha round negotiations, will result in an increase in the world market price of the subsidized commodities assuming other factors remain fixed. This has a different impact on a developing country depending on whether it is a net food exporter or food importer. Increased world price would stimulate those Southern African countries that have enough resources to produce more and increase their exports. This would increase domestic food availability. If other government policies do not interfere with price transmission, primary crop producers will benefit from price increases leading to

increased income and food security (Gayi, 2006). Thus, in these exporting countries, elimination of domestic supply constraints and agricultural subsidies in developed countries could help sustain long-term food security.

Higher world prices resulting from the reduction in domestic support and export subsidies in developed countries would raise the food prices of importing countries. Southern African countries with high food import dependency will face increasing costs of food imports and reduced foreign exchange earnings for alternative uses. If importing countries pass on the increased prices to consumers, then liberalization in developed countries will hurt consumers in countries that are food import dependent in particular the urban poor (Trueblood and Shapouri, 1999, Gayi, 2006).

Another important linkage between elimination of agricultural subsidies in developed countries and food security in developing countries in general is the impact on food security stability. Reducing export subsidies and domestic support in developed countries could reduce stocks, which could increase global price variability (Trueblood and Shapouri, 1999, Gayi, 2006). World food price variability would impose difficulties in achieving food security stability to food importing countries.

> ***"Removal of developed countries' subsidies impacts positively of food security"***

Eliminating agricultural subsidies in developed countries may have a positive impact on the food security of the SADC countries through increased incomes of those employed in agriculture. SADC countries have a high share of labour in agriculture both in formal labour and small-scale own producers and thus will stand to benefit. This can translate to improved incomes of those employed in agriculture.

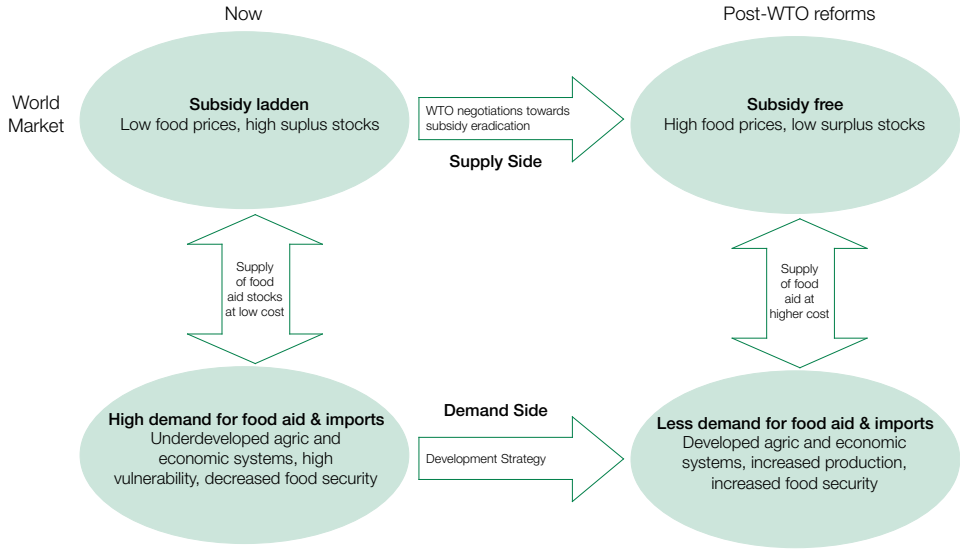
2.3 Food aid, agricultural subsidies and food security

Figure 2 presents the linkages between food aid and agricultural subsidies on the one side, and food security on the other. The left side of the figure establishes thatproducers in developed countries receive hefty production and export subsidies, which in turn encourages production. The artificially high production in developed countries results in high food surpluses. These surpluses go to poor countries around the world either as commercial exports or as food aid. However, the combined effects of, cheap imports and 'free' food aid, takes a significant but small share of the commercial market. Thus, although food aid complements food access, the agricultural and economic systems of the affected poor countries need strengthening to remove need for food aid.

However, proponents of development and sustainability of food systems would argue that such a shock might be necessary to produce more solid economic systems in the long-term. The right-hand-side of Figure 2 shows the WTO negotiations successfully ended and carried out leading to the total removal of subsidies. Under these circumstances, world food prices would increase, as would the cost of food production. Thus, the cost

of exporting and giving food to poor countries would increase. This would have the net effect of reducing food exports and food aid-related support to developing countries. With this tap closed and considering the adverse effects in the short-term, inertia will build within the developing countries that would compel these countries to develop their agricultural and economic production systems. This is so because under these circumstances net exporting countries stand to benefit from the higher prices while net importing countries are likely to suffer huge losses in consumer surpluses. Thus, in the long run, the reform of food aid-related support would have the favourable effects of building a more sustainable food system sustaining food security.

Figure 2. Linkages between food aid and agricultural subsidies, and food security



It is important to re-emphasize that there is both the supply side and the demand side dynamics to consider in the food aid impact discussions. Much of the debate in the literature ignores the interlinkages and instead focuses almost only on the supply side. It is also important to recognize the important role that the prices play in the linkage. However, the exact pace at which supply and demand will respond to price changes is itself a function of several other factors in the systems, including price and income elasticities of demand and supply.

III. Methods and Procedures

3.1 Introduction

This Chapter outlines the methods used to assess the impact of food aid and developed countries' agricultural subsidies on long-term sustainability of food security in Southern Africa.

3.2 Impact of food aid on food security

To analyse the impact of food aid, the study employed four approaches (i) a review of relevant existing literature on the impact of food aid and developed country subsidies on food security; (ii) a synthesis of national reports on detailed case studies from four countries – Malawi, Swaziland, Zimbabwe and Zambia; (iii) a synthesis of a sub-regional questionnaire administered to the Southern African Development Community (SADC), and the Common Market for Eastern and Southern Africa (COMESA) and (iv) an empirical estimation of the impact of food aid on food production using an econometric model.

The four case studies are among the largest food aid recipients in the region on a per capita basis. The case studies provided information on trends and distribution of food aid by source and an assessment of food aid efficacy in meeting the food security needs of the targeted population both in the short run and in the long-term.

A comprehensive regional (or cross-country) model of the impact of food aid on food security, involving eight of the SADC countries complemented the results of the country case studies Two variables, food production and food surplus (production less consumption needs) are proxies for food security. While it is theoretically compelling to expect food aid to influence production, empirical evidence in southern Africa and elsewhere is not strong on the question. Some studies have even failed to reject the result that LRP supports production. The key attraction of the unobserved effects VAR framework is that it is flexible and allows testing of causality in either direction. In this specification, each variable of interest (food aid, cereal food production or shortfall, and net imports) is modeled as a function of own lags, lags of the other variables, rainfall and disaster dummy variables. The model represents an extension of the standard VAR applied on a panel data set comprising eight countries and 25 years.

The framework used, though closely following previous studies (see Abdulai, et al. 2005), is different in several respects. First, net imports, which represent the

commercial alternative to food aid for filling domestic food gaps, are clearly accounted for. Second, there is allowance to account for the disaster effect more comprehensively by specifying a wider set of four disaster dummy variables for all the country-year combinations. The disaster variables included drought, floods, epidemics, and other types of disasters (industrial accidents,). Third, the model used both production and food surplus production (production less human consumption needs) as proxies for food security.

The unobserved effects VAR model use data from a web-based FAO database (FAOSTAT) (cereal production, imports, exports, and food aid receipts), and the website for the Tyndall Centre for Climate Change (TCCC) (rainfall). Dummy variables for disasters use data from the Centre for Research on the Epidemiology of Disasters (CRED) in Belgium. The data used formed a balanced panel of 8 southern African countries and 25 years (1980-2004). Data limits could not allow fitting the model to the remaining 6 SADC countries or to years outside the mentioned reference period. Estimation of the three equations use the generalized method of moments developed by Arellano and Bond. As a way to reduce the effects of the country-specific unobserved effects and following previous studies (see, for example, Abdulai et al. 2005), we use differenced values of food aid, cereal (surplus) production and net imports.

3.3 Impact of developed country subsidies on food security

The analysis of the impact of developed countries' agricultural subsidies, uses a combination of: (i) synthesis of existing literature; and (ii) the Agricultural Trade Policy Simulation Model (ATPSM). The simulation model analyzes the impact of eliminating developed countries' agricultural subsidies on key indicators of sustainable food security in Southern Africa.

The ATPSM is a comparative-static, multi-commodity, multi-region, partial-equilibrium global trade model designed mainly for simulating agricultural trade policies and is used as a tool for quantifying economic effects at the global and regional level of changes in trade policies. The APTSM, developed jointly by UNCTAD and FAO, analyses using a system of simultaneous equations showing behavioural relationships simulating the real world (Peters, 2006). The UNCTAD (2004) describes the general structure and behavioural equations and procedures of the model.

ATPSM covers 175 countries and 36 agricultural commodities. This study applied different reductions in export subsidies and domestic support to a group of developed countries and reported simulation results for 11 Southern Africa countries. This simulation excluded Lesotho and Democratic Republic of Congo. Since grains

account for more than 55 percent of total calorie availability in the sub region, this report focuses on this commodity group. Three cereals; maize, wheat, and rice were simulated under elimination of domestic support and export subsidies. An additional scenario that includes beef in addition to the three cereals and sugar is also run.

ATPSM generates key indicators such as change in key food commodity prices, change in food production and consumption, food imports and exports, and change in overall welfare, which can be used to analyze the impact on food security sustainability. The major limitation of ATPSM is that since it is partial equilibrium in nature it is not able to take into account inter-sectoral implications (the second round effects) that a general equilibrium model is able to (UNECA, 2005). Despite its limitations ATPSM has proved to be a valuable tool for providing quantitative assessment of the potential impacts of different trade policy scenarios (UNECA, 2004a, Peters, 2006, Peters and Vanzetti, 2004).

Three scenarios were simulated in ATPSM to analyze the impact of reducing developed countries' domestic support and export subsidies on food security in Southern Africa (Table 1). Full elimination of domestic support and export subsidies scenario is conducted to show the maximum potential situation to remove all the developed country export subsidies and domestic support on the four agricultural commodities maize, wheat, rice, and raw sugar. Scenario 2 presents a partial elimination of domestic support and export subsidies that involves a 50 percent reduction in both trade instruments on the four products. The third scenario was undertaken to simulate reduction of export subsidies and domestic support by 100 percent and 50 percent on five products, maize, wheat, rice, raw sugar and bovine meat.

Table 1. Trade Policy Scenarios

Scenario	Policy changes
Scenario 1	Reduction of Export Subsidies 100% Reduction of Domestic Support 100%
Scenario 2:	Reduction of Export Subsidies 50% Reduction Domestic Support 50%
Scenario 3:	Reduction of Export Subsidies and Domestic Support by 100% and 50%

4. Overview of Food Security in Southern Africa

4.1 Introduction

Food security exists when, all people, at all times, have physical, social and economic access to enough, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, Masdar, 2004). The most important components of this definition are availability, accessibility and use of food. Availability is a concept at the national level; accessibility at the household level and utilization at individual and sometimes household levels. It is of great importance for a household, country, region and the world as a whole to attain these three components of food security. For a country to achieve food security, it can either produce or engage in regional or international trade depending on its comparative advantage. When countries fail to achieve food security through production and/or trade, food aid becomes an imperative, especially during acute shortfalls. However, food aid, if not well managed, can have detrimental short and long-term impacts on a country's economy, especially through its effects on food markets as shown in Figure 1. It is important, therefore, that countries put in place good food aid policies capable of overcoming shortages, facilitating recovery and sustaining food security.

> *"Dependency on agriculture for food, employment and income is high"*

4.2 The food security status of the sub-region

Most of the countries in Southern African depend on agriculture as the main source of food, employment and income. According to the World Bank grouping, agriculture accounts for more than 15 per cent of GDP for low income countries of the sub region; Malawi, Lesotho, Mozambique, Zambia, DR Congo and Zimbabwe. Agriculture's contribution is less than 10 percent but still significant in middle-income countries such as Botswana, Mauritius, and South Africa. The proportion of the population based in rural areas and, is thus, highly dependent on agriculture as a major source of livelihood is high in the sub region ranging from 42 per cent in South Africa to 83 percent in Malawi (Table 2). Much of the food is, therefore, produced by resource poor smallholder farmers, most of whom depend on agriculture as a source of livelihood. Women are responsible for about 60-70 per cent of food produced in the smallholder sector. Cereal crops, and especially maize, are the most important food crops in almost all of these countries and therefore, food security is about cereals. During 2005/06, gross harvest accounted for at least 83 per cent of total domestic cereal availability and 78 per cent with net imports considered. Table 2 summarizes key statistics all of which confirm importance of agriculture in sub regional economies.

Table 2. Importance of agriculture in Southern Africa

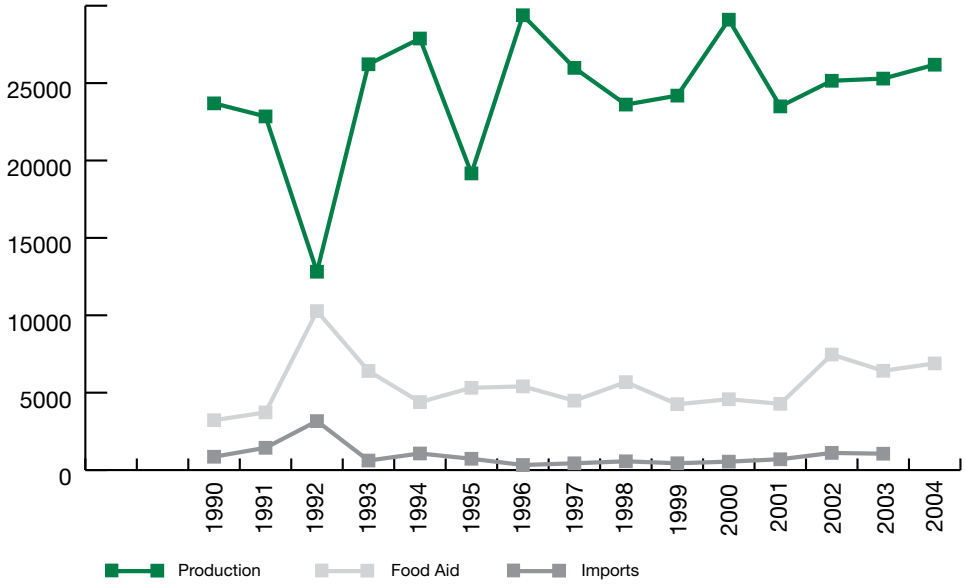
	Total Population 2005 (000)	% Rural pop	GNI per capita atlas method. (2005 $US)	% Agricul-ture. to GDP (2005)	The role of agriculture			
					Engine of growth	Main source of food security	Importance of agriculture as source of foreign exchange earnings	Importance of agric in income generation and employment creation
Middle Income								
Mauritius	1,245	56	5260	5	Complementary	Wages; Smallholder farming in some parts	Low	Moderate
Botswana	1,765	48	5180	3	Complementary	Wages; remittances	Moderate	Low
South Africa	47,432	42	4960	3	Complementary	LSC; Wages; remittances; Smallholder in some parts	Moderate	Moderate
Namibia	2,031	67	2990	9	Complementary	Wages; remittances; smallholder farming in the north.	High	Moderate
Swaziland	1,032	76	2280	14	Complementary	Smallholder; Wages; remittances	High	High
Angola	15,941	63	1350	7	Yes	Smallholder	Low	High
Low Income								
Lesotho	1,795	82	960	15	Yes	Wages; remittances	Low	Low
Zambia	11,668	64	490	19	Yes	Smallholder; agricultural wages; LSC	High	High
Zimbabwe	13,030	64	340	20	Yes	Smallholder; LSC; wages; remittances	High	High
Tanzania	38,328	63	340	43	Yes	Smallholder; wages	High	High
Mozambique	19,792	63	310	24	Yes	Smallholder farming	Moderate	High
Malawi	12,884	83	160	36	Yes	Smallholder; remittances	High	High
DR Congo	57,548	67	120	42	Yes	Smallholder	High	High

Source: UN, 2005, Data on the role of agriculture adapted from Van Rooyen and Sigwele (1999).

60-70% of smallholder food production is by women

The sub-region has experienced stagnant agricultural productivity growth, frequent food crises, and price instability in recent years. Although cereal production has increased slightly since the 1990s (Figure 3), populations have grown at a faster pace leading to a continuously declining per capita food production. Indeed, the region's failure to match agricultural productivity growth with population growth is evident in the inability by most countries to produce all their food needs, a phenomenon that seems to have become chronic during the past decade (Table 3). The most severely affected countries include Malawi, Angola, Lesotho, Mozambique, Swaziland, Zambia and Zimbabwe. These countries experienced food production deficits in 2001 and 2002 production seasons. Unlike, Botswana and Namibia, which meet their domestic food gaps mainly through commercial cereal imports, the other countries have relied on humanitarian relief in some years to meet food supply gaps when foreign exchange is not enough.

Figure 3. Southern Africa Cereal Production, Cereal Imports and Cereal Food Aid ('000 metric tons)



Data source: FAOSTAT, 2006.

While the picture presented in Table 3 might be transitory, it appears on the contrary that food insecurity is growing deeper in these countries. Jayne, et al (2007) allude to a gradual transition from grain surplus to a structural grain shortfall since1980. The effects of the resultant food availability challenges have began to reflect in the nutritional indicators as well. Table 4 summarizes the trends in food security for each of the countries of the sub region as measured by two indicators – part of undernourished in the population, and per capita dietary energy supply.

Table 3. Trends in domestic cereal surplus (production less consumption) in selected southern African countries and years: (000 metric tons) [a]

Country	Consumption year								
	1987/88	1989/90	1991/92	1997/98	2001/02	2003/04	2004/05	2005/06	2006/07
Angola	-482	-529	-490	-541	-725	-600	-717	-624	-818
Botswana	-121	-169	-144	-262	-290	-278	-281	-293	-300
Lesotho	-195	-183	-195	-284	-338	-287	-317	-198	-242
Malawi	43	-56	101	57	-485	179	-686	-838	377
Mozambique	-555	-523	-1238	409	-542	-498	-610	-532	-373
Namibia	0	-149	-250	-52	-155	-140	-150	-150	-163
Swaziland	427	386	308	-44	-111	-145	-111	-107	-113
Zambia	-122	-132	-620	-198	-626	211	137	-100	19
Zimbabwe	386	847	-1670	901	-1,869	-1,271	359	-1623	-609
Total	-619	-508	-4,198	-14	-5,141	-2,829	-2,376	-4,465	-2,222

Source: SADC Food Security Updates (2000–2006), Famine Early Warning System Network (FEWSNET) (2004).

[a]Constructed from national food balance sheets (FBS), which compare domestic availability (production and opening stocks) to domestic food requirements. Domestic food requirements comprise four components: human consumption needs, industrial requirements (stock feed, breweries and seed), strategic reserves and inevitable losses (about 5%). Commercial imports and exports are not accounted for in this table. The deficit is usually met by commercial imports and food aid.

Within a ten-year period, between 1990/92 and 2000/02, the average proportion of under-nourished people more than doubled in the Democratic Republic of Congo. Other countries with substantial increase in this indicator include Botswana (39 per cent), Swaziland (36 per cent), and Tanzania (19 per cent). As far as per capita energy supply is concerned, Botswana, Swaziland and Zambia experienced the largest decline during the same period, each experiencing a 4 per cent decline. Table 4 also confirms that, in absolute terms, food utilization is generally still very poor in the sub region. More than half the countries have at least 40 per cent of their populations categorized as under-nourished.

Table 4.Trends in proportion of the undernourished population and per capita dietary energy supply in Southern Africa

	Proportion of undernourished in total national population (%)				Per capita dietary energy supply (kcal/person/day)		
Country	1990-92	2000-02	% change	Country	1990-92	2000-02	% change
Mauritius	6	6	0	Mauritius	2890	2960	2
Lesotho	17	12	-29	South Africa	2826	2917	3
Swaziland	14	19	36	Lesotho	2450	2620	7
Namibia	35	22	-37	Swaziland	2460	2360	-4
Botswana	23	32	39	Namibia	2060	2270	10
Malawi	50	33	-34	Botswana	2260	2160	-4
Madagascar	35	37	6	Malawi	1880	2150	14
Angola	58	40	-31	Madagascar	2080	2060	-1
Tanzania	37	44	19	Angola	1780	2040	15
Zimbabwe	45	44	-2	Mozambique	1740	2030	17
Mozambique	66	47	-29	Zimbabwe	1970	2020	3
Zambia	48	49	2	Tanzania	2050	1960	-4
DR Congo	32	71	122	Zambia	1930	1900	-2
South Africa	n.a	n.a		DR Congo	2170	1630	-25

Source: FAO 2003, 2004, 2005.

Countries with more than 40 per cent of their populations categorized as under-nourished include Angola, DRC, Mozambique, Tanzania, Zambia, and Zimbabwe. The first three countries experienced civil wars during this period. Madagascar, Malawi, and Botswana are also high on under-nourishment, standing at 37 per cent, 33 per cent, and 32 per cent, respectively. The same countries also have energy supply lower than the recommended daily energy requirement of 2,100 kcal per capita. Compared with the other countries in Sub-Sahara Africa (Annex 3, Table 22), Southern Africa is worse off. In the rest of sub Saharan Africa, there has been a decline in the proportion of the population that is undernourished in most of the countries except a few.

Table 5. Selected indicators of food and nutrition security in Southern Africa

Country	Stunted	Underweight	Under-5 mortality	Human poverty index (HPI-2004)	
	1995-2002	1995-2002	2002	Rank	Value (%)
	% children 6-60 months	% children 6-60 months	Deaths per 1,000 births		
Mauritius	--	--	--	24	11.4
South Africa	25	12	65	56	30.9
Lesotho	46	18	87	91	47.6
Botswana	23	13	110	94	48.4
Zimbabwe	27	13	123	89	45.9
Swaziland	30	10	149	97	52.9
Malawi	49	25	183	85	43.4
Zambia	47	28	192	90	46.4
Mozambique	44	26	197	96	49.1
DR Congo	38	31	205	82	41.4
Angola	45	31	260	83	41.5
Average/Total	37	21	157	74	38.2

Source: FAO, 2004, UNDP, 2005.

This desperate food security situation in the sub region is further corroborated by long-term measures of food insecurity, such as child stunting, proportion underweight, under-five mortality, and the human poverty index (Table 5). In almost all the countries, at least a quarter of all children 6-60 months are stunted. The highest levels of stunting were observed in Malawi (49 per cent), Zambia (47 per cent), Lesotho (46 per cent), Angola (45 per cent), and Mozambique (44 per cent). The same countries also have some of the highest incidences of underweight children, standing at no less than 20 per cent. In eight of the 10 countries in Table 5, under-five mortality is 110-260 deaths for each 1,000 births. Overall, these countries rank between 82 and 97 on the human poverty index in the world. Worsening food security indicators makes attaining the Millennium Development Goal number one unlikely. The situation in the rest of Sub Sahara Africa is revealed in tables in Annex 3.

4.3 Sources of food insecurity

Country case studies identify several threats to food security including those that impact both production and the household's ability to access and utilize food. Undeniably, adverse weather constitutes a major reason behind the unfavourable food security situation in the sub region. During times of drought and/or floods, whose frequencies have been quite high during the past one-and-a-half decades (see Box 1), many of the countries' cereal food production and food security status have been adversely affected. Between 1990 and 2000, for example, Zambia produced enough grain to meet her food requirements in only two of the ten years (Kuntashula, 2006). During the region-wide drought of the 1991/92 agricultural season, Malawi produced less than half of her food requirements (Madola, 2006). The 1980s and 1990s consecutively were some of the worst decades for Zimbabwe as far as food insecurity is concerned, owing to drought-induced crop failures (Chipika, 2006). Although Zimbabwe's recent food availability challenges have been driven by a multiplicity of factors, drought has remained the most important precursor. Swaziland, which never meets her food requirements even in times of good rains, experiences the largest food gap during times of adverse weather conditions (Sithole, 2006).

"Constraints faced by smallholder farmers are a major source of food insecurity"

Box 1. Historical occurrence and incidence of drought in Southern Africa since 1967

1967-73	This six-year period was dry across the southern African region.
1981-82	Most of southern Africa experienced drought.
1983-84	This was a particularly bad drought year for the entire region
1986-87	Drought conditions returned.
1991-92	Southern Africa, experienced the worst drought in living memory
1994-95	Many southern African countries experienced drought.
2000-01	Drought in some countries in southern Africa.
2001-02	Severe drought in southern Africa, which affected 14 million people.
2002 – 04	Drought in some countries in southern Africa.

Source: SADC, 1994, FAO, 2003, SADC, 2004.

Another source of vulnerability in most of the countries in the region is the fact that much of the production comes from smallholder farmers, who are least able to anticipate and deal with the effects of adverse weather. In Zambia, for example, 64 per cent of total maize production is from the smallholder sector. Smallholder farmers are characterized by poor access to improved technologies (high yielding seed, fertilizer, soil and water conserving practices, etc) and other institutional support.

Technical support to the smallholder sector has declined in recent years in most countries in the sub region, a fact that could explain the declining per capita production, or productivity. Even where fertilizers and improved seed varieties are available, the profitability is not certain. Several countries in the region have put in place subsidy programmes to help improve farmers' access to essential production inputs. Input subsidies divert rare resources away from more productive long-term public investments.

Production and marketing infrastructure have also decayed in some of the countries in the sub region. Undeveloped early warning systems in many of these countries further undermine the ability to expect and prepare for impending disasters. For example, institutions charged with the responsibility of estimating food needs often have to use incomplete information. The coming of the regional and national vulnerability assessments presents a real opportunity to improve readiness. However, the VACs still face several technical capacity constraints.

Even with introducing improved farming technologies and access to certified seed and fertilizer, farmers remain vulnerable to extreme weather. A potential solution to this problem is in the use of innovative weather related tools like the Weather Index Based Insurance (WIBI). The launch of a WIBI pilot project was in Malawi. WFP and partners promote the project in drought prone countries (Ethiopia, Morocco and Niger) and parts of Asia (UN, 2007).

Although natural causes, such as drought, are important, they are not the only cause of food insecurity in the sub region. Most of the other factors are related to economic management of the countries and are mainly related to under-investment in broad-based public goods.

4.3.1 Under-investment in public goods

Most countries in the sub region are characterized by historical under-investment into the agricultural sector. In Zambia, for example budgetary allocations have averaged about 6 per cent during the past five years. Common manifestations of the problem include poor public services, infrastructure and limited private sector investments. African governments have recognized this and, through the New Economic Partnership for African Development's (NEPAD's) Comprehensive African Agricultural Development Programme (CAADP), have agreed to raise their budgetary allocations to agriculture to 10 per cent by 2008.

Closely related to low allocations of funds to the sector is the fact that in many of these countries the distribution of the agricultural budget among various needs does not seem to reflect enough emphasis on broad-based public investment. In some of

the countries (e.g. Malawi and Zambia), much of the agricultural budget has in the recent past been spent on input subsidies and maize price stabilization efforts. While the policy pronouncements place great emphasis on broad-based investments with long-term impacts, very little of the sector's budget has gone to such ends. Irrigation development as a means to mitigate drought and improve productivity, for example, has been high on the governments' agendas but, proportionately, very little actual spending has gone to that objective. Similarly, research and extension have almost ground to a halt because of lack of funds, adversely affecting and eroding the genetic advances and refinements in adaptation of improved practices and technologies. However, existing evidence based on empirical work by several analysts shows that sustained investment in crop science, extension programmes, physical infrastructure, and supportive policy present the greatest payoff (Govereh et al. 2006; Mellor 1976; Byerler and Eicher 1997; Alston et al 2000; and Evenson 2001).

4.3.2 Policy choices

Increasing agricultural production requires advances in science and technologies used by the farmers supported by an enabling policy environment. After their independence, most of the countries in the sub region continued social contract policies meant to improve the livelihoods of the smallholder farmers and provide cheap food to the urban areas. Most of the policies target agricultural output and input markets. The governments expanded the role of grain marketing boards, the only marketing channel available to farmers. These policies were a drain on the countries' resources. Some of these institutions collapsed before the beginning of market liberalization (Jayne, et. al., 2007). Those that remained went through privatization as part of structural adjustment programmes (SAPs). Even then, the food markets are not liberalized (Toye, 1992; Jayne et al., 2002; Harrigan, 2003). In Malawi, Zambia and Zimbabwe, the government has continued to intervene, and sometimes takes part in market activities as a way of to patronizing these markets. Thus, the agricultural markets of these countries have taken on a dual system of governance, where marketing activities are under constant intervention from the government. A few countries are resurrecting the same old marketing boards.

Box 2. Effects of government efforts to stabilize prices in Malawi

Malawi faced a maize production shortfall of 8 per cent below the country's 10-year average in the 2001 harvest. This was expected to result in a slight increase in the prices for maize on the domestic market. To avoid this expected instability, the Malawi government through ADMARC announced a fixed price for maize. To support the fixed price, ADMARC announced that it would import the shortfall from South Africa. Because ADMARC's selling price was lower than the cost of importing, private traders stayed away from commercial imports. However, ADMARC's imports did not arrive on time leading to a maize shortage on the market that sent the price of maize soaring US$450 for several months. When the private traders realized that ADMARC's supplies were running out, they scrambled to import but this did not help prevent shortages. When ADMARC's imports arrived, the country was already in a more productive 2002 harvest and maize prices had started normalizing. For financial reasons, ADMARC had to offload its imported stocks on to the market resulting in continuously declining maize prices for 16 months. Government's efforts to stabilize maize prices had harmful effects on maize markets.

Source: Adapted from Jayne et al., (2007).

In Zambia, the Food Reserve Agency (FRA) purchases and resells designated commodities at subsidized prices. Government of Zambia has intervened through discretionary trade policies like export bans and altering existing import tariff rates. Sometimes, government efforts have succeeded but in most cases, have ended up destabilizing prices even more (Rubey, 2004; Tschirley et al., 2006). Some of the adverse effects of well-intentioned government efforts to stabilize prices are illustrated in Box 3.

> ***Advances in science and technology are key to increasing productivity***

Current agricultural production and price stabilization policies have varied in their impacts depending on the policy choices, design and implementation modalities. Also, political sensitivity of the food market is making it difficult to promote farmer productivity. This is because political parties compete to show their willingness to deliver benefits to the public in times of need without taking into consideration the long-term effects of their actions. Most of the countries in the region are involved in regional trade but have restrictions in staple food trade. Most of them, for example, Zambia impose import and export bans on maize time and again. This makes it difficult for the private sector to anticipate what the government's next step will be in terms of trade policies. In Zimbabwe, the Grain Marketing Board (GMB) is the sole buyer of maize in the market. It is also the main importer of maize with a few NGOs that have been given permits to import. Lack of government predictability and unfulfilled government pronouncements have also been known to further destabilize the agricultural markets (see Box 3).

Box 3. Government actions can undermine food importers' quick response to low food supply

In July 2001, the national food balance sheet suggested a commercial import requirement of 200,000 mt of maize. In August 2001, the government announced its intention to arrange the importation of maize to be sold at a subsidised price and initiated a tender process to selected importers. Arrangements were made with 16 Zambian millers (as buyers) and a number of commodity trading firms (as sellers) to import the 200,000 mt of white maize over the period October 2001 through April 2002. However, due to financing problems, maize imports of substantial volume did not commence until December 2001 and January 2002. Between August and December 2001, private marketing actors refrained from importing commercial supplies based on the information the government and millers were working out financing arrangements and other modalities for importing maize. Most of these private companies were weary of the perceived unfair competition with the subsidized maize. By the end of May 2002, only 130,000 tons had been imported under these government arrangements, not the intended 200,000 tonnes.

The late and insufficient imports under the government programme had two major effects. First, the number of private market participants was smaller than it should have been. Firms awarded preferential import subsidies undercut those not awarded import subsidies. Second, there was a temporary import market paralysis causing maize grain (and mealie meal) shortages and high prices. Starting in November 2001, shortages were evidenced by many people queuing outside shops to buy mealie meal. Local maize prices rose well above the cost of importing from South Africa. Thus, the subsidy that the government conferred on maize importation was not passed on to the consumers. Despite the subsidy on maize, and the subsequent price reduction of maize grain, breakfast meal prices remained high throughout 2002.

Source: Adapted from Nijhoff, et al (November 2002)

The development of physical infrastructure needed in the agricultural sector such as roads and storage facilities has been slow in the sub region. In Zambia, for example, the state of most roads is poor, especially the feeder roads which have become impassable. Also, storage facilities are either in a bad state or not available to other market participants. Development of rural financial markets to improve traders' capacity to absorb surplus production through warehouse receipt systems, in Zambia, has not been successful because of government interference in market operations that have been incompatible with the development of these institutions (Coulter, 2006).

While these are common to almost all countries in Southern Africa, Zimbabwe, until recently one of the major grain producers in the sub region, has other problems. These include challenges posed by the withdrawal of assistance from some of the major international economic partners and donors. Further, the country's land-reform programme is yet to yield the expected benefits in increased output. The case study on Zimbabwe identifies other sources of food insecurity to include failed economic reforms that resulted in severe macroeconomic instability and economic meltdown with serious shortages of critical inputs (fuel, seeds, fertilizer, etc), and general governance failures (Chipika, 2006).

Food security in the region is also threatened by inadequate access to and utilization of food. Food utilization is when food is properly used, properly processed and stored, adequate knowledge of nutrition and child care techniques exist and are applied, and adequate health and sanitation services exist (USAID Policy Determination, 1992). Some of the inadequate access to and utilization of food is exacerbated by an unsupportive policy environment in the sub region. Poor market access infrastructure, pervasive poverty levels, and limited purchasing power were cited by almost all the case studies as adversely affecting people's abilities to access food.

The high prevalence of HIV/AIDS in the sub region has had negative impacts on food security as it affects both production and demand. Sickness and death as a result of HIV/AIDS depletes potential agricultural labour in terms of the quality and numbers of the workers available. This is because those infected may be unable to work properly when they are not well. At times they may not work at all. Quantity of labour is further reduced when caregivers are withdrawn from farm activities to take care of the patients. A study on impacts of HIV/AIDS in Malawi revealed that,, villagers have to withdraw labour from farming activities to attend funerals within their villages and in neighbouring ones (Madola, 2006). These issues not only reduce farm productivity but also other off-farm income creating activities that can improve the income available for food purchases. The overall result is a decline in food available for family consumption.

The premature death of household members may result in a permanent loss of useful agricultural production skills and knowledge. A common result of the pandemic in the region has been an increase in households headed by orphaned children and grandparents. These are either usually too young to access loans for production inputs or too old to use the loans effectively. This affects household productivity by reducing the food available for consumption.

V. Overview of Food Aid Receipts and Policies to Manage Food Aid in Southern Africa

5.1 Introduction

This Chapter presents a review of food aid receipts in Southern Africa, the gender dimension of food aid and domestic food aid policies.

5.2 Review of food aid receipts in Southern Africa

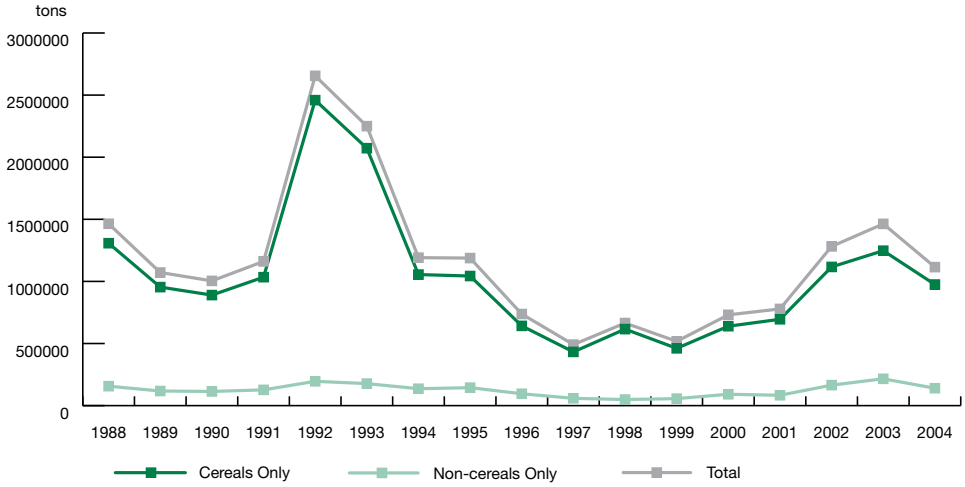
Globally, there has been a decline in the quantities of food aid sent to countries with shortfalls. This is a result of decreased food aid needs by long-term known food aid recipients such as India, Indonesia, Pakistan, South Korea and Turkey (Maunder, 2006). Maxwell (2006) notes that global food aid has been a critical ingredient of a strategy where the international community has committed itself to meeting the Millennium Development Goals (MDGs) on hunger. He further notes the traditional North American practice of using food aid as a means for disposing off surplus production no longer stands. Food buys are possible on the local markets of the recipient countries. Other global factors that affect the flow of food aid include; governance issues around food aid, donors' trends, and the so-called 'best practices' in food aid. Governance refers to the mechanisms that influence moving food aid from the granting to the recipient countries. The Food Aid Convention (FAC) includes a legal agreement on minimum tonnage contracts of donors. Meanwhile, the World Trade Organization (WTO) plays a greater role in deciding to give food aid as a loan or a grant. On the other hand, donors' abilities to grant the food depend on the resources they have. The best practice factor includes the information systems and analytical tools employed to improve on the food aid programme design and implementation as well as the targeting.

The global factors discussed above have also affected the supply of food aid in the sub region. The sub region witnessed an increase in food aid in 2002 and 2003 in response to the severe droughts. After that, there was a decline in food aid flows due largely to improved weather. The quantities of the food aid received varied from country to country in each of these years. In Malawi, for example, the volume of food aid peaked in 1992/93, a direct result of the 1992 drought. The food aid then declined between 1994 and 1999 when the weather was much better and yields improved. The 2002/03 and 2004/05 seasons saw an increase in food aid, a direct result of drought during these years. The trend in Malawi, like other countries in the sub region, has

been that the increase in food aid followed 'bad' seasons and the decreased food aid was obvious following a 'good' season.

Figure 4 shows the trend in food aid received in Southern Africa during the period 1988 to 2005. The highest volume of food aid followed the drought of 1991/92 cropping season. Cereals represented more than three-quarters of the total food aid received then. After the 1992 drought, food aid received declined because of reduced food gaps. Production in 1993 improved because of good weather. The increase in food aid in 2003 was in response to the drought of 2001/2002.

Figure 4. Trends in food aid receipts in Southern Africa (metric tons)

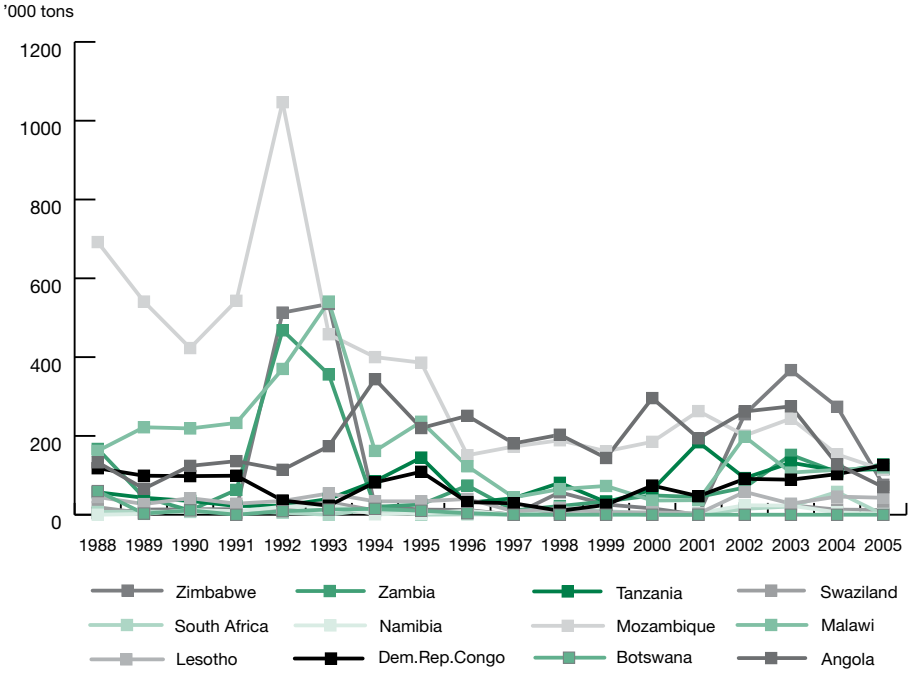


Source: WFP/INTERFAIS, June 2006

Most of the individual member countries showed a similar trend in food aid availability. Figure 5 shows the trend of food aid availability in the selected countries of the sub region. In Zimbabwe, food aid became prominent in 2002 following an appeal by the government to the United Nations for humanitarian relief in food aid and recovery assistance (Chipika, 2006). The appeal followed the devastating effects of the flooding caused by Cyclone Eline that destroyed the crop as well as infrastructure during 2000/01 cropping season.

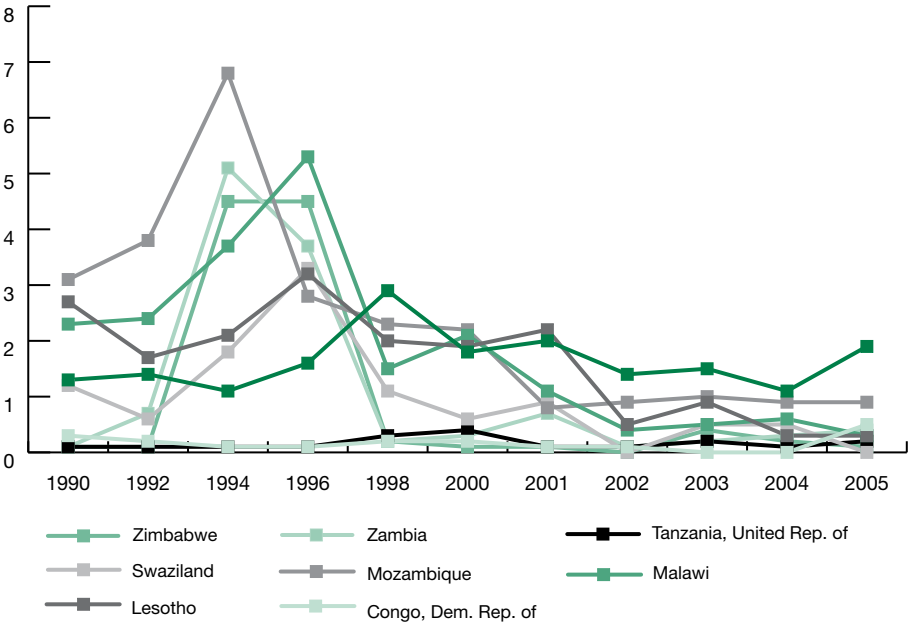
Figure 6 shows that most countries had their highest per capita cereal food aid received in 1994. Mozambique received the highest cereal food aid per capita in the early 1990s followed by Zambia and Malawi. DRC received the least cereal food aid per capita during this period.

Figure 5. Trends in food aid receipts in Southern Africa by country



Source: WFP/INTERFAIS, June 2006

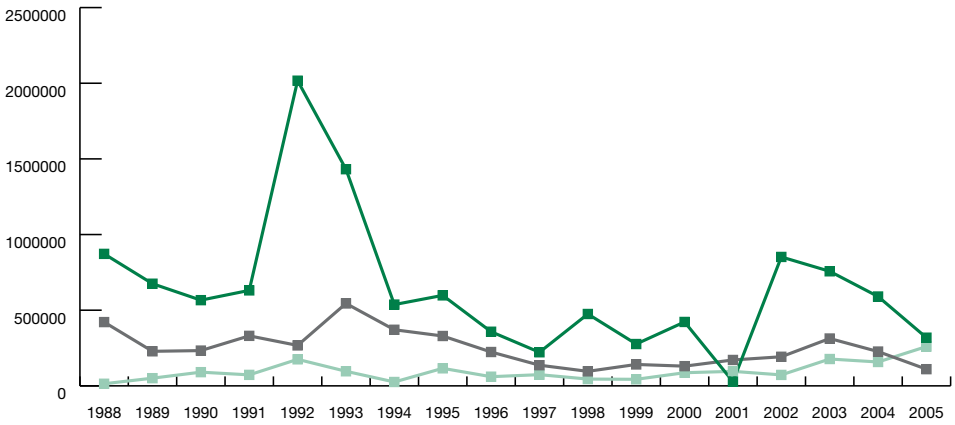
Figure 6.Trends in cereal food aid (kgs) for each person by country



Source: Food aid data from WFP/INTERFAIS, 2006, population data from UN, 2005

Between 1988 and 2005, the highest part of food aid in the Southern Africa was from direct transfers, followed by triangular purchases (see Figure 7). Trends in food aid procurement reveal that although the proportion of direct procurement is still high, there has been a steady increase in the part of locally bought food aid and a decline in triangular procurement.

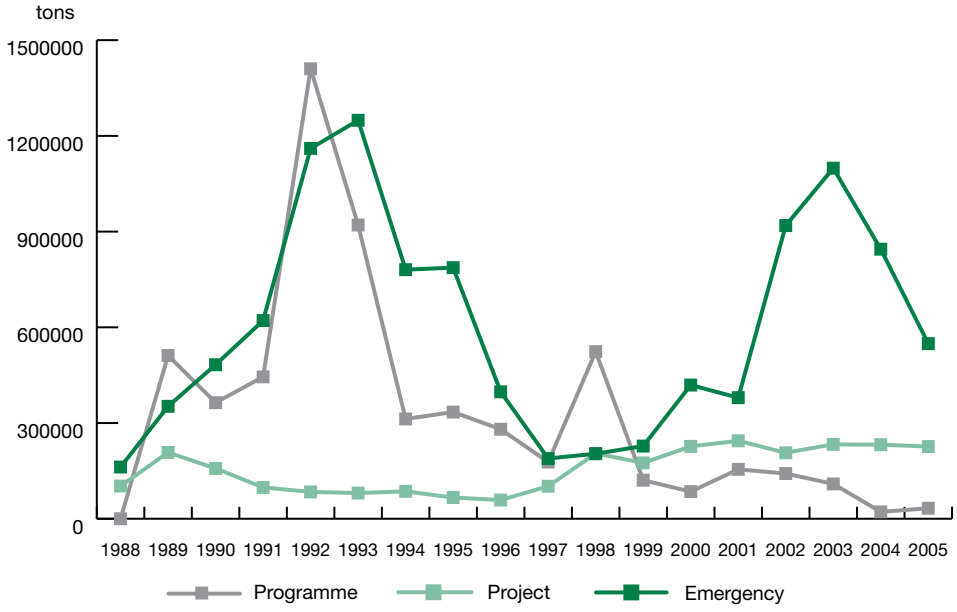
Figure 7. Food aid procurement in Southern Africa 1988-2005



Source: WFP/INTERFAIS, June 2006

The major types of food aid received in the region include; programme, project, and emergency food aid. Both programme and project food aid is government to government foreign aid. The former is for Balance of Payments support and the latter is for development projects such as Food for Work (FFW). Emergency food aid is in response to disasters. Over the years, there has been great variation in the exact composition of the different types of food aid delivered. Whereas emergency food aid has been the increase due to the frequency of droughts and floods, programme food aid has declined and project food aid has remained almost static overtime. Maunder (2006) credits the decline in programme food aid to the change in policies of the food aid donor countries, which are moving away from production support. As can be seen in Figure 8, between 1988 and 1997, the volume of programme food aid in the sub region was as high as that of emergency food aid. However, since 1998, emergency food aid has been the major food aid received in the sub region.

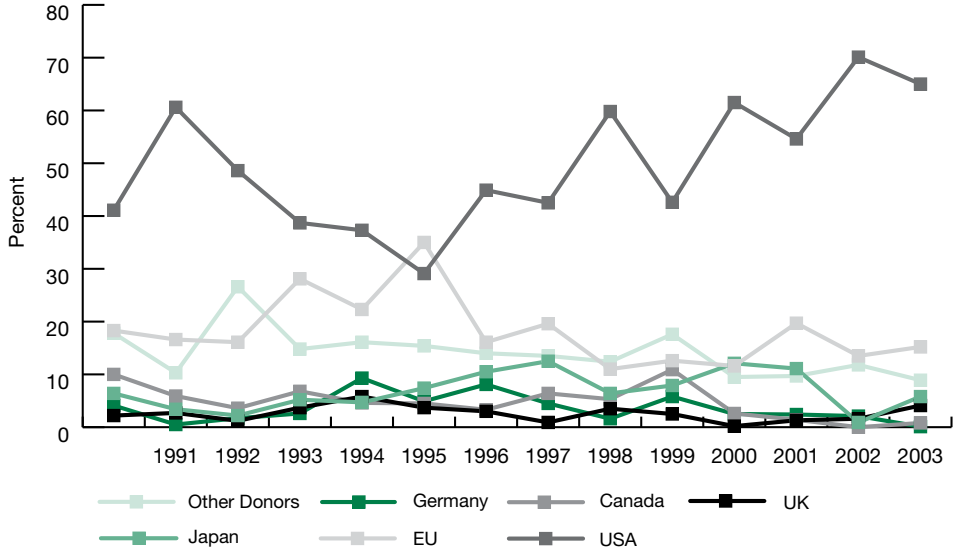
Figure 8. Food aid to Southern Africa by type



Source: WFP/INTERFAIS, June 2006

The major sources of food aid in the sub region shown in Figure 9 point out the USA is the main donor accounting for more food aid than the rest of the major donors combined. The EU is second largest donor.

Figure 9. Per cent Cereal Food Aid Contribution to SADC by Major Donor



Source: WFP/INTERFAIS, June 2006

5.3 Gender and Food Aid

The large number of women living in the rural areas and engaged in agricultural activities as the main source of livelihood means that if there is adverse weather, they face huge food deficits and would require food aid. As a result, gender and its implications are recognized as important in food aid management. It is generally agreed that female-headed households are more likely to be food insecure than their male-headed counterparts. For example, it has been found that female-headed households are more likely to reduce numbers of meals consumed, have less access to farm power and implements, and own less livestock than male-headed households (Malawi VAC, 2002). When faced with food shortages, female-headed households are also less likely to migrate to find work and food. Based on this assessment, Malawi targeted most of the food aid interventions on women beneficiaries.

Women headed households are traditionally disadvantaged as they have limited access to capital, land, animals and other productive assets. Customary land is usually given to men; also men own most of the productive assets in the household. This makes it difficult for the women farmers to invest in activities that will improve their productivity on the farm. Moreover, female heads cannot easily access loans for production purposes because of lack of enough collateral. In times of production shocks like drought, women headed households are more vulnerable to food insecurity because they do not own enough assets that they can sell to buy food.

The decision by the Government of Zimbabwe and WFP in 2005 to target food aid support during the period 1st September 2005 to 30th June 2006 to female-headed households is asign of the realization that women have constraints to coping with food shortages. Because women are traditionally disadvantaged in many respects there is a growing emphasis on ensuring that females play a prominent role in all local decision-making committees on management of WFP food aid assistance. Government ministries, NGOs, and community members are increasingly encouraging inclusion of at least 50 per cent women members in decision-making committees. These committees are, entrusted with planning and distributing food aid. and whenever possible, women are heads of these communities.

5.4 National Food Aid Policies

Although food aid has a long history in the sub region, clearly stated and specific food aid policies at national and sub regional levels are few. Some countries have developed policies while others have disaster management units mandated to take care of food aid issues and some have both. The study reviewed the existence of and extent of use of food aid policies in Malawi, Swaziland, Zambia, and Zimbabwe. Although the specific management differs by country, a few principles are visible. First, in line with WFP's

'food first policy' (Morris, 2005), most governments consider food aid as a means to save lives, protect livelihoods, reduce vulnerability, and address the underlying causes of poverty (CARE 2006). The view of most governments about food aid is in Malawi's Food Security and Nutritional Policy Statement of 1987, which puts the lives of the vulnerable first.

Malawi has the National Safety Net Strategy as the framework that supports the role of food aid in the country. A National Social Security Policy, currently under development, will fully consider the issues of food aid and will focus and target the most vulnerable in society and include programmes that will address their plight. The Biosafety Bill enacted in October 2002 to deal with importing GM food aid is an important instrument regulating supply of food aid. The Bill ensures the wise use and management of biotechnology and related products. Despite the existence of these food aid management policies, the major challenge is the lack of coordination between all the stakeholders in implementing these policies.

In Swaziland food aid issues are covered under the Disaster Management (DM) Act of 2006, under the mandate of the Deputy Prime Minister's Office. The National Disaster Management Task force (NDTF) implements the DM Act while the Ministry of Agriculture & Cooperatives leads the Food Security policy implementation process. The Disaster Management Act provides for the integration and coordination of disaster management and the establishment of a disaster management fund. The Swaziland Food Security Policy, developed by the Ministry of Agriculture & Cooperatives, in consultation with all relevant stakeholders is central to the effectiveness of food management. Food aid features in the food security policy. The policy emphasises that transparency, accountability and equity at all stages are paramount, from the assessment of needs to targeting of beneficiaries and the distribution process itself. The Swaziland experience shows that the major challenges in implementing policies related to food aid include; the need for improved coordination of food aid management issues between the two lead agencies (NDTF & MACO), targeting and management of political influence. A policy on the activities of NGOs is still in Draft form.

Although Zambia does not have a written policy document on food aid, it has a National Disaster Management Policy and Disaster Management Operations Manual that provides guidance on the distribution of food aid. Box 4 highlights the general principles governing the distribution of food aid in Zambia. Usually food aid distribution starts with food need assessments using the food balance sheet (FBS), and the vulnerability assessments. The major challenges identified in managing food aid in Zambia include; (i) the food balance sheet and the vulnerability assessment usually yield figures that do not tally; (ii) disaster management committee decisions on food aid targeting and levels are sometimes politically influenced; (iii) untimely delivery of food and (iv) poor coordination between implementing agencies (Kuntashula, 2006).

Box 4. General principles governing the distribution of food aid to disaster affected areas in Zambia

In Zambia food aid distribution is embodied in the four general principles governing the distribution of relief materials to disaster-affected areas. These principles are outlined below;

- Relief supplies shall be procured, moved/dispatched and stock piled with reference to contingency plans based on the principles of prevention, preparedness and long-term recovery in communities;
- Relief distribution should not lead to the promotion of perpetual dependency on relief by recipient communities;
- Relief, should instead, present to the community, an opportunity to recover and enhance their productive capacities;
- Relief supplies should be treated, by the community, as an opportunity to improve their operating capacities and enhance their livelihoods.

Source: Kuntashula, 2006.

Zimbabwe has developed the National Policy on Drought Management (Box 5) and a Policy on the Operations of Non-Governmental Organizations in Humanitarian and Development Assistance that provide guidance on food aid. The National Policy on Drought Management (NPDM) of 1998 addresses the implementation structures from national to village levels. It also addresses the roles of different stakeholders such as the government itself, local authorities, traditional leaders, NGOs, donors and the households. The Policy spells out how the country will remain prepared to deal with food security threats. At the apex, the Cabinet Committee on drought and social protection works with government officials from all the line ministries and sub-committees representing food relief, agricultural recovery, water resources, importation and finance. Another supporting policy document is the Agricultural Policy, Food and Nutrition Framework.

"Emphasis is on policies designed to increase productivity"

Zimbabwe's policy thrust downplays the emphasis on the provision of food aid in favour of development of sustainable social and economic strategies which help families to cope with the effects of drought. This thrust also ensures that NGOs play a significant role in complementing Government and local authority efforts as well as empower communities to manage the distribution of humanitarian relief (Chipika, 2006). The major policy challenges include lack of: effective coordination between government agencies and NGOs in humanitarian assistance and adherences to policy guidelines and the inadequacy of resources. Another problem with the current strategy is that rural populations are the preferred target at the expense of vulnerable urban populations.

Box 5. Zimbabwe's National Policy on Drought Management (NPDM)

The broad development objective of the policy is to build the capacity of individuals and communities to enable them to plan and undertake activities that efficiently and effectively use household resources. This enables them to increase the sustainability of their livelihood systems and ensures that all household members have stable access to enough, safe and nutritious food needed to preserve a healthy and active life.

The major policy objectives are:

- Improving agricultural productivity and ensuring food security at household and national level;
- Creating an enabling environment for the best application of human and economic resources to drought mitigation activities leading to continued human development, with emphasis on improving women's participation in development.
- Downplaying the emphasis on providing relief food aid for a broader approach, involving developing social and economic strategies, which help families to cope with the effects of drought. More emphasis will be on developing modern knowledge on adaptive strategies based on indigenous knowledge of people and communities;
- Research to focus on better understanding of drought risk and how this is influenced by the global climate change;
- Promotion of more effective food security policies to help mitigate the effects of future droughts;
- Promotion of programmes designed to check the rapid degradation of the natural environment; and
- Provision of water resources and irrigation infrastructure.

Policy Goals

- Drought management activities shall be an integral part of all districts, provincial and national development policy and planning to serve the goals of socio-economic growth and sustainable development in the country.
- Drought management programmes should link and integrate with other developmental programmes and projects.
- he economy should be able to recover quickly to withstand other future droughts and preserve livelihoods of the nation.
- Successful drought prevention, readiness and mitigation needs policy, legislative, human, natural and financial resources.
- Participation should imply community commitment, common decision making, individual and collective innovativeness, local resource generation and contribution by the community themselves in reducing and lessening the impact of drought.
- The Government will work with donors, private sector and NGOs to develop sustainable livelihood programmes and reduce dependency on food handouts.

Source: Chipika, 2006.

Countries in the sub region recognize the need for food aid organisations to increase the efficiency and intended impacts of food aid while lessening the unintended harmful outcomes. One of the latest fears against food aid relate to the unknown health and biodiversity implications of genetically modified organisms (GMOs). Southern Africa needs harmonized policies on GMOs. Countries such as Malawi, Mozambique, Zambia and Zimbabwe have openly expressed concern about GMO food. However, apart from Zambia, which has turned down GM food aid altogether, most of the other countries accept GM maize meal imports only not grain.

5.5 National policies to increase food production

Countries in the sub region have also developed strategies to increase national production and eventually achieve national food security. The strategies have focused on addressing constraints to increased production, mainly by smallholder farmers. The constraints include poor access to seed, fertilizer and agrochemicals, suitable and affordable equipment, labour, land and irrigation facilities.

5.5.1 Timely access to improved seed by small farmers

The use of improved seed by the farmers is cardinal to the quantity and quality of crop. The lack of affordable seed has been a major constraint to small-scale farmers in the region. The problem is either physical absence or relative (because of cost) unavailability. In the face of these challenges smallholder farmers plant open pollinated seeds, which produce lower yields.

Strategies to ensure availability of the improved seed are diverse in the sub region. In Zambia, a Seed Certification institution ensures the seed available for sale is of high quality. Extension agents sensitize farmers on which seed to grow in the different ecological zones. The supply of subsidized seed is a common strategy in Swaziland and Malawi also provides free seed to the most vulnerable. Seed multiplication programmes also engage local farmers to produce improved seed. Zimbabwe has also supplied seed packs to smallholder farmers since independence with some NGOs.

5.5.2 Timely Access to fertilizer

Most countries have been supporting local plants to produce the fertilizer to supplement the imported one. This is through the incentives offered to the local producing companies. Some governments have reintroduced fertilizer subsidies for small-scale farmers. Zambia, for example has been subsidizing fertilizer at 50 per cent of the cost for the past 5 years. In Tanzania, the government through the local authority has been promoting organic fertilizer through organic farming as an alternative to the use of fertilizer. Other countries have supplied fertilizers to smallholder farmers for a nominal fee or free.

5.5.3 Use of suitable farm machinery and tools

The promotion of tractors and animal draft power enables small-scale farmers cultivate bigger portions of the fields. In 2005/2006 agricultural season, Swaziland had 224 tractors for hire country-wide and was hiring them out to small-scale farmers 30 per cent lower than the charges offered by the private sector. The removal of import duty on agricultural machinery in Zambia and Zimbabwe improves mechanization on farms and therefore increase productivity.

5.5.4 Availability and productivity of farm labour

The governments have embarked on strategies that identify and adapt technologies that reduce farm labour use on smallholder farms. The common technologies promoted are animal draft power and farm mechanical power. Countries like Swaziland that have high urbanization trends have seen most of the farm labour drifting from rural to urban areas. To lessen this, the government of Swaziland has deliberately encouraged programmes that invest in rural areas to reduce the urban migration trend. This preserves labour meant for agricultural production. Governments have put in place minimum wage policies to remunerate farm labour adequately and lessen rural to urban migration.

5.5.5 Access to land for farmers

Land is one of the most important factors of agricultural production. Recently, most governments in the region have been taking land policy reform initiatives. These initiatives range from repealing discriminating laws to make easy access to land by vulnerable groups, to the land reallocation to grant the landless vulnerable households. Zimbabwe embarked on a land reform programme to address imbalances in ownership and access. On the other hand, Zambia developed an idea to have one farm block in each of the 9 provinces to encourage the farmers to have access to more land and increase production in the long run.

Although increasing agricultural productivity is important, the countries in the sub region should consider agriculture as an economic business rather than a way of life. This will promote transformation of the agricultural sector into a sector based on productivity and profitability considerations. This has the potential of increasing contribution of agriculture to GDP and reducing severe poverty and food insecurity.

5.6 Regional facilities or guidelines on food aid

The Southern African Development Community (SADC) and the Common Market for East and Southern Africa (COMESA), the two RECs in Southern Africa, have an important role to play in developing harmonized and coordinated approaches to dealing with food aid.

5.6.1 The Southern African Development Community

Through the Regional Early Warning System (REWS), the Southern African Development Community (SADC) has been at the forefront in providing early warning information on the food security in the region. So far, the information is influencing Member States (MS) to plan early for regional food imports. Through the regional analysis, SADC provides Member States with information on possible sources of imports and exports within the

region. The SADC Secretariat has, over the years, also collaborated with FAO and WFP to conduct independent assessments. Joint Request for Emergency Food Aid (JREFA) for some southern African countries use these assessments. WFP normally oversees procurement, management, distribution and quality standards. The SADC Regional Vulnerability committee has also spearheaded food security and poverty assessments in Member States that have helped settle suitable responses to food emergencies in the region.

Currently, the SADC does not have a dedicated policy on food aid but recognizes the need for such a regional policy, focusing on areas such as:

1. Procurement of food aid from outside the region should only occur only when there are no surpluses elsewhere in the country or sub region.
2. Alternative to Food aid – sub regional governments should resort to food aid if only there are no good alternatives to help the food insecure. Alternatives such as the use of food coupons, cash transfers may spur production in the long run than food aid.
3. Quality Standards – set up a common harmonized legislation for the region.

> ***RECs are critical to harmonizing subregional policies***

5.6.2 The Common Market for East and Southern Africa

On food aid and food security issues, the COMESA Secretariat serves as a coordinator by producing and sharing information on what is available in surplus producing member states (MS) and needs of member states with food shortfalls. It helps sharing of this information across the member states, but the final trade in food aid between countries is bilaterally. COMESA has also promoted developing grain quality standards that member states will support. However member states have the right to point to the standard levels that they want to use. COMESA has also facilitated in several other areas of intraregional relations, including transiting of GMO food aid through countries. The REC is working towards development of policy guidelines on biotechnology and biosafety.

Unlike SADC, which already has harmonized guidelines, COMESA is yet to develop such and could benefit from the SADC experience. Although both SADC and COMESA does not have regional policies on food aid, they recognize the need for one and concur that the focus of such a policy should be on raising production and promoting regional grain trade.

VI. Impact of Food Aid on Long-term Food Security Sustainability in the Sub Region

6.1 Introduction

This Chapter presents findings from the empirical analysis of impacts of food aid on sustainability using a combination of literature review, country case studies and econometric modeling.

6.2 Evidence of unintended impacts of food aid

The most common unintended impact of food aid is development of a dependency by the recipients. Lentz et al. (2005) classified dependency into two, that is, positive and negative dependency. Positive dependency occurs when individuals, communities or organizations are helped in meeting their basic needs when they otherwise could not, and their only alternative is destitution. Dependency, therefore, is not necessarily an undesired outcome especially for households that cannot support themselves. In such cases dependency enhances the welfare of the vulnerable people and is, in every way, desired. On the other hand, negative dependency arises when individuals, communities or organizations are helped in meeting their current needs at the expense of reducing the recipients' capacity to meet their future needs without external relief. Usually when individuals are expecting some assistance, whether in kind or cash, they behave in a more risky manner than they would have behaved if they were not expecting any relief. Such changes in behaviour that lead to negative dependency is what economists term "moral-hazard". This would leave household more dependent on food aid than they would otherwise have been.

At household level, the common unintended impact of food aid is the growing dependency the households develop. At national level, the government relaxes in supporting the agricultural sector and the outcome is that agricultural production decreases. Other negative impacts of food aid are related to market distortions. Low producer prices will emerge because of injecting the food aid into the market. The low prices results into disincentives to farmers to increase production the following season. There is an argument that the disincentive effects in the short run would lead to decreased local food production and market activities, and in the long run this will result in reduced investment in agriculture (Lentz et al., 2005). Other negative effects include the impact of food aid on the local taste of food, introducing GMO food and

the corruption involved in handling the food aid. Local and regional procurement reduces some of these felt impacts.

6.2.1 Evidence of impact from the literature

The literature has varied empirical evidence on the impacts of food aid. Most studies have failed to identify convincing evidence of food aid impacting negatively on food production. This implies that food aid inflows are not a major cause of agricultural stagnation or the governments' inadequate investment in agriculture in the sub region. On the contrary, some have even found some evidence of production-enhancing effects, while failing to reject cause in the reverse direction (see, for example, Abdulai, et al, 2005). Most argue that, although several factors could have stemmed the potential disincentive effects, the quantities of food delivered as food aid are rather too small compared with production. However, isolated local level incidences of impact in most recipient countries, because of untimely delivery of food aid, increased dependency and political interference. Tembo (2006) and Jere (2006) noted price effects at national level but argued these were more visible in some parts of the country. They found this to be true for selected local markets that had food aid programmes in Zambia and Malawi, respectively.

> ***"Dependency is an unintended impact"***

In general, food aid helps meet the food security needs of the affected households through improved availability and, indirectly, through lower prices. With most rural households entering in the food market as net buyers of food, the lower prices observed in the affected markets directly lead to improved accessibility of food. However, poor targeting and timing often pose great challenges to effective implementation of food aid, with potential to more than offset the gains.

A study by Tschirley et.al. (2004) identified two important positive impacts of food aid in Mozambique. First, food aid had helped to promote competition in the small-scale milling industry and informal market systems. Second, during the times of shortages of white maize, yellow maize that was distributed as food aid turned out to be a good substitute by it preserving household food security. However, the study argued that the continued availability of yellow maize food aid at prices well below import parity had a negative impact on the local producers and investors who could not invest in white maize production and marketing. Through programme aid run by C-SAFE (WVI, CARE and CRS) and other local and international NGOs, beneficiaries' capacities to use improved technologies have been built.

Most of the impacts – intended or unintended – are most visible in or around the local markets in which the food aid interventions are implemented. Impact is much more elusive at national or higher levels. Several previous studies have failed to identify convincing evidence of disincentive effects of food aid on food production.

Correlation analysis between cereal food aid and cereal production in Zambia indicated the existence of an inverse relationship, as expected, but such an association was not statistically significant at any acceptable level of significance (Tembo, 2006). Simulation experiments carried out by Ayele Gelan in Ethopia showed that food aid imports and distribution had unambiguous disincentive effects on domestic production. The end of food aid imports stimulated domestic food production following increased producer prices. The employment and income generation led to improvements in aggregate household welfare. Though some price depressing effects of food aid inflow existed in 2002/03 in the Lower Shire District of Malawi, it was not easy to separate the effects of food aid from commercial imports as the latter were also large.

Lentz et al. (2005) noted that dependency was one of the common unintended impacts of food aid. Individuals, households and/or communities display dependency when they cannot meet their immediate basic needs without external relief. This was the case in the early 1980s in northern Kenya when the 'Turkuna' nomadic herding people faced serious crisis after losing most of their livestock to Contagious Bovine Pleuro-pneumonia. The European Union, the Netherlands government, Catholic Relief Services (CRS), and the WFP of the UN provided food aid as a response to this crisis. The food aid was free initially and later through an FFW system. In the long run, the Turkuna people have become increasingly destitute and dependent on handouts. This represents a near permanent shift in livelihoods as the recipient communities now rely more on FFW than their traditional pastoralist livelihood.

6.2.2 Evidence from country case studies

Overall the country case studies did not find convincing evidence that food aid negatively affect food production. Thus, food aid is not a major cause of agricultural stagnation or the governments' inadequate investment in agriculture in the sub region. Although several factors could have stemmed the potential disincentive effects, the quantities of food distributed as food aid are rather too small compared with production. In some countries, such as Zimbabwe, the area under maize has not changed in a long-time, despite all the food aid. Isolated local level incidences of negative impact in some countries exist. The Swaziland study found evidence of price effects at national level but argued that such effects were visible in some parts of the country.

6.2.3 Malawi

Although there is no hard evidence to show that food aid has increased dependency in Malawi in general, there are signs of dependency among some beneficiaries. The experiences in Lower Shire District are one such example. Although some price depressing effects of food aid appeared in 2002/03, it was not easy to separate the effects of food aid from commercial imports as the latter were also large. However, contrary

to expectations, production outcomes in Malawi do not respond to price incentives or disincentives. Levy and Barahona (2002) provide evidence that changes in producer price do not influence smallholder maize production outcomes. Rather, weather conditions influence production levels.

6.2.4 Swaziland

Annual average cereal food aid deliveries to Swaziland are around 29 per cent of the domestic cereal gap. If poorly targeted, food aid is arguably sizeable enough to influence domestic maize markets (WFP, 2006). Empirical evidence from the Swaziland case study (Sithole, 2006) points out that food aid has no effect on quantity of maize produced but does have an impact on the national maize producer prices. The evidence of price effects at national level however was identified in some parts of the country and not others. Locally in the drought prone areas, food aid does not have an impact on both production and market prices.

6.2.5 Zambia

In general, food aid helps meet the food security needs of affected households. However, the evidence of unintended effects is not consistent. According to C-SAFE (2006), food aid in Zambia reaches 90 per cent of the intended beneficiaries, who use it for consumption. Some assessments, however, have unearthed local level effects on prices (Tembo, 2006). There has also been concern about developing dependency among recipient households (Kuntashula, 2006). In a post Distribution Monitoring survey, 6.7 per cent of the interviewed beneficiaries (N = 831) reported increased dependency (end of program C-SAFE qualitative survey 2005; and Zambia VAC assessments in 2006).

There is no evidence of food aid impacts at national level. Correlation analysis between cereal food aid and cereal production pointed out the expected sign (negative) but it was insignificant (Tembo, 2006). Through C-SAFE, WVI, CARE and CRS FFW and FFA programmemes, beneficiaries' developed skills on conservation farming, crop diversification, grain storage, vegetable gardening and water harvesting.

6.2.6 Zimbabwe

Different forms of food aid programmes reach vulnerable populations in Zimbabwe, which has helped to avert starvation. WFP programmes include supplementary school feeding, family child health nutrition support, institutional feeding, home-based care for HIV/AIDS affected and OVC, food for assets, and vulnerability feeding groups. Government runs the public works programme. With school feeding programmes, absenteeism rates declined.

There are several challenges to face carrying out food aid programmes. These included fuel shortages, poor road infrastructure, and other hiccups. These delays drew beneficiaries' time from other social and economic activities as they spend long hours and days waiting for food aid deliveries at distribution points. The country also experienced premature exit of food aid and relief operations, which forced households to resort to unsustainable coping strategies.

Zimbabwe has experienced a fall in maize production in recent years. However, it is not likely that this reduction is influenced by food aid flows as the area under maize has not changed much. Rather it is productivity (yield) that has been declining because of reasons such as drought and shortage of inputs. Food aid in general has had no impact on the market price of maize. Chipika (2006) contends that even the huge inflow of food aid that took place during the period 2002-2004 did not affect market prices in a substantial way. Food aid also complements commercial imports and does not displacing them as the former is not large enough to meet the food shortfall. However, food aid to vulnerable farm workers and the rural poor has diluted the economic incentive for them to seek and value poorly paid farm employment.

6.2.7 Empirical evidence from region-wide econometric analysis

Table 12 in Annex 1 presents the results of a dynamic panel-data vector autoregressive analysis of the relationships among changes in food aid, change in food production, and change in food net imports. Table 13 presents the results of similar analysis but with change in cereal production replaced by change in cereal surplus production. While Table 12 tries to determine the short-term effects of food aid, Table 13 extends the analysis to medium-term analysis. Lack of consistent time-series data on anthropometric measures for all the countries of interest made it impossible to extend the framework and analysis further to long-term effects of food aid.

In the first three models (Columns 1 through 3) of both Tables 12 and 13, each of the variables of interest (change in cereal production or change in cereal surplus production, food aid and net imports) was regressed on its own lags, lags of the other two variables, a rainfall variable, and four disaster dummy variables. The last two columns (4 and 5) present results of models for change in cereal production (Table 12) or change in cereal surplus production (Table 13) and food aid but without accounting for change in net imports. This latter specification was also used by Abdullai et al (2005) in their sub-Saharan-wide analysis and provides a means to check for robustness of the results obtained from the first three models. All the models in the two tables were estimated using the generalized method of moments (GMM) developed by Arellano and Bond (1991).

All the five models in each of the two models represent a very good fit of the data, as indicated by the joint test of the null hypothesis that all the explanatory variables are statistically not different from zero, which was rejected at one per cent level. Also, specification analysis failed to identify serious departures from any of the major assumptions. The Sargan test of over-identifying restrictions, for example, could not reject the null hypothesis of homoskedasticity in all the models. The Arellano-Bond test for autocorrelation could not reject autocorrelation in residuals of order one but rejected it in residuals of order two, which can comfortably be considered not a problem (StataCorp, 2003).

Table 12 shows that the most important factor explaining variations in change in cereal production is its own lags (Column 1). All the four lags are consistently negative and significant at 1 per cent level. The relationship between rainfall and change in food production is positive and significant at 5 per cent level, which is consistent with expectations, given that much of the agriculture in the sub region is rain-fed. However, the relationship between change in production on one hand and drought, floods, and other disasters on the other is not statistically significant. The only type of disaster that seems to have a serious bearing on both change in cereal production and change in food aid is epidemics, such as HIV/AIDS, typhoid, dysentery, and other air- and water-borne diseases. Statistically, the epidemics have an adverse effect on change in cereal production (p-value<0.05) (Column 1) and a positive effect on change in food aid (Column 2). Both these results seem to confirm the fears that the poor health status of a significant proportion of the populations has the potential to undermine agricultural development in the sub region. It also identifies the need for increased investment and effort in public health and other interventions that could help accelerate the combating and prevention of epidemics.

> *Epidemics and rainfall affect production negatively*

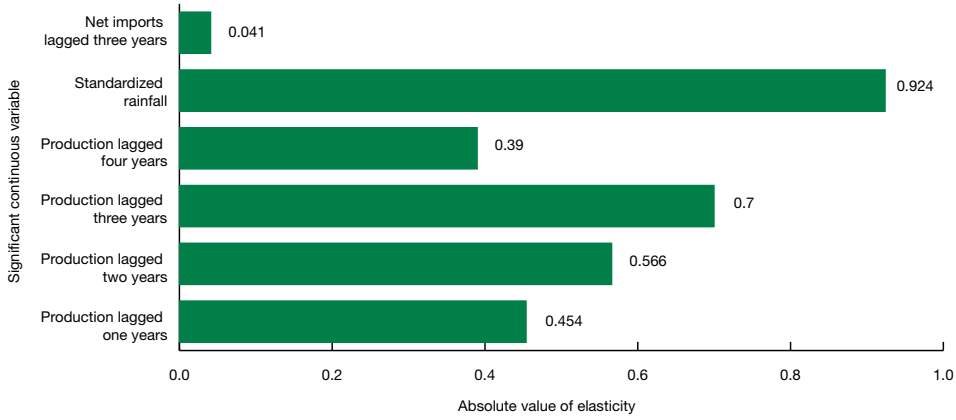
Although the estimated relationship between change in food production and change in food aid is consistent with expectations as indicated by the negative signs on the coefficients of the first three lags of change in food aid (Column 1), statistically the results reject the assertion that change in food aid crowds out production. This is confirmed by both the statistical tests on the coefficients of the individual lags of the change in food aid variable and a Wald test for their joint significance (Column 1). Similarly, there is no immediate effect on change in food aid arising from changes in cereal production shocks (Column 2). However, every significant increase in the change in cereal crop production (or production shock) is followed by a sustained decline in change in cereal production for at least four years. By the fourth year food aid and commercial net imports are again almost unavoidable. Why does a boom in cereal production lead to a continued decline in food production in the following years?

In general, the results show that a shock in cereal production, food aid, and net imports has an immediate negative effect on levels of the same variable in following years.

No statistically significant evidence of negative effect of food aid on production

Although the downward trend continues after the first year following the shock, the size of the downward spiral reduces with time. The exact adjustment path or persistence of the own effects varies from variable to variable, with change in production being the most persistent. The response of any one variable to a shock in another variable (cross effects) also varies from shock to shock. In summary, whenever a positive shock in production (for example a bumper harvest) occurs, net imports continue to decline in the following three years and rise again together with food aid there after. A net import shock, on the other hand, sparks a series of two-year production cycles, starting with an increase in food production during the first year. The effects of the change in commercial net imports even become statistically significant three years after the onset of the shock.

Figure 10. Responsiveness of food production to continuous statistically significant variables



A comparison between Column (1) and Column (4) (Table 12) shows that not taking net imports into account biases the estimate of production response to food aid shocks. Most affected is the immediate production response, which is almost negligible in the scenario without net imports and big (though still statistically insignificant) with net imports. This result suggests that net imports can reduce the amplitudes of the production cycles in the later years.

Although the specific parameter estimates are slightly different, the general relationships and their statistical significance are almost identical when using change in cereal surplus production instead of cereal production (Table 13). The only major difference is that in this case (Table 13), net imports are much more strongly related to lagged food aid and disasters (Column 3).

The analysis shows that change in cereal production is inversely and significantly related to own lags. This suggests Southern African countries are unable to sustain high

levels of production. The dampening effects of a 'bumper' harvest in year zero become insignificant only after the fourth year. By that time, the need for increased food aid and net imports is unambiguously obvious. Figure 10 shows that cereal production is responsive to rainfall and lagged production.

6.3 Policy implications

The fact that a positive production shock is immediately followed by continued declines in production suggests a non-existence of capacity to provide incentives for further agricultural growth. On the contrary, it is a perfect environment for boom-and-bust cycles and perpetuation of food insecurity.

Several reasons support this low equilibrium in the countries of the sub region. Under investment in broad-based public goods has resulted in some of the key infrastructure and institutions being almost non-existent in most countries. These include road networks and storage. In most of these countries, the governments divert investment in public goods towards private goods, such as, input subsidies and price supports. Literature shows that government investment in broad-based public goods could producer 2-6 times higher returns than investment in private goods (Haggblade 2007).

Policy choices that restrict, rather than increase, marketing opportunities fuel instability in both production and prices. Examples include discretionary export bans, import tariffs, and other trade limits, most of which are common policy instruments among these countries. Jayne, et. al (2007) suggests increasing the elasticities of demand for food so production shocks can have slight effects on price. That is, more elastic demand entails increased capacity for the markets to absorb excess food supply without dampening food prices and to source extra food supplies in times of shortages.

Market-facilitating public investments and policy choices, and developing important market institutions enhance elasticity of demand. Government should build physical infrastructure, encourage regional trade, streamline rules and trade barriers, provide rural financial markets to improve traders' capacity to absorb surplus production, encourage diversification of food consumption patterns, develop world food markets and create alternative sources of demand for grain (Jayne, et. al 2007).

6.3.1 National Level policy Implications

6.3.1.1 Increased Agricultural Productivity

Productivity is one of the key issues and expressions of the food crisis the southern African region faces. Thus, the need for agrarian reforms to increase agricultural productivity through subsidized inputs, technology development and adaptation, irrigation, and effective agricultural extension. Better marketing and distribution services, and effective price incentives are also important. However, as evidence has shown, interventions that solve structural inadequacies, such as infrastructure development (roads, storage), correction of inequalities in land access (Zimbabwe), and market reforms (minimization of politically motivated market interference) could have an even greater pay off.

6.3.1.2 Development of Food Aid Policies

The need for national food aid policies or comprehensive food security policies is one of the issues commonly recognized by all countries in the region. Individual countries, should carry out a comprehensive review of the terms of existing legislation. This review can be a foundation on which to build effective policy provisions for managing food aid. In some countries, duplication of effort is obvious. In Zambia, for example, at least three systems estimate food needs – the NVAC, the FBS system, and FAO's CFSAM system – all of which do not necessarily agree. There is need to streamline such efforts and harmonize the approaches. The need for improved coordination among institutions is important in several other areas as well, including implementation of food aid and food security policies.

6.3.1.3 Dependency on food aid

The scattered evidence of dependency arising from food aid requires putting in place and enforcing policy needs that will force implementers to internalize such possibilities. One strategy is to strengthen the awareness units of such programmes against the dangers of dependency on food aid by ensuring food aid shifts from relief to development, and by improving targeting. However, improving targeting needs reliable and timely information on the target population. Many countries in the region do not have effective early warning systems, let alone subdistrict information about the characteristics and location of the vulnerable. Most early warning systems, such as crop forecast surveys, use sample sizes that are large enough (8,000 households in Zambia) to produce reliable estimates only at provincial and national levels. The sizes of margins of error make such surveys almost useless at district or sub-district levels. Recognizing this information gap, the Zambia VAC is conducting a comprehensive vulnerability assessment and analysis (CVAA), designed specifically to

provide reliable estimates at district level with a sample size of 28,000 households. The regional RECs could consider similar undertakings in other countries, building on the Zambia experience. Encouraging involvement as much as possible of the communities themselves in identifying the would-be beneficiaries improves targeting.

6.3.1.4 Disaster management and mitigation

Most countries live by the day and handle disasters by 'crisis management'. However, in the long run it is a lot cheaper and more sustainable to plan for and expect shocks more proactively. Most countries in the region are clearly in need of long-term plans in the form of policies that will address food security rather than to rely on programmes that provide short-term solutions. This is especially critical for Swaziland, which because of endless effects of drought, is always in a food shortage. The key issue is to address the underlying causes of poverty and livelihood insecurity. There is need, for example, to develop safety nets programmes and poverty-reduction strategies that increase real income of the poor in the medium-term. Increased public investments in agricultural technology and extension, irrigation (where feasible), and market infrastructure are complementary.

> *"Build regional reserves and promote food aid charter"*

6.3.2 Regional level policy implications

Several lessons arise from the findings of this study that are regional in nature. RECs should develop and adopt a more comprehensive framework for addressing the link of food security and development, including the health and other challenges presented by HIV/AIDS. The sub region needs to develop standard and harmonized guidelines to help co-ordinate responses to food insecurity. National trade policies, for example, could harm not only national food security but regional food security as well. The natural trade corridor of northern Mozambique, Malawi, Zimbabwe, Zambia, and the Democratic Republic of Congo could be exploited for the benefit of the region if there is a regional framework to coordinate individual countries' actions. Policy harmonization needs to address a diverse set of areas, including sanitary and phytosanitary (SPS) standards and the removal of all barriers to trade in food commodities.

Moving food stock in the region also requires coordination by RECs. Similarly, handling issues surrounding GMOs needs coordination by sub regional bodies. COMESA and SADC should coordinate regional reserves to ensure information flows between member States. The provision of early warning information by COMESA and SADC should improve through use of information communication technologies (ICT).

The RECs could also help member States in several other areas, including building capacity to develop and use early warning information. The SADC Secretariat has

several activities on this, including strengthening capacities of national early warning systems. The coming of the AgroMetShell (AMS) modelling system for example and the current effort to promote use in the region as a cost-effective source of crop forecast information present a real opportunity. The SADC is also coordinating the network of national Vulnerability Assessment Committees (VACs). However, the national VACs need a lot more support to strengthen their abilities to design, undertake, and analyse vulnerability assessment studies.

The study has also shown that the governance of food aid needs improvement. RECs could help member States through training programmes to improve governance issues surrounding food aid.

"Build capacity to manage food aid flows"

6.4 Summary

This review of food flows in the sub-region has shown that a correlation exists between food aid flows and rainfall patterns. Since 1992, emergency food aid remains the principal type of food aid received in the sub-region. The review has shown that some policies exist to manage food aid issues both at national and sub-regional levels. Most countries in the sub-region have disaster management units to deal with emergencies and at sub-regional level, SADC has an early warning system, guidelines on GMOs and a vulnerability assessment committee. COMESA provides member States with information of the food deficit/surplus situation in the sub-region. Unintended effects of food aid such as the effect on prices and dependency are localized in nature, for example in some regions Malawi dependency was noticed. The review failed to find convincing results regarding the negative effect of food aid on food production even using econometric methods. In conclusion, the section provides a set of recommendations at both national and sub-regional levels including the need to enhance food production through a stronger support system, strengthen disaster management units, development of harmonized guidelines for response and the development of a comprehensive database on the food situation in the country. Table 14 in Annex 1 summaizes the major food aid issues, outlines strategies to overcome them, and identifies the actors and their roles.

VII. The Impact of Developed Countries' Agricultural Subsidies on Long-term Food Security Sustainability

7.1 Introduction

This Chapter analyses the potential welfare impacts on Southern African countries of the removal of developed countries' export subsidies and domestic support, identifies the food security implications and suggests policy recommendations to safeguard food security in the sub region. The study first reviewed existing literature on impact of elimination of developed countries' subsidies on Southern Africa. Thereafter, an Agricultural Trade Policy Simulation Model (ATPSM) was run to analyse the impact of removing developed country agricultural subsidies on sustainable food security in Southern Africa.

"Subsidies are a means of protecting farmers"

The chapter first provides an overview of export subsidies and domestic support in the developed world. Then, it highlights the WTO Agreement on Agriculture (AoA). The chapter also describes the linkages between developed countries' export subsidies and domestic support with food security in Southern Africa and reviews the main trends in agricultural trade in the sub region. The chapter identifies those countries that are likely to be more vulnerable to price changes on the world market. Finally, this chapter presents the simulation results and emerging implications for sustainable food security.

7.2 Levels of export subsidies and domestic support in the developed world

Developed countries have long used agricultural subsidies (export subsidies and domestic support) as a means for protecting and promoting specific commodities in their economies. As shown in Table 6, the European Union is the largest user of export subsidies (both in volume and value) accounting for almost 90 per cent of total export subsidies spent yearly over the period 1995 to 2000. The other countries that provide high support to agriculture include Switzerland, Norway, the USA, Japan, Iceland and Canada (OECD, 2006).

The main commodities receiving export subsidies include dairy products (butter, cheese, skimmed milk-powder), meat (beef and veal, sheep meat, pig meat, poultry), cereals (rice, wheat, maize), incorporated products, sugar, alcohol, fruit and vegetables. Products receiving the highest payment on export subsidies include dairy products, beef, sugar, wheat, rice and coarse grains (Peters, 2006, Chaonwa, 2005). Grain,

beef, dairy and sugar producers in the EU also receive support in the form of direct payments (Leetmaa, 2001). In the US, commodities receiving export subsidies under the export incentive programme and export improvement program include poultry, cheese, skimmed milk-powder and butter. The US also provides direct farm support in the form of direct payments to producers of wheat, maize, upland rice, cotton, oilseeds and groundnuts (Leetmaa, 2001). Overall support to producers by the Organisation for Economic Cooperation and Development (OECD) countries has been declining though slowly over the recent years. The share of producer support has fallen from 37 per cent in 1986-88 to 30 per cent in 2003-05 (OECD, 2006). Besides this decrease in trade distorting farm support there is still need for larger reforms to achieve the market orientation needed by WTO's Agreement on Agriculture.

Table 6. Use of export subsidies: Averages from 1995 to 2000 by country

Country/Region	Export subsidies 1995-2000 average Million US$	Percentage of total (%)
EU	5503.4	88.7
Switzerland	311.5	5.0
Norway	85.7	1.4
Canada	54.5	0.9
Czech Republic	37.1	0.6
Turkey	28.4	0.5
Poland	21.7	0.3
South Africa	18.6	0.3
Hungary	16.9	0.3
Others*	128.9	2.9
TOTAL	6206.7	100.0

Source: Peters, 2006 – calculations based on WTO notices. * Others include Colombia, Slovak Republic, Venezuela, Israel, Mexico, Cyprus, Australia, Iceland, New Zealand, Romania, Bulgaria, Brazil, Indonesia, Panama, and Uruguay in descending order of use of export subsidies.

In contrast, structural adjustment programmes have removed or drastically reduced agricultural subsidies in most African countries (UNECA, 2004a). In Sub-Saharan Africa, national government expenditure on agriculture as a share of total spending declined from around 6.3 per cent in 1990/91 to 4.6 per cent by the end of the decade (FAO, 2003b). In many countries, government reduced funding towards agricultural extension, research services, investment in rural marketing and subsidies to agricultural inputs.

7.3 The WTO Agreement on Agriculture[1]

The Uruguay Round of the General Agreement on Tariffs and Trade (GATT) included a specific AoA that has become an important part of the World Trade Organisation (WTO). The objective of the WTO's AoA is to reform trade in this sector and to make policies more market-oriented. The AoA sets out commitments which countries had to apply over a six-year implementation period (1995 - 2000), but which will remain in force until a successor agreement. These commitments are in the form of 3 pillars: to reduce domestic support, to improve market access, and to cut export subsidies. The agreement does allow governments to support their rural economies, but preferably through policies that cause less distortion to trade. It also allows some flexibility in carrying out commitments. Developing countries do not have to cut their subsidies or lower their tariffs as much as developed countries, and they have extra time to complete their duties. Least-developed countries do not have to cut their subsidies at all. SADC has six least-developed member states including Angola, Democratic Republic of the Congo, Lesotho, Madagascar, Malawi, Mozambique, United Republic of Tanzania and Zambia.

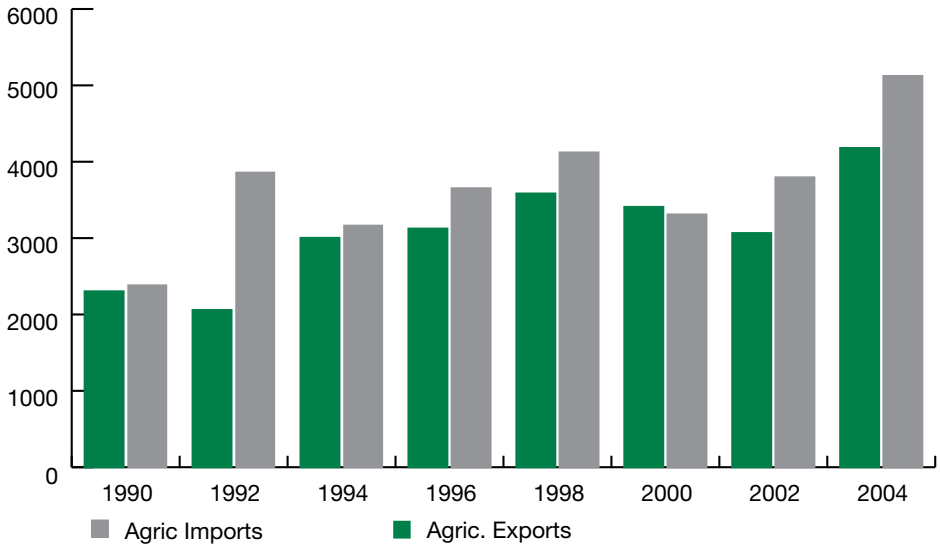
The main parts of the current agreement resulting from the Uruguay Round of multilateral trade negotiations in 1996 are in Annex 2. The WTO 4th Ministerial Conference, held in Doha 9-14 November 2001, closed with an agreement on the launch of a new round of negotiations to further liberalize world trade, known as the Doha Development Agenda (DDA). The 2001 Doha Ministerial Declaration commits WTO members to large cuts in market protection and trade-distorting domestic subsidies as well as cuts and eventually phase-out of all forms of export subsidies. At the same time it committed members to take account of non-trade concerns (for example environment, rural development, animal welfare) and to negotiate special and different treatment for developing countries. The fifth WTO Ministerial Conference in Cancun, Mexico (2003) did not make much progress as parties failed to reach an agreement. . The 6th WTO Ministerial Conference held in Hong Kong (2005) made some progress in moving forward the four-year-old Doha Development Agenda negotiations. As highlighted earlier the WTO membership agreed to end export subsidies in agriculture by 2013, with a large part realized by the mid-point of the implementation period (around 2010). The declaration made clear there would be no loopholes to avoid hidden export subsidies in export credit, food aid and the sales of exporting sales enterprises (Faizel, 2006). This study focused on the impact of reducing two of the AOA pillars: domestic support and export subsidies.

1 Detailed information on the WTO agriculture negotiations under the framework of the Doha Round is available at the WTO Agriculture website at www.wto.org.

7.4 Review of agricultural trade and food security in Southern Africa

Agricultural exports and imports in Southern Africa have been on the increase for the period 1990 to 2004 as shown in Figure 11. However the imports have surpassed the exports resulting in the region being a net agricultural importer.

Figure 11. Southern Africa trends in total agricultural imports and exports



Data source: FAOSTAT, 2006

South Africa is the largest exporter and importer of agricultural products in the sub region. South Africa accounts for almost 65 per cent of the exports and 33 per cent of the imports (see Figure 12a and 12b and Annex 3 for details).

Figure 12. Southern Africa's Exports and Imports by Country, 1990-2004

Figure12a. Exports, 1990-2004

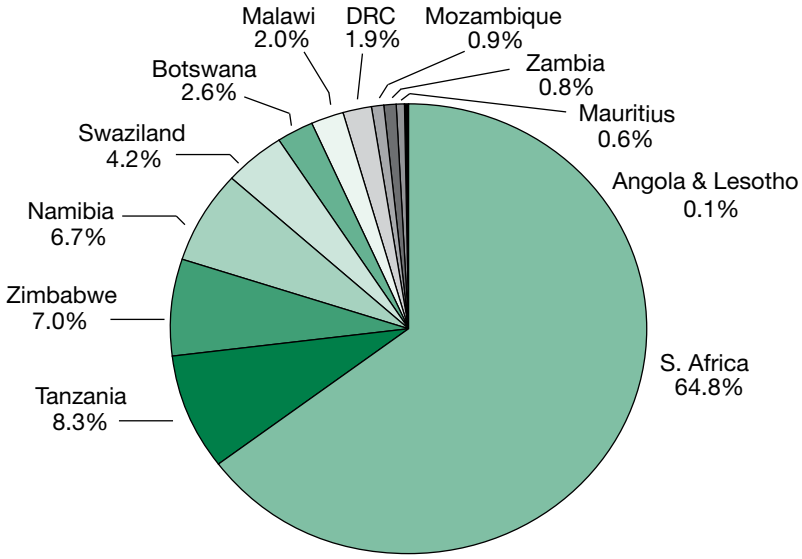
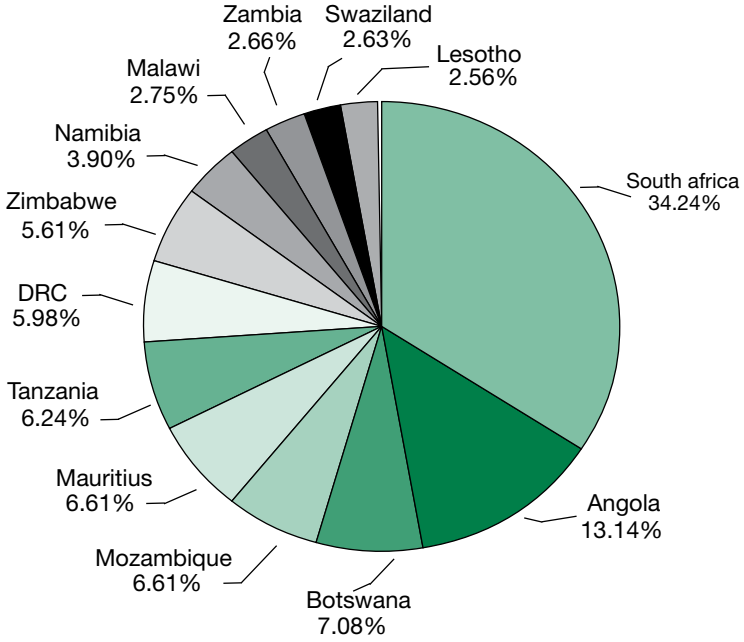


Figure 12b. Imports, 1990-2004



Source: FAOSTAT, 2006.

The main agricultural commodities produced for export in Southern Africa include sugar, maize, cottonseed, beef (bovine meat), dairy products, tea, coffee, tobacco, cashew nuts and horticultural products. Agricultural exports form a major source of foreign currency earnings, accounting for more than 10 per cent of total export earnings in 2004 Namibia, Malawi, Swaziland, and Tanzania. Agricultural exports accounted for more than 2 per cent of national GDP in Namibia, Malawi, Swaziland, Zimbabwe and Tanzania suggesting that they are a major source of revenue for countries in the sub region (see Table 7).

Table 7. Major Agricultural Exports for Southern African Countries in 2004

Country	Export value (million US $)	Agricultural exports as a % of total exports	Agricultural exports as a % of national GDP	Major agricultural export commodities and per cent to total agricultural export value
Angola	1.52	0.01	0.01	Coffee and Tea (55%), Millet (20%), Sunflower seed (9%)
Botswana	48.81	1.66	0.54	Bovine Meat (95%)
D R Congo	29.21	1.61	0.45	Coffee (58%), Maize (13%), cocoa beans (11%)
Lesotho	0.83	0.17	0.06	Vegetables (63%)
Malawi	74.26	14.76	3.91	Tea &Coffee (60%), Nuts (14%), Groundnuts (8%)
Mauritius	21.51	1.04	0.36	Wheat (53%), Barley (9%) Fruit and vegetables (18%)
Mozambique	48.19	3.71	0.82	Cashew nuts (63%), Sesame seed (19%), Maize (5%), Cottonseed (4%)
Namibia	148.95	10.98	2.61	Bovine Meat (37%), Wheat (18%), Maize (12%), Fruits and vegetables (20%), Barley (6%)
South Africa	3006.28	7.16	1.40	Grapes (29%), Other fruits (26%), Sugar (9%), Maize (7%), Wheat (4%)
Swaziland	168.82	18.74	6.75	Sugar (74), Fruits (21%)
Tanzania	236.08	18.47	2.09	Coffee and tea (34%), Cashew nuts (29%), Sesame seed (8%), Maize (5%) Vegetablesand fruit (8%), cottonseed (2%)
Zambia	95.50	6.01	1.77	Maize (56%), Coffee (20%), Vegetables (18%), Cottonseed (4%))
Zimbabwe	135.17	9.33	2.88	Sugar (30%), Vegetables and nuts (23%), Coffee & tea (14%), Barley (5%), Bovine meat (4%), Maize (4%), Cottonseed (3%), Wheat (3%), Dairy milk (4%)

Source: FAOSTAT, 2006. World Bank, 2005. The UN statistical database (COMTRADE) http://unstats.un.org/unsd/comtrade/

Using the revealed comparative advantage (RCA) concept, Krakoff (2003) found out that the sub region has competitive advantage producing sugar (Mauritius, South Africa, Swaziland, Mozambique, Zambia and Zimbabwe), bovine meat (Namibia, Botswana, Zimbabwe), fresh, chilled and frozen vegetables (Zambia, Tanzania, South Africa, Mozambique, and Malawi), fresh and dried fruit and nuts (Zambia, Tanzania, South Africa, Mozambique, Zimbabwe, and Malawi), maize (Zambia, South Africa), cotton (Zambia, and Zimbabwe), cashew nuts (Mozambique, Tanzania) tea and coffee (Malawi and Tanzania). Elimination of agricultural subsidies in developed countries may spur increased production of these commodities in Southern Africa.

Agricultural imports account for a significant part of some of Southern Africa's total import bill. Agricultural imports take 10 per cent of the total import bill in countries such as Angola, D.R Congo, Malawi, Mauritius, Mozambique, Tanzania, Namibia, and Zimbabwe. The major food imports vary across countries, but the most dominant in 2004 were wheat, maize, rice and milk as shown in Table 8. Following elimination of agricultural subsidies in developed countries, the prices of these products will change.

Table 8. Major Agricultural Imports for SADC Countries, 2004

Country	Import value (million US $)	Agricultural imports as a % of total imports	Agricultural imports as a % of national GDP	Major agricultural import commodities and per cent to total agricultural import value
Angola	826.87	16.89	4.22	Wheat (20), Maize and other cereals (17), Fruit and vegetables (17), Barley (13), Soyabeans and dry beans (10), Rice (8), Bovine meat (4), Milk (2)
Botswana	108.02	4.79	1.20	Milk (20), Fruit and vegetables (20), Sunflower seed (13), Sugar cane (7), Sorghum (6), Maize (5), Cereals nec (5), Wheat (3), Coffee and tea (4), Barley (2)
D R Congo	300.41	14.61	4.62	Wheat (25) Maize (12), Milk (12) Chicken meat (11), Cereals nec (9), Sugar (8), Barley (3), Fruit and Vegetables (8), Rice (3)
Lesotho	39.48	5.41	2.82	Fruit and Vegetables (27), Chicken meat (14), Milk (13), Meat (12), Maize (10), Wheat (7), Oilseed and spices (6), Rice (4), Barley (3)
Malawi	54.00	10.36	2.84	Maize (33), Cereals nec (15), Milk (11), Oil palm (7), Soyabeans (6), Fruits and vegetables (7), Groundnuts (5), Barley (4), Birds eggs (4)
Mauritius	346.58	15.11	5.78	Milk (16), Fruit and Vegetables (16), Wheat (14%), Rice (10), Cereals Nec (7), Maize (6), Sheep and goat meat (4), Sugar (3), Bovine meat (3), Cocoa beans (2),
Mozambique	319.10	23.31	5.41	Wheat (31), Rice (16), Oil Palm (12), Fruits and vegetables (8), Maize (5), Soyabeans (5), Cereals nec (5), Milk (3), Chicken meat (3), Barley (3)
Namibia	204.52	14.07	3.59	Oil Palm (58), Wheat (7), Sugar Cane (6), Barley (5), Cocoa beans (3), Cereals nec (3), Turkey meat (3), Bovine Meat (2), Maize (1.3), Fruits and vegetables (4)
South Africa	2022.22	4.98	0.94	Fruits and vegetables (24), Wheat (16), Walnuts (13), Vanilla (7), Turkey meat (6), Tea (5), Sugar cane (3), Starchy tuber roots (3), Soyabeans (2), Sorghum (1.2)
Swaziland	48.04	4.22	1.92	Bovine meat (18), Milk (17), Fruits and vegetables (18), Sunflower seed (10), Groundnuts (6), Bird eggs (6), Wheat (5), Nuts (4), pigmeat (2), Maize (2), Barley (2), Soyabeans (2)
Tanzania	339.71	15.55	3.01	Wheat (39), Oil Palm (23), Rice (14), Cereals nec (8), Sugar cane (8), Barley (3), Vegetables (3)
Zambia	130.32	7.55	2.41	Wheat (16), Oil Palm (16), Fruit and Vegetables (14), Soyabeans (10), Maize (8), Rice (7), Cereals nec (7), Barley (5), Milk (4)
Zimbabwe	383.17	23.13	8.15	Maize (32), Wheat (25), Cereals nec (14), Soyabeans (6), Oil Palm (5), Sorghum (3), Sunflower seed (2), Dry beans and peas (3)

Source: FAOSTAT, 2006. Note: cereals nec include cereal items that are not reported separately because of their minor relevance at the international level. Include buckwheat, canary seed, mixed grain, fonio and quinoa. The UN statistical database (COMTRADE) http://unstats.un.org/unsd/comtrade/

Southern African trade with developed countries, in particular the EU, is high in terms of both the exports and imports (see Annex 4 and 5). This is because the EU has had historical trade agreements with Southern African countries through the different Lome Conventions signed between the African Caribbean and Pacific Countries (ACP) and the EU under which the EU granted the ACP countries non-reciprocal trade preferences. In June 2000, the EU and ACP countries concluded the Cotonou Agreement in the form of Economic Partnership Agreements (EPAs), whose negotiations are currently underway and shall be concluded by January 1st, 2008. South Africa separately concluded a Trade, Development and Cooperation Agreement with the EU which came into effect in 2000 with a 12-year transition period (Manduna, 2005).

Some Southern African countries also have additional preferential treatment with the EU and USA, resulting in a substantial opening of the European and American markets under the Everything But Arms and the African Growth and Opportunity Act (AGOA) respectively. The Everything But Arms (EBA) initiative of the EU grants duty-free and quota-free access to the eight least developed countries in Southern Africa. Both initiatives increased trade between Southern Africa and the North. The major commodities exported to the EU from Southern Africa are sugar, beef, tobacco, coffee, tea, cotton, cut flowers, fruits and vegetables. Botswana, Namibia, Swaziland and Zimbabwe have a quota-restricted access of boneless beef and veal to the EU market. Some countries also have preferential trade to the EU on sugar.

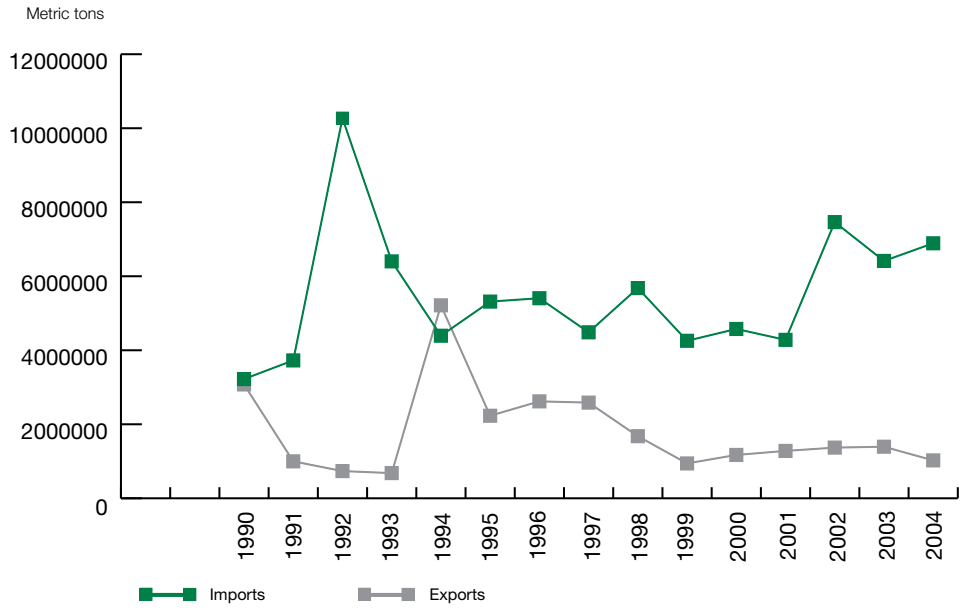
> *"Cereal grains are a major proportion of the subregional diet"*

Overall evidence suggest that Southern Africa has not taken full advantage of the preferences because of supply side constraints and non tariff barriers, in particular, the high phyto-sanitary (SPS) standards of the developed countries (UNECA, 2004, Sandrey, 2006, Manduna, 2005, Malzbender, 2003).

7.5 Food import dependence and import capacity in Southern Africa

More than 53 per cent of the diet of Southern African countries is derived from cereal grains (maize, wheat, rice, millets and sorghum). White maize is the staple for most of the countries. Figure 13 shows the trend in cereal exports and imports in the sub region between 1990 and 2004. On average between 1990 and 2004, the countries have exported just under 2 million tons per year and imported around 5.9 million tons of cereals per year. The region is thus a net importer of cereals, with an average net deficit of 3.9 million tons a year. About half the cereals deficit is made up of imports of wheat, wheat flour and rice (FAO, 2006).

Figure 13. Southern Africa Cereal Imports and Exports

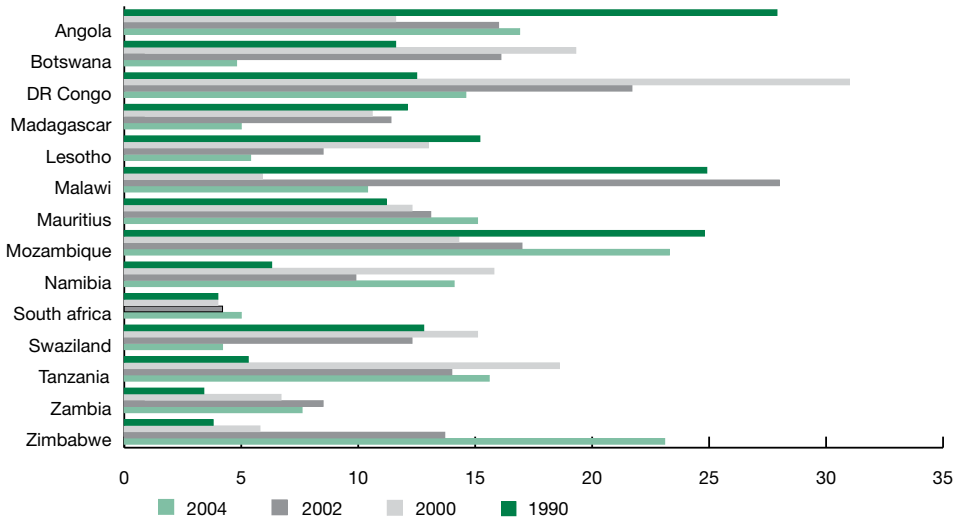


Data source: FAOSTAT, 2006.

The major exporters of maize in the sub region are South Africa, Tanzania (from 1999), Mauritius and Zimbabwe (up to 2000). Most of the maize exports are within the sub region. All the Southern African countries are large importers of cereals but the degree of dependence on cereal imports is markedly different between a group made up of Botswana, Lesotho, Namibia and Swaziland where more than 60 per cent of national supplies typically come from imports, and the rest of the other countries where imports make up between 10 and 20 per cent of annual consumption. Southern Africa was traditionally not a big importer of wheat from the EU. However since 2002, most of the imports of wheat and wheat-based products into South Africa, DR Congo, and Angola have been from the EU (Malbender, 2003).

Food import dependence and food import capacity assess the level of import dependence and ability to finance food import needs from export earnings (FAO, 2003, Gayi, 2006, Valdés and McCalla 1999). Food import dependence is the share of food import costs (in this paper costs of all imported agricultural commodities including cereals and others make up) in the total import costs). Figure 14 shows that countries that are increasingly depending on food imports over the period 1990 to 2004 were Mozambique, Zimbabwe, Angola, Tanzania, Mauritius, D. R Congo, Namibia, and Malawi. The countries whose food import dependence increased from 1990 to 2004 include Zimbabwe and DR Congo.

Figure 14. Food import dependence in Southern Africa

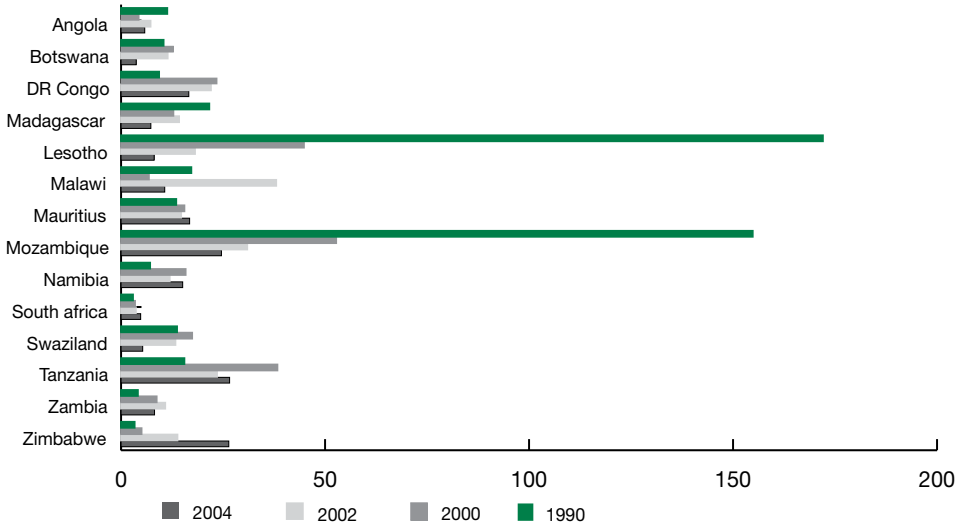


Source: Calculated from data from FAOSTAT, 2006.

The food import capacity (FIC) of a country is a more reliable indicator of a country's food security level compared to food import dependence (Gayi, 2006, Valdés and McCalla 1999). The food import capacity is the ratio of food import value (spending) to the total export value (excluding services). It captures changes in food import needs for a particular country and ability to finance these from own resources. Generally, a FIC more than 0.25 suggests that a country has a lower capacity to finance food imports and therefore has some level of vulnerability to food insecurity that may stem from domestic harvest shortfalls or higher world prices. Such countries require measures to improve food security, food or financial aid, and diversification of the economic base, including improvements in agricultural productivity (Valdés and McCalla 1999, Gayi, 2006, Wilson 2002). In 2004, Southern African countries that had lower capacity were Zimbabwe, Mozambique and Tanzania. Countries that had high capacity include Botswana, South Africa, Angola, and Swaziland.

An increase in the FIC indicator over a time period points to a decrease in the capacity of the country to finance imports. Over the period 1990 to 2002, countries that experienced a decline in FIC (that is, increased ratio of FIC) include Mozambique, Zimbabwe and Tanzania. These countries also experienced increases in food import dependence suggesting some added vulnerability to food insecurity (Figure 15). Because of their high food dependence and low food import capacity, these countries are more likely to be vulnerable to world price changes because of elimination of agricultural subsidies in developed countries.

Figure 15. Food Import Capacity in Southern Africa



Source: Calculated from data from FAOSTAT, 2006.

Prices of cereal grains will increase

This section has revealed that the most dominant food imports in the sub region are wheat, maize, and rice. Elimination of agricultural subsidies in developed countries can impact negatively on some countries in the sub region that are import dependent and that have low capacity to import. The most vulnerable countries include Mozambique, Zimbabwe and Tanzania.

7.6 Simulation results of analysing the impact of reducing developed countries' export subsidies and domestic support on Southern Africa

7.6.1 Impact on world market prices

The world price of maize, rice, wheat and sugar will increase with cut of export subsidies and domestic support in developed countries. The international prices of wheat, raw sugar and maize increase significantly by 2,8 per cent, 1.7 per cent and 1.2 per cent respectively under the full liberalization scenario (see Table 9). Comparing across scenarios, increases in world prices for the conservative simulation are about one-half of the ambitious simulation. These results are similar to what others found. Elbehri and Leetmaa (2001) using computable general equilibrium modeling also found that the impact of removal of export subsidies will result in a positive increase in the world price of wheat, coarse grains and beef.

Table 9. International prices changes (%)

Policy Scenario	Wheat	Rice	Maize	Sorghum	Sugar*
Scenario 1	2.8	0.6	1.2	0.2	1.7
Scenario 2	1.4	0.3	0.6	0.1	0.8

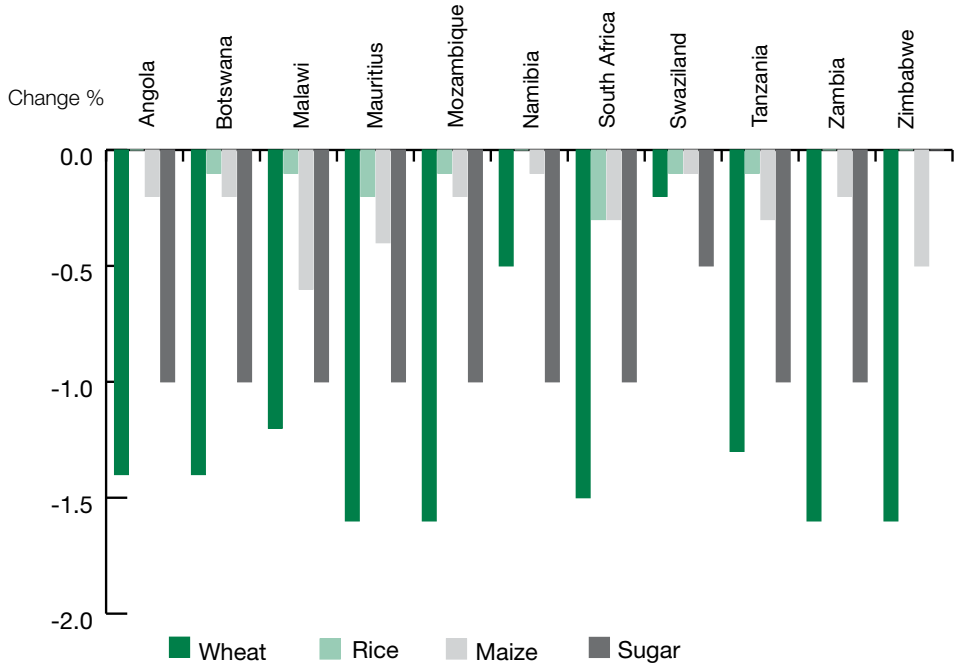
Source: ATPSM Simulations. * Sugar refers to raw sugar in these simulations.

7.6.2 Impact on food production

> *Subsidies reduction will stimulate production*

In response to the price changes, the production in different countries would adjust in line with their new competitiveness under the different scenarios. Simulation results under all scenarios (see Figure 16) show that elimination of agricultural subsidies in developed countries stimulates increased production of maize and raw sugar in all Southern African countries. Elimination of developed countries' domestic support and export subsidies on wheat stimulates increased production in Zimbabwe, Zambia, Tanzania, South Africa, Namibia and Botswana.

Figure 16. Changes in Production (Scenario 1)



Source: ATPSM Simulations.

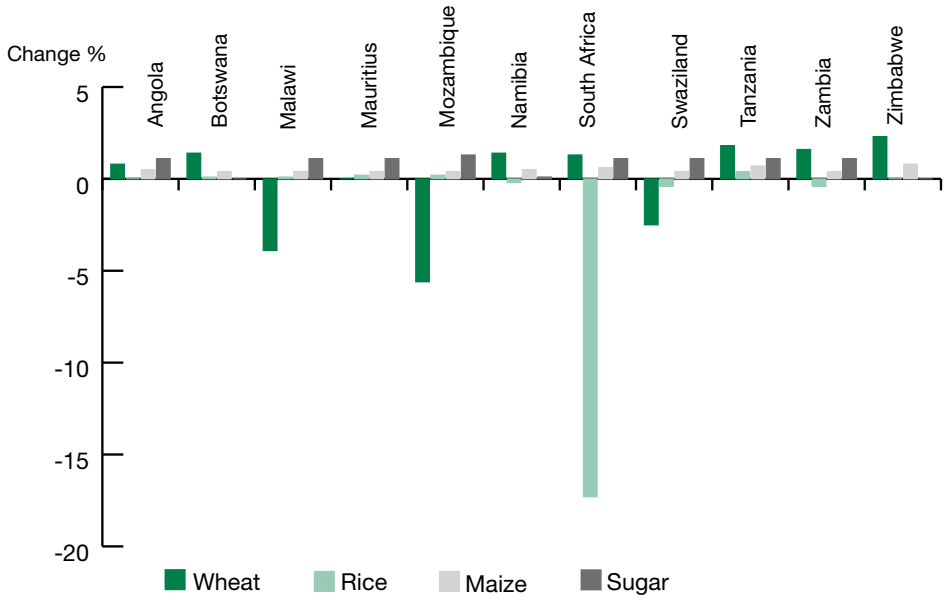
Consumption will decrease due to increased prices

However in Mozambique, Malawi, and Swaziland production of wheat will decrease. Small increases in rice production will occur in some countries noticeably Tanzania, Mozambique, Mauritius and Malawi. Rice production in South Africa will experience a huge decline possibly showing some decline in domestic support. Overall the sub region benefits from full and partial elimination of developed countries' subsidies by production of the main food commodities wheat, maize, and sugar.

7.6.3 Impact on food consumption

All the countries in the sub region experience a decrease in consumption of the food items because of transmission of increased world prices to domestic markets (see Figure 17). These observations for Southern Africa are consistent with the theory that cuts in developed countries' agricultural subsidies have negative food security implications as increased prices will reduce affordability and consumption of food. The product most affected by the decrease in consumption is wheat whose price experiences the greatest increase with the elimination.

Figure 17. Changes in Consumption (Scenario 1)



Source: ATPSM Simulations.

7.6.4 Impact on trade performance

Liberalization of developed countries' domestic support and export subsidies on maize, wheat, rice and sugar results in increase in exports of maize and sugar in all countries in the sub region under the two scenarios. Exports of sugar increase significantly in Mauritius, Zambia, Malawi, Angola, Tanzania, South Africa and Swaziland (see Annex 6). As the world price of maize only slightly improves, maize exports of the Southern African economies will not change except for Zimbabwe. With rice, small increases will occur in some countries noticeably Tanzania, Mozambique, Mauritius and Malawi. Rice exports from South Africa experience a huge decline.

The elimination of developed countries' subsidies will result in massive cuts in imports by Southern African countries especially for raw sugar and maize. Decrease in imports of wheat and rice will occur in all countries except for South Africa and Zimbabwe where there is no change. All Southern African countries have a positive change in trade balance for wheat (except for South Africa and Zambia), rice (except for Tanzania, Mozambique and Malawi), maize (except for Malawi, Zambia, Mozambique, Swaziland, Angola and Tanzania), and sugar (except for Angola, Mozambique, Namibia and South Africa) (see Table 10). Countries that experience a negative change in trade balance for maize (ie. Angola, Malawi, Mozambique, Tanzania and Zambia) are of special concern for food security since it implies their import bill has increased significantly. As noted earlier, these are countries that have high prevalence of malnutrition, high food import dependence and lower levels of dietary energy supply.

Table 10. Changes in Trade Balance

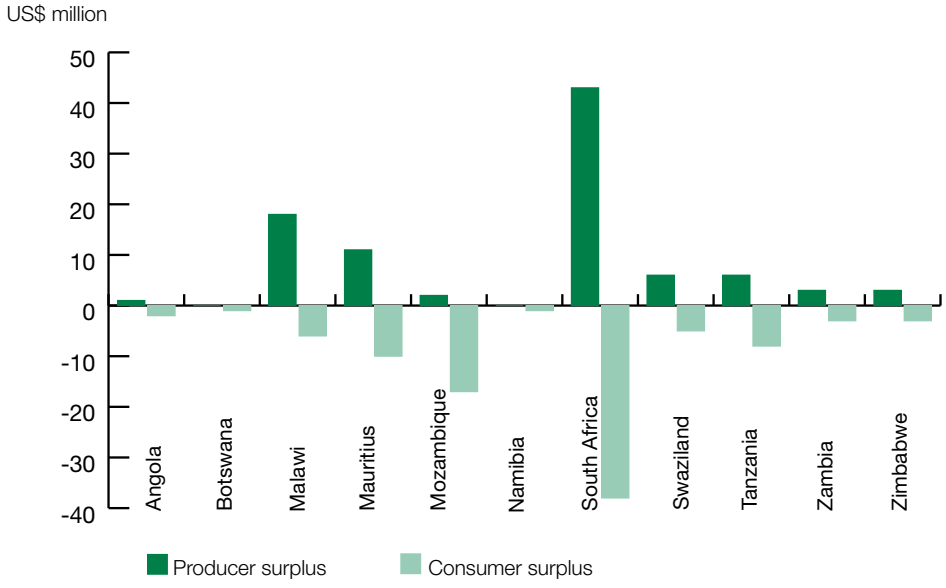
Country	Change in Trade balance (%)Scenario 1				Change in Trade balance (%)Scenario 2			
	Wheat	Rice	Maize	Sugar	Wheat	Rice	Maize	Sugar
Angola	1.4	0.5	-0.6	-1,562	0.7	0.3	-0.3	-782
Botswana	1.4	0.4	1	1	0.7	0.2	0.5	0
Malawi	1.6	-1.6	-62.8	54,667	0.8	-0.8	-31.5	27,387
Mauritius	1.2	0.4	0.6	246,535	0.6	0.2	0.3	123,507
Mozambique	1.2	-0.2	-16.9	-80	0.6	-0.1	-8.5	-40
Namibia	1	0.5	0.8	-1	0.5	0.3	0.4	-1
South Africa	-22.5	2.4	3.6	-2,891	-11.2	1.2	1.8	-1,448
Swaziland	1.3	0.3	-0.1	1,333	0.7	0.1	-0.1	668
Tanzania	0.7	-1.3	-33.8	3,332	0.4	-0.6	-16.9	1,669
Zambia	-2.3	0.7	-50.8	86,744	-1.1	0.4	-25.5	43,456
Zimbabwe	44.3	0	196.3	0	22.1	0	98.6	0

Source: ATPSM Simulations.

7.6.5 The impact on total welfare

ATPSM calculates consumer, producer and government surpluses. Consumer surplus will decrease in countries suffering an increase in prices as a result of cuts in export subsidies and domestic support in developed countries. Producer surplus will increase because of price increases. Consumer surplus in all the countries in the sub region decrease significantly, with a sub regional total drop equal to USD 94.9 million (Figure 18). Producers from all the countries in the sub region benefit from elimination of developed countries' agricultural subsidies, with South Africa, Malawi, and Mauritius recording the highest gains. Comparing across commodities, maize is the commodity experiencing the greatest increase in producer surplus and the largest decrease in consumer surplus, followed by sugar. Although the price of wheat increases largely, wheat being a temperate crop, the EU and the USA have a comparative advantage in producing wheat, thus producers in the sub region face stiff competition from the North. Southern African countries will continue to be net importers of wheat, at higher prices. This is a major source of consumer welfare loss as shown in Figure 18. Table 10 also shows the trade balance of wheat increases implying increased costs for imports of wheat. The same applies to rice where the sub region mainly depends on import. Rice production needs irrigation and the sub region does not have enough water resources to produce rice at a great extent (Van Rooyen and Sigwele, 1999). Government surplus is positive in all the Southern African countries.

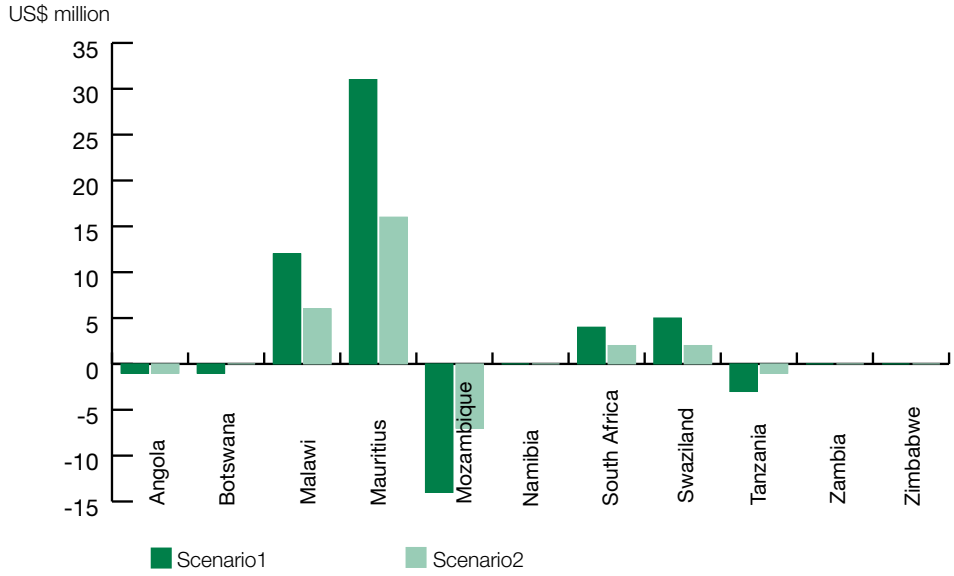
Figure 18. Changes in consumer and producer surpluses



Globally, the total surplus improves for all the countries in the sub region except for Mozambique, Tanzania, Angola, Botswana, Namibia, and Zambia (Figure 19). Countries suffer welfare losses mainly because consumers' losses largely exceed producers' gains and government surplus. These results confirm the findings from a study by UNECA in 2004 on a 100 per cent elimination of domestic support and export subsidies.

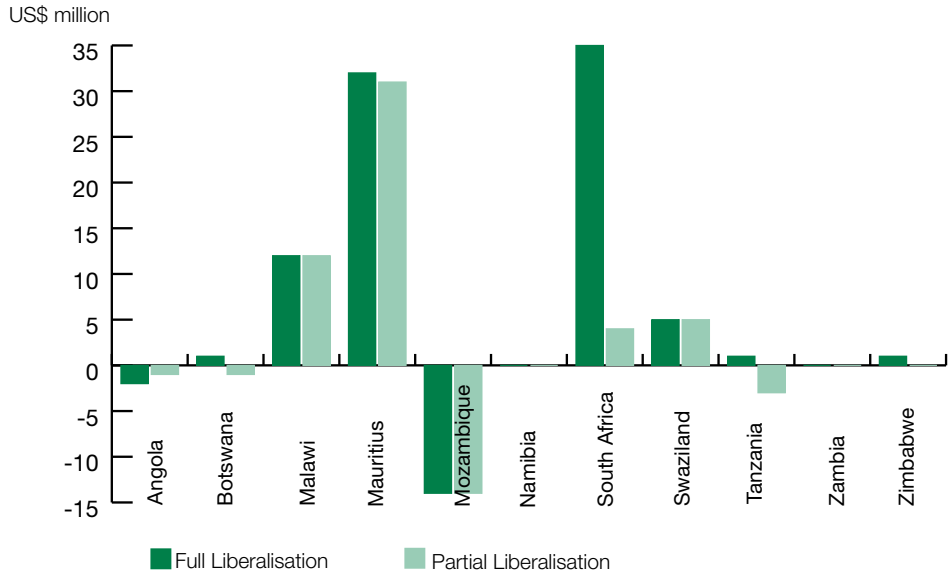
Simulation of scenario 3 that includes bovine meat as well as maize, wheat, rice and sugar yields gain in total welfare as those countries that have capacity to produce beef increase production and exports (see Figure 20).

Figure 19. Impact on total welfare



Source: ATPSM Model simulations.

Figure 20. Impact on total welfare Scenario 3



Source: ATPSM Model simulations.

7.7 Gender dimensions of the impacts

The ATPSM used to assess the impact of the elimination of developed countries subsidies does not provide the impact by gender. Yet we have already alluded to the gender dimension in the agricultural sector in the sub region. This section uses the results of ATPSM simulations and available literature on gender and trade to make inferences on the likely impacts. Literature suggests that changes in trade have different impacts on women and men because of the existing gender inequality in the roles they play in agricultural production. Cash crops (sugar, cotton, tobacco) are men's crops and men control the money received from them, even though women might do large amounts of the work in producing them. As pointed out earlier, women form most of the smallholder farmers in Southern Africa. Women in both rural and urban areas are almost only responsible for the food security of their households either through smallholder farming of food crops, or through income earned from informal sector income creating activities or employment on commercial farms.

Although sugar production in most of the Southern African countries is a large-scale commercial farm crop, small-scale producers have entered production as independent or cooperative producers. Elimination of developed countries' subsidies may benefit both men and women, however, men will benefit more than women. Even in employment generation on large-scale commercial farms, men would benefit more than women. Increase in prices of imported food such, as wheat, maize and

rice will negatively impact urban women who are net buyers of these commodities. However for rural women who are smallholder producers of food crops, this might be valuable as they can market their surplus at better prices. Unfortunately limited rights to land ownership and irrigation rights, limited access to markets, credit, education, technology and extension limit women's response to favourable prices.

The socio-economic impacts of HIV/AIDS on rural livelihoods have aggravated gender inequalities. This increases women's workload. As the traditional caregivers, women still have to meet the food production needs of their households. Given the central role played by women in sustaining rural livelihoods, governments should address the institutional, social and economic constraints that limit women's ability to improve agricultural production.

7.8 Policy implications of elimination of developed countries' agricultural subsidies for food security in Southern Africa

Table 11. Summary of the impact results of removing developed countries' agricultural subsidies

	% Agriculture. to GDP 2005	Food import dependency %	Vulnerability to food insecurity based on FIC	Vulnerability to food insecurity based on DES	Main source of food security	Importance of agriculture as source of foreign exchange earnings	Simulation results on overall welfare
Lesotho	15	5	Moderate	Low	Wages; remittances	Low	n.a
Zambia	19	8	Moderate	High	Smallholder; agricultural wages; LSC	High	Negative
Zimbabwe	20	23	High	High	Smallholder; LSC; wages; remittances	High	positive (insignificant)
Tanzania	43	16	High	High	Smallholder; wages	High	Negative
Mozambique	24	23	High	High	Smallholder farming	Moderate	Negative
Angola	7	17	Low	High	Smallholder	Low	Negative
Malawi	36	10	Moderate	Moderate	Smallholder; remittances	High	Positive
DR Congo	42	15	High	High	Smallholder	High	n.a
Botswana	3	5	Low	Moderate	Wages; remittances	Moderate	Negative
Namibia	9	14	High	Moderate	Wages; remittances; smallholder farming in the north.	High	Negative
South Africa	3	5	Low	Low	LSC; Wages; remittances; Smallholder in some parts	Moderate	Positive
Swaziland	14	4	Low	Low	Smallholder; Wages; remittances	High	Positive
Mauritius	5	15	High	Low	Wages; Smallholder farming in some parts	Low	Negative

The findings from this study show the total welfare gains from elimination of agricultural subsidies in developed countries are positive for Southern Africa as a sub region. Producers in Southern Africa are the major winners as they increase production and exports of the agricultural products they have a comparative advantage in. Products that benefit most include sugar, maize, and bovine meat. However results are different for the different countries. In more than half of the countries in the sub region the overall welfare is negative in the short run (see Table 11). This is because consumer loss is greater than producer benefits. Consumers in net importing Southern African countries suffer from higher food prices and will thus lose. The worst affected countries are Mozambique, Angola and Tanzania. This is partially because these countries have high food import dependence and are thus negatively affected by removal of agricultural subsidies in developed countries. Overall, these findings are consistent with results from other studies (Peters (2006), Peters and Vanzetti (2004), Bureau et al (2006)) which show that consumers in net food importing countries will become vulnerable to food insecurity. The most affected crop is wheat, followed by rice and maize. However, caution is needed when making inferences from these results. This is because of the static and partial equilibrium nature of the model used. A dynamic framework may yield a different outcome as it will be able to consider longer-term adjustments in investments in the agricultural sectors in net food importing countries, and changes in patterns of consumption.

7.8.1 National level Policy implications

7.8.1.1 Policy implications on the negative impact on food security

The negative impact on food security in food importing countries in the sub region following the reduction in agricultural subsidies in developed countries is of great concern. The sub region is already vulnerable to food insecurity as explained by Table 11. In the short run, it is very difficult for Southern African countries to achieve self-sufficiency in wheat and rice production. Countries have to find strategies of mitigating the increase in the costs of importing wheat and rice. Further, during the same period, countries have to find ways of negotiating for special and different treatment for food crops such as wheat, rice and maize. Maize makes up part of the staple diet in all countries in the sub region followed by wheat. The demand for these products is inelastic in the short run.

In the long run, there is need to influence change in taste from wheat based products to the products the sub region has a comparative advantage in producing such as millets, cassava and sweet potatoes. These crops contribute significantly to food security in Angola, Mozambique, Malawi, and parts of Zambia, where cassava in particular already provides the largest source of calories after maize. These crops' adaptation to arid environments, their contribution to household food security, and their great flexibility in mixed farming systems make them an important part of a targeted strategy that seeks to improve the welfare of the rural poor. However, their potential is not being exploited in some countries because of

poor use of such commodities, in particular, cassava. There is, therefore, need to promote programmes that can influence the consumption patterns towards these crops.

In the long run, countries should aim to improve their domestic supply capacity to improve availability of food by adopting deliberate policies that address the underlying structural causes that increase their vulnerability to food insecurity. Priority areas of intervention are policies that increase small-scale irrigation, promotion of proper technologies, improved infrastructural support, improved role of women, investment into agricultural research and extension (FANRPAN,2003, Kalibwani, 2005, Manduna, 2005).

Given the important role of women in food production, one long run policy implication is to strengthen the role of women. This is achieved by easing access to agricultural credit, land, irrigation, agricultural inputs and technologies, extension services, and training.

"Improve productive capacity in response"

One of the main reasons for high prevalence of food insecurity is drought. One area that is under exploited but has great potential in boosting agricultural production and food security in the sub region is irrigation: only 2.2 million hectares in the sub region or only about 6.2 per cent of arable land in the sub region is under irrigation. The irrigation development potential for southern Africa is high particularly in Angola, Mozambique and Zambia where there is more than 70 per cent of undeveloped land that can be irrigated to increase cereal production largely. Expanding irrigation opportunities to the smallholder sector can generate a major source of food security, income generation and livelihood.

7.8.1.2 Policy implications for improved production and exports

The study has shown that exporting countries in the sub region are likely to benefit from removal of developed countries' subsidies especially for commodities like sugar, beef and maize. More than 60 per cent of Southern Africa's population lives in rural areas and depend on smallholder agricultural production as their major source of livelihoods. Countries that have pro-smallholder agricultural policies will be able to respond to the price incentives from cutting out subsidies. Increased production of cereals smallholder producers will strengthen long-term food security in the rural sector. Decrease in developed countries' subsidies for beef and sugar can directly improve the incomes of the smallholder producers producing these commodities and those employed in large-scale commercial production of the commodities. This will ensure food security sustainability in the long-term.

It is important that Southern African countries develop their productive capacities to adequately and timely respond to the expected increase in world prices. This involves strengthening policies that support agricultural production and boosting agricultural trade by addressing the production and marketing constraints. The major issues affecting agricultural production and trade in the sub region include: limited infrastructural development; inability to meet sanitary and phyto-sanitary (SPS) rules; lack of value addition; limited

market information, recurrent drought; institutional problems (such as land tenure); limited production skills; lack of economic growth and poor governance (Manduna, 2005).

Policies that are essential are those that can improve the productive and technological capacities, marketing skills, improve transport channels, provide technical support to strengthen proper technical and sanitary rules to fully exploit the improved market access.

7.8.2 Sub regional level policy implications

Regional cooperation has a role to play in assuring food always at moderate and stable prices. RECs can help create an enabling environment that mitigates the negative impacts of removal of developed countries' subsidies and foster food security. The potential role of SADC and COMESA include:

- Encouraging their member States to negotiate for a gradual removal of subsidies to avoid shocks in price changes in the current WTO negotiations.
- Helping countries to tap from the aid for trade initiative within the WTO or negotiate for increased resources and effective mechanisms within the EPAs to finance investments in the agricultural sectors of the region.
- Capacity building for skills development to help producers and exporters improve the competitiveness of their products.
- Strengthening their support to member States to address agricultural production and trade constraints in the areas of regional transport, sanitary and phytosanitary standards, market information and promotion and research and development.
- Negotiating for financial and technical help to develop capacity needed to ensure that SPS and standards needs of the major markets are met.

Although the study has focused on subsidies, Elbehri and Leetmaa (2001), Hertel and Keeney (2005) estimated that reduction of tariffs by developed countries would yield greater benefits to developing countries' when compared with reduction in agricultural subsidies. USDA (2001) found that export subsidies account for 13 per cent of market distortions in agriculture, domestic support accounted for 31 per cent and tariffs accounted for 52 per cent. Estimates by Hertel and Keeney (2005) show the majority of the global benefits from trade liberalization are from decline in tariffs that is 92 per cent benefits from elimination of export subsidies and domestic support were small accounting for 2 per cent and 4 per cent respectively. An important policy implication is the need for Southern African RECs to continue negotiating for greater market access, as it will yield more welfare gains. They should also negotiate for improved market access for value-added agricultural goods such as processed sugar products to improve foreign currency earnings. This can help strengthen countries' ability to finance food imports.

7.9 Major developed country subsidy issues

Table 21 summarizes the major issues surrounding developed country subsidies, outlines proposed strategies, and identifies the actors.

One of the effects of the removal of such subsidies is a widespread increase in world prices for most commodities. This could either benefit or disadvantage a developing country, depending on whether the country's net trade position for the commodity in question. While net exporters would gain from the price difference, net importers stand to lose. As the results have pointed out, most of the countries in the sub region fall in the latter category. Thus, most of these countries would incur large declines in food consumption as food becomes less affordable with price increases. The low incomes and rather high import dependence that characterize of most of the countries in the sub region do not help matters.

However, in the long run, and if combined with proper public investments and policy choices, the high world prices could stimulate increased production. The governments and the sub region could benefit from elimination of subsidies because of increased production and improved balance of payments.

In general, therefore, the producers and the governments could record positive welfare gains if productive capacities and ability to respond to price incentives improve. However, the effects on consumers could be damaging (because of high cost of food) unless their buying power improves. Indeed, the demand side is an important part of the food security equation in the sub region. This is more so because a large part of the population enters in food markets as buyers (estimated at more than 40 per cent in Zambia). The challenge is for the governments and other stakeholders to realize and understand all the potential benefits and costs, and take appropriate action on both the supply and demand side. Clearly, failure to achieve this in the shortest possible time could lower the sub region's already low food security levels even further.

RECs should promote trade both within and outside the region and survey and evaluate policies to ensure they work. They should also negotiate for market access for the region's exports to increase export earnings which finance food imports and cushion the negative impact of removal of subsidies on consumers. To achieve this, countries need to improve their SPS standards to meet the world market needs. Member States should work with RECs to strengthen SPS measures in the sub region.

VIII. Conclusions and Recommendations

8.1 Food aid and food security

The high poverty levels in most countries and the high incidence of drought, floods and cyclones, which impact negatively on production necessitate the need for food aid in the sub region. The sub region now has the largest proportion of food insecure people in the world.

Food aid affects the output and input markets. These effects are most visible in the output and input prices in and around the markets served by food aid. Because of targeting, and sometimes timing challenges, food aid creates local producer price depressing effects. Whether this is bad or good is subject to debate. Some evidence shows the effect such developments have on attainment of food security. There are several pathways through which this is so. First, by directly handing out food in communities where it is rare, food aid increases availability of food to the affected households. Second, because of poor targeting, some of the food leaks to the market and depresses local prices of the commodity and its close substitutes. This latter effect improves the accessibility aspect of food security for many poor households by making food more affordable. This is especially important in the sub region, where most of the poor households do not produce food and enter in the food markets as net buyers of food. Besides, the price dampening effects of well-timed food aid (that is when it is distributed at times of critical food shortages and abnormally high prices) only levels off the extreme price spikes, which might have the net effect of stabilizing the local prices.

Other local level benefits of food aid include social infrastructure development, improved school attendance, strengthened access to and capacities to use improved technologies. Also, by protecting asset depletion, food aid protects and keeps productive assets, which often act as insurance against food insecurity. All these improve household food security in the long run.

However, several adverse effects of food aid exist. Prominent among them is that food aid increases dependency and, through the price dampening effects, could produce disincentive effects that could discourage future production. This is especially so if food aid volumes are large enough compared to production levels. The extent to which these two effects combine affect the long-term sustainability of food security varies. For Southern Africa, an analysis of this question used a panel data of 8 countries and 25 years (1980-2004) in a dynamic VAR framework.

The results, while confirming the existence of an inverse relationship between food aid and production, failed to affirm the assertion that food aid discourages production. All

the food aid lags in the food production equation were not statistically significant at any acceptable significance. On the contrary, food production lags explain variations in food aid. However, this relationship holds in statistical terms only four years after the production shock. Collectively, the association between food aid and food production exists only if the analysis does not consider net imports. When commercial net imports are fully accounted for, the relationship becomes insignificant in either direction.

The evidence further suggests that agricultural stagnation has more to do with the interplay of natural and structural causes than food aid. Cross-cutting aspects such as outbreaks and incidences of epidemics, for example, have significant adverse effects on food production, and on the need for food aid. These include, among others, HIV/AIDS, Malaria, dysentery, typhoid, and other water- and airborne diseases. Using absolute elasticity, (a unit less measure of responsiveness estimated for each statistically significant variable), it appears production is most responsive to rainfall. However, standardized rainfall is not the only important factor. In fact, taking all the lags of food production into consideration, collectively they form the most important cause explaining the variations in food production in the region. Because an increase in food production is followed by continued decreases in food production suggests the existence of structural and institutional inadequacies in these countries. Indeed, most of the much-talked about disincentive effects come from the system's failure to motivate future production during times of surplus food production.

Several characteristics of the economies and policy structures of the countries of southern Africa are consistent with this observation. Trade controls which ban exports during periods of glut and impose import taxes during shortages, are a source of production risk and disincentive. The immediate effect of banning exports during 'bumper' harvests is a drop in the local prices, which in turn encourages the farmers to plant less the following season. Besides, the poor marketing infrastructure and the resultant high transaction costs inhibit profitable intra-country trade when prices are low in the wholesale destination markets of urban areas. Poor storage facilities and high poverty levels also mean the producers are unable to hold their stock and await better prices.

Despite the unclear disincentive effects, especially at national level, the sub region cannot depend on food aid and food aid should be considered only when there is severe crop failure that threatens both production and productive capacity. Even then, food aid should be the last resort and should also contain elements of rehabilitation and recovery with the final goal of doing away with food aid. In the longer run, it is important to intensify poverty eradication efforts to address the underlying causes of vulnerability.

8.1.1 Recommendations on Food Aid

Based on the findings discussed above, the following recommendations have been arrived at:

8.1.1.1 National Level

There is need to understand the net effects of food aid and to draw effective food aid management and surveying mechanisms that will minimize the undesirable unintended effects, while maximizing its benefits. The scattered evidence of dependency arising from food aid needs to be addressed by putting in place and enforcing policy requirements to force implementers to internalize such possibilities. This is especially important in and around the local markets affected by food aid. Closely related to this is the need for each of the southern African countries to carry out a comprehensive review of the terms provided for by existing legislation and use it as a foundation on which to build effective policy terms for managing food aid.

Countries need develop long-term policies and plans to address food security in a holistic manner rather than to rely on short-term solutions. The key is to understand and address the underlying causes of poverty and food insecurity.

Enhancing productivity by addressing constraints to the sector is the surest way to reduce the need for food aid. There is need to increase the proportion of the national budget towards irrigation development to enhance production and reduce the food gap currently being met through food aid. By reducing the region's dependency on rain-fed agriculture, this lessens the occurrences, magnitude and impact of food aid in the region. Other strategies to enhance productivity should focus on technology, extension services, seed, finance and human resources capacity.

One of the challenges in food aid relates to targeting. The improvement of targeting requires reliable and timely information on the vulnerable population. However, most countries in the sub region lack reliable information about the characteristics and location of the vulnerable. The development of effective early warning systems capable of providing accurate information in a timely manner is critical in food aid distribution.

Countries should allocate more resources towards research the agronomic and economic viability of drought resistant seeds to help overcome problems caused by droughts. This requires collaboration with RECs and other development partners as it can help overcome the constraints imposed by erratic rainfall patterns which have become a frequent occurrence in the sub region.

There is need to reduce transaction costs in the local markets to encourage intra-country trade. This could be done in several ways:

a) Improving local marketing infrastructure. As evidence has shown, interventions that solve structural inadequacies, such as infrastructure development (roads, storage facilities), correction of inequalities in land access (Zimbabwe), and market reforms (minimization of politically motivated market interference) could have an even greater pay off.
b) Identifying markets in which increasing returns to marketing exist. Encouraging bulking in such markets through farmer groups could greatly reduce the market intermediary's transaction costs with the net effect of narrowing spatial price spreads.

Countries should encourage trade to help curb the production disincentive effects arising from overproduction. Enhanced regional and international trade could help stabilize regional prices as commodities move freely between countries. For trade to be effective, there is need to address the high transport and distribution costs. Surveys have shown that transport costs alone account for more than 60 per cent of total budgets earmarked to food aid. Thus, it is important to improve sub regional trade and transport infrastructure, promote trade and develop adequate and efficient national systems needed to deliver food to the most vulnerable.

Agrarian reforms to increase agricultural productivity through technology development and adaptation should be the focus of national governments. Further, countries also need to increase investment in public health to minimize the incidences of serious disease outbreaks as such outbreaks could impact negatively on production and productivity. HIV/AIDS has emerged as one of the sub region's biggest challenges in recent years.

National governments should promote private sector involvement in food aid procurement to strengthen and deepen the local food markets. Participation of the insurance, futures markets, transport actors and other relevant private sector stakeholders within the context of regional markets integration should be the basis of sustainable drought risk mitigation strategy. Also, more attention should be focused on improving business investment opportunities to promote private economic exchange.

8.1.1.2 Regional level

RECs should ensure that the sub region harmonizes trade policies to facilitate the attainment of sustained food security. More open trade policies benefit all countries at different times of the year. The various trade corridors in the sub region will certainly be important in moving food from surplus to deficit countries. The free flow of commodities could ensure sustainability of food security in the region as a whole. As SADC moves

towards a Free Trade Area in 2008, the removal of barriers to trade with ensure easy movement of food. To assist member States, RECs should facilitate the gathering and dissemination of information on food availability and trade requirements including standards, grades and SPS. With respect to food aid, RECs could broker procurement and transiting of commodities. This is especially important for GM foods, banned in a few member states.

RECs should take the lead in coordination and harmonization of policies and approaches on food aid, as well as in enhancing their individual capacities in international trade, vulnerability assessments, and early warning through enhancing the human resource capacity of member States. In this regard, the activities of SADC on strengthening capacities of national early warning systems already underway should be beefed up. The advent of the AgroMetShell (AMS) modelling system, for example, and the current effort to promote its use in the region as a cost-effective source of crop forecast information presents a real opportunity to predict weather patterns. SADC should strengthen the capacity of national Vulnerability Assessment Committees (VACs) in the design and undertaking of their responsibilities to improve accuracy of predictions.

SADC should promote a Regional Food Aid Charter as an institutional arrangement defining the optimal quality of food aid, the source of procurement, with a great focus on local and regional procurement, the timing, types and actors. The ECOWAS charter promoted by the CILSS and recognized by all the stakeholders in food security within the western African sub region could provide important lessons. The food charter will promote values related to the gender dimension of the food aid, the priority on local and regional procurement, the adequate time, quantity, quality and actors towards an internally based sustainable food security in the sub region in line with the Paris declaration on development aid efficiency.

The need for national and sub regional reserves, which has been tabled and discussed as means for ensuring regional food self-reliance and long-term sustainability of food security, has to be coordinated at regional level. In this regard, efforts towards the establishment of an effective Regional Strategic Food Reserve Facility (RSFRF) and effective national food reserves should be stepped up. The reserves are aimed at preventing, better anticipating and preparing for future shocks. However, the region has to optimize the sizes and costs of such reserves with the benefits and full knowledge of all alternatives – choices and warehouse receipt systems in mind. Further, decisions on all the associated logistical details, benefits and costs need to be fully understood by member States for the reserve to be a reality. SADC should expedite the process of establishing the sub regional reserve facility and also encourage those member States without national reserves to build such stocks. A central database with information on sub regional reserves should be maintained for access my member States.

8.2 Developed country subsidies and food security

This report has examined the impact of removal of developed countries' export subsidies on food security in Southern Africa. The findings suggest that Southern African countries as a group will benefit most from an elimination of subsidies on wheat, sugar, beef and maize. However, in all cases the producers benefit more than the consumers and in a more than half the countries, namely Mozambique, Tanzania, Angola, Zambia, Mauritius, Namibia, and Botswana producer gains do not outweigh consumer losses. Mozambique, Angola and Tanzania are also countries that have been identified to have high food import dependence. These results imply that in the short run, countries are highly vulnerable to food insecurity because of changes in agricultural policies or removal of subsidies in developed countries. An important policy implication is the need to find ways of mitigating the possible negative distributional impact. In the long-term it is expected that countries in the sub region would be able to adjust their production capacity to improve food production. However, there is need for the countries to undertake deliberate policies to achieve this adjustment.

The study has shown the competitiveness of Southern Africa's agricultural products will be improved by trade liberalization especially for sugar, beef, and maize. It is important that countries take advantage of this and respond by improving their productive capacities to generate higher export earnings. However the study indicates that supply side constraints and lack of ability to meet the needed SPS measures usually prevent countries in the sub region from positively responding to trade liberalization. An important policy implication is the need for countries to address the supply side constraints and improve their capacity to meet the SPS standards. Of greater importance is need for the sub region to enhance its supply capacity in order for the region to benefit immensely from the disruption and reduction of subsidies. This requires an in-depth commodity supply chain analysis of particular products in which the region has comparative advantage such as sugar, beef and maize for the identification of significant technical and socio-economical constraints and drivers.

8.2.1 Recommendations on Removal of Developed Countries' Subsidies

The findings of this study lead to the following recommendations:

8.2.1.1 National level

Countries in the sub region should collectively continue to negotiate for the gradual removal of developed countries' agricultural subsidies to avoid shocks in prices of wheat and rice.

Countries should negotiate for increased resources and effective mechanisms within the EPAs to finance investments in the agricultural sector and to tap from the aid for trade initiative within the WTO.

Countries in the sub region should develop their productive capacities to adequately respond to the expected increase in world prices following the removal of agricultural subsidies in developed countries. There is need to improve the domestic supply capacity to strengthen food security by adopting deliberate policies that address the structural causes of vulnerability. Priority areas of intervention are; development of small-scale irrigation facilities, promotion of proper technologies, improved agricultural infrastructure, increased investment in agricultural research and extension and improved availability of inputs.

To prepare for the benefits of rising prices after the removal of developed countries' subsidies, countries in the sub region should undertake land reform to improve access to land, facilitate access to credit for farmers, develop irrigation schemes, provide affordable agricultural inputs and technologies, provide extension services and training and also strengthen the role of women in agricultural production through appropriate and targeted programmes.

8.2.1.2 Sub regional level

In Economic Partnership negotiations, the RECs should help countries tap from the Aid for Trade initiative within the WTO and support increased resources to finance agricultural investments in the region. The capacity of member States to effectively debate and participate in WTO negotiations should be enhanced through the intervention of RECs and other development partners.

Regional Economic Communities should assist in building the capacity of producers and exporters in order to improve the competitiveness of their products.

RECs should strengthen their support to member States to address agricultural production and trade constraints in the areas of regional transport, sanitary and phytosanitary standards, market information and promotion and research and development.

RECs should take the lead in ensuring that research in commodities the region has comparative advantage is promoted through adequate funding and development of human resource capacity. Further, the RECs have a major role to play in ensuring the positive and negative distributional impacts of trade liberalization are addressed in the current WTO negotiations. They also have a role to play in helping countries foster export competitiveness in products that experience increases in world prices following liberalization in developed countries.

IX. Policy brief on the impact of food aid and developed countries agricultural subsidies on longterm sustainability of food security in Southern Africa

Executive summary

This policy brief summarizes evidence on the impact of food aid and developed countries' subsidies on sustainability of food security in Southern Africa based on country studies and a sub regional analysis. The focus of this policy brief is on the three choices of ensuring food security sustainability in the sub region, that is, regional production, regional trade and food aid. It discusses the relative importance and policy challenges associated with each of these and recommends actions which governments and other stakeholders must take to achieve sustainable food security.

The empirical analysis of the impact of food aid shows that despite the high levels of food aid in the SADC sub region, there is no strong empirical evidence to support the assertion that food aid significantly displaces domestically produced food. Instead, climate change and the related high incidence and magnitude of natural disasters, political instability, poor infrastructure and unsupportive policies are identified as major causes of food production stagnation in the sub region. However, localized effect of the negative impact of food aid on productivity could be discerned from some country studies.

The study identifies the existence of various policies to manage foods aid flows both at national and subregional levels. However, implementation of these policies faces major challenges related to human, financial and institutional capacities. The need to enhance the productive capacities of farmers through intervention in critical areas such as access to technology (irrigation, drought resistant seeds, storage, fertilizer), finance, market and marketing information was identified as an important strategy for agricultural transformation in the sub region. There is a need to strengthen the food security early warning and management mechanisms at sub regional level. The study emphasised the need to improve the targeting of food aid specially for the vulnerable people including people living with HIV-AIDS, women and orphans and children. At sub regional level, important interventions include the expeditious establishment of the subregional grain reserve, development of alternative ways of dealing with food insecurity such as the weather insurance schemes and the integration of the intra regional food markets. Further, the subregion should harmonize regulations on GMO food/seed and promote a Sub-regional Charter on food aid insisting on local or subregional procurement of food and other institutional arangements towards a more efficient and equitable food aid mechanism.

The analysis on the impact of subsidies showed that the reduction or elimination of developed countries agricultural subsidies would impact on national food security situation differently depending on either countries are net importers or exporters of food. For net importers of maize, wheat, sugar, beef and rice, rising world prices of these commodities would worsen the food security situation. However, for those countries with a competitive advantage to produce commodities with rising prices, production will be stimulated, farm incomes will increase and food security enhanced. However, more than half of the countries in the sub region, currently net importers of food, could face a decline in overall welfare. At sub region level, focus should be on building productive capacities to take advantage of the market opportunities to be created by the reduction of subsidies in developed countries. Further, the sub region should continue to work together towards pressing for the expeditious subsidy reductions/elimination discussions within the WTO and EPA negotiations.

The Food Aid and Subsidies Problem

Cereal production in Southern Africa is growing at a slower rate than growth in population leading to a decline in per capita cereal production and consequently an increase in food aid. The high incidence and magnitude of natural disasters which disrupt production and local food supply channels has worsened the food security situation in the sub region. While food aid may save households from destitution, there is concern over its possible impact on local markets given its potential to displace commercial supplies and depress producer prices which in the long-run creates disincentives to domestic production. Further, there is concern of the creation of a dependency syndrome in the food aid recipient communities.

Subsidies on agricultural production and exports by developed countries are unfair and distortive. The level of subsidies on cereals, major export crops from the sub region, is a source of major concern as these subsidies impinge on the international competitiveness of local agricultural sector. One of the major objectives of the WTO Doha Round recommendations is to dismantle domestic support and export subsidies which are leading to overproduction of basic food commodities in developed countries and depressed prices worldwide. The overall impact of the removal of these protectionnist policies in the sub region ultimately depends on whether the countries are net importers or exporters of these commodities. For net importers, the rise in prices would impact negatively on welfare and for net exporters, rising prices would increase incomes and positively impact on overal welfare provided capacity to exploit these opportunities exists.

To assess the impact of food aid and developed countries` agricultural subsidies on the long term sustainability of food security in Southern Africa, the United Nations Economic Commission for Africa in Southern Africa commissioned this study. The study benefited from indepth country reports that examined the concern of rising food aid in the region

and provided evidence of impact on food security at country level. A regional analysis examined the impact of food aid and developed countries' agricultural subsidies on longterm food security in SADC.

Policy alternatives to ensure sustainable food security in Southern Africa

Production is the most important and sustainable food supply mechanism both at national and sub regional levels. However, in the case of production shortfalls, commercial trade fills the gap. The use of food aid to ensure food security should be a last resort with more effort placed on production and trade.

Production

The major constraints to increased productivity in the sub region are; under-capitalization of the agricultural sector (low level of irrigation development, poor access to certified seed, fertilizer and machinery, limited access to agricultural extension services, and market information), institutional bottlenecks (land tenure, supportive policies) and limited production skills in some countries. Further, the low level of value addition on agricultural products reduces the magnitude of welfare gains that can accrue to countries from exports.

To address these constraints and reduce the need for food aid, the subregion should promote comprehensive agricultural transformation in line with different pillars of CAADP/NEPAD. There is a need to promote development of irrigation schemes, enhance production and dissemination of efficient, and sustainable agricultural technologies, develop effective and equitable supportive institutions finance, extension, information and land tenure) and enhance the required human capacity for the sector through targeted training programmes.

Stimulating food production in the region hinges more on domestic policies and as such the region should revisit national agricultural strategies and implement the CAADP commitments to support agricultural development. Further, the sub region should dismantle the current restrictive marketing policies and replace them with ones that strengthen marketing efficiency, market integration and cost-effectiveness of food security. Some current domestic policies create market distortions and displace commercial players who have capacity to develop these markets. If the sub region is to evolve from agricultural stagnation, governments should shift their role in domestic markets from direct trading to that of promoting private sector-led agricultural development. Given the role of small and medium scale farmers in food production in the sub region, support to this sector should be a priority of national governments.

Trade

Countries can overcome food production deficits through commercial imports. However, most food markets in the region remain fragmented, undercapitalized, restricted and distorted by direct government involvement in agricultural trading despite liberalization reforms which started in the 1990s in most countries. Local and regional procurement helps support local and sub regional trade and provides incentives to encourage local and regional surplus production. In addition, local and regional procurement saves on transport costs and allows distribution of more food, the right food, at the right time to more people. Local procurement can help in building the capacity of domestic markets to shift surpluses and meet shortages. With local procurement, the unintended negative impacts of food aid are greatly reduced.

The prevailing constraints on regional trade lead to unnecessary price falls and low farmer incomes in surplus countries. Consumers in countries with shortfalls will clearly suffer from such restrictive trade policies.

Governments should maintain a stable trading environment and allow private entities to plan for commercial imports. Restrictive trade policies are one of the causes of the current stagnation in food production and food insecurity in the region and these should be relaxed. Governments should fulfill their commitment to the regional trade treaties by implementing the regional agreements. The creation of a Free Trade Area in SADC in 2008 will indeed go a long way in easing these trade restrictions and enable sub regional procurement of food.

Governments have the responsibility to develop short and long-term strategies for ensuring predictable food supply and best prices for farmers and consumers. This requires a more open domestic and regional trading environment with minimum direct government involvement. Through WTO negotiations, developed country markets will eventually open to commodities from developing countries and the Southern African agricultural sector should be prepared to take advantage of these opportunities by putting in place sustainable policies. The sub region should revisit domestic marketing policies as sustainable food security hinges more on domestic policies than on policies of developed countries.

Food aid

Food aid provides temporary relief but is not a sustainable solution to the problem of poverty, inequality and food insecurity. If food aid programmes are to remain relevant and effective in the sub region, they must be reformed and be embedded in national programmes that strengthen abilities to attain food security. Food aid programmes should contribute to the policy development and building sub regional self-reliance which make it unnecessary to continue food aid. Strategies such as support to local and sub regional

procurement of food should be an important part of food aid programmes as these benefit producers and consumers and should be embedded in the sub-regional Food Aid Charter. In addition to providing relief, food aid programmes should build the capacity of farmers to be self-reliant by enhancing their capacity to cope with disruptions to farming activities.

Where the food markets are working effectively and there is enough local supply to meet demand, introduction of some form of targeted cash transfer scheme should be an alternative as this would serve to promote and strengthen the market as well as lessening market distortions.

To lessen negative unintended impacts of food aid, national governments and food aid donors should jointly strengthen crop forecasting methods to improve timing and accuracy of crop forecast estimates and food balance sheets.

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Annex 1: Food aid regression results tables and key issues

Table 12. Dynamic VAR regression results for cereal production, 1980-05

Variable description	Full model with net imports						Without net imports			
	Cereal production		Food aid		Net imports		Cereal production		Food aid	
	(1)		(2)		(3)		(4)		(5)	
Constant	1.271	**	-0.384	***	-0.817	***	1.417	***	-0.389	***
	(0.51)		(0.14)		(0.31)		(0.53)		(0.14)	
Change in food production lagged one year	-0.528	***	-0.0067		-0.177	***	-0.585	***	-0.0128	
	(0.084)		(0.023)		(0.050)		(0.081)		(0.022)	
Change in food production lagged two years	-0.494	***	-0.0065		-0.111	**	-0.586	***	-0.0003	
	(0.093)		(0.026)		(0.055)		(0.088)		(0.024)	
Change in food production lagged three years	-0.399	***	0.0312		-0.0127		-0.375	***	0.0381	
	(0.092)		(0.026)		(0.055)		(0.086)		(0.023)	
Change in food production lagged four years	-0.215	***	0.0418	*	0.105	**	-0.165	**	0.0420	**
	(0.079)		(0.022)		(0.047)		(0.076)		(0.020)	
Change in food aid lagged one year	-0.152		-0.543	***	0.129		-0.0472		-0.562	***
	(0.30)		(0.083)		(0.18)		(0.29)		(0.079)	
Change in food aid lagged two years	-0.0236		-0.310	***	-0.279		-0.155		-0.344	***
	(0.34)		(0.095)		(0.20)		(0.33)		(0.088)	
Change in food aid lagged three years	-0.471		-0.0745		-0.211		-0.954	***	-0.0825	
	(0.36)		(0.100)		(0.21)		(0.33)		(0.089)	
Change in food aid lagged four years	0.263		-0.0683		0.0772		-0.0550		-0.0468	
	(0.31)		(0.087)		(0.19)		(0.30)		(0.081)	
Change in net imports lagged one year	0.146		-0.00555		-0.493	***				
	(0.13)		(0.038)		(0.080)					
Change in net imports lagged two years	-0.0753		-0.0414		-0.372	***				
	(0.16)		(0.046)		(0.098)					
Change in net imports lagged three years	-0.530	***	0.0196		-0.0112					
	(0.17)		(0.047)		(0.10)					
Change in net imports lagged four years	0.0543		0.0157		-0.129					
	(0.13)		(0.037)		(0.080)					

Variable description	Full model with net imports						Without net imports			
	Cereal production		Food aid		Net imports		Cereal production		Food aid	
	(1)		(2)		(3)		(4)		(5)	
Standardized rainfall	6.760	**	-2.108	**	-1.602		8.022	**	-2.063	**
	(3.44)		(0.96)		(2.05)		(3.50)		(0.94)	
Drought dummy variable (=1 if country i experienced drought year t)	5.289		2.071		-1.374		-2.724		2.297	
	(8.21)		(2.29)		(4.89)		(8.17)		(2.21)	
Floods dummy variable (=1 if country i experienced floods in year t)	6.384		0.188		1.097		7.449		-0.0946	
	(7.95)		(2.21)		(4.74)		(8.14)		(2.20)	
Epidemics dummy variable (=1 if country i had epidemic(s) in year t)	-17.88	**	8.001	***	6.048		-18.98	**	8.049	***
	(7.49)		(2.09)		(4.47)		(7.67)		(2.07)	
Accidents dummy variable (=1 if country i had accidents in year t)	-5.307		0.624		6.548		-9.715		0.859	
	(7.29)		(2.03)		(4.34)		(7.39)		(1.99)	
Sample size (country-years)	200		200		200		200		200	
Number of countries	8		8		8		8		8	
Number of years (1980-2004)	25		25		25		25		25	
Wald tests for joint significance										
All explanatory variables	168.97	***	109.36	***	129.38	***	140.30	***	107.73	***
Lagged food production	46.22	***	6.85		28.57	***	68.07	***	9.61	**
Lagged food aid	6.07		45.87	***	6.15		12.23	**	56.25	***
Lagged net imports	20.11	***	2.10		50.96	***				
Disasters	7.24		15.63	***	4.30		8.84	*	16.54	***

Notes: The model included eight of the 14 SADC countries – Angola, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia, and Zimbabwe. Numbers in parenthesis are standard errors.
*Significant at 10 per cent level; **Significant at 5 per cent; ***Significant at 1 per cent

Table 13. Dynamic VAR regression results for surplus cereal production, 1980-03

Variable description	Full model with net imports						Without net imports			
	Cereal surplus production		Food aid		Net imports		Cereal surplus production		Food aid	
	(1)	(2)	(3)		(4)	(5)				
Constant	-0.528		-0.441	*	-0.861	*	-0.617		-0.431	*
	(0.730)		(0.250)		(0.490)		(0.550)		(0.250)	
Change in cereal surplus production lagged one year	-0.711	***	-0.007		-0.180	***	-0.735	***	-0.016	
	(0.098)		(0.034)		(0.066)		(0.120)		(0.030)	
Change in cereal surplus production lagged 2 years	-0.610	***	-0.019		-0.092		-0.691	***	-0.014	
	(0.120)		(0.040)		(0.079)		(0.180)		(0.035)	
Change in cereal surplus production lagged 3 years	-0.475	***	0.023		-0.031		-0.429	***	0.027	
	(0.110)		(0.036)		(0.072)		(0.110)		(0.033)	
Change in cereal surplus production lagged 4 years	-0.259	***	0.043		0.117	*	-0.196	**	0.040	
	(0.089)		(0.031)		(0.061)		(0.083)		(0.028)	
Change in food aid lagged one year	-0.317		-0.560	***	0.202		-0.202		-0.581	***
	(0.290)		(0.100)		(0.200)		(0.330)		(0.096)	
Change in food aid lagged two years	-0.015		-0.355	***	-0.112		-0.163		-0.388	***
	(0.350)		(0.120)		(0.240)		(0.300)		(0.110)	
Change in food aid lagged three years	-0.391		-0.102		-0.175		-0.887	**	-0.101	
	(0.360)		(0.120)		(0.240)		(0.350)		(0.110)	
Change in food aid lagged four years	0.177		-0.064		0.129		-0.141		-0.037	
	(0.310)		(0.110)		(0.210)		(0.190)		(0.097)	
Change in net imports lagged one year	0.018		0.005		-0.571	***				
	(0.150)		(0.053)		(0.100)					
Change in net imports lagged two years	-0.118		-0.041		-0.409	***				
	(0.170)		(0.059)		(0.120)					
Change in net imports lagged three years	-0.633	***	0.042		-0.020					
	(0.170)		(0.058)		(0.120)					
Change in net imports lagged four years	0.016		0.016		-0.132					
	(0.140)		(0.047)		(0.093)					
Standardized rainfall	6.268	*	-2.747	**	-2.683		6.242	*	-2.570	**
	(3.540)		(1.220)		(2.400)		(3.450)		(1.200)	
Drought dummy variable, eq to 1 if drought year	4.223		2.020		-1.329		-2.305		2.485	
	(8.930)		(3.070)		(6.060)		(10.400)		(3.020)	

Variable description	Full model with net imports						Without net imports			
	Cereal surplus production		Food aid		Net imports		Cereal surplus production		Food aid	
	(1)	(2)	(3)		(4)	(5)				
Floods dummy variable, eq to 1 if floods year	7.309		0.923		0.599		9.762		0.487	
	(8.280)		(2.840)		(5.610)		(6.550)		(2.820)	
Epidemics dummy variable	-16.970	**	9.421	***	7.567		-17.720	**	9.499	***
	(7.700)		(2.650)		(5.220)		(8.900)		(2.610)	
Accident dummy variable, eq to 1 if accident year	-0.833		0.408		6.668		-3.881		0.652	
	(7.560)		(2.600)		(5.130)		(6.590)		(2.580)	
Number of observations	144		144		144		144		144	
Number of countries	8		8		8		8		8	
No. of yrs (1980-03)	23		23		23		23		23	
Wald tests for joint significance										
All exp. variables	181.300	***	88.020	***	57.370	***	19.790	***	93.520	***
Lagged surplus prodn	54.260	***	5.350		82.950	***	100.690	***	6.810	
Lagged food aid	5.690		32.460	***	19.260	***	16.440	***	45.960	***
Lagged net imports	22.350	***	2.550		363.300	***				
Disasters	5.770		13.600	***	13.960	***	6.440		11.820	**

Numbers in parenthesis are standard errors.
*Significant at 10 per cent level; **Significant at 5 per cent; ***Significant at 1 per cent

Table 14: Action Plan on Food Aid

Issues/ Concerns	Actions/Strategies	Responsible Institutions
The impact of HIV & AIDS on food security	• Strengthen assistance under social protection programs • Formulate assistance policies and streamline implementation mechanisms • Develop mechanisms to coordinate actors in the sector • Conduct needs assessment to improve targeting • Improve financing and distribution of food • Develop distribution, monitoring and evaluation mechanisms	Governments Donors NGOs CBOs Private Sector UNECA- SA
GMOs and the contamination of food systems	• Develop consistent and binding subregional policy guidelines and strengthen those already in existence such as quick testing, handling of food aid, policy and rules, capacity building, public awareness and participation • Strengthen regional bio-safety clearing houses • Formulate harmonized GMO policies and policy guidelines and strengthen them • Provide technical support to member States on GMOs	Governments COMESA SADC AU CSOs Donors NEPAD UNECA
The gender face of poverty	• Use food for assets to improve access to capital by women • Mainstream gender in development programmes • Develop gender-sensitive financing mechanisms • Use advocacy tools to get women out of poverty	Governments CSOs NGOs WFP UNECA
Strategic Grain Reserves	• Assist national governments to hold adequate strategic grain and/or cash reserves • Encourage households to have grain and/or cash reserves through appropriate policies	SADC UNECA COMESA Cooperating partners Governments
Strengthen the role of national and subregional private sector in agricultural and food aid development	• Enhance the capacity of policy makers into private sector role in food aid process • Conduct an assessment on opportunities for local purchase and triangular food aid within the sub region • Develop an sustainable information system on needs and supply opportunities to orient the action of the private sector • Define a legal framework and incentives measures for agricultural investment development and mobility within the sub region	COMESA SADC FAO WFP UNDP UNECA- SA
The implementation of Policies	• Review of policy status and strengthen capacity to implement policies • Develop an M&E system for policy implementation • Mobilise resources to help in policy implementation • Raise awareness and strengthen accountability	Governments CSOs Donors SADC COMESA UNECA NGOs
Assessment of food gap and food needs at national and subregional level	• Undertake comprehensive assessment of food needs • Integrate market issues into food gap and food needs assessment	Governments CSOs SADC COMESA WFP NGOs

Table 14: Action Plan on Food Aid (cont)

Issues/ Concerns	Actions/Strategies	Responsible Institutions
Coordination of Government, International community and Private Sector initiatives	• Develop common guidelines • Strengthen the role of government in leading the process • Consult all stakeholders regularly • Review existing assessment, procurement and distribution structures and capacity	Governments SADC COMESA AU WFP C-SAFE NGOs Donors Private Sector
The effect of food aid on local prices	• Review and improve the targeting of food aid through • Learning from experiences • Proper Assessment of food needs using early warning system • Type of commodity used as food aid and its effect on substitute prices	Governments WFP NGOs Private sector Donors Recipients UNECA-SA
Dependency on food aid	• Improve targeting through improved selection methods to reduce potential dependency • Enhance the diversification of sources of income • Enhance development of the agricultural sector through • Adequate budgetary allocations • Skills training • Infrastructures provision • Improved access to inputs • Extension and research • Develop appropriate technology to suit the needs of women, elderly and the chronically ill • Develop irrigation schemes • Improve awareness and communication strategies • Promote and increase Intra African Trade	Governments Donors Private Sector Academics Media AU SADC COMESA
The politics of food aid	• Generate empirical evidence for informed decisions • Raise awareness of issues around food aid among politicians and recipients of food aid • Implement food aid programmes according to laid down procedures	Academics Research Institutions Governments SADC COMESA Implementing Agencies Media NGOs CSOs UNECA-SA
Externalization of response to the food crisis	• Enhance mobilization of internal financial and manpower resources • Empower and capacitate civil society organizations and communities • Build capacity of governments to early response	Governments Civil Society Donors SADC COMESA
Procurement – the sources of food used as aid	• Encourage national/ subregional procurement if surplus exists and the market functions properly • Harmonize sanitary quality standards • Integrate market issues into the needs assessments • Support traders and facilitate access to credit • Develop procurement infrastructure • Improve timeliness of procurement of food • Develop guidelines on food aid procurement and distribution	WFP C-SAFE NGOs Donors Governments Private Sector SADC COMESA CSOs

Annex 2: Trade tables

Table 14. Summary of selected provisions in the WTO Agreement on Agriculture

	Rules	Liberalization	Safeguards	Special treatment
Market access	i) 'Tariffy' of all NTBs ii) Bind all tariffs iii) No new NTBs	i) Cut overall tariffs by 36% over 6 years (1995-2000); developing countries by 24% over 10 years (1995-2004) ii) Minimum tariff cut by 15%; developing countries by 10%	i) Guaranteed current or minimum access ii) Protection against import surges	i) No reduction by LDCs ii) Longer implementation period of tariffication (10 years)
Domestic support	Specify 'amber' type and 'green box' policies	Reduce total outlays (calculated as aggregate measure of support during base period of 1986-88) on 'amber' policies by 20% over 6 years. Developing countries to reduce by 13.3% over 10 years	'Green box' policies can continue	i) De minimis rule (i.e., product and non-product specific domestic subsidy excluded if less than 10% of value of agricultural production) ii) Decoupled support payment excluded iii) Extra exemptions for developing countries and LDCs (SDT measures)
Export subsidy	i) Commodity specific categorization of assistance ii) No new subsidies on other commodities	i) Reduce spending by 36% (base period, 1986-90) in equal instalments over 6 years; developing countries over 10 years ii) Reduce volume of subsidized imports by 21% (base year, 1986-90) over 6 years; developing countries to reduce by 14% over 10 years	i) Adhere to food aid rules ii) Export credit provisions and guarantees	Internal transport and marketing costs exempted for developing countries and LDCs

Notes: SDT – Special and differential treatment; LDCs – Least developed countries
Source: Gayi S. K. (2006).

Table 15. Agricultural exports* from Southern Africa million US$

Country	1990	1992	1994	1996	1998	2000	2002	2004
S. Africa	1452	1435	1891	2134	2080	1917	2102	3006
Tanzania	166	135	297	351	351	324	203	236
Zimbabwe	262	85	396	204	244	276	128	135
Namibia	61	109	110	103	280	344	312	330
Swaziland	47	35	35	46	297	289	121	169
Botswana	72	79	85	96	123	89	49	49
Malawi	64	55	57	54	73	72	55	74
DR Congo	118	67	77	77	74	28	8	13
Mozambique	24	26	25	22	24	28	31	48
Zambia	13	7	3	9	13	26	33	96
Mauritius	14	19	24	24	19	12	23	21
Angola	5	4	0	4	4	1	1	2
Lesotho	3	2	2	1	1	1	1	1
Total	2303	2057	3003	3124	3583	3408	3065	4179

*Agricultural products include Fruits, vegetables, nuts, cereals, beef, pigmeat, sheep and goat meat, poultry meat, milk, cassava, sweet potato, yams, coffee, tea, groundnuts, maize, wheat, rice, sorghum, millets, oilseeds, sugar, soybeans, spices.
Data source: FAOSTAT, 2006.

Table 16. Agricultural imports from Southern Africa million US$

Country	1990	1992	1994	1996	1998	2000	2002	2004
South Africa	684	1364	1155	1362	1252	1101	1133	2022
Angola	440	482	320	425	422	351	601	827
Botwana	187	288	243	322	327	342	265	108
Mozambique	196	285	368	198	180	150	250	319
Mauritius	168	190	224	267	244	240	264	347
Tanzania	63	119	165	190	490	254	214	340
DR Congo	217	193	186	219	198	209	237	300
Zimbabwe	58	371	79	226	173	110	249	383
Namibia	77	90	74	99	269	207	127	205
Malawi	70	164	157	71	104	27	161	54
Zambia	51	133	32	72	196	66	102	130
Swaziland	75	76	74	69	148	157	127	48
Lesotho	102	108	95	131	118	95	65	39
Total	2387	3864	3169	3652	4121	3309	3795	5122

Data source: FAOSTAT, 2006

Table 17. Southern African Major Exports by destination (2004*)

Country	Maize (%)	Coffee & Tea (%)	Bovine meat (%)	Rice (%)	Wheat (%)	Sugar (%)
Angola	0	EU2003 (100)	0	0	0	0
Botswana	0	SADC (100)	SADC2003 (12.3) EU (87.5), Other Dev. (0.1)	0	SADC2003 (100)	0
DRC	SADC (100)	EU2003 (60) Australia (40)	0	0	0	0
Malawi	SADC (100)	SADC (24), EU(45) USA(5) Japan (1) Other Afr. (16) Other Dvpd (2) Other Dev. (7)	SADC (100)	SADC (100)	SADC (100)	SADC (14.1) EU (47.9) USA (3.8) Other Afri (34) Other Dev (0.2)
Mauritius	SADC (85.3) EU (14.7)	SADC (3.7) EU (69.3) Japan (2.1) Other Africa (11.8) Other Dvpd (1.2) Other Dev (11.4)	NS (100)	EU (11.6) Other Afr. (7) Other Dev. (81.4)	0	EU (96.3) USA (2.5) Other Dvpd (0.7) Other Dev (0.5)
Mozambique	SADC2005 (93) USA (7)	SADC (91.8) EU (0.7) Other Afri.(7.3) NS (0.1)(	0	SADC2005 (100)	0	EU2005 (100)
Namibia	SADC2003(100)	SADC2003 (98) NS (2)	SADC2003 (97.6) EU(2.1) Other Dvpd (0.2) Other Dev (0.1)		SADC2002 (100)	SADC2003 (100)
South Africa	SADC (66.4) EU (1.5) Other Afri. (30.5) Other Dev. (1.5)	SADC (39.4) EU (32.9) Other Afri. (4) Other Dev (18.8) Other Dvpd (4.8) Japan (0.2)	SADC (18.5) EU (66.9) Other Dvpd (2.3) Other Dev (4.4) Other Afri.(7.7)	SADC (95) Other Afr. (4.8) Other Dvpd (0.1)	SADC (99.7) Other Dev (0.3)	SADC (29.2) USA (7.3) Japan (23.5) Other Dev (37.7) Other Afri (2.3)
Swaziland	SADC (100)	0	0	0	0	EU05 (100)

Country	Maize (%)	Coffee & Tea (%)	Bovine meat (%)	Rice (%)	Wheat (%)	Sugar (%)
Tanzania	SADC (5.1) Other Afri. (94.8) USA (0.1)	SADC (0.9) EU (40.7) USA (4.4) Japan (14.4) Other Afr. (20.2) Other Dvpd (0.9) Other Dev (20.4)	0	SADC (1) Other Dev. (9.8) Other Afr. (89.6)	SADC (3.5) Other Dvpd (0.4) Other Afr(95.4) Other Dev (0.8)	SADC (91.1) Other Afri (8.9)
Zambia	SADC (98.8) Other Afri. (1.2)	SADC (28.7) EU (55.6) USA (0.3) Japan (3.1) Other Depd (9.6) Other Afri. (2.6)	SADC (100)	SADC (100)	SADC (100)	SADC (78) EU (19.9) Other Afri (2.1)
Zimbabwe	SADC (2.8) Other Afri. (97.2)	SADC (34) EU(46.1) USA(1.8) Other Afri. (16.8) Other Devpd (0.7) Other Dev (0.7)	SADC (80.4) EU (19.6)	SADC (100)	0	SADC (28.1) EU (54.2 USA (17.8)

The UN statistical database (COMTRADE) http://unstats.un.org/unsd/comtrade/
*Years other than 2004 is indicated in superscript next to the destination. NS means not specified

Table 18. Southern Africa major agricultural imports by source (2004)

Countries	Maize	Coffee/tea	Bovine	Rice	Wheat	Sugar
Botswana	SADC (100)	USA (38), SADC (52), Other Dev (11)	EU2002 (2), SADC (98)	SADC (100)	USA (38), SADC (52), Other Dev (11)	SADC (100)
Lesotho	USA 2001(10) SADC (87), Other Dvpd (2)		SADC (100)	SADC (100)	EU2002 (3), SADC (90), Other Dev (7)	SADC2001 (100)
Mozambique	SADC (97), Other African (1), Other Dvpd (2)	EU2005 (84), SADC (16)	SADC (100)	SADC (100)	USA 2002(58), Other Dvpd (34), Other Dev (8)	EU (5), SADC (88), Other Dev (7)
Malawi	SADC (98) Other African (2)	SADC (100)	SADC (100)	USA (34), SADC (39), Other Dvpd (27)	EU (26), USA (25), SADC (32), Other Dvpd (17)	EU (1), SADC (58), Other Africa (40), Other Dvpd (1)
Mauritius	Other Dvpd (100)	EU (59), Other Africa (16), Other Dev (34)	SADC (10), Other Dvpd (79), Other Dev (11)	OTHER Dvpd (5) Other Dev (95)	EU (24), Other Dev (76)	EU (6), SADC (88), Other Africa (2), Other Dvpd (2), Other Dev (2)
Namibia	SADC (100)	EU (12), SADC (88)	SADC (83)2003, EU (13), Other Dev (4)	SADC (98) Other Dev (2)	SADC (90), Other Dev (10)	SADC (93), Other Dev(6)
South Africa	OTHER African (4) Other Dvpd (96)	EU (24), Dev (71), Other Africa (3), SADC (2)	OTHER DEVLPG (98), SADC (2)	Other Dev (95), Other Dvpd (4), EU (1)	EU (4), USA (32), Other Dvpd (64)	EU (29), SADC (35), Other Dvpd (17) Other Dev (17)
Tanzania	USA (27), JAPAN (1), SADC (32), Other Dvpd (40)	EU (45), SADC (47), Other Dev7	SADC (17) Other Dev (83)	USA (1), JAPAN (11), SADC (1), Other Dvpd (87)	SADC (45), Other Africa (1), Other Dvpd (54)	EU (7), Other Africa (12), Other Dev (81)
Zambia	SADC (100)	EU (2), SADC (95), Other African (2)	SADC (10), Other African (90)	EU (33), SADC (60), Other Dev (8)	USA (3), SADC (97)	EU (1), SADC (49), Other Africa (12), Other Dev (38)
Zimbabwe	EU (80), SADC (3), Other Dev (11)	SADC (95), EU (5)	SADC (100)	EU (69), USA (1), SADC (10), Other Dev (17)	EU (22), USA (7) SADC (25), Other Dvpd (45)	EU (4), SADC (82), Other Dvpd (6), Other Dev (7)

The UN statistical database (COMTRADE) http://unstats.un.org/unsd/comtrade/
*Years other than 2004 are indicated in superscript next to the destination.

Table 19. Changes in Exports and Imports from ATPSM simulations

Region/Country	Change in Exports (%) Scenario 1				Change in Exports (%) Scenario 2				Change in Imports (%) Scenario 1				Change in Imports (%) Scenario 2			
	Wheat	Rice	Maize	Sugar	Wheat	Rice	Maize	Sugar	Wheat	Rice	Maize	Sugar	Wheat	Rice	Maize	Sugar
European Union	-5.8	-20.3	-7.6	-23.3	-2.9	-10.3	-3.8	-11.7	117.8	0.7	113.3	38971	59.5	0.3	57.2	19683
United States	1.4	-0.4	3.3	2234.5	0.7	-0.2	1.3	977	-22.2	6.8	-100.0	-100.0	-11.2	3.4	-100.0	-100.0
Japan	-4.0	0.3	42.5	-23.1	-2.0	0.1	21.4	-11.7	-0.3	-4.7	-0.2	3053.8	-0.2	-2.4	-0.1	1542.3
Angola	0.0	0.0	0.0	30742	0.0	0.0	0.0	14415	-1.4	-0.1	-1.8	-100.0	-0.7	0.0	-0.9	-100.0
Botswana	1.4	0.1	0.4	0.0	0.7	0.0	0.2	0.0	-1.4	-0.1	-0.2	-1.0	-0.7	-0.1	-0.1	-0.5
Malawi	-3.9	0.1	0.4	53100	-2.0	0.1	0.2	26818	1.1	-1.9	-60.5	-100.0	-0.6	-0.9	-30.6	-100.0
Mauritius	0.0	0.2	0.4	237658	0.0	0.1	0.2	120028	-1.2	-0.1	-0.6	-100.0	-0.6	-0.1	-0.3	-100.0
Mozambique	-5.6	0.2	0.4	0.0	-2.9	0.1	0.2	0.0	-1.6	-0.8	-16.8	-80.7	-0.8	-0.4	-8.5	-40.8
Namibia	1.4	-0.2	0.5	0.1	0.7	-0.1	0.2	0.0	-1.7	-0.1	-0.4	-1.0	-0.9	0.0	-0.2	-0.5
South Africa	1.3	-17.3	0.6	1918	0.7	-8.8	0.3	883	-12.0	0.0	-42.5	-100.0	-6.1	0.0	-21.4	-100.0
Swaziland	-2.5	-0.4	0.4	1307	-1.3	-0.2	0.2	660	-1.5	-0.3	-1.3	-100.0	-0.8	-0.2	-0.6	-100.0
Tanzania	1.8	0.4	0.7	3240	0.9	0.2	0.3	1636	-2.0	-1.7	-29.8	-100.0	-1.0	-0.8	-15.0	-100.0
Zambia	1.6	-0.4	0.4	83618	0.8	-0.2	0.2	42231	-4.7	0.1	-21.4	-100.0	-2.4	0.1	-10.8	-100.0
Zimbabwe	40.3	0.0	192.8	0.0	20.4	0.0	97.4	0.0	-100.0	0.0	0.0	0.0	-100.0	0.0	0.0	0.0

Source: ATPSM Simulations.

Table 20. Action Plan on Subsidies

Issues/ Concerns	Actions/Strategies	Responsible Institutions
Bias to terms of trade	• Support WTO negotiations to remove subsidies through coordinated lobbying and advocacy	SADC COMESA ACP WTO African Group Governments CSOs
Formulation and implementation of policies to address food security and food aid	• Formulate appropriate policies • Strengthen implementation of policies • Develop and implement monitoring and evaluation (M&E) mechanisms • Provide technical support to member States for policy implementation	Governments CSOs SADC COMESA FAO UNECA-SA
Infrastructure	• Develop, operate, maintain and improve appropriate infrastructure	Governments SADC COMESA Private sector AfDB Civil Society
Market distortions	• Create a conducive investment climate through the development and implementation of appropriate policies • Stimulate domestic trade • Provide up-to-date market information • Establish and operationalise agricultural market information system	Governments Private Sector SADC COMESA AfDB

Annex 3: Comparative tables with other regions

Table 21. Trends in domestic cereal surplus (production less consumption) in selected African countries: 1988 – 2006 (000 metric tons)

Country	Consumption year										
	1990	1992	1994	1996	1998	2000	2001	2002	2003	2004	2005
Chad	10	28	43	24	38	5	75	4	128	63	112
Ethiopia	0	0	48	368	-276	83	51	-115	469	734	1723
Gambia	-2	-2	-3	-4	-5	-6	-7	-7	-7	-7	-6
Mali	-22	-24	-20	-15	-20	-31	-32	-32	-30	-28	-25
Niger	-2	-1	-4	-17	-16	-14	-15	-14	-10	-9	-9
Senegal	-4	-2	-2	-1	-4	-5	-5	-5	-5	-6	-6
South Africa	-1	-26	-6	0	30	29	18	8	8	6	14
Tanzania	-15	-6	0	-2	0	1	1	-1	-2	-1	0
Togo	-3	-2	2	5	1	-1	-1	-2	-1	-2	-3
Total	-39	-35	58	358	-252	61	85	-164	550	750	1800

Source: FAOSTAT, 2007

Table 22. Trends in proportion of the undernourished population and dietary energy supply for each person in Sub Saharan Africa

Country	Proportion of undernourished in total national population (%)			Per capita dietary energy supply (kcal/day/person)		
	1990-92	2000-02	% change	1990-92	2000-02	% change
Central Africa						
Cameroon	33	25	-24	2110	2260	7
Central African Rep.	50	43	-14	1870	1980	6
Chad	58	34	-41	1780	2150	21
Congo	54	37	-31	1860	2090	12
Dem. Rep. of the Congo	32	71	122	2170	1630	-25
Gabon	10	6	-40	2450	2610	7
East Africa						
Burundi	48	68	42	1900	1640	-14
Eritrea	na	73		na	1520	
Ethiopia	na	46		na	1840	
Kenya	44	33	-25	1920	2110	10
Rwanda	44	37	-16	1950	2050	5
Sudan	32	27	-16	2160	2260	5
Uganda	24	19	-21	2270	2360	4
United Rep. of Tanzania	37	44	19	2050	1960	-4
West Africa						
Benin	20	15	-25	2340	2520	8
Burkina Faso	21	19	-10	2350	2410	3
Côte d'Ivoire	18	14	-22	2470	2620	6
Gambia	22	27	23	2370	2270	-4
Ghana	37	13	-65	2080	2620	26
Guinea	39	26	-33	2110	2380	13
Liberia	34	46	35	2210	1990	-10
Mali	29	29	0	2220	2200	-1
Mauritania	15	10	-33	2560	2780	9
Niger	41	34	-17	2020	2130	5
Nigeria	13	9	-31	2540	2700	6
Senegal	23	24	4	2280	2280	0
Sierra Leone	46	50	9	1990	1930	-3
Togo	33	26	-21	2150	2300	7

Source: FAO, 2004
na: Data not available.

Table 23. Selected indicators of food and nutrition security in Sub Sahara Africa

Country	Children under height for age	Under-five underweight	Under-5 Mortality 2002	Human Poverty Index	
	1996-2004 % under age 5	2002 % under age 5	Deaths per 1,000 births	(HPI-1) Rank	Value (%)
Central Africa					
Cameroon	32	23	166	61	35.6
Central African Rep.	28	24	180	01	47.8
Chad	29	na	200	100	57.9
Congo	28	28	108	51	27.9
Dem. Rep. of the Congo	38	31	205	80	40.9
Gabon	21	12	91	50	27.3
East Africa					
Burundi	57	45	190	78	40.7
Eritrea	38	40	89	70	38.1
Ethiopia	52	47	171	98	55.3
Kenya	30	21	122	60	35.5
Rwanda	43	24	203	67	37.3
Sudan	43	41	94	54	31.3
Uganda	39	23	141	62	36.0
United Rep. of Tanzania	44	29	165	64	36.3
West Africa					
Benin	31	23	156	90	47.8
Burkina Faso	39	34	207	101	58.3
Côte d'Ivoire	25	21	191	82	41.7
Gambia	19	17	126	86	44.7
Ghana	30	25	97	58	33.1
Guinea	26	23	165	96	52.0
Liberia	na	27	235	na	na
Mali	38	33	222	102	60.2
Mauritania	35	32	183	81	41.0
Niger	40	40	264	99	56.4
Nigeria	38	31	201	76	40.6
Senegal	25	23	138	84	44.0
Sierra Leone	34	27	284	95	51.9
Togo	22	25	141	72	39.2

Source: FAO, 2004; UNDP, 2006