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

Building a Case for more Public Support

The Case of Tanzania

A Paper Prepared for the

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

by

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FOREWORD

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

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

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

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

EXECUTIVE SUMMARY

Introduction

Available data on trends in aggregated national food production suggests that Tanzania is not a famine-prone country, and has the potential to produce its food requirements. In seasons when there is adequate rainfall, Tanzania is able to produce enough food to meet its requirements or demand, and exports excess food to neighbouring countries. Therefore, in such good years, food insecurity becomes mainly a problem of distribution of the available food nationally as well as at household level. However, in cases of drought, floods or other natural disasters, the country experiences serious shortages of food due to low production and inadequate storage capability leading to destruction of the stored food. Consequently, availability as well as accessibility to food is seriously affected. Over the years, food production in the country has sometimes failed to meet demand and the country has been importing food to the tune of 4 percent to 7 percent and receiving food aid to meet its production shortfalls.

This study intended to address issues related to food security situation in Tanzania. It involved an in-depth desk review, with secondary data and information gathered from various studies and reports, Government documents and records, research and academic institutions, as well as other relevant organizations. Guided interviews, meetings, informal discussions and consultations were undertaken with key players responsible for the agricultural sector in general and food security in particular and other stakeholders at the central and local Government levels, the private sector and Non Governmental Organizations. The major limitation to this study was the lack of micro-level data on both food aid distribution and food production levels (as most of the data is aggregated at regional level), and also lack of reliable statistics for the pre-liberalization era, which could have been used to make a more complete analysis of trends.

Food Security Situation

Important implications drawn from patterns of food demand in Tanzania include the fact that as per capita income rises, demand for maize will increase but only slowly. Urban demand for maize in particular is not very sensitive to income. As per capita income rises, the demand for wheat, rice, potatoes, and animal products will rise quickly. Urbanization will result in an increase in the per capita demand for wheat, rice, animal products, and fruits and vegetables, while reducing demand for maize, cassava, and sweet potatoes.

Since liberalization, maize, which is the most important food crop, has shown an overall growth rate throughout the period of 2.5 percent per annum, approximately the same as the population growth of 2.8 percent. Paddy shows a much higher overall growth rate of 5.4 percent, outstripping the population growth rate. While Sorghum and Millet have showed variable growth, wheat production has been relatively static.

Food self-sufficiency analysis at a national aggregate level revealed that production was 92 percent and 94 percent of requirements in FY 1999/00 and 2000/01 respectively, implying a

slight deficit. However, production was greater than requirements in 2001/02, implying food self-sufficiency and enabling sales to neighboring countries. Due to poor rainfall in 2002/03, domestic food crop production was predicted to be 7.55 million tones, falling below total requirements.

In 1992, about 96 percent of the total food available came from domestic grain output (65 percent) and root crop production (31 percent). Tanzania's import dependency, which has not been very high in the early 1990s, has sharply increased since 1997. The share of commercial imports in the total food supplies rose from less than 4 percent in 1992 – 93 to about 13 percent in 2000 and 11 percent in 2001. Food aid has fluctuated over the years, but on average accounted for about 17 percent of grain imports between 1992 and 2000.

As a result of projections of relatively steady food supplies, the status quo food gaps are projected to be zero over the next decade. However, this does not mean that the country is not subject to periods of food insecurity. Drought remains a major threat to production in many parts of the country. Production variability in the different regions can result into production shortfalls and with limited import capacity, a production shock could result in food gaps. Overall, it is reasonable to categorize the food security situation in Tanzania as "Transitory Food Insecurity", whereby the country will continue to be subject to periodic droughts, affecting significant parts of the country.

There was very little progress made in improving the nutritional status of children over the 1990s. Stunting remains a very widespread problem, with 44 percent of children under five moderately stunted in 1999. Acute nutrition problems were found in 5 percent of under-fives in 1999. 29 percent of under-fives were moderately underweight. There are large disparities in nutritional status between rural and urban areas. Children in rural areas are almost twice as likely to be stunted as those in urban areas, indicating that chronic under-nutrition is widespread in rural areas. The incidence of wasting was similar in rural and urban areas in 1999, indicating that the problem of acute malnutrition was of an equal risk to rural and urban children.

There are particular vulnerable groups in Tanzania that require special attention including children and orphans, women, the disabled, and the very old. It is argued that the number of vulnerable individuals is increasing at the same time as support mechanisms decline. In Tanzania, shock–related vulnerability, which includes unforeseen events whose consequences can relegate individuals, household or community into poverty and food insecurity, has mostly been a result of adverse weather conditions and HIV/AIDS.

There are a number of strategies for food security, in existence. The Food Security Department under the Ministry of Agriculture and Food Security (MAFS) carries out a number of functions including monitoring the food situation in the country and making necessary recommendations to the Government on measures to be taken; managing the Strategic Grain Reserve, and estimating food crop production on an annual basis. The building up of the SGR stock relies more on donor food aid than from local purchases by Government. Importation of food by

private traders is encouraged to overcome food deficit situations in any particular year. The Disaster Relief Unit under the Prime Minister Office (PMO) coordinates all aid for disaster relief, mainly in the form of food aid, and occasionally carries out Rapid Rural Assessments to assess the prevalence of food shortages. The FSD also carries out periodic monitoring and assessment of the rural food situation on a more systematic basis, through its Early Warning and Crop Monitoring System. The information obtained is conveyed to the PMO for decision about possible release of stock, as the case may be.

Agriculture Support: Magnitude, Evolution and Trends

Public investment in agriculture coupled with investment in the supporting infrastructure will have considerable impact in poverty alleviation, rural led growth and food security. Although there was some fluctuation from year to year, since the 1990-91 fiscal year, up until 1999/2000, the overall pattern was a sharp decline in budgetary support to the sector. Real budget allocation in 1997-98 was about one third the average annual value in the 1991-92 to 1993-94 period. There was some recovery of the agriculture budget in the approved 1998-99 budget and 1999-2000 budgets. Even so, the 1999-2000 budget was almost one third lower, in real terms, compared to the average of the allocations in the first three years of the period. The declining share of research and development was especially worrisome for future productivity growth in agriculture.

Since 2000/01, the overall budgetary trend has subsequently been upward. This is particularly the general trend for not only recurrent and development budgets, but also approved as well as actual expenditure. The total recurrent and development-approved expenditure grew from Million Tshs 48,360.66 to 53,158.48 to 58,792.50 and 84,540.25 between 1999/00 and 2002/03. A drastic or sharp increase of the total recurrent expenditure (actual) between 1999/00 and 2000/01 was to a larger extent an outcome of creation of the new three ministries where the budgets for MAFS, MCM and the Livestock Sub-sector were to be consolidated. However, the proportions of budget to the sector are still considerably small (less than 5 percent of total government budget). Budgetary support is particularly important in areas of agricultural research and extension, rural infrastructure, and data collection. Even if donor support is forthcoming, local funding is vital for establishing sustainable programmes that reflect government priorities.

Impact of food import/aid dependency

Despite the fact that data on food aid and food imports for the pre-liberalization era is scanty, there is indication that Tanzania is a country, which has been using extensive quantities of food aid during the period when grain markets were state controlled. During many years, food aid has accounted for a major part of food imports. However, from the early 1990s, (post liberalization era), Tanzania's import dependency has not been very high, contributing on average roughly 4.8 percent of food supplies. Food aid has fluctuated over the years, but on average accounted for about 17 percent of total grain imports. Food aid has also contributed on average less than 1 percent of total food requirements.

Untimely and unpredictable deliveries are a problem in Tanzania with a low capacity for replacing expected food aid deliveries with commercial imports, especially at short notice, and the impact is worsened by the small or inadequate storage capacity. The lack of a reliable supply of food aid means that security stocks need to be maintained at a high level, and relatively expensive *ad hoc* commercial imports need to be made. An important consideration in food aid distribution, which sets Tanzania apart from many other countries in Sub-Saharan Africa, is the fact that it is physically large and the transport infrastructure system is archaic, and undeveloped. The costs incurred in food aid delivery are very high. Storage and handling facilities of food aid are also inadequate contributing more to overall delivery costs.

Comparison between the value of agricultural imports and exports demonstrates a worrisome trend in Tanzania. A growing proportion of the foreign exchange earned from agricultural export is being diverted to import of agricultural products, mainly food crops, despite the country's obvious natural and comparative advantage in growing food. The trade balance between agricultural export and import has grown narrower over the years. In other words, the foreign exchange contribution of agriculture to the economy is minimal when the value of agricultural imports (primary and processed crops and livestock products) is taken into account. The trade balance of the agricultural sector is likely to be very small or even negative if the import cost of fertilizer and other inputs used in agricultural production is accounted for.

An empirical study on the impact of food aid on producer incentives revealed that food aid did not have a statistically significant direct disincentive impact on staple production. The incompletely integrated markets accentuate the situation. Politically, food aid was also part of the Government strategy to secure important groups (i.e. urban citizens especially in the capital), received low price staple food and to avoid any direct famine situation in any part of the country.

A quantitative/qualitative assessment of the effect of food aid distribution on food production and nutritional situation in Tanzania is constrained by data limitations at micro-level. Most of the available data is aggregated at the regional level. Within regions, shortages and surpluses are not evenly spread among districts. Even within districts, pockets of food shortages might exist. It is only since 2003, that micro-data based on "vulnerability assessments" were collected to identify food insecure districts and households. Data generated through this exercise would in future enable a systematic assessment of the impact of food aid on food security and nutritional situation at the micro-level.

Nevertheless, patterns of food production in some districts, which receive a lot of food, aid show that food production levels have remained fairly low and constant despite that population sizes do no differ significantly with other districts. One might link these patterns of food production with food aid dependency (i.e. food aid impacting negatively on food production incentives). However, these patterns are not conclusive as they could also be influenced by other factors.

It is obvious that the government uses a lot of resources in food aid distribution when compared to domestic funded expenditure to development activities in the agricultural sector. It should be understood that the real cost of imported food is much higher when internal transport costs are included and world prices are adjusted to take into account the huge subsidy in the West. A strategy aimed at boosting domestic production could mean less distortion (due to cheap import /food aid) in the economy and, hence, a more favorable environment for sustainable development.

Prospects for Food Security Sustainability

Tanzania has a comparative advantage in the production of many crops. There is a large potential for increasing production of items such as wheat and rice to replace imports and to expand food and livestock exports to neighboring countries. Another opportunity is the expanding domestic market for food, especially for livestock products and crops with a high-income elasticity of demand. Similarly, Tanzania's membership in regional trade groupings and as a signatory to international trade protocols is making markets within the region and globally increasingly available.

At the same time, the unexploited natural resource stock permits virtually unlimited expansion and diversification in crop and livestock production. Furthermore, the development of private agribusiness enterprises and a few large-scale farming enterprises in Tanzania is creating potential opportunities for strategic partnerships between these enterprises and smallholder farmers. The agricultural sector will also benefit from the ongoing structural reforms and the move towards devolved a government that is envisaged to improve the efficiency and effectiveness of providing public services.

Recommendations on Future Food Security Strategies

Given the limited financial resources available to the government, it is important that the specific policy instruments chosen to carry out food security policies and strategies are well focused and effective. With declining government resources partly as a result of adjustment, the involvement of the private sector will help fill the gaps resulting from reduced public support. The state still has a significant role to act in providing the right signals for increasing agricultural investment. There are a number of areas where the government may be the most appropriate provider of services. These fall into the category often referred to as public goods. The government can also assist the private sector by creating a favorable legal and policy environment. Specific areas where action can be taken to improve agriculture performance and food security situation include, improving access to markets, enhancing input use, enhancing productivity, promoting irrigation, institutional development, improving skills of private traders, providing safety nets for the most vulnerable, managing food aid more efficiently, and working towards a long-term prevention and food security solution.

CHAPTER 1: BACKGROUND INFORMATION

Food security is generally defined as the condition in which all people at all times have enough food for a healthy and productive life. Food security, involves three components: food availability, food access, and food utilization. Food availability implies sufficient production or imports to meet the food needs of the population. Food access refers to the ability of people to obtain food, either through their own production or by purchasing it with money earned from other activities. Food utilization means that the nutrient intake associated with food consumption is not impeded by inadequate nutritional information, poor sanitation, or problems in intra household distribution (Haddad 1997).

Food security does not necessarily imply food self-sufficiency, since a household can be food secure if its income is high (and stable) enough to purchase its food requirements. In remote areas with poor transportation infrastructure, households may be forced, however, to produce most or all of their food requirements. Food security can be defined at the national, regional, or household level.

Available data concerning trends in aggregated national food production suggests that Tanzania is not a famine-prone country, and has the potential to produce its food requirements. In seasons when there is adequate rainfall, Tanzania is able to produce enough food to meet its requirements or demand, and exports excess food to neighbouring countries. Therefore, in such good years, food insecurity becomes mainly a problem of distribution of the available food nationally as well as at household level. For example, in 2002 season Tanzania exported 151,291 tons of maize, 38,222 tons of beans, 3,354 tons of rice, 29,287 tons of wheat (URT, 2004). However, in cases of drought, floods or other natural disasters, the country experiences serious shortage of food due to low production and inadequate storage capability leading to destruction of the stored food. Consequently, availability as well as accessibility to food is seriously affected.

The problem of food insecurity in Tanzania has been more of a problem of poor rural households. The overall strategy to reduce food insecurity must be to increase the opportunities available to low income rural households. For many of these households, this means to assist them produce more of both food and cash crops so that they can feed their families and at the same time provide cash for non-food needs. Progress in reducing food insecurity and malnutrition in Tanzania therefore depends greatly on the performance of the agricultural sector.

The overall performance of the agricultural sector since 1990 has been rather unimpressive. Agriculture GDP has grown at 3.3 percent per year since 1985. The six main food crops have grown at 3.5 percent per year. Other components such as livestock and forestry have lower recorded numbers. Changes in productivity show a stagnant trend (WB/IFPRI, 2000). Although this growth is better relative to an average African country, it falls far short of the

growth Tanzania needs to ensure adequate supplies to meet food and nutritional requirements on a sustainable basis.
Central government expenditure on the agricultural sector has been on the decline since 1993 both in absolute real terms and as a percentage of total expenditure, although more recently (since 2000) allocations have been increasing and therefore the budget gap has also tended to narrow. However, due to the fact that the proportion of budget allocated to the sector is still considerably small, poverty reduction targets can hardly be achieved.

Tanzania has made a firm commitment to follow a market-oriented path of development. In the past one-decade, there have been considerable changes in the institutions serving the agriculture sector. Markets have been liberalized and many of the state organizations that dealt with marketing issues have collapsed. Market liberalization has opened up new opportunities. However, there appears to have been a perceived reduction in the well being of smallholder farmers. This may be in part, due to the removal of subsidies, but it may also be because new institutions have been slow to fill the vacuum left by the demise of the old system. In some regions, farmers have difficulty finding markets for their output, and although inputs may be available, they cannot afford to purchase them, and it is very difficult to get seasonal credit. Given the limited financial resources available to the Government, it is important that the specific policy instruments chosen to carry out food security policies and strategies are well focused.

1.1 Issues addressed

Food availability is determined by production and/or purchase. The aggregate national food availability is not of plenty, but that of critical balance between production and needs. Tanzania produces approximately 93 percent of its food requirements. In 2002, cereal production dropped by 3.5 percent, roots and tubers output increased by only 0.5 percent after increasing by 6.7 and 8.2 percent in 1998 and 1999, respectively. Livestock production rose by only 0.5 percent. However, the rate of growth of food production is unsatisfactory and this may be one of the reasons why Tanzania is unable to attain food security. For example, in the early 1980s per capita grain production averaged 126 kg. It increased to 170 kg per capita in the late 1980s. In 2001, per capita production of cereals was 115 kg. This is very low compared to the current per capita demand of 280 kg (URT, 2004).

Food sufficiency data from regions for the period 2001/02 indicate that only 13 out of 21 regions of Mainland Tanzania had adequate food supply. Over the years, food production in the country has sometimes failed to meet demand and the country has been importing food to the tune of 4 percent to 7 percent and receiving food aid to meet its production shortfalls. Key questions are necessary for investigating and explaining this trend.

- Why does this trend exits? Why does the country adopt the strategy of relying on food import/aid? Why has it reduced efforts and support to promote sustainable food security and agricultural development? Why is agriculture not attracting support

despite its significance? And what are the policy (and other) constraints restricting these efforts from happening?

- Having seen that the country has sometimes relied on food import/aid, what are the impacts of this dependence on long-term food security, agricultural development, and economic growth? What is the opportunity cost of food import/aid? In other words: Would the cost of Government support, if extended, be cheaper than the penalty now being paid for food imports and for the dependence on food aid?

- What are the possible exit options to ensure sustainable food security, agricultural development and economic growth in the country? What will roughly be the costs and benefits of possible directions? And what would be their implications and impacts on WTO and other trade agreements?

1.2 Study Approach

This study involved an in-depth desk review. Secondary data and information were gathered from various studies and reports, Government documents and records, research and academic institutions, as well as other relevant organizations.

The consultant also undertook guided interviews, meetings, informal discussions and consultations with key players responsible for the agricultural sector in general and food security in particular and other stakeholders at the central and local Government levels, the private sector and Non Governmental Organizations. Key players included officials from the Disaster Management Department of the Prime Ministers Office (DMD-PMO), and National Food Security Division of the Ministry of Agriculture and Food Security (NFSD-MAFS).

Much of the quantitative data collected was time series covering the period between 1990/91 and 2002/03, although in some cases it went as far back as 1988. The analysis was primarily based on "content analysis" (i.e. searching for patterns or regularities and systematically drawing informed inferences based on available evidence) supported with trend analysis of the various agricultural and food security related statistics. The major limitation to this study was the lack of micro-level data on both food aid distribution and food production levels (as most of the data is aggregated at regional level), and also lack of reliable statistics for the pre-liberalization era, which could have been used to make a more complete analysis of trends.

CHAPTER 2: ANALYSIS OF FOOD SECURITY SITUATION

2.1 Food Demand Patterns

Patterns of food demand in Tanzanian and how they change over time are useful in interpreting food price and output trends, particularly for non-tradable foods whose price is determined by domestic supply and demand. They are also useful in anticipating rapid growth in certain foods. The main factors influencing long-run shifts in food demand are population growth, income growth, and urbanization. The effect of population growth on food demand is relatively predicable because population growth rates do not change quickly compared to income and urbanization. In a World Bank/IFPRI study carried out in the year 2000 using data from the 1993 Human Resource Development Survey (HRDS 1996) to examine food demand across Tanzanian households, food demand was estimated as part of a demand system consisting of nine food categories and nine non-food categories. It used a Working-Leser demand function of the following form:

$$S_i = a_i + b_i \ln(x) + \Sigma c_{ij} Z_j$$

Where S_i was the share of total expenditure allocated to good i, x was per capita consumption expenditure, and Z_j represented a set of household characteristics (a, b, and c being parameters to be estimated econometrically with the data). Consumption expenditure is defined as the value of cash purchases plus the value of home production plus the rental equivalent of owner-occupied housing. The household characteristics included household size, sex of head of household, the age of the head of household, and level of education of the head of household. Although this analysis was somewhat limited, it shed light on the effect of income and urbanization on food demand. The analysis was carried out separately for urban households, rural households, and all households.

The estimated coefficients showed that per capita expenditure and household characteristics had a statistically significant effect on the budget shares of many items, although the explanatory power of the model was weak. The "urban" coefficient, for example, revealed that holding income and other characteristics constant, urban households consumed more rice, wheat, animal products, fruits and vegetables than rural households, even after controlling for income and other household characteristics. At the same time, urban households consumed less maize and "other starches" (mainly cassava and sweet potato).

Urban households allocated 60 percent of their budgets to food, the most important of which was animal products (14 percent) and "other food" (13 percent). In contrast, rural households allocated 68 percent of their expenditures to food, the most important items being animal products and maize. The higher food share in rural areas compared to urban is not surprising since rural households are poorer and Engel's Law states that food shares tend to decline with

income. Maize and "other starches" (mainly cassava and sweet potatoes) constituted 23 percent of the budget of rural households, almost double the share of these goods in the budget of urban households. Somewhat surprisingly, animal products were as important in rural budgets as they were in urban budgets, though expenditure on animal products was higher in absolute terms in urban areas.

In both urban and rural areas, maize had the lowest income elasticity among the categories listed. The urban income elasticity of 0.38 implied that a 10 percent increase in per capita income is associated with an increase in maize purchases of less than 4 percent. In rural areas, the maize elasticity was higher (0.63), but still less than one, indicating that the share of expenditure allocated to maize declined as incomes rise. The highest income elasticities among the food categories were those of wheat products, potatoes, and animal products. Since the elasticities are above one, they are "luxuries" in the sense that demand rose more quickly than income. Rice is a luxury good in rural areas, but not among urban consumers. It is believed that food preferences towards wheat and rice in urban areas are partly due to import (commercial import and food aid).

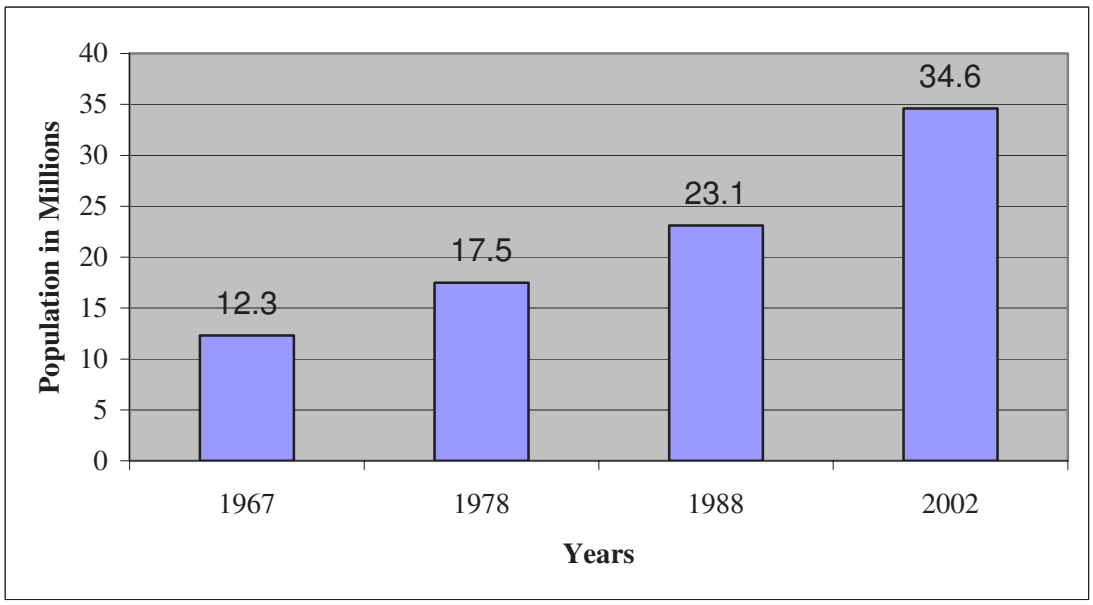
These results had several important implications for trends in Tanzanian food demand, most notably:

- As per capita income rises, demand for maize will increase but only slowly and urban demand for maize, in particular, is not very sensitive to income;
- As per capita income rises, the demand for wheat, rice, potatoes, and animal products will rise quickly; and
- Urbanization will result in an increase in the per capita demand for wheat, rice, animal products, and fruits and vegetables, while reducing demand for maize, cassava, and sweet potatoes.

2.2 Population Trends

Population growth has important implications on food security situation. Since 1961, there have been four national population censuses. The population has grown from 12,313,469 persons in the first post-independence census of 1967 to 34,569,232 persons counted in the census held in August 2002. Over the period from 1967 to 2002 the population of Tanzania has almost tripled. The rate of population growth has varied over this period from 3.3 percent (1967 – 1978), to 2.8 percent (1978 – 1988), and 2.9 percent (1988 – 2002).

Figure 2.1: Population of Tanzania - Census Counts



Source: NBS, 2003

The rate of population growth also differs from region to region. The average rates of growth for the period 1988 to 2002 range from 4.8 percent recorded in Kigoma Region to 1.4 percent recorded in Lindi. Other than Kigoma where much of the growth may be due to the recent influx of refugees, the Regions that show high rates of growth are dominated by large urban areas (Dar es Salaam). The average household size has decreased from 5.2 persons per household in 1988 to 4.9 persons per household in 2002.

2.3 Food Supply and Production

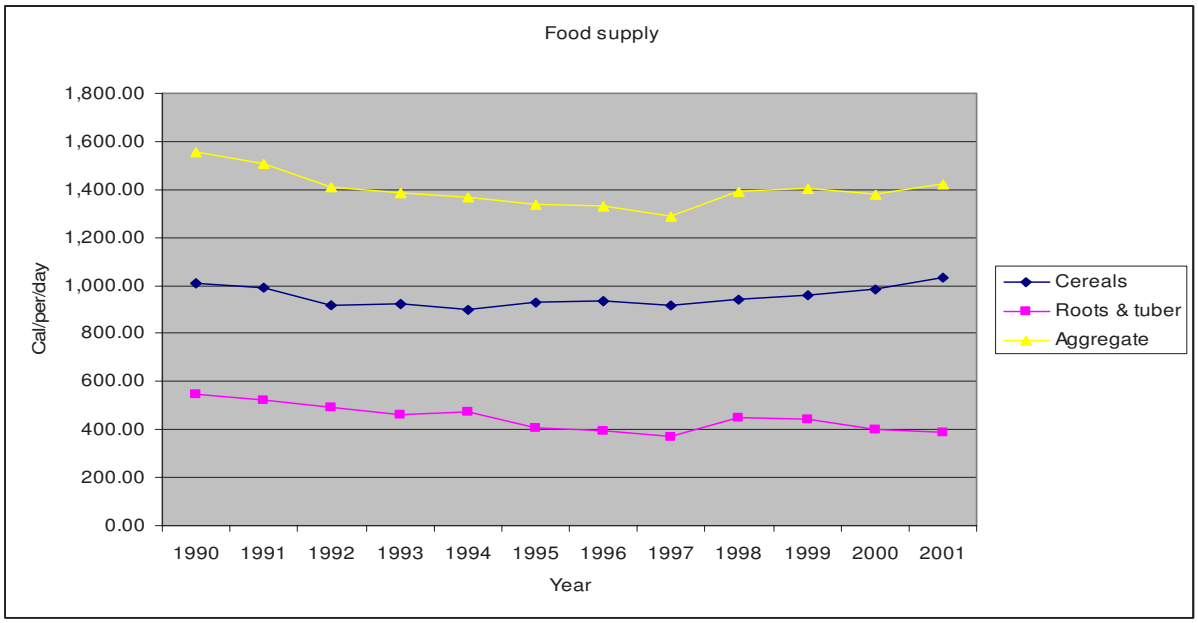
As in most other African countries, food consumption is mainly made up of cereals and root and tuber crops in Tanzania. Between 1990 and 2001, the total supply cereals, root and tuber crop declined by 8.5 percent between, i.e. from 1,556.4 in 1990 to 1,423.8 Kilocalorie/per head/day in 2001 (Table 2.1 and Figure 2.2). The decline was most notable in 1997, one of the worst drought years. The supply of cereals has shown slight recovery in the late 1990s and early 2000s, while that of root and tuber crops has continued to decline (Figure 2.2). A more detailed representation that includes the less important food crops is shown in Appendix1.

Table 2.1: Per capita food supplies in Cal/cap/day (Cereals, roots & tuber)

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Cereals	1,008.7	988.3	918.5	923.0	898.8	930.0	934.3	919.9	945.4	958.0	982.4	1,031.8
Roots & tuber	547.8	521.2	490.2	461.2	471.8	408.4	395.9	371.0	449.2	445.1	400.7	392.0
Aggregate	1,556.4	1,509.5	1,408.7	1,384.3	1,370.6	1,338.4	1,330.2	1,290.9	1,394.7	1,403.0	1,383.0	1,423.8

Source: FAOSTAT

Figure 2.2: Trends in food supply (cereal and root and tuber crops Kilocalorie/ per / day)

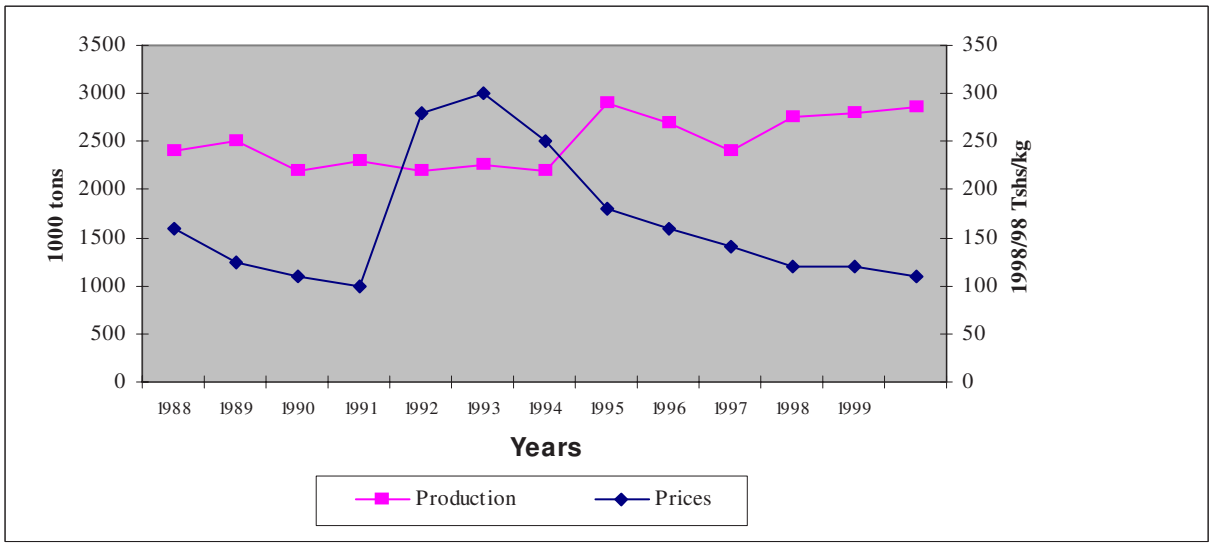


Source: FAOSTAT

2.3.1 Maize

Maize is the main staple crop in Tanzania, being grown on about 41 percent of the cultivated land during the *masika* (main) season and 47 percent of the cultivated land during the *vuli* (second) season (URT, 1996). According to the 1993 Human Resource Development Survey (HRDS), 82 percent of rural households grow maize and, of these, 26 percent sell maize (HRDS 1996). The largest surpluses are generated by the 'big four' maize producing regions which are Iringa, Mbeya, Ruvuma, and Rukwa.

Figure 2.3: Maize Production and Real Producer Prices



Note: Until 1991 were official prices, after 1991 market prices
Source: ASU/MAC from MDB

The annual growth in maize production was 2.4 percent over the period 1985 to 1998 and has been 2.7 percent since 1990. It is a matter of concern that maize production has not kept up with population growth, generally assumed to be 2.8 to 3.0 percent. Possible explanations for the slow growth of maize output relative to population growth include the rising cost of fertilizer, expansion of export crops due to export liberalisation, shifts in demand towards other staples, and insufficient rains in recent years.

Maize prices increased sharply in the early 1990s, following the grain market liberalization. But prices have been declining since 1993 partly because of the recovery in production and perhaps mainly because of sharp increase in food import (commercial import and food aid) (see section 4).

Maize production increased slightly despite declining fertilizer consumption. It is thought that farmers have started using organic manure or compost and other improved crop husbandry practices as fertilizer prices have become unaffordable. Due to budgetary pressures, implicit subsidy on fertilizers was phased out, declining from 70 percent in 1990/91 to 55 percent in 1991/92, 40 percent in 1992/93, 25 percent in 1993/94 and 0 percent in 1994/95. In addition, devaluation of the local currency resulted in higher prices; hence farm gate price of fertilizer rose by 85 percent in 19991/92 and between 32 and 91 percent in 1992/93 (depending on fertilizer type). (Isinika, A. C., et al., 2003).

2.3.2 Paddy

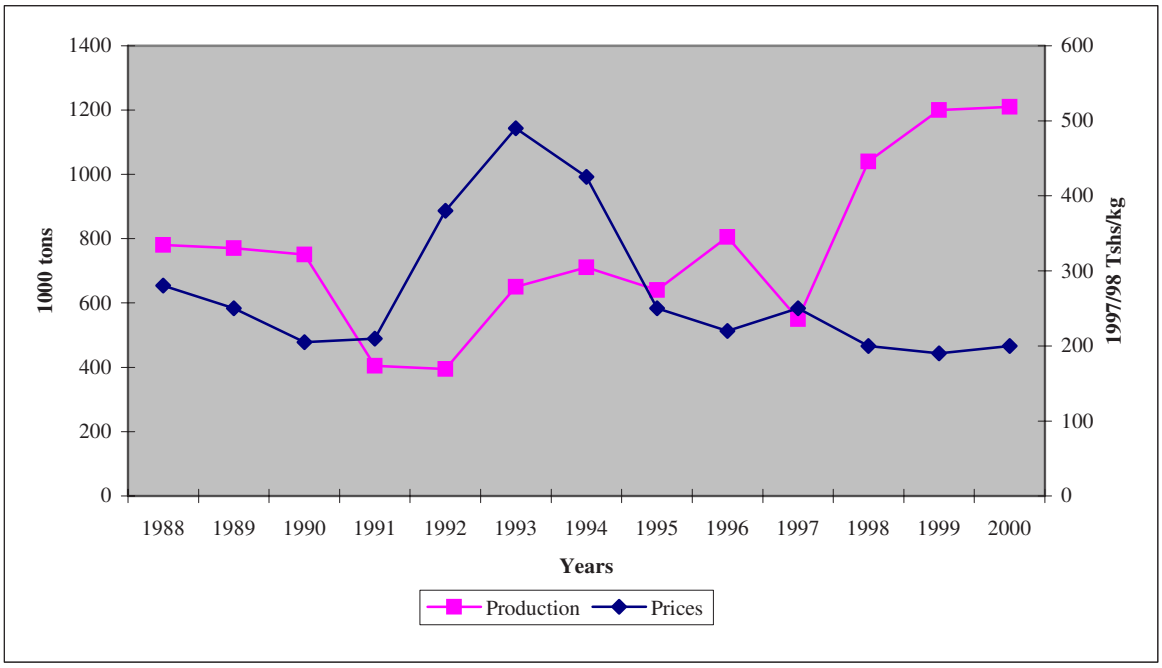
Between 1985 and 1998, rice production increased almost fourfold. This represents an annual growth rate of almost 11 percent, making rice the fastest growing food crop. Three factors have contributed to this expansion:

1 Rice is a tradable good, and its domestic price is influenced by the exchange rate and international prices. The economic reforms have resulted in exchange rate depreciation, making imports more costly and stimulating domestic production of tradable goods, including rice.

2 The income elasticity of rice is relatively high for a food commodity, being 1.25 in rural areas and 0.84 in urban areas. As a result, we expect per capita demand for rice to increase at approximately the same rate as per capita income growth. It is presently consumed mainly in urban areas and rice growing areas, but consumption is forecast to increase rapidly with income growth.

3 Exceptionally high and well-distributed rainfall in 1997/98 contributed to a bumper crop. Even the poorer crop of 1996/97 was more than double the average rice output in the early and mid-1980s.

Figure 2.4: Paddy Production and Real Producer Prices

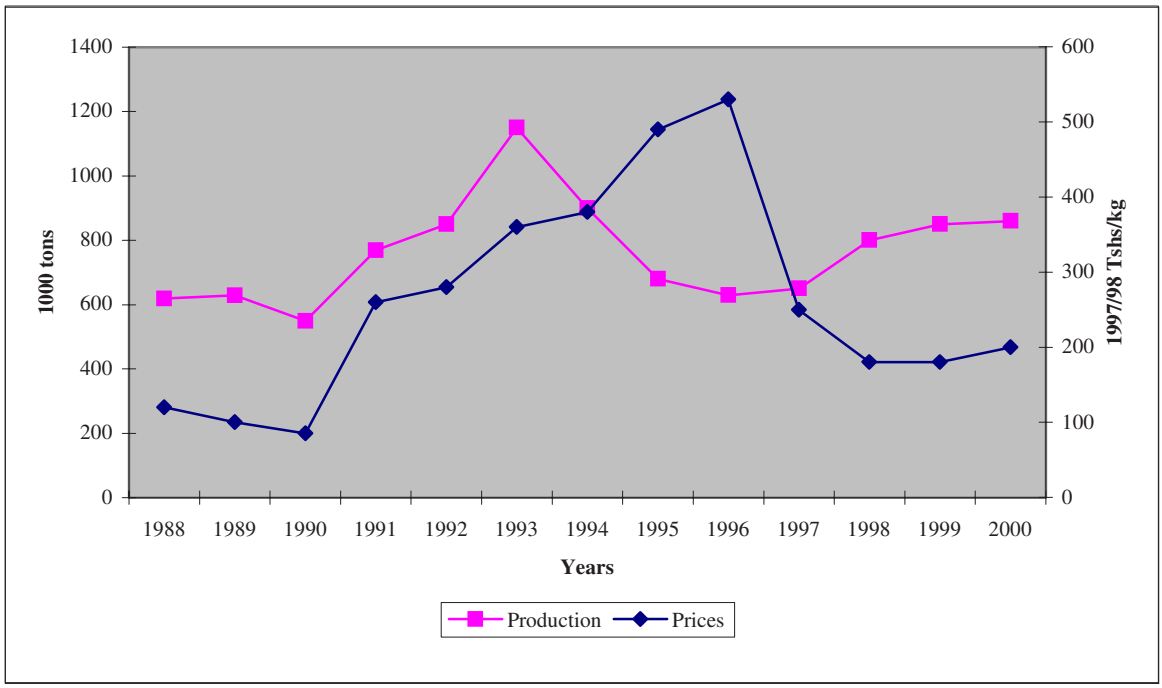


Source: ASU/MAC from MDB

2.3.3 Sorghum and millet

These are grown in the low-rainfall areas of Tanzania. Current production is around 900 000 tonnes, 60 percent of which is grown in Dodoma, Singida, Shinyanga, and Mwanza. Outside traditional sorghum areas such as Dodoma, consumers prefer maize so the market price is low. Low prices and low yields imply that average returns are below those for maize, but the drought-resistance of sorghum and millet means that returns are less subject to weather-related variation. Thus, they are grown as famine crops, particularly in years when rainfall is expected to be below average. Most sorghum and millet is grown for own-consumption, either as grain or in the form of traditional beer. As a result, the market is thin and there are wide variations in prices across markets and over time. According to data from the Agricultural Statistics Unit of the MAC, sorghum and millet production was stagnant in the late 1980s, but appears to have increased (though erratically) in the 1990s. This may be associated with the adoption of a new high-yielding variety (Tegemeo) in Dodoma (MAC NEI 1999).

Figure 2.5: Sorghum/Millet Production and Real Producer Prices

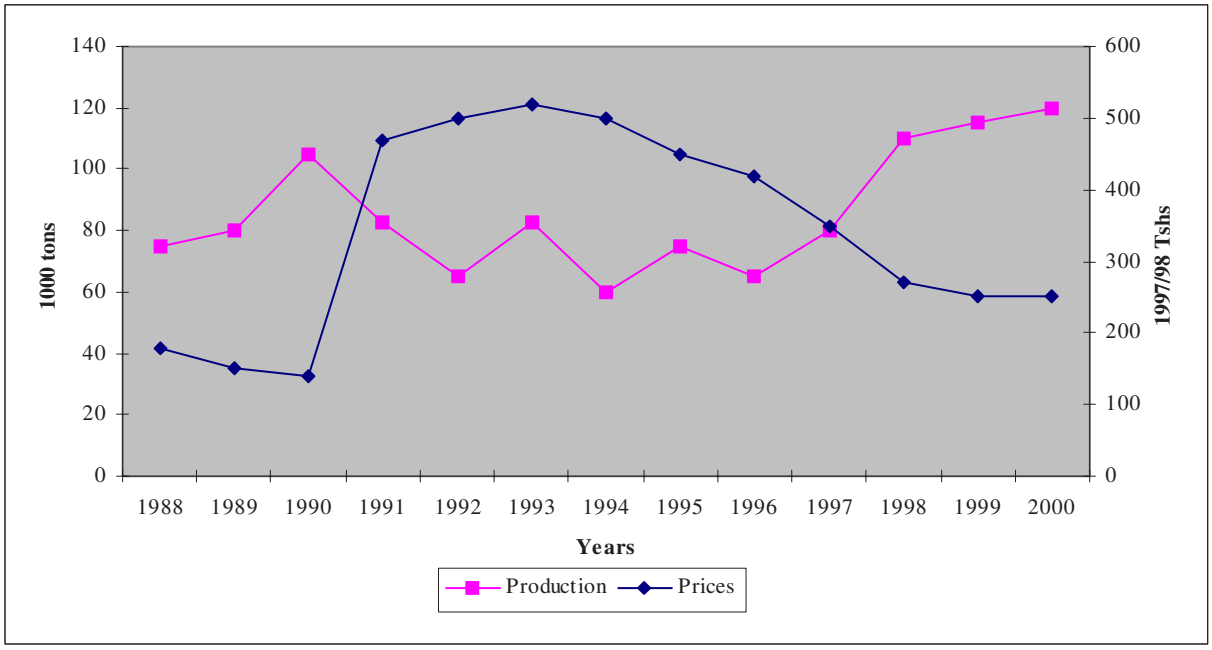


Source: ASU/MAC from MDB

2.3.4 Wheat

The case of wheat is similar to that of rice. Wheat production grew at about 4 percent, per year from 1985 to 1998. Like rice, wheat is a tradable good, with imports running at 30 000 to 70 000 tonnes per year (roughly 40 percent of national consumption). Thus, the policy of market-based exchange rate has favoured domestic wheat producers by making imported wheat more costly in local currency terms. This has been offset somewhat by the very low world wheat prices currently prevailing. Also like rice, wheat has relatively high income elasticity. Analysis of HRDS data (HRDS 1996) indicates that the income elasticity of wheat products is 1.25 in urban areas and 1.92 in rural areas. Thus, we expect the per capita demand for wheat products to rise more quickly than per capita income. These two factors help to explain the relatively rapid growth in wheat production.

Figure 2.6: Wheat Production and Real Producer Prices



Source: ASU/MAC from MDB

2.3.5 Cassava

Because it grows well in poor soils, requires little rainfall, and can be 'stored' in the ground until needed cassava is a useful as a famine crop. Kagera, Mtwara, and Mwanza are the main producing areas, accounting for 40 percent of the total production. The perishability of the fresh cassava root (once harvested) and the low value-to-bulk ratio, limit the long-distance marketing of cassava root. Cassava is mainly produced for home consumption or marketed locally. Long distance trade and urban consumption is usually in the form of cassava flour. Cassava production is around 1.5 million tonnes and has grown by 3.8 percent over 1985 to 1998, although the selection of endpoints probably overstates its growth. Cassava production statistics should be interpreted with caution, however, since the pattern of intermittent harvesting makes data collection difficult.

2.3.6 Other staples

Cooking bananas are grown in the cooler, wetter areas. Production is around 650 000 tonnes, two-thirds of which comes from Kagera and Kilimanjaro. Output has been stagnant since 1985, although the harvest in 1997/98 was substantially higher than average. Like cassava, cooking bananas have a low value-to-bulk ratio and are generally retained for home consumption. Sweet potato is another less preferred drought-resistant crop with a low value-to-bulk ratio. Tanzania produces 400 000 tonnes, of which over half is grown in Shinyanga and Mwanza. Output has increased since the mid-1980s, roughly keeping pace with population growth. Pulses are grown throughout Tanzania, with Arusha and Kagera having the largest harvests. Pulses are often intercropped with maize and production is currently around 400 000 tonnes. Since the mid-1980s, production has followed a gradual upward trend with considerable fluctuation. Pulses tend to have a somewhat higher value-to-bulk ratio,

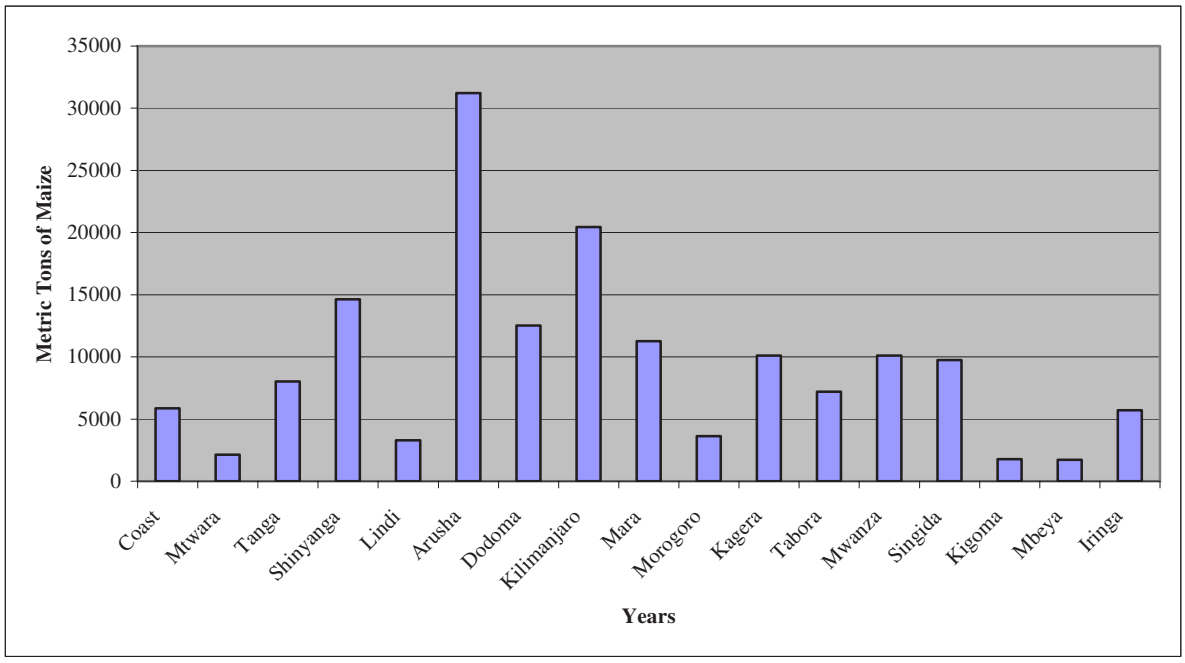
implying greater commercialization potential than cassava, sweet potatoes or cooking bananas.

2.4 Food Self Sufficiency

2.4.1 Food Deficit Regions and Households

Climate–related problems for farm families living in areas subject to periodic drought or flood are likely to continue in the future. Close examination of drought incidence reveals that Arusha, Coastal areas, Dar Es Salaam, Dodoma, Kilimanjaro, Mara, Morogoro, Mwanza, Singida, Shinyanga, Tabora and Tanga, fail to meet food requirements from domestic production in two out of five years (40 percent probability). Most food aid received by Tanzania is targeted to these areas (Figure 2.7). There is local government by-law in Tanzania, which requires all farming households in drought-prone areas to plant drought-resistant food crops for security when the main maize and rice crop fails. These measures have helped to curb the worst effects of recurrent drought on food security[1].

Figure 2.7: Total Food Aid Distribution (1991/92 – 2004) by Region



Source: Vice Presidents Office, 2004

Because the incidence of shortages and excess is bound to vary, district-level assessments have been carried out. Two complementary methods are employed in the assessment of district level food situation. Predicted yield is calculated for 12 basic food crops using information on the area planted and rainfall data from a sample of villages. Regional and district level officials also make assessments of expected yields during supervision trips, particularly for districts with insufficient data from the sampled villages.

[1] FAO, Agriculture Sector Brief: Tanzania, (Draft), July 2003

This approach identifies districts with a deficit of food production. However, it is recognized that households have a variety of means of accessing food and that districts may import food if there is effective demand. Urban areas are a particularly clear example. Districts that are identified as having a deficit are therefore visited by a team that undertakes a 'vulnerability assessment', assessing the extent to which households have other sources of income/livelihoods and stocks that can mitigate the effect of low food production. For 2003, these visits identified 46 districts in Tanzania as food insecure. The length of the period of insecurity depends on the time until the next rains can be expected, with unimodal rainfall areas having a longer period. Since 2003 is the first year in which the vulnerability assessments have been carried out, no information on trends in the number of food insecure districts is available.

It is always going to be difficult to apply these methods in districts that have a substantial non-subsistence economy, for which urban districts represent a particular scenario. The approach also classifies entire districts or villages, so it cannot easily deal with heterogeneity within these populations, while in many instances some households may be relatively food insecure and others in the same population may not be. The food security monitoring system provides a practical approach to identifying at risk rural populations and targeting them with food aid, and possibly longer-term development assistance.

The chronically food insecure are primarily smallholders without adequate resources. They also tend to have large families and are more likely to be illiterate and isolated from markets. Women, children and the elderly are the most vulnerable rural groups at risk of food insecurity. Transitory food insecurity exists in rural areas with long dry seasons and no access to irrigation; in particular Dodoma, Singida, Shinyanga and some parts of Arusha and Tanga. These regions also have agro-pastoral economies that are particularly vulnerable to weather fluctuations and changes in relative prices of animals and grains. Poverty is concentrated in poorly endowed regions, where the potential to increase productivity may be low and thus requires different strategies compared to higher potential areas[2].

2.4.2 Sources of available food

Table 2.2 shows the sources of available food in Tanzania. In 1992, about 96 percent of the total food available came from domestic grain output (65 percent) and root crop production (31 percent). Tanzania's import dependency, which was not very high in the early 1990s, has sharply increased since 1997 (Figure 2.8). The share of commercial imports in the total food supplies rose from less than 4 percent in 1992 - 93 to about 13 percent in 2000 and 11 percent in 2001. Food aid has fluctuated over the years, but on average accounted for about 17 percent of grain imports between 1992 and 2000 (Table 2.3).

Tanzania has yet to develop the capacity to withstand the impact of drought. The problem of food insecurity is expected to be compounded further by land degradation and HIV/AIDS.

[2] FAO and Unit4ed Republic of Tanzania, National Strategy for Food Security and Agricultural Development: Horizon 2015 (Second Draft), April 2004.

Even if a steady food supply is projected, the country is subject to periods of food insecurity. Production variability in the different regions can result into production shortfalls and with limited import capacity, a production shock could result in food gaps. The food gap to meet nutritional requirements is projected at nearly 425 thousand tons by 2006 and 386 thousand by 2011[3].

Table 2.2: Available Food by Source

Year	000 tonnes					% Share				
	Domestic grain production	Root production (grain equiv)	Commercial import (grain)	Food aid (gains)	Total	Domestic grain production	Root production (grain equiv)	Commercial import (grain)	Food aid (gains)	Total
1992	3 390	1 648	173	36	5 247	64.61	31.41	3.30	0.69	100
1993	3 700	1 593	167	47	5 507	67.19	28.93	3.03	0.85	100
1994	3 305	1 671	232	114	5 322	62.10	31.40	4.36	2.14	100
1995	4 355	1 451	200	35	6 041	72.09	24.02	3.31	0.58	100
1996	4 180	1 450	157	20	5 807	71.98	24.97	2.70	0.34	100
1997	3 335	1 436	237	96	5 104	65.34	28.13	4.64	1.88	100
1998	3 905	1 477	347	42	5 771	67.67	25.59	6.01	0.73	100
1999	3 585	1 728	593	43	5 949	60.26	29.05	9.97	0.72	100
2000	3 050	1 413	655	70	5 188	58.79	27.24	12.63	1.35	100
2001	3 275	1 561	577	90	5 413	60.50	28.84	10.66	1.66	100

Source: Economic Research Service/US$A

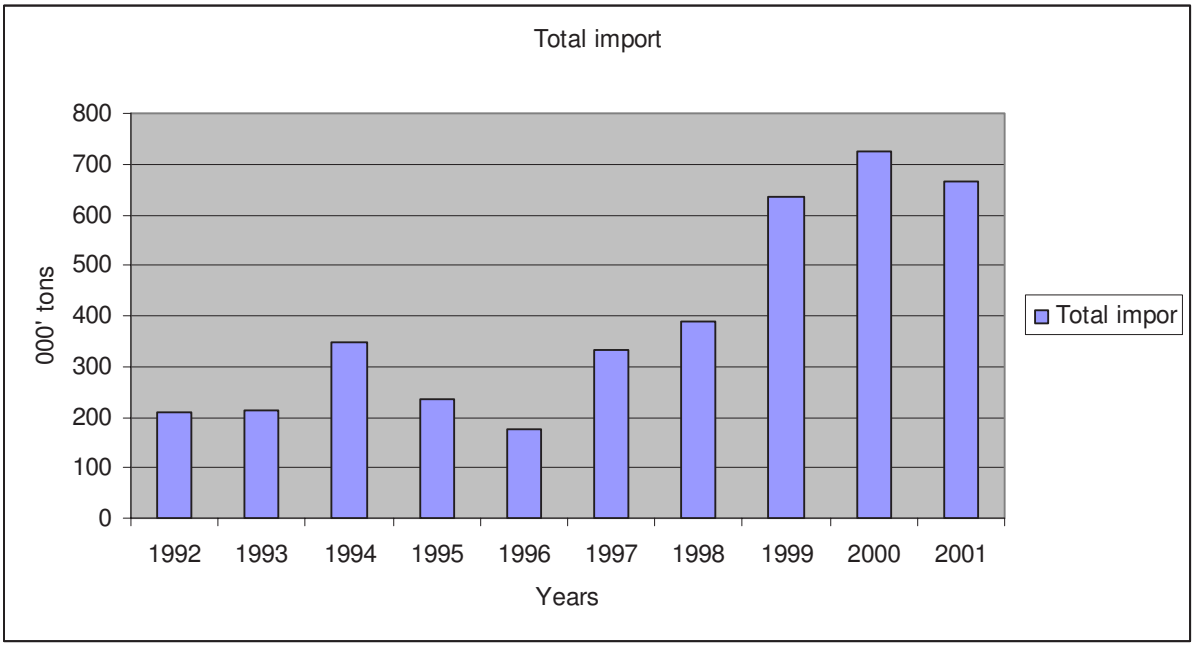
Table 2.3: Commercial Imports Vs Food Aid

Year	Total food import – commercial and aid (000 tons)	Food aid as % of total food imports
1992	209	17.22
1993	214	21.96
1994	346	32.95
1995	235	14.89
1996	177	11.30
1997	333	28.83
1998	389	10.80
1999	636	6.76
2000	725	9.66
2001	667	13.49

Source: Economic Research Service/US$A

[3] Economic Research Service/ US$A

Figure 2.8: Total import (commercial and food aid) of cereals (000 tons)



2.5 Food Security Situation in Recent Years

2.5.1 The Period from 1999/00 to 2001/02

Self-sufficiency analysis (production v/s requirements) for the season 1999/2000 to 2001/2002 is presented in Table 2.4[4]. The Self Sufficiency Ratio (SSR), which reflects the ability of food production to meet demand in a particular area, is computed by taking production as a percentage of requirements. When SSR is less than 100, the situation implies food deficit, when it is between 100 and 120, it implies food self-sufficiency, when it is above 120, is a reflection of surplus.

Table 2.4: Food Production and Requirements, 1999/00 to 2001/02 (millions of tones of grain equivalent)

Year	Total Cereals				Total Non-cereals				Total Food			
	Prod	Req	Gap	SSR	Prod	Req	Gap	SSR	Prod	Req	Gap	SSR
1999/00	3.367	4.788	(1.245)	70	3.954	3.088	0.703	128	7.322	7.916	(0.541)	92
2000/01	4.141	4.961	(0.819)	83	3.553	3.181	0.371	112	7.694	8.142	(0.448)	94
2001/02	4.461	5.109	(0.647)	87	4.110	3.274	0.836	126	8.572	8.383	0.188	102

Prod - Production
Req - Requirements
SSR - Self Sufficiency Ratio
Source: Ministry of Agriculture and Food Security

Production was 92 percent and 94 percent of requirements in seasons 1999/00 and 2000/01 respectively, implying a slight deficit. However, production was greater than requirements in 2001/02, implying food self-sufficiency and enabling sales to neighboring countries. Due to

[4] Data on food requirements prior to the 1999/2000 season are not available.

poor rainfall in 2002/03, domestic food crop production was predicted to be 7.55 million tones, falling below total requirements. It should be noted that these are national aggregates and there are significant variations in the food security situation between regions (a more detailed representation that disaggregates the regions is given in Appendices 2 to 4).

2.5.2 The Seasons 2002/03 and 2003/04

Rainfall, in terms of amounts and distribution, was worse during the 2002/03 cropping season compared to the previous five years, causing crop production to fall to below normal in most parts of the country and just normal in others. According to the National Food Security Division of the Ministry of Agriculture and Food Security, domestic food crop production in 2002/03 was at 7.55 million tones, which was below the previous two years when production was 7.69 million tones in 2000/01 and 8.57 million tones in 2001/02. Total national food requirement for the 2003/04 year is estimated to be 8.37 million tones, implying that production from the 2002/03 season provides 90 percent of national food requirement. However, the government Strategic Grain Reserve and private traders had carry-over stocks amounting to 51,971 tones and 114,899 tones, respectively while farm level retentions are estimated at about 333,740 tones. Put together, the carry-over stocks amount to 500,600 tones leaving a net gap of approximately 320,000 tones.

Despite the existence of this overall national food shortage, based on the 2003/04 production alone, seven regions of Iringa, Rukwa, Mbeya, Ruvuma, Kigoma, Kagera and Mtwara will realize a surplus while six regions of Tanga, Kilimanjaro, Arusha, Mwanza, Mara and Tabora will be just self sufficient. The remaining eight regions will face food shortages at various levels. However, preliminary information collected by the Ministry of Agriculture and Food Security (MAFS) revealed that even the regions considered self-sufficient or with surpluses have pockets of food shortages, again attributed mainly to poor rainfall.

The poor 2002/03 rainfalls did not affect livestock conditions because availability of both pasture and water in most areas remained normal, as was the case in past years. Consequently, this sector continued to provide livestock products for home consumption and sale thereby contributing as normally to food security.

The poor food crop situation in 2003 was predicted as early as February 2003, based on poor performance of the vuli rains (October to January) observed in some locations in bimodal rainfall areas in North Eastern Zone, Eastern and Lake Victoria basin. Also, rainfall forecast released by the Tanzania Meteorology Agency showed that in most locations rainfall to June was likely to be below normal. This triggered speculations by traders, who started to hoard food crop stocks expecting better prices later. The *msimu* rains (October to May in unimodal areas) and masika rains (March to June in bimodal areas) were also poor (as predicted), consequently reducing food crop production and supplies to markets. Normally, food crop prices start to fall in March/April as newly harvested crops start to reach households and markets, but in 2003, prices did not fall as normally in most locations.=

As trends in rising prices continued, it was difficult for market dependent households to maintain their food consumption levels. Also, due to poor crop production, poor farmers who

normally earn some income through selling surplus food crops turned into food crop buyers. This coincided with reduced income earning capacity because cash crops, which are dependable by the majority of farmers, also performed below the normal averages.

The food insecure households have been characterized as those falling in the acute crop failure geographical areas, which harvested less that 30 percent of their normal production. These households on average have less that 3 acres of land and very few livestock mostly small stocks made up of chicken, sheep and goat (range 2-5). Although human resource is available for off farm income generating activities, such options are equally limited. The vulnerability analysis therefore indicates that significant proportions of the poor households in the food insecure areas will have a period of tight food shortages from August this year to harvesting period in January and April next year for bimodal and Unimodal rainfall regions respectively. The high levels of vulnerability are associated with four major factors including the over 70 percent loss of their cash and food crops due to drought, the higher than usual cereal prices notably maize corresponding to a declining pattern of livestock prices.

Most of the households in this category of highly food insecure were assessed to have exhausted the previous year's stocks and hence making them rely on the 2003 harvest, which was very limited. At the level of households, coping mechanisms for the food insecure families were also limited to just a few options in the agricultural farms, most of which will be diminishing with time as impact of food shortages heightened. The tightened food supply to rural markets was also observed to be attributed to the fact that the traditional sources of cereals to local markets have been ineffective due to reduced production in those areas coupled with increased demand within and outside markets.

Putting into consideration the available coping mechanisms, the dynamics of the market supplies and prices and the expectations of the next harvesting period as an exit strategy from food shortages, the assessment identified a total of 1,939,698 people or 6 percent of the total population to be highly food insecure from October to March of 2004. The period of food insecurity is location specific, with areas under bimodal rainfall regimes having a shorter period of intervention between October and December 2003. Early harvest from short rains is expected to reverse the food insecurity of this population. On contrast, the food insecure population in unimodal rainfall areas was likely to recover from the next harvest in April 2004.

There is no doubt that food insecurity continues to be a major problem and a recurrent phenomenon in different parts of Tanzania. The proportion of households facing inadequate food was recently estimated at 41.8 percent. Most marginal areas of the country are chronically food insecure. Based on recent production figures, it has been established that an estimated 40 per cent of the population lives in food deficit regions. According to the World Bank, about 6.6 million people in Tanzania are chronically food insecure. The Food and Agriculture Organization of the UN (FAO) has also categorized Tanzania among the Low Income Food Deficit Countries (LIFDCs). Since the growth of aggregate food production has fallen short of population growth, it has become impossible to meet the nutritional energy

requirements of the people. There are also serious distribution and marketing problems in the country. For instance, in normal agricultural production years some parts of the country, particularly the southern highland regions are able to produce sufficient food crops, while others are constantly in short supply. The availability of food in deficit areas is complicated by the sheer size of the country, coupled by a poor infrastructure network, particularly roads and railways that inhibit efficient distribution. As a result, food supply during unfavorable years has had to be complemented by commercial and food aid imports, as occurred in the last three years following periods of drought and floods[5].

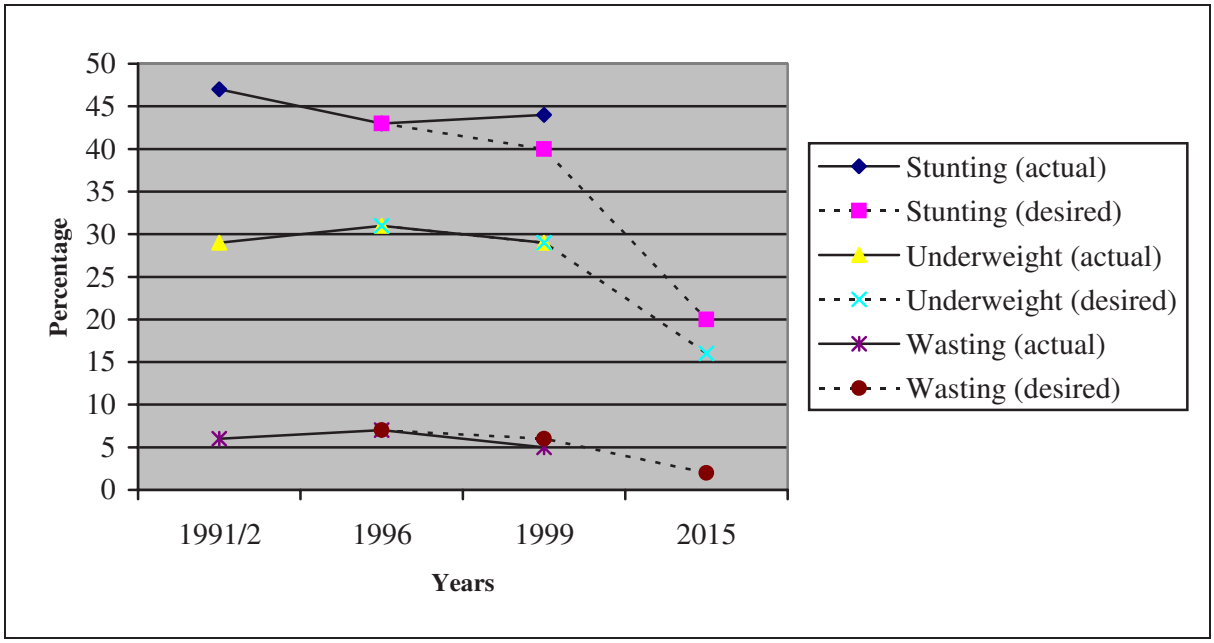
2.6 Trends in nutritional status

Whereas food security is generally defined in terms of food consumption, nutrition refers to the adequacy of the diet as measured by body size and shape. Three indicators for children's nutritional status are commonly used: stunting (height-for-age), wasting (weight-for-height) and underweight (weight-for-age). Whereas stunting measures chronic under-nutrition, wasting is reflective of acute under-nutrition. Weight-for-age is a summary measure, which gives an overall indication of nutritional status, but does not allow differentiation between chronic and acute problems.

Tanzania has shown dramatic improvements in nutrition since independence. Of particular interest however are the trend in nutrition since the initiation of economic reforms in the mid 1980s and the best recent nutritional trends come from the Tanzania Demographic and Health Survey (TDHS) providing estimates for 1991/2, 1996 and 1999 in Tanzania. The survey results show that there was very little progress made in improving the nutritional status of children over the 1990s. Stunting remains a very widespread problem, with 44 percent of children under five moderately stunted in 1999. Acute nutrition problems were found in 5 percent of under-fives in 1999. Twenty-nine per cent of under-fives was moderately underweight. The trends over the 1990s are illustrated in Figure 2.9.

[5] FAO, Agriculture Sector Brief: Tanzania (Draft), July 2003.

Figure 2.9: Child Nutrition – Actual and Desired Trends



Source: DHS 1991/92, DHS 1996, TRCHS 1999

There are large disparities in children's nutritional status between rural and urban areas. Children in rural areas are almost twice as likely to be stunted as those in urban areas, indicating that chronic under-nutrition is widespread in rural areas. The incidence of wasting was similar in rural and urban areas in 1999, indicating that the problem of acute malnutrition was of an equal risk to rural and urban children. Gender differences in nutrition indices are very slight. As expected, a household's poverty status is clearly correlated with the nutritional status of the children in that household. For example, the children of the poorest 20 percent of households are twice as likely to be moderately underweight and four times as likely to be severely underweight than the children of the richest 20 percent of households.

Since nutritional status of children is closely correlated with the poverty status of their households, reducing income poverty is a sine qua non for improving nutritional status. The gendered division of labour and the workload that women must carry are also important explanatory factors for children's nutritional status, as they prevent many women from following appropriate feeding schedules. Intra-household allocation of resources and control over these resources is equally important. Malnutrition does not only occur in households with insufficient resources, but also in those households where insufficient money is allocated to food for children. Major childhood illnesses such as malaria, respiratory infections and diarrhea also contribute to the poor nutritional status.

2.7 Vulnerability and Its causes

2.7.1 Households Vulnerable to Food Insecurity

Vulnerability refers to the risks that an individual, household or a community is exposed to. The ability to cope with risks when they come is the main determinant of the extent to which an individual, household or a community is vulnerable. Since the ability to cope with risks that face social groups differs, some people are more vulnerable than others. Rural and urban households vulnerable to food insecurity are those most vulnerable to environmental degradation, poor sanitation, pollution, overpopulation and disentitlement to education, training and employment opportunities needed to improve their food security situation. Vulnerability to food insecurity and what should be done is location specific and group specific and must therefore be assessed independently in each location or group. The following types of household in Tanzania are likely to be most vulnerable to food insecurity:

- Subsistence farmers who produce marginal or inadequate amounts of food;
- Resource poor farmers, who lack adequate land, labour and inputs to produce adequate food;
- Landless wage earners lacking adequate resources to produce food or income to obtain food;
- Households headed by women;
- Households with a large number of dependants;
- Households situated on marginal lands (e.g. drought-prone areas or steep slopes adversely affected by erosion, flood-prone areas);

Urban dwellers still maintain links with their home communities in rural areas through a plot of land or continued contacts with family members and from time to time obtain food remittances. In the absence of other strategies, it is crucial that this link is maintained and strengthened through improved communication between the rural and urban areas. However, situations are changing, and sooner or latter, these linkages may disappear. It is important that social safety nets for the urban poor are established. Currently, there is lack of systematically designed social safety nets for the urban poor. In addition to those urban areas and rural households described, there are other vulnerable groups that require special attention and should be the target of safety nets programmes. It is argued that while the number of vulnerable individuals is increasing, support mechanisms are not expanding, and statistics on the number of food assisted people and per region are not available. The special vulnerable groups are children and orphans, women, the disabled, and the very old.

2.7.2 Vulnerable and Food Insecure Groups

The various cultural aspects that relates to health care and feeding practices makes young children vulnerable to malnutrition. It has been established that, malnutrition continues to be a major cause of high infant and under-five mortality in Tanzania. Surveys conducted in the 1990s indicate that overall protein energy malnutrition as measured by weight for age has remained stagnant at around 30 percent, suggesting that nearly one in every three Tanzanian children is malnourished. Some household practices related to infant and child feeding have

important bearing on the nutritional status of young children. Low rates of exclusive breastfeeding, delays in the initiation of breast milk, poor use of colostrums, and poor quality, inadequate quantity, and low frequency of feeding are cited as causes of poor children nutrition.

Almost 10 percent of children under the age of 15 experienced the death of one of their parents; around one percent had lost both parents. The loss of a father was commoner than the loss of a mother, both because adult male mortality is higher than adult female mortality and because men are more likely to become fathers at older ages. There are similar levels of orphan hood in urban and rural areas. The risk of paternal orphan hood is somewhat higher in the poorest quintiles, although the relationship is not strong and there is little relationship between household income and maternal orphan hood.

People with disability are vulnerable and food insecure because they lack necessary social and economic support that is necessary to ensure that their potentials are developed and opportunities for better livelihoods are open to them. For example, children with disabilities often lack access to education facilities that accommodates their needs, and in the manner that socially integrates them. Attitudes and beliefs, and discriminatory behaviors towards the disabled make it difficult for them to integrate and to achieve desired social & economic development, hence remain vulnerable to risks.

Closely related to socio-cultural factors on the basis of ownership is vulnerability of the elderly people resulting from lack of productive assets. In most Tanzanian communities, the vulnerability of the elderly is increasing as younger adults migrate out of the rural areas into urban areas in search of livelihood opportunities. The elderly, whose productive capacity is reduced due to old age, remain in rural areas, with insignificant support amid breaking down of traditional extended family networks. Some research reveals that, older people feel that loss of family supports have affected their livelihoods and expectations.

Women are also vulnerable to many cultural practices that discriminates them against ownership of productive assets in their own right. Many traditions and customs of Tanzanian communities, allow men to own productive household assets like land, cattle, house etc, and hence command over resources that accrue from those assets. In a situation where the household faces economic hardship, such as famine and food insecurity, some assets could be disposed but resources are likely to be distributed in favor of heads of households, usually men. In addition, in events of separation or death of spouse, some women face discriminatory cultural practices, which negate their rights to own assets that are left behind, making them more vulnerable.

2.7.3 Shock–related vulnerability

Shock-related vulnerability includes all unforeseen events with consequences that can relegate an individual, household or community to poverty and food insecurity. It is often location and/or social group specific. Currently in Tanzania, the major events likely to cause such vulnerability are adverse weather conditions, and HIV and AIDS.

Adverse weather conditions are the most pronounced shock-related feature. Low technology in the agriculture sector renders it dependent solely on the weather, resulting in unpredictable and unreliable agricultural outputs. Among the factors that contribute to risk in the agriculture sector in Tanzania are the unpredictability of rainfall and the recurrence of drought and floods.

Both drought and the *El Nino* rains characterized adverse weather condition in the 1990s. The *El Nino* caused floods, destroyed crops, and damaged infrastructure, while drought affected several parts of the country in the mid 1990s. A fall in agricultural outputs following adverse weather could potentially impoverish farmers by reducing their capital formation and their future productive capacity. This is especially the case where farmers had invested a lot in those years. It is also common for both unfavorable weather conditions and pests invasion to occur in the same year. The most vulnerable small farmers and their households suffer from hunger and food insecurity which results from adverse weather conditions.

The HIV and AIDS pandemic is another factor contributing to shock-related vulnerability. Most of the infected are people in the productive age group. The secondary vulnerable people are mostly the children and the elderly. Producing healthy and well-nourished children requires key inputs, such as food and nutrients, health care, and the time of caregivers. The loss of productive adults reduces household income, indirectly reducing the ability to purchase or produce, and directly reducing the adult time available to transform them into improved child health.

With those infected being in the productive age group, both the direct costs of care and the indirect opportunity costs are very high and must be borne by those who are not in the economically active age group. The result of this could be an increase in the number of orphans in a situation where social services are already inadequate. If investment in children's well-being is linked to some anticipated future return in terms of old age security for parents, and if other adults do not expect these returns from children who are not their own, then the loss of a parent will lead to lower investments in health care and schooling for orphaned children, leaving them more vulnerable.

2.8 Existing Strategies for Food Security in Tanzania

In 1991, the Food Security Act was passed in which several functions related to food crops were transferred to a newly created Food Security Department (FSD) under the then Ministry of Agriculture and Cooperatives (MAC), including managing the Strategic Grain Reserve (SGR), which remains the main policy instrument that the Government uses to deal with emergency situations. The institutional structure within which the FSD operates has changed since the Act was passed. Currently the major functions of the FSD include:

(i) Monitoring the food situation in the country and make necessary recommendations to the Government on measures to be taken;

(ii) Managing the Strategic Grain Reserve; and

(iii) Estimating food crop production on an annual basis.

The building up of the SGR stock relies more on donor food aid than from local purchases by Government, and this is caused by resource limitations and reluctance by traders to supply SGR because of taxes levied by local authorities. Importation of food by private traders is also encouraged to overcome food deficit situations in any particular year.[6]

The Disaster Relief Unit under the Prime Minister Office (PMO) coordinates all aid for disaster relief, mainly in the form of food aid. The PMO occasionally carries out Rapid Rural Assessments to assess the prevalence of food shortages. Based on the findings, the PMO then embarks on the mobilization of resources both nationally and internationally to attend to the needs of the affected population. The FSD also carries out periodic monitoring and assessment of the rural food situation on a more systematic basis, through its Early Warning and Crop Monitoring System. The information obtained is conveyed to the PMO for decision about possible release of stock, as the case may be.

Release of the SGR takes two forms; release by sale in the process of recycling grain stored for more than two years, and release when a national food shortage is declared. Sales for the purpose of recycling is done in the open market to interested buyers who participate in SGR initiated auctions and who are likely to buy at the going market price. Because of strong demand and conditions that necessitated release for relief, recycling has never been a major concern.

The Government has increasingly resorted to the SGR to secure maize supplies for the purpose of mitigating localized food shortages in several areas. Maize has been distributed freely in some areas. In some instances where free distribution has taken place, negative signals are transmitted. It has given the impression that maize is a superior grain with the result that the recipients' have switched to the production of maize against all climatic odds.

[6] To facilitate private sector importation, the Government waived the 30 percent import tax on maize imported between January and March 1999.

The recipient effort to grow what is appropriate for their localities is therefore undermined by the intervention. In addition, it sometimes sends signals that private sector initiatives are replaced with free food and therefore reduces the role that markets will play in grain movements.

The Draft National Food Security Policy (of 2004) seeks to create an enabling environment for sustainable food availability. The aim is to create support mechanisms to ensure access of all vulnerable groups to adequate food and the highest possible levels of health and nutritional status through appropriate and diversified income-generating activities as well as measures aimed at strengthening food reserves and coping mechanisms to sustain households and communities during food emergencies.

CHAPTER 3: AGRICULTURE SUPPORT: MAGNITUDE, EVOLUTION AND TRENDS

3.1 The Importance of the Agricultural Sector

Tanzania is one of the poorest countries in the world. The agriculture sector plays an important role in the Tanzanian economy and posses the potential to advance the country's objectives of growth and poverty reduction. It contributes significantly in terms of aggregate growth, exports, employment and linkages with other sectors. The sector still contributes the most to GDP. However, the contribution has been on the decline from 48.9 percent in 1999 to 48.2 percent in 2000, 48.1 percent in 2001, and 47.5 percent in 2002. Agricultural products contribute well over half of Tanzania's exports. In addition, its growth or lack of it creates large spin-off effects through intersectoral linkages in the economy.

Table 3.1: Agriculture's Contribution to the National Economy (percent)

Parameter		1985–1988	1990–1993	1997–1999
Agriculture share of net exports by value		85	67	51
Agriculture share of GNP		46	45	50
Agriculture share of imports	Fertilizer	4	4	1
	Food	10	3	4
Agriculture share of labour force employment		85	84	82
Population in rural areas		82	79	75

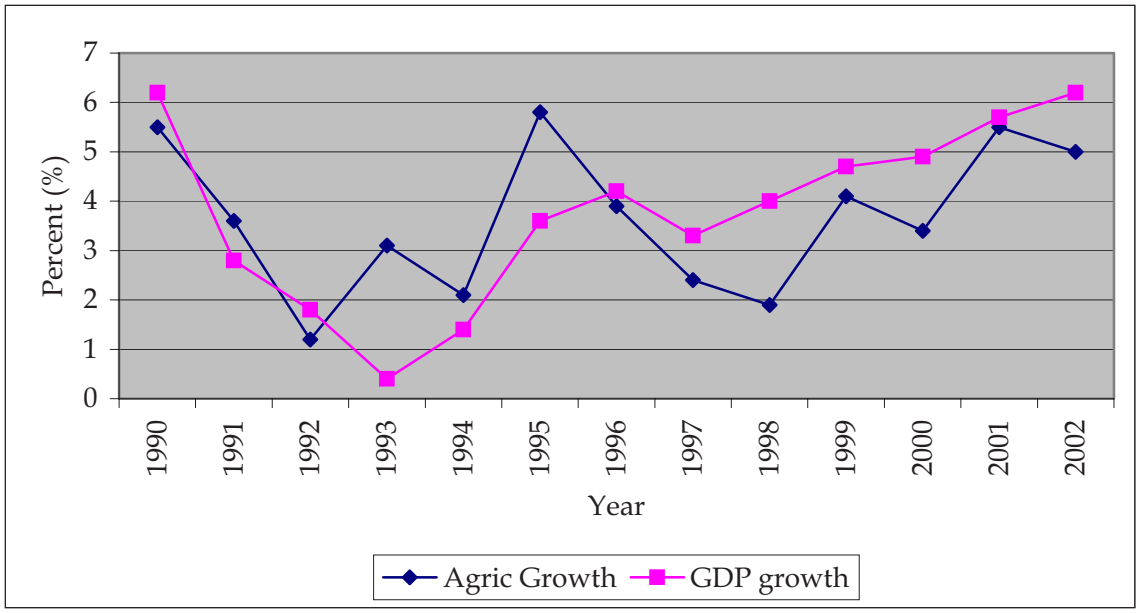
Note: Agricultural exports are taken as the main six crop exports: cashew, sisal, tea, and tobacco
Source: World Bank COD, 1999

One of the pillars for achieving the medium term targets for poverty reduction under the PRSP was growth in agriculture of at least 5 percent by 2003. In general, this was achieved in 2001, when agriculture grew by 5.5, while in 2002 the growth slowed slightly to 5 percent, which again was not below the targeted growth. The performance of the overall Tanzanian economy has been driven by the performance of the agriculture sector, due to its large share in the economy. Figure 3.1 below shows the trend of growth in agriculture sector together with the overall GDP growth.

Given the high level of poverty and underdevelopment, the need for accelerated growth in agriculture cannot be overemphasized. According to the World Bank (URT/WB, 2000), agriculture has to grow by at least 11 per cent in order for the sector to significantly contribute to economic growth and poverty reduction at satisfactory levels. Since Tanzania's food insecurity is predominantly a problem of low and fluctuating household income, not just inadequate overall supply, higher rural labor productivity and incomes hold the answer to improved nutritional standards[7].

[7] FAO, Agriculture Sector Brief: Tanzania (Draft), July 2003.

Figure 3.1: Trends in Annual Growth of Agriculture and Real GDP



Source: Economic Surveys (Various Years)

The National Sample Census Survey of Agriculture of 1994/1995[8] estimated that there were 3.87 million small-scale holdings in the rural areas of mainland Tanzania where the size of area cultivated averaged 0.86 hectares. About 90 percent of all farmers cultivated less than 2.0 hectares. The most common holdings are the family or homestead holdings, and these are operated individually. With the exception of few agricultural commodities such as sisal, sugar, tea, coffee, wheat and flowers, most of the agricultural output comes from smallholders.

The sector comprises the export crop, food grain and livestock subsectors. The export crop subsector is the engine of growth within the agriculture sector and the economy as a whole because its growth has spin-off effect and generates foreign exchange earnings. It consists of seven traditional export crops (cotton, coffee, tobacco, cashew nuts, tea, pyrethrum and sisal) and several non-traditional export crops (horticulture, cardamoms, oilseeds, and fishery products). This subsector has linkages with other sectors of the economy. Its backward linkages are weak because most farm inputs are imported, and its forward linkages are also weak because agro-processing is underdeveloped. Its consumption linkages are very strong because additional household income from export crop sales leads to a considerable additional consumption of local (non-tradable) good and services.

Tanzania enjoys strong comparative advantage in the production of all traditional export crops, some non-traditional export crops, and the major grains (maize and paddy) (URT/WB, 2000). The country is a relatively low-cost producer of almost all commodities. It can therefore increase its production at the margin without affecting the global supply and the

[8] Another National Agricultural Census is being conducted in 2004.

market prices of these commodities. Tanzania's comparative advantage could be further enhanced by increasing farm productivity for these crops through improved crop husbandry and adoption of yield-enhancing technologies, reducing the rise in living costs that lead to high wages (a symptom of an appreciating real exchange rate) and by arresting the deterioration in product quality (a symptom of lack of incentives for quality production) that have began to erode this comparative advantage in recent years.

The food grain subsector comprises mainly of maize, rice, sorghum/millet and wheat. Tanzania is generally a net importer of these grains, particularly during drought years, except for sorghum and millet. An appreciating real exchange rate has increased their comparative advantage *vis à vis* export commodities. Nevertheless, their production has not increased substantially in recent years. Cattle, sheep, goat, poultry and swine dominate livestock production in Tanzania. It is estimated that Tanzania has about 15.8 million cattle, the third largest in Africa, after Sudan and Ethiopia. Despite the large livestock population and vast rangeland resources, the sub-sector's contribution to the agricultural GDP and national GDP is still relatively low, about 10 -15 percent of the agricultural GDP.

3.2 Opportunities and Challenges/Constraints in Agricultural Production[9]

3.2.1 Land and soils

Tanzania has a land area of 944 800 square km (94.5 million ha). The country is endowed with a wide range of resources offering considerable socio-economic potential, including extensive areas of arable land, a coastal and marine zone, a wildlife zone, wildlife reserves and parks, forests, rivers and lakes.

Unlike most of its neighbors, Tanzania has comparatively abundant land resources. Even though there are substantial areas under various forms of protection, and others infested with tsetse fly, there is still land available for expansion of agriculture. However, conventional low input-low output production systems have typically resulted in high rates of soil degradation. It is estimated that less than 15 percent of land suitable for crop production is presently being used. Although this figure hides large regional differences, it is believed that, as long as increased agricultural production is possible through expansion, there may be little incentive for intensification, particularly through purchased inputs. Although decreasing rapidly, there are still large areas of the country, especially in the miombo agro-ecological zone where well-managed fallow opportunities exist for soil fertility recuperation, and where management improvement based mainly on non-purchased inputs may be feasible.

3.2.2 Climate and rainfall

Tanzania exhibits two seasonal rainfall modes. 'Unimodal' (single season) rainfall occurs between October/November and April and is observed over the central, western, southern and southwestern highlands. This is known locally as '*Musimu*'. The second type is bimodal

[9] A large part of this section is taken from FAO, Agriculture Sector Brief (Draft), July 2003

rainfall, which occurs over the coast belt north of Mafia Island, northeastern highlands and the Lake Victoria Basin. The bimodal rainfall type comprises two seasons. The first seasonal rain, termed the 'early rains' (*Vuli)*, falls from October to December. This season is generally short and accounts for only a minimal proportion of the overall annual rainfall figure. Crop varieties with a growth cycle of not more than 90 days and generally drought-tolerant can be grown in this season. The other seasonal rain is termed 'long rains' (*Masika*) and takes place from mid-March to May/June. This season is when the bulk of the annual rain for a particular region falls.

3.2.3 Water resources and irrigation

Of the 10.7 million ha under cultivation, only 150 000 ha is irrigated, representing less than 15 percent of the estimated irrigation potential of about 1 million ha. As much as 85 000 to 100 000 ha is farmed by smallholders in some 600 small-scale schemes, typically using small diversions and furrows in the highland areas, as well as small diversions for rice production in the lowland areas. In addition, there are substantial areas where smallholder farmers practice traditional systems of flood recession or water harvesting for rice production. Rice is by far the most important irrigated crop in Tanzania, but sugar is also irrigated. Traditional irrigation schemes that use water harvesting and simple diversion structures, account for the bulk of irrigated rice area. In addition, there are traditional schemes that have been upgraded, new smallholder schemes, irrigated parastatal farms and a few private sector irrigated farms.

3.3 Challenges and constraints to the agriculture sector

3.3.1 Limited access to technology and inputs

The low production and productivity for both food and cash crops is a manifestation of poor crop and animal husbandry practices, carried out mostly by smallholder farmers. Constrained access to inputs and timely advice by these farmers in particular, to a large extent impedes progress in the intensification of agriculture. There are many problems related to poor transfer of knowledge from research to application, including irregular access to extension agents and the more recent transitional problems of decentralizing the management of extension services to local governments. These problems are particularly acute for smallholder food crops, cotton, and coffee, in contrast to those like tea, and sisal for which large-scale farmers and/or marketing and processing companies finance research and provide the bulk of extension services.

Small-scale farmers in Tanzania currently use low input-low output technologies with limited consumption of fertilizer. Nutrients use per hectare in Tanzania is currently 3.26 kg of Nitrogen, 1.9 kg of phosphate (P2O5) and 1.08 kg of Potassium (Agricultural Input Study, MAC 1997), while average application rates in Africa are about 15 kg nutrients per hectare, compared with the global average of 87 kg per hectare. Under the changing socio-economic environment, with policies increasingly geared towards the phasing out of government intervention in directly productive activities and liberalization of the economy, the availability and, more seriously, the access to modern packages by most smallholders has been seriously affected. In some areas, removal of input subsidies has led to even lower

application rates and decreasing yields. During the past five years, fertilizer use has continued to decrease drastically, from 142 000 tonnes in 1992/93 to about 65 000 tonnes in the 1996/97 season. The low application rates by small-scale farmers in Tanzania are reflected in the low crop yields per hectare. The use of fertilizer, particularly in the Southern Highlands has fallen by about 50 percent following the removal of subsidies and drop in crop prices.

Poor and rudimentary technologies, such as the hoe, continue to be used in farming and this is a major constraint to increasing production and productivity. Application of intermediate or appropriate power technology is very limited, with only about 10 percent of farmers using animal power and still fewer using mechanized farm equipment. With such technologies the enormous potential for enhancing the timeliness of production activities and expansion of area under production remains untapped.

3.3.2 Inadequate agricultural marketing and pricing

Farmers' responsiveness to price incentives in Tanzania has been confirmed by econometric analysis using annual-regional panel data for both food and export crop production. The main constraints to commercialization relate to the availability of price information, wide marketing margins as a result of poor infrastructure, and weak competition in the markets. In 1992 the marketing margins were, on average, 48 percent of f.o.b prices for export crops and 25 percent for domestic sales. The difference is explained by the longer distances covered to the export points. Furthermore, there are additional costs associated with restrictions on crop movements and excessive taxes, which are inconsistently applied across local governments. Producers in the border areas have also raised concerns regarding restrictions of access to regional markets in the case of food crops, which hampers profitable sales.

Marketing constraints arise from the long distances to be covered for both procurement of inputs and produce delivery, coupled with infrastructure inadequacies and poor institutional arrangements. There are also constraints related to an inadequate flow of information on products and inputs, institutional arrangements, marketing services and output transformation issues.

Most feeder roads require either rehabilitation or complete reconstruction as they do not allow year-round accessibility. Poor roads inhibit smooth movement of crops from production areas, and marketing of both produce and inputs. They also contribute significantly to high costs for transportation and maintenance of vehicles, and these costs are subsequently reflected in the poor prices offered to rural producers for their products. Marketing, storage, and utilities such as water and electricity, are also inadequate.

3.3.3 High pre and post-harvest losses

Pre and post harvest losses for food crops are estimated to be between 30 and 40 percent, and up to 50 percent for horticultural crops. There is little emphasis on or enthusiasm for maintaining the quality and standards of produce. The major cause of pre-harvest loss is plant pests and diseases, including quelea birds, locusts, armyworms and other birds, and a whole range of diseases. Poor quality and loss of produce, which would otherwise have been delivered to the market and translated into monetary terms is substantial. Losses occur in several stages, including on the farm, in storage, during processing and handling, and between harvesting and consumption. The consequence is depletion of food stocks, resulting in many households running short of food several months before the subsequent harvest. These losses are compounded by inconsistency in the implementation of liberalized output marketing, especially of food grains, which affects farmers' incentive to produce. The underlying problems mostly stem from inadequate legislation, which is in need of review. There is also lax enforcement of regulations and standards, inadequate regulatory capacity and unqualified personnel responsible for enforcing standards.

3.3.4 Lack of agricultural credit

Credit for agricultural marketing has experienced a spectacular collapse in the past five years. With the collapse of the cooperative societies and unions, farmers find it difficult, if not impossible, to access some reliable form of formal credit to facilitate the purchase of production inputs. As a share of slowly increasing commercial bank lending, loans for agricultural marketing fell from 19.7 percent of the total in 1995 to a mere 0.8 percent in 1999. The sharp drop between 1995 and 1996 (by two-thirds) is associated with a lending freeze by the National Bank of Commerce (NBC) enforced under the Memorandum of Understanding with the Treasury in the context of the restructuring of the Bank.

Availability of formal agricultural credit for production is limited. Just 5 percent of Tanzanian farmers obtain credit from non-family sources in a given year. The main constraint to credit expansion is risk associated with poor credit recovery. Commercial bank lending for agricultural production has halved in the past four years, declining from the recent peak of nearly 12 percent of total domestic lending in 1996 to 6 percent in 1999. For crops such as maize, the benefits of using inputs are not certain. In the case of export crops, however, fertilizer is more often profitable and probably underused. The main problem is how to ensure credit recovery in a liberalized market where farmers have various market outlets. A variety of experiments is underway to develop rules and institutions to facilitate input credit for export crop producers, including contractual arrangements with marketing agents, and self-selected village groups providing group guarantees for their members to secure credit from third parties.

3.3.5 Limited private sector investment in agriculture

Private sector participation in agricultural processing and marketing is very limited in Tanzania. Most agricultural products, such as fruit, vegetables and other primary products, are not marketable owing to the lack of processing facilities. There are few investments adding value to these products, either for local consumption or for export. In the case of traditional export crops, such as tobacco, coffee, sisal and cashew nuts, processing facilities have been run down and require rehabilitation.

There are four key constraints to the development of the private sector in agriculture:

1 Limited financial support mechanisms, especially concessional credit schemes, overdrafts etc. and credit is often only available at high interest rates;
2 The unpredictable imposition of controls for internal and external movement of agricultural produce, which hampers marketing efficiency, and the profitability of agriculture;
3 The large number of taxes and charges levied on agriculture, lack of uniformity in treatment across localities and multiple taxation at different levels of Government; and
4 The lack of a unified and organized voice to clearly articulate the concerns of private sector interests for both small and large farmers, *vis-à-vis* government policies and other private sector lobbies.

3.3.6 Continued dependence on rainfed agriculture

Overdependence on rainfed agriculture has been a major constraint to sustainable increase in crop production. While there is an abundance of water in rivers and lakes, there is very limited application of irrigated agriculture. Rural areas with long dry seasons, in particular Dodoma, Singida, Shinyanga and some parts of Arusha and Tanga, will remain food insecure as long as they continue to depend on rainfed agriculture. These regions fail to meet food requirements from domestic production in two out of every five years.

3.3.7 Environmental degradation

Destructive agricultural practices, leading to degradation, have been rampant and raised environmental concerns. The impacts of environmental degradation include shortages of water for agricultural and other purposes, soil degradation, water erosion, seasonal Stalinization, deforestation, drought and flood hazards. Conventional low-input farming practices with no traditional soil fertility-restoring practices (because of population pressure), together with the continued alarming rate of deforestation, estimated at 190 000 to 500 000 hectares annually, have resulted in severe soil erosion and degradation. Appropriate soil and land management and rehabilitation, including the recovery of degraded soils, will play a crucial role in enabling the agriculture sector to expand production. It is necessary to formulate strategic plans and programmes, and land policy to improve the economic, legal, and institutional framework, so that farmers are encouraged to invest in sustainable agricultural production practices, including management and rehabilitation of degraded land.

3.3.8 Gender imbalances

The production process is mostly carried out by women, who contribute about 70 percent of the actual work on farms but have very limited access to land, credit, education and labour saving technologies. Women are the main agricultural producers in Tanzania and are the ones most directly involved in their families' feeding and in other essential family requirements. They are the ones most involved in generating agricultural produce, right from production to processing, storage and marketing. Yet, their involvement in the process of development and decision-making is minimal. Cultural barriers, as well as low levels of education among woman, have also undermined their active participation.

3.3.9 Poorly coordinated institutional changes

The policy shift of the 1980s which led to withdrawal of public institutions from production, development, processing and marketing of produce, and input supply, has not led to an efficient development of the agriculture sector. With the takeover by the private sector during the transition period a number of inadequacies have emerged including:

- Deterioration in the quality of produce, especially for export crops such as coffee and cotton, owing to inadequate regulation, experience and knowledge; and
- Chaotic operation of the market for cash crops, as private companies have turned into monopolistic cartels which predetermine prices, forcing farmers to sell cash crops in particular, at prices that are sometimes lower than the cost of production.

The benefits of competition have, therefore, not been realized by the farmers. There is also a general lack of an effective system of management of agriculture at any level. This absence of guidelines and supervision leaves production activities to the whims of fate.

There are major macroeconomic policy issues that need to be resolved before agriculture can show growth on a sustainable basis. For instance, the tax regimes associated with some export crops, the debt crisis and deteriorating terms of trade for agricultural products, and unrealistic government budgets for agriculture sector development. In addition, many of the development policies in the country are made by diverse and uncoordinated units in the Government and the basis upon which agricultural policies are formulated is rather weak.

3.3.10 HIV and AIDS

The HIVand AIDS pandemic has, for the past 20 years, affected hundreds of thousands of Tanzanians and continues to spread relentlessly, further affecting people from all walks of life. It is estimated that more than 2 million people have been infected over the past 20 years. Records from blood donations indicate a twofold increase in the rate of infection, from 5 to 10 percent from 1992 to 1999. Increasing absenteeism from work places and farms, the large number of AIDS patients in hospitals, and an increasing number of deaths in the public and private sector and at all levels of communities, as well as a growing number of orphans, are the major impacts of the pandemic. The HIV and AIDS pandemic has been declared a national disaster and is among the top priorities in government plans.

HIV and AIDS have had specific adverse effects on the agriculture sector in terms of productive personnel and the skills residing in the labour force. Although it is difficult to quantify the loss of production as a result of AIDS-related deaths across the country, it is evident from the large number of orphans that it has affected numerous households.

3.4 The trading environment

The unfolding process of globalization has called for acceleration of the process of liberalization and opening up. To address these tremendous changes and new challenges in the business environment, Tanzania has come up with new trade policy, branded 'Trade Policy for a Competitive Economy and Export-Led Growth'. The vision of the Trade Policy is stated as,

> to transform the economy in five years (2002 to 2007) from an inefficient supply constrained economy into a competitive export-led economy supportive to Tanzania's integration and meaningful participation in the global economy through strategic trade liberalization.

The Mission of the trade sector is, therefore, to stimulate the development and growth of trade through enhancing competitiveness, leading to rapid socio-economic development. Specific objectives of the Trade Policy include:

- Building a diversified, competitive economy to increase foreign exchange;
- Encouragement of higher value-addition on primary exports;
- Stimulation of investment in export-oriented areas with comparative advantage;
- Promotion of domestic production and technological change;
- Improvement of efficiency of imports utilization;
- Maximizing utilization of complementarities in regional and international trade; and
- Achieving and maintaining long-term balance in the current account.

Tanzania's agricultural exports are constrained more by domestic (supply-side) factors than international trade barriers. Factors that limit the growth of Tanzania's export trade can be broadly categorized into production and non-tariff barriers. Lack of adequate infrastructure has resulted in high energy and transportation costs, thus rendering Tanzania's commodities non-competitive. Low levels of domestic entrepreneurship, coupled with poor quality products, have resulted in a loss of market share. Limited capital, and unfavorable land and labour laws deter the growth of medium and large-scale agricultural production, leading to export sector dependency on poor quality, high-cost products from the small-scale production sector.

There are a number of non-tariff barriers to trade, in addition to the above production constraints. These include unclear export procedures (especially requirements for permits) and associated bureaucracy, a multiplicity of local Government taxes (which negate the incentive of removing export taxes) and cross-border trade restrictions. Other barriers include

preshipment inspection, import restrictions and health requirements. Estimates of trade indices show that, despite slow growth in Tanzania's exports, the competitiveness of the country's commodities in the regional market is improving, even amongst increasing competition, and the rate of protection is declining. This is partly a result of the trade liberalization and regional integration processes. Products with high comparative advantage are not necessarily the most regionally oriented.

Policy reforms are a necessary but not a sufficient condition for the promotion of Tanzania's trade with other countries. Measures to promote trade in agricultural products should be accompanied by deliberate measures to address production impediments and the above-mentioned non-tariff barriers. Removal of the supply-side constraints will rely mostly on the domestic policies that are adopted (especially financial sector and land reforms), fiscal measures (investment incentives and infrastructure financing) and building the capacity to trade. However, the removal of non-tariff barriers may also be achieved by harmonizing regional trade policies, especially in cross-border trade.

3.5 Macroeconomic and agricultural sector strategies and policies

Modernization of agriculture and raising productivity in this sector is given high priority in Tanzania's Development Vision 2025 (TDV 2025). The Vision was formulated with a view to setting the country's economic and social goals, against which the National Poverty Eradication Strategy (NESP) for poverty alleviation (from 1998) was formulated. It has five overarching goals, *viz* high quality livelihoods; peace, stability and unity; good governance; a well educated and learning society; and a competitive economy capable of producing sustainable growth and shared benefits.

The Tanzanian Poverty Reduction Strategy Paper (PRSP), which was prepared in consultation with domestic stakeholders and external development partners, provides a medium term strategy for poverty reduction. Food security targets established in the Poverty Reduction Strategy set the reduction of the head count ratio for the food poverty line from 18.7 (2000/01) to 10.8 (2010) for urban dwellers, and from 20.4 (2000/01) to 11.6 (2010) for rural inhabitants. These targets are to be achieved with particular focus on sustaining macroeconomic stability, private sector development, export growth, and development of rural areas, where poverty is most prevalent. In order to improve the quality of life and social well-being, the Strategy intends to improve human capabilities, enhance longevity, survival, social inclusion and personal security, improve nutrition, and contain extreme vulnerability (mainly through social safety nets). The agriculture, water, health and education sectors have been accorded highest priority in the implementation of the Poverty Reduction Strategy.[10]

Following the identification of agriculture as the sector in which the majority of the poor derive their livelihood, the Government has prepared the Rural Development Strategy (RDS)

[10] See FAO, Agriculture Sector Brief: Tanzania (Draft), July 2003; FAO and United Republic of Tanzania. National Strategy for Food Security and Agricultural Development: Horizon 2015, April 2004.

and the Agricultural Sector Development Strategy (ASDS) as integral components of macroeconomic and structural reforms. The ASDS is the overarching sectoral policy and strategy process. It is closely related to or derived from other government activities that focus on tackling poverty, including the TDV 2025 and PRSP.

The overall aim of the RDS is to provide a strategic framework to facilitate coordinated implementation of sector policies and strategies concerned with development of rural communities. In particular, the RDS will support the implementation of the Poverty Reduction Strategy and create a development environment that enables rural communities and households to achieve sustainable livelihoods. The RDS, therefore, seeks to identify short and medium-term priorities that will support the goal of sustainable livelihoods and contribute to the long-term goal of sustained economic growth outlined in Vision 2025.

The development of agriculture is seen as an effective strategy for poverty reduction, addressing food security and contributing to the growth of the economy. If agriculture grows at 5 percent, per annum, as envisaged, and if that growth is accompanied by increased off-farm rural employment opportunities, then poverty is likely to be reduced considerably. The strategy is to make the macroeconomic policy environment favorable to private investment in agriculture and to put in place sector-specific policies that have an important bearing on agricultural productivity and profitability.

Five areas have been identified for policy intervention in the ASDS:

1 Action is being taken to strengthen the institutional framework for managing agricultural development in the country, including both public and private institutions;
2 Interventions are to be made to create a favorable climate for commercial activities to develop in agriculture;
3 The strategy has clarified the roles of the public and private sectors in providing support services, emphasizing collaboration and partnership between the two, with the public sector increasingly confining itself to providing collective goods and services that the private sector is unlikely to provide;
4 Marketing of inputs and outputs is to be improved in order to increase returns to agriculture, with special emphasis being given to establishing a private agribusiness sector support unit, promoting agroprocessing and rural industrialization and strengthening marketing information and dissemination; and
5 The strategy is developing mechanisms for mainstreaming planning for agricultural development in other sectors, such as infrastructure, fighting HIV and AIDS and malaria, gender considerations, environment and managing rural–urban migration.

During the mid to late 1980s and early 1990s, there was a series of policy modifications and adjustments in the country, strongly supported by donors. At the macro level, these policy changes included devaluation of the local currency, a cut in parastatal subsidies, liberalization of imports, raising of bank interest rates so that they were positive in real terms, removal of price controls on most previously regulated consumer goods, raising of producer prices for export crops in real terms, and the continuation of the liberalization of the food market. For the agriculture sector, measures complementary to the changes in macroeconomic

management were formulated. The main policy components were to liberalize the marketing and pricing of food grains, initiate liberalization of the marketing and pricing structures of major export crops, remove the monopoly export powers of crop marketing boards and restructure several agriculture sector parastatals.

From 1993 to 1997, agriculture sector policy continued its evolution towards market–orientation, with reduced intervention by the State. There was substantial activity in macroeconomic reform and government investment in infrastructure, which had a direct bearing on agricultural productivity and incomes. The stated policies that guided government activity in the sector can be summarized as:

- Reversing price distortions and recuperating losses arising from inefficient (state-run) processing and marketing industries;
- Using the market rate of exchange for agricultural exports;
- Revitalizing export processing industries through divestiture and encouragement of private sector participation; and
- Continued reduction of state participation and control in produce marketing and inputs supply.

Other, more generalized, policy intentions stated during this period were to:

- Improve the Government's ability to design and implement market-based incentives for agricultural production, processing and inputs supply;
- Improve the functioning of markets for all factors of production; and
- Induce technological change by improving the efficiency of inputs supply markets and by increasing the effectiveness of Government's agricultural extension and research services.

Salient features of the Agricultural and Livestock Policy of 1997 include:

- Liberalization of all agricultural markets and removal of state monopolies in export and import of agricultural goods and produce;
- Withdrawal of Government from agricultural production projects;
- Abandoning the objective of national food self-sufficiency in favor of the objectives of food security at the national and household levels;
- Reliance on the private sector (comprising smallholders, commercial farmers and pastoralists) for all agricultural production;
- Decentralization of agricultural extension and transfer of administrative and implementation responsibility to District Councils;
- Integration of agricultural research with agricultural extension at the district level;
- Adoption of a new land policy to improve security of tenure and allocation of land; and
- Government having continued responsibility for industry regulation and assistance through commodity crop marketing boards.

Many policies are made through an uncoordinated policy formulation process at all levels of Government, while the basis upon which the policies have been formulated is weak. This leads to problems of duplication and difficulties in implementation, management and coordination of projects and programmes. The institutional capacity is also weak, as reflected

in the poor performance at various levels, be it Government, cooperatives, associations or even NGOs. Inconsistency in maintaining institutions is among the major contributors to lack of continuity in implementation. Frequent institutional changes have made it impossible to predict government policies and actions. While the taxation system in the agricultural sector is uncoordinated, these taxes are diverse, many and very high, providing a disincentive to farmers and traders alike, with little ploughing back of profits for reinvestment in the development of the sector.[11]

3.6 Public expenditure in the agricultural sector

3.6.1 Budget allocation

Public investment in agriculture, coupled with investment in the supporting infrastructure, will have considerable impact on poverty alleviation, rural-led growth and food security. Before 2000, public expenditure was channelled into the agriculture sector directly through Government ministries (agencies). These were the Ministries of Agriculture and Cooperatives (MAC) and Natural Resources and Tourism, and the Prime Ministers Office (PMO). However, MAC was responsible for the overall development of the sector.

Table 3.2: Real Budget Allocations to Agriculture

Year / Budget Item	90/91*	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
	Million Tshs (1998/99 value)									
Total vote	**57 293**	**64 432**	**71 001**	**62 696**	**63 252**	**40 161**	**26 420**	**21 829**	**37 047**	**44 421**
	Percent									
Administration	33	10	10	10	5	4	9	13	29	32
Crop development	4	47	39	44	47	55	49	48	34	36
Research development	29	25	34	22	30	18	10	15	15	12
Food security & SGR	0	0	0	7	5	6	12	11	3	3
Livestock development	33	12	12	12	9	13	16	4	15	13
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

A: 1990/91 distributions by sector include only recurrent expenditure because development expenditure figures were not allocated by sector

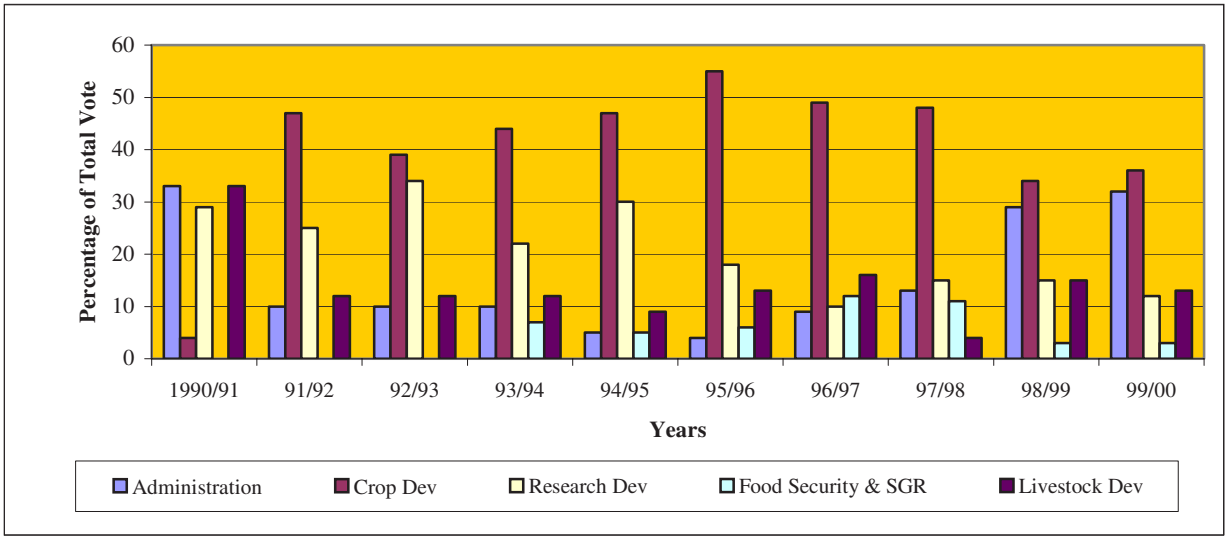
Note: Total vote include recurrent and development expenditure. "Administration" includes policy and planning. "Crop Dev" includes inputs trust funds.

Source: Ministry of Agriculture and Co-operatives

Figure 3.2 shows trend in the allocation between different spending categories. Crop and livestock development is the largest item, showing a declining share after 1991-92, the first year in the table to include development budget expenditures along with recurrent expenditures. The declining share of research and development is especially worrisome for future productivity growth in agriculture, falling from 25-30 percent in the early years to an estimated 12 percent in the 1999 -2000 budget.

[11] FAO, Agriculture Sector Brief: Tanzania (Draft), July 2003.

Figure 3.2: Allocation between Different Spending Categories



Source: Ministry of Agriculture and Co-operatives

Table 3.3 shows the sources of funding for the Ministry of Agriculture and Cooperatives. The most striking trend is the drop in the development budget as a share of total over the 1990s.

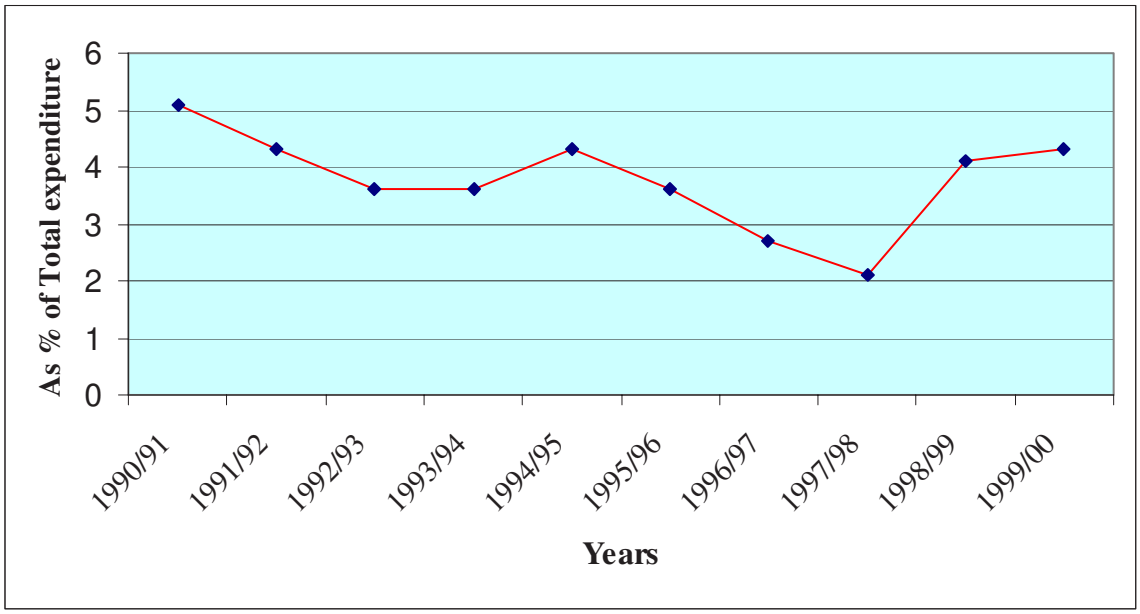
Table 3.3: Source of Funding for Government Spending on Agriculture (percent)

Source of funding	1990/91	91/92	92/93	93/94	94/95	95/96	96/97	97/98	98/99	99/2000
Recurrent	29	51	43	45	37	64	89	74	41	35
Development (local)	17	17	13	4	4	7	1	3	3	5
Foreign	54	32	44	51	60	29	10	23	56	59
Total Ministry of Agriculture/ Total Government	5.1	4.3	3.6	3.6	4.3	3.6	2.7	2.1	4.1	3.8
Other Rural Sector/ Total Government	0.7	3.5	2.2	5.2	3.7	1.3	1.5	2.4	2.9	2.1

Source: Calculated from figures supplied by MAC (1999)

The local development budget went from an average of 17 percent of Ministry expenditures in 1990/92 to 2 percent in 1996/98. Foreign support for the Ministry is all counted in the development budget, and has also fallen significantly since 1994-95. The share of the MAC budget coming from foreign sources declines from 60 to 10-20 percent, implying an even larger drop in absolute funding since the total MAC budget is declining in absolute terms. This trend was exacerbated by falling share of Government spending devoted to the MAC (although there was some recovery in the approved 1998-99 and estimated 1999-2000 budgets). The share of MAC in total Government expenditure (both recurrent and development, and own-funds and donor financed) was on the decline from the early 1990s up until the year 2000 (Figure 3.3).

Figure 3.3: Actual Expenditure to MAC as percent of Total Government Expenditure



Source: Ministry of Agriculture and Cooperatives (MAC)

3.6.2 More Recent (1999/00 – 2002/03) Allocations, Shares and Trends

Policy and institutional reforms in 2000/01 continued to focus on decentralization process (i.e. giving Local Government Authorities more autonomy in order to gradually allow the grassroots to take the lead in socio-economic development). Thus, the Presidents Office – Regional Administration and Local Government (PORALG) has been charged with the responsibility of providing social and infrastructure services to the regions including education, health, water and rural roads, all which have an impact on the agricultural sector. These operations are financed through allocations made by the central government (although personnel expenses including wages and salaries are still paid by respective ministries). Local governments under the decentralized administration set-up also have a mandate to generate revenue within their jurisdiction and finance development projects in the social and infrastructure spheres. However, these changes do not reflect a shift in channelling of public expenditure into the agricultural sector as a result of decentralization.

Following the split of the Ministry of Agriculture and Co-operatives in the year 2000, allocation of budgetary resources into the agricultural sector is currently channelled through three new ministries, namely Agriculture and Food Security (MAFS), Cooperatives and Marketing (MCM) and Water and Livestock Development (MWLD). These changes have some budget implications as can be depicted in Table 3.4. An overall budget trend for the past three years has subsequently been upward. This is particularly the general trend for not only recurrent and development budgets, but also approved as well as actual expenditure.

Table 3.4: Total Expenditure (Local and Foreign-Funded) in Mill Tshs

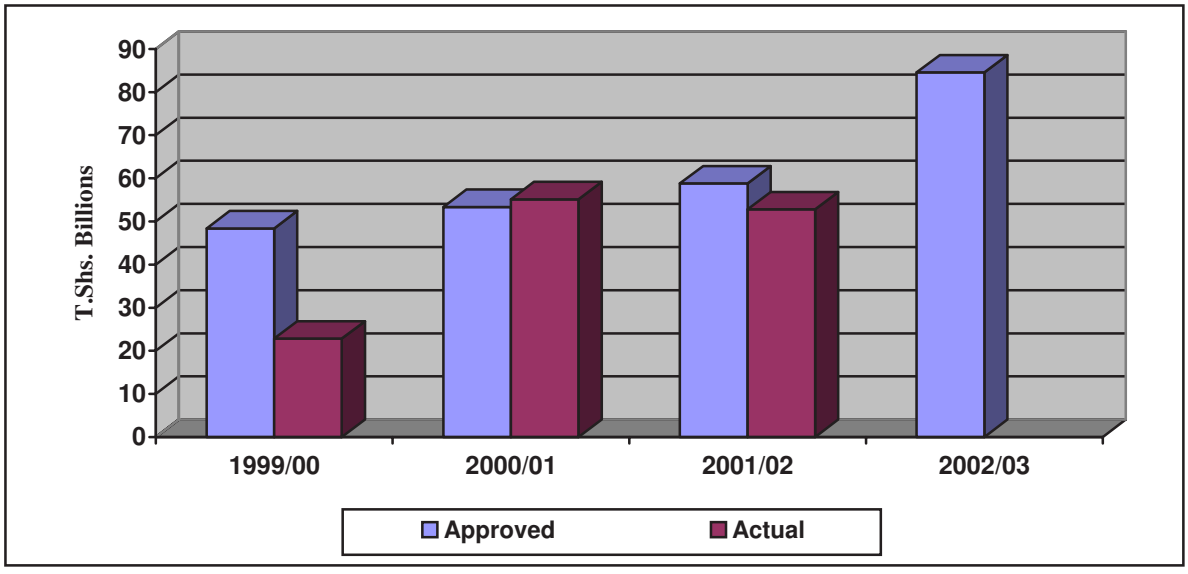
Expenditure	1999/00		2000/01		2001/02		2002/03*
	Approved	Actual	Approved	Actual	Approved	Actual	Approved
Recurrent	12 725.60	7 418.87	24 644.14	33 796.91	33 718.50	31 964.38	46 426.60
Development	35 635.06	15 413.42	28 708.43	21 361.57	25 074.00	20 842.78	38 113.65
Total recurrent and development	**48 360.66**	**22 832.29**	**53 352.57**	**55 158.48**	**58 792.50**	**52 792.50**	**84 540.25**

Note: * means figures for 2002/03 do not include Export Credit Guarantee Scheme Fund worth Tshs 6.5 billion.

Source: Appropriation Books of Accounts for the Sector Ministries-1999/00, 2000/01 and 2001/02 and MTEF documents for 2002/03 – 2004/05.

The total recurrent and development approved expenditure for example, grew by 10.3 percent,10.2 percent and 43.8 percent between 1999/00 and 2000/01, 2000/01 and 2001/02, and 2001/02 and 2002/03 respectively. On the other hand the actual expenditure made an upward growth by 141.6 percent between 1999/00 and 2000/01 and thereafter declined by 4.3 percent between 2000/01 and 2001/02. A drastic and/or sharp increase of the total recurrent expenditure (actual) between 1999/00 and 2000/01 was to a larger extent an outcome of creation of the new three ministries where the budgets for MAFS, MCM and the Livestock Sub-sector were to be consolidated. The value of additional expenditure is reflected in the increased/improved activities of research, extension, policy and regulatory works and advisory services. Note that, generally there is a significant difference between the approved and actual expenditure for both recurrent and development expenditure (Fig. 3.4).

Figure 3.4: Approved and Actual Expenditure



The actual disbursement appears to be far much lower than the approved expenditure almost throughout the period (except for the 2000/01 recurrent expenditure). In 1999/00 for example, only 58.3 percent and 43.3 percent of the approved expenditure was released for recurrent and development activities respectively. The corresponding proportions for the succeeding

fiscal years as shown in Table 3.4 are 137.1 percent and 74.4 percent in 2000/01 and 94.8 percent and 89.1 percent in 2001/02.

Table 3.5: Proportions of Actual to Approved Expenditure (Local and Foreign-Funded)

Expenditure	1999/00	2000/01	2001/02
	Actual/Approved (%)	Actual/Approved (%)	Actual/Approved (%)
Recurrent	58.3	137.1	94.8
Development	43.3	74.4	89.1
Total recurrent and development	47.2	103.4	81.8

Source: Computed Using Figures in Table 3.1

Due to the fact that the proportions of budget allocated to the sector is still considerably small, PRS targets can hardly be achieved. It should however be noted that overtime, these proportions have been increasing and therefore the budget gap has also tended to narrow. Note that, although the approved budget for year 2002/03 for example is 84.54 billion Tshs. (Table 3.4), the actual total expenditure, which caters for the agricultural related activities in 2002/03, is higher by approximately 10 billion Tshs. This is particularly true because there are expenditure items by other sector ministries outside the Agricultural Lead Sector Ministries such as Ministry of Works, which are allocated resources for agricultural related activities. For instance, the Ministry of Works can construct a bridge primarily in order to achieve agricultural related objectives such as crop procurement.

Table 3.6 presents the sector's expenditure on development activities for the three years (1999/00 to 2001/02). The development budget figures are split into domestic and external sources. Overall, the actual expenditure for development activities has been below the planned budget over the three years. However, looking at the budgetary trend, one notices that proportion of the actual to planned expenditure has generally been growing over time. The share has been growing from 39.4 percent in 1999/00 to 74.4 percent in 2000/01 and 83.1 percent in 2001/02, which is a desirable trend.

An analysis on domestic sourced expenditure also reveals a similar trend (Table 3.7). With the exception of the financial year 2000/01, the share of actual to plan expenditure has averaged 50 percent during the remaining two years. Although it is also growing, domestic contribution to the actual development budget has been insignificant standing at 1 percent in 1999/00 to 17.2 percent in 2000/01 and 12.8 percent of the total 2001/02-development budget.

Table 3.6: Planned Versus Actual Expenditure in the Agriculture Sector Development Budget in Mill Tshs.

Source of Funds	1999/00			2000/01			2001/02		
	Planned	Actual	% Actual/ Planned	Planned	Actual	% Actual/ Planned	Planned	Actual	% Actual/ Planned
Local	3 294.50	147.0	4.5	3 355.99	3 665.56	109.2	2 676.60	2 672.60	99.9
Foreign	32 340.56	13 902.42	43.0	25 352.44	17 696.01	69.8	22 397.40	18 170.18	81.1
Total	**35 635.06**	**14 049.42**	**39.4**	**28 708.43**	**21 361.57**	**74.4**	**25 074.00**	**20 842.78**	**83.1**
% Local/total	9.2	1.0	-	11.7	17.2	-	10.7	12.8	-
% Foreign/total	90.8	99.0	-	88.3	82.8	-	89.3	87.2	-

Source: MAFS

Table 3.7: Planned Versus Actual Expenditure in Agriculture Sector (Domestic Resources alone) in Mill Tshs.

Expenditure Type	1999/00			2000/01			2001/02			2002/03
	Planned	Actual	% Actual/ Planned	Planned	Actual	% Actual/ Planned	Planned	Actual	% Actual/ Planned	Planned
Recurrent	12 725.60	7 418.87	58.3	24 644.14	33 796.91	137.1	33 718.50	16 437.84	48.8	46 426.60
Development	3 294.50	147.0	4.5	3 355.99	3 348.56	99.8	2 676.60	2 676.60	100.0	6 582.43
Total	**16 020.10**	**7 565.87**	**47.2**	**28 000.13**	**37 145.47**	**132.7**	**36 395.10**	**19 114.44**	**52.5**	**53 009.03**

Source: MAFS

Note that, there are distinct differences in the deviations between local funds and foreign funds in counterpart funding arrangements.

Correct assessment of the adequacy of government support given to agriculture requires the analyzing the options of consolidating budgetary support for agriculture across sectors and levels of government. This should then form a basis for raising support to the sector. Budgetary support is particularly important in the areas of agricultural research and extension, rural infrastructure, and data collection. Even if donor support is forthcoming, local funding is vital for establishing sustainable programmes that reflect government priorities. Table 3.8 compares budgetary allocations to priority sectors identified in the PRSP and again it shows that in recent years there have been some improvements in both the priority sectors and supportive sectors in terms of resource allocation.

Table 3.8: Budgetary Allocations to Priority Sectors (million Tshs)

	1998/99	1999/2000	2000/01	2001/02	2002/03
Total expenditure in priority sectors	**235 795**	**354 283**	**491 678**	**766 540**	**1 005 282**
Education	117 572	180 917	247 761	347 553	385 069
Health	50 659	77 270	96 328	139 346	169 374
Water	7 072	8 552	17 095	31 585	58 225
Agriculture (research and extension)	8 603	16 085	18 943	30 478	64 136
Lands	2 780	3 899	5 317	8 075	8 228
Roads	43 874	59 612	91 379	181 180	247 218
Judiciary	5 235	7 948	10 055	21 022	42 232
HIV and AIDS	0	0	4 800	7 300	30 800

Source: Ministry of Finance, 2003

CHAPTER 4: IMPACT OF FOOD IMPORT/AID DEPENDENCY

4.1 Trends in food aid and grain imports in Tanzania

Tanzania is a country, which has been using extensive quantities of food aid during the period when grain markets were state controlled. On the other hand, the economic and grain market liberalization processes have led to vastly diminished food aid. Although Tanzania had been self-sufficient with food during the early years of its independence and even exported food in some years, the situation changed radically in the early 1970s. Tanzania developed a heavy dependence on programme food aid, and in some years, as much as 90 percent of imports were food aid. This was due to many external and internal circumstances, among them the oil crisis, war with Uganda, villagization as well as Government marketing and price policy.

Tanzania experienced a tight food supply situation in 1980/81. Commercial cereal requirements were estimated to be 500 000 tones (376 000 tons of maize and 124 000 tones of rice and wheat). The NMC managed to buy domestically only 174 000 tones of cereals. Thus there was a deficit of at least 350 000 tones of cereals that had to be offset through imports, in order to meet basic requirements and to maintain minimum levels of working stocks (MDB 1981).

The year 1980/81 was followed by 5 years of large cereal imports. Drought was the main cause of import needs of staple food grains but the link is not that simple. A continued need of imports was partly due to the structure of staple food markets in Tanzania. Although the NMC was supposed to be a grain monopoly, it did not provide for the food needs of the entire population wishing to buy food. The NMC's supplies of maize, rice and wheat were determined by the availability of marketed cereals and by the quantity of these commodities it was necessary to supply for the population groups, which were the NMC's primary clients. These were:

- Part of the population in areas of perennial rural deficits or extreme shortfalls, such as some districts in Dodoma and Shinyanga regions;
- Urban minimum wage earners and other urban poor people; especially in Dar es Salaam;
- Government institutions (e.g. educational institutions, the military, the Government and parastatal employees, etc), a category, which received a great deal of the NMC's sales of rice and wheat as well as maize.

These groups had a certain minimum demand, which the Government had to fill. If the NMC purchases were not adequate, imports were the only option, regardless of the food situation in the rest of the country. It is important to understand that total production, or even total marketed production, had only an indirect effect on imports. In those market circumstances,

it was the balance of NMC's purchases and the demand the Government felt must be met that determined the perception of import needs.
Actual imports were constrained by the foreign exchange availability and food aid availability. Maize imports in 1984/85 were substantially higher than those of the previous year, although still below the levels of the earlier 1980s. The Government wanted to avoid the shortfalls in urban areas experienced in 1983 by importing significant quantities of commercially purchased maize from Thailand, altogether 120 000 tones. It is important to notice that 1983/84-production year did not have abnormally bad rains. Thus the continuing import-need in 1984/85 reflected the structural defects of the agricultural economy (MDB 1985). At the same time, the access for food aid was decreasing. Maize received as food aid declined during three consecutive years (between 1981/82 and 1983/84). This was due to great needs in other parts of Africa, and growing skepticism of the donor's vis-à-vis the real need for food aid in Tanzania. It is also significant that imported maize had a low price compared to the domestic price (Boucher and Dyck 1985).

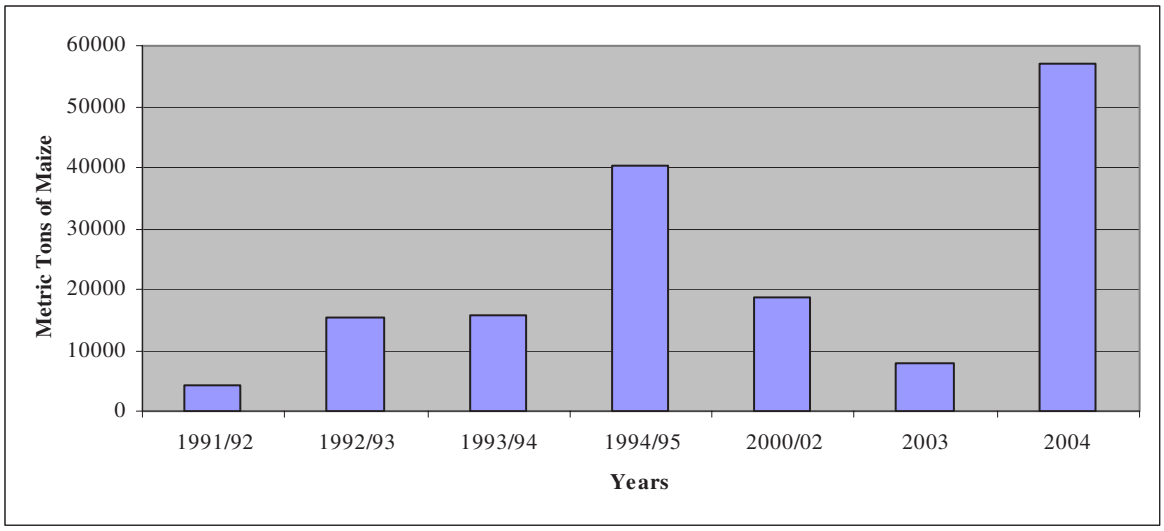
Throughout the period from 1980 to 1986, official domestic purchases of maize, rice and wheat were not sufficient to meet the demand from official consumer channels, so imports were a necessity. In the 1986/87 marketing season, the Co-operative Unions and the NMC were suddenly faced with a completely new demand situation as far as maize was concerned. Following the gradual grain market liberalization, a six-year spell of favorable weather started in 1986/87. The prices in the open markets fell drastically, and in most markets the maize prices stabilized at a level below the official prices. As a result, official demand of maize fell back completely as even official institutions turned to the cheaper private markets. Thus the NMC had to export maize during four consecutive years, 90,800 tons in 1987/88 and another 19,800 tons in 1988/89, 30,000 tons in 1989/90, and 55,000 tons in 1990/91. Because of the relatively low export prices, this was done at a loss.

Tanzania has been a net importer of grain since 1970/71 every year except in 1987/88 and 1990/91. The total cereal food aid between 1970/71 and 1995/96 was 1.7 million tons, maize food aid accounting for about 0.7 million tons of the total. Although maize is by far the most favored cereal, rice and wheat are much more common as food aid items, comprising 60 per cent of the total food aid. The reason for this is that white maize, consumed in Tanzania, has very thin markets. It is not readily available as a food aid article. There is occasional surplus production mainly in South Africa, Argentina and China but these countries are not major food aid donors. Rice and especially wheat are common food aid crops, together with yellow maize; but yellow maize is not considered acceptable as food for human consumption in most parts of Sub-Saharan Africa.

It is not possible to separate programme and emergency food aid since consistent time series data are not available. But overall, the bulk of cereals aid has been programmed for sale through the public distribution system, and emergency food aid having only a minor share. Figure 4.2 shows trends in total food aid distributed since 1991/92 whereby 1994/95 and 2004 are the periods that received most aid. In both scenarios, food aid distribution was a

result of poor rains, which led to crop failure, and therefore yields were much below normal average levels.

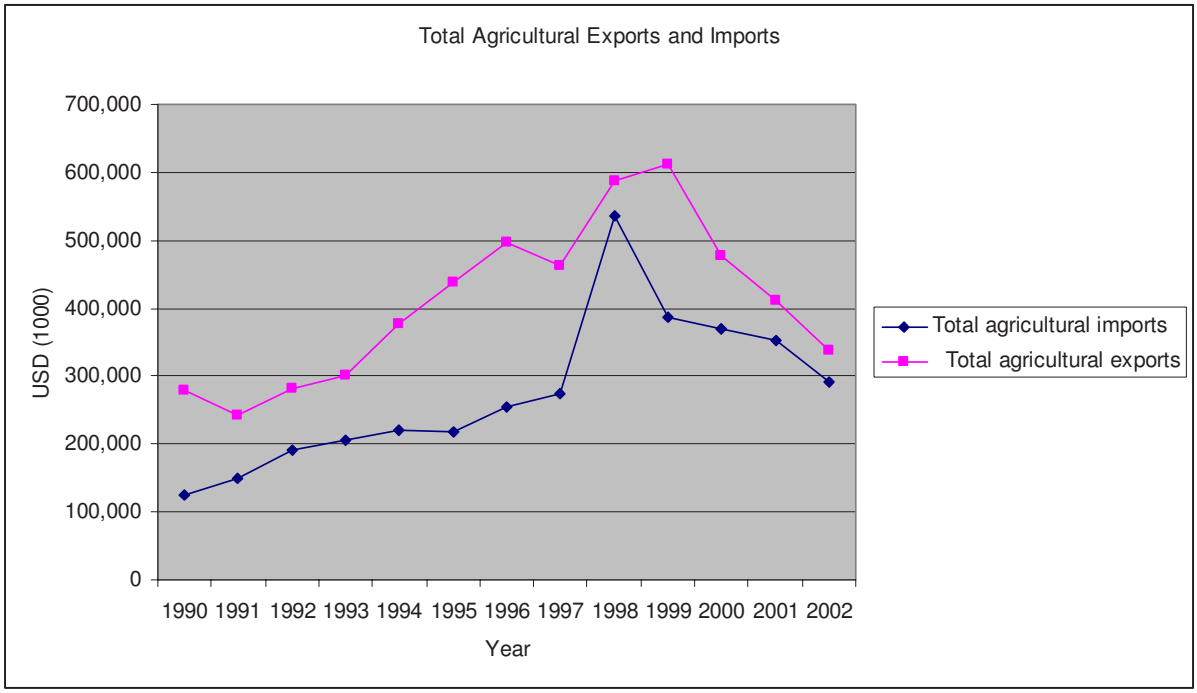
Figure 4.1: Trends in Total Food Aid Distribution (1991/92 – 2004)



Source: Vice Presidents Office, 2004

Comparison between the value of agricultural imports and exports demonstrates a worrisome trend in Tanzania. A growing proportion of the foreign exchange earned from agricultural export is being diverted to import of agricultural products, mainly food crops, despite the country's obvious natural and comparative advantage in growing food. For instance, the country earned some 588 million US$ from agriculture export in 1998, while 502 million US$ (85 percent of the earning) was spent on agricultural imports. The trade balance between agricultural export and import has grown narrower over the years (Figure 4.3). In other words, the foreign exchange contribution of agriculture to the economy is minimal when the value of all agricultural imports (primary and processed crops and livestock products and agricultural inputs – fertilizer, chemicals, etc. - and machinery) is taken into account. The trade balance of the agricultural sector is only marginally positive in recent years, and it is likely to be negative unless immediate steps are taken.

Figure 4.2: Value of Agricultural Exports and Imports



4.2 Problems in Food Aid Delivery

The operational or managerial efficiency of food aid can be a critical determinant of effectiveness. Issues of timeliness, internal transport, storage and handling are all aspects of efficiency, which have impacted on food aid delivery in Tanzania over the years.

4.2.1 Timeliness of Delivery

The decision on when to deliver food aid, particularly in a non-emergency situation, sometimes does not take into account either the seasonal pattern of production and storage or the expected timing of other imports including food aid from other donors. Untimely and unpredictable deliveries are, in fact, a problem in a food-aid-dependent country like Tanzania with a low capacity for replacing expected food aid deliveries with commercial imports, especially at short notice. The impact is worsened by the fact that storage capacity is small or inadequate. In emergency situations, the effects of long delays and unpredictability are even more dramatic. In these cases, coordination between donors is required to ensure that their deliveries do not coincide with each other or with commercial imports. The, often unpredictable, time lag between commitments has been reported to be problematic in some cases, particularly if, during a period of acute grain shortage, the Government is forced to initiate commercial imports in the interim period to maintain food availability.

The lack of a reliable supply of food aid means that security stocks need to be maintained at a higher level, and relatively expensive, ad hoc commercial imports need to be made. On the other hand, the arrival of large consignments of cereal food aid around the time of the main harvest has, in some instances, depressed local prices, with a potential negative impact on domestic production. Also, the coincidence of food aid deliveries with substantial arrivals (relative to port handling capacity) of other imports has created bottlenecks, sometimes

resulting in costly delays in off-loading and problems in providing secure and weatherproof storage. The potential scale of such problems depends on the size of the shipment.

4.2.2 Internal transport, storage and handling

Transportation is a key element in achieving success in food aid delivery. An important consideration in food aid distribution, which sets Tanzania apart from many other countries in sub-Saharan Africa, is the fact that it is physically large, and the transport infrastructure system is archaic and undeveloped. The cost of getting food to the villages is extremely high. It is apparent that there are no set donor guidelines for dealing with internal costs reflecting the specific conditions, such as the size of the country and the modes of transport available. These costs can represent a significant proportion of the total delivery cost of a food aid action. Storage and handling facilities for food aid are also inadequate in Tanzania, contributing further to overall delivery costs.

4.2.3 Food aid targeting

Politically, food aid was also part of the Government strategy to secure important groups (e.g. urban citizens, especially in the capital), with low-priced staple food and to avoid a famine situation in any part of the country. The official marketing system developed into a great financial burden and never worked satisfactorily, either from the consumers' or the producers' point of view. It would hardly have been possible to keep it up without considerable financial support in the form of food aid. After market liberalization, the need for large quantities of food aid vanished. There are no indications that the nutritional status of the population became any worse, or better for that matter, as a result of liberalized grain markets and low food aid levels. Thus, food aid partly supported unsuccessful and economically unsound policies. Food aid must be seen as a part of the food system and its impacts analysed accordingly.

4.3 Impact of food aid/import on producer incentives

A typical Tanzanian farmer is a peasant smallholder, and the peasant household is of a semi-subsistence kind. The dominant technology is rain-fed hoe-cultivation. The strong element of subsistence production (some 70 percent of maize is used by households for their own consumption) offers interesting insight into the nature of peasant decision-making in presence of weak integration into the markets, high weather-related risks, unsupportive Government policies and weak social security. Tanzania demonstrates many features, which are common to other countries in Sub-Saharan Africa.

The disincentive effect of food aid was postulated by Schulz (1960) who argued that by decreasing market prices foreign food aid deteriorates domestic agricultural production. This leads to a long-term reduction of agricultural production in developing countries. Tapio-Bistrom (2001) analyzed the economic impact of food aid on producer incentives in Tanzania empirically, the aim being to assess the validity of the so-called disincentive effect of food aid on agricultural production. A model of agricultural production reflecting the institutional features of Tanzania was developed. The time period under study was from 1971 to 1996. For most of that period, Tanzania had a grain market policy in which the Government had a

market monopoly. This had led to the development of an unofficial market, as the case usually is with market systems based on a state monopoly. However, gradual market liberalization begun in 1986 and was completed in 1991.

A theoretical model was developed to describe the farmers' production decisions in both official and unofficial markets. The model presented also added a new dimension to the past efforts of studying the disincentive effect by introducing the concept of risk into the model. The farmers' supply behavior in different markets was considered through a model consisting of the supply model of controlled markets with fixed prices and the supply model of unofficial markets with price risk. This illustrated the choices available for the peasant producers of Tanzania. In both models, farmers choose the use of fertilizer and labor inputs so as to produce crops. Producing for the official market is by its nature deterministic, because the Government announces the future price of the crop before the season. When producing for the unofficial markets the farmers may get a higher price, but it is risky. Moreover, farmers have to carry the transportation costs of going into the markets. As for the ceteris paribus effects in the unofficial markets, higher expected price increases production, while higher price risk, measured by its variance, as well as higher transportation costs decrease production.

The positive effect of the crop price on production confirms that peasants are price responsive. As predicted by theory, higher wage reduces the use of labor in production. While both fertilizer prices and transport costs were significant, they were of the opposite sign as compared to the predictions of the model. The reasons can be found in the realities of the Tanzanian agricultural production system. There has been much less fertilizer available than farmers would have been willing to buy. This meant that when the farmers wanted to increase their production and therefore demanded more inputs, the shortage of supply pushed the fertilizer prices up. The lack of transport capacity has also been a bottleneck for grain marketing.

Contrary to the theoretical model, the open market price variance and maize production correlated negatively. This was explained by the production system of Tanzania. An overwhelming majority of producers are subsistence-oriented food insecure peasants. Food markets are not well integrated. There could be marketable over-production in the Southern Highlands, while the northern regions experienced deficiencies. In practice the state monopoly grain marketing organization NMC, could secure food through the official marketing system only for its customary clients, institutions and urban people at the coast areas, complemented with some emergency aid. This led to a strategy where staple food production for household use gained priority and risk minimization was the most rational behavior.

Table 4.1: Estimation Results for Maize Production and Open Market Price Equilibrium System: Reduced Form Equations Period 1971/72 – 1991/92

Explanatory Variable	Log Q (*t* – probability)	Log ρ (*t* – probability)
Constant	16.37 (0.00)	10.66 (0.02)
Log ρ t-1	-0.22 (0.35)	
Log p	1.07 (0.00)	1.14 (0.01)
Log w	-0.36 (0.06)	0.46 (0.01)
Log r	-0.15 (0.40)	-0.46 (0.02)
Log σ^2_{FA}	0.01 (0.08)	0.009 (0.06)
Log I_{t-1}	0.03 (0.07)	0.03 (0.05)
Log Q_{t-1}		
D	0.21 (0.06)	-0.002 (0.98)

ρ = open market price of maize (annual average)
P = official price of maize
w = labor cost
r = total grain imports
σ^2_{FA} = variance of food aid (average squared deviation between annual amounts of food aid and their mean)
I = total grain imports
Q = quantity of maize produced
D = weather dummy

Source: Extracted from Tapio-Bistrom, M. (2001)

Empirical estimation of the market equilibrium model showed that food aid did not have a statistically significant direct disincentive impact on staple production during the study period in Tanzania. The higher unofficial price was a positive signal for farmers to produce more. It was suggested that this was due to the structure of the Tanzanian food economy. In the earlier two-tier market system, the price effect dominated the disincentive effect. Food aid and commercial imports, as well as the domestic procurements by the Government were used in the official markets. Prices in unfavorable years are higher in unofficial markets and a larger share of production is sold unofficially. The incompletely integrated markets accentuate the situation. Bad years and food aid are related to dry conditions and the more reliable yields of the Southern Highlands seldom reach the deficient northern areas and food aid and commercial imports also tend to remain at the coast and in Dar es Salaam.

Overall, food prices have stayed low in Tanzania (as was the case in the other African countries) partly because of the cheap commercial import and food aid. Word grain prices are low largely because of subsides in developed countries. Prices would have been higher if there were no import of cereals or no subsides were provided to farmers in developed countries. Food prices in Tanzania or any African country would have also been higher as a result of the poor performance of agriculture and rapid growth of the population had it not been for the distortion. Certainly, surplus producers in Tanzania had to operate with little or no margin to cover cost of production. Decline in fertilizer consumption signifies the disincentive created as a result of the unfair competition between the subsidized rich farmers in the north with the poor unsubsidized in the south.

4.4 Food Aid Distribution and Production Trends

A quantitative/qualitative assessment of the effect of food aid distribution on food production and nutritional situation in Tanzania is constrained by data limitations at micro-level. Most of the available data on food aid and food production is aggregated at the regional level. Within regions, shortages and surpluses are not evenly spread among districts. Even within "surplus" districts, pockets of food shortages might exist. It is only since 2003, that micro-data based on "vulnerability assessments" were collected to identify food insecure districts and households. This exercise is carried out by the Tanzania Food Security Information Team (FSIT), in collaboration with the regional and district government technical staff and NGOs from their respective locations. Data generated through this exercise would in future enable a systematic quantitative and qualitative assessment of the impact of food aid on food security and nutritional situation at the micro-level.

However, to shed some light on food aid distribution and trends in food production, district level data[12] for Arusha region, which received the largest share of food aid since 1990, is presented below (Table 4.2).

Table 4.2: Maize Production (MT) in Districts of Arusha Region

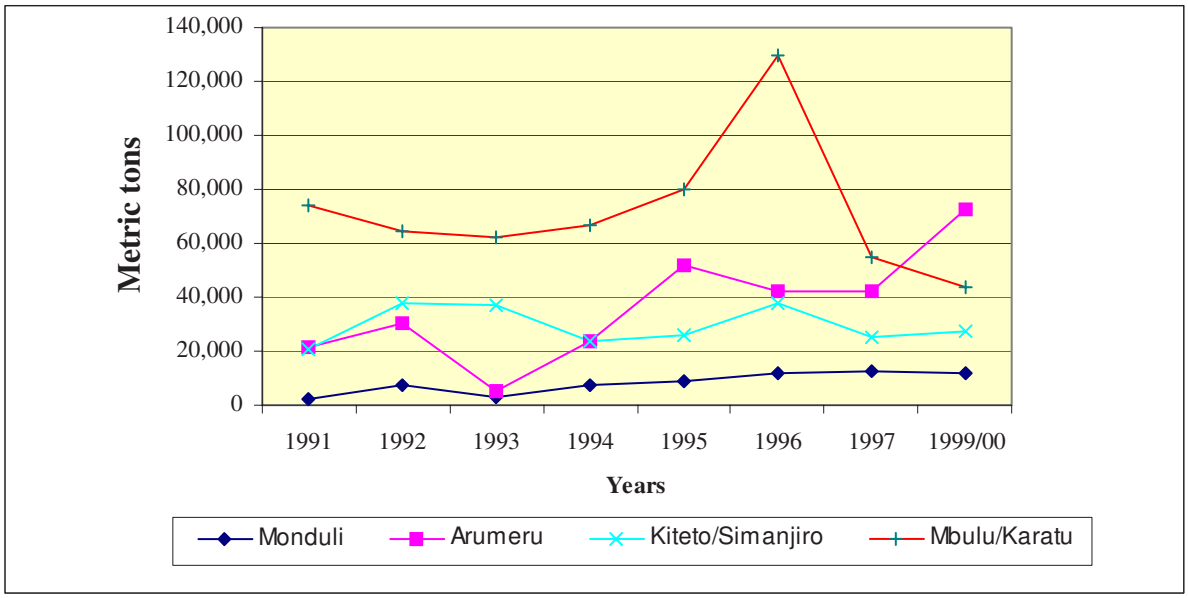
District	2000/02	2003	2004	Totals
Karatu	720	146	878	**1 744**
Arumeru	300	206	1 028	**1 534**
Kiteto	314	59	731	**1 104**
Monduli	1 006	0	2 231	**3 237**
Hanang	1 000	36	436	**1 472**
Mbulu	680	0	200	**880**
Babati	0	136	336	**472**
Simanjiro	786	0	1 283	**2 069**
Ngorongoro	545	0	0	**545**

Source: Arusha Social Economic Profile

The districts that received most of the food aid from the year 2000 were Monduli, and Simanjiro, followed by Karatu and Arumeru. Figure 4.3 below indicates the trends in maize production in these districts. The pattern of food production in Monduli and Kiteto/Simanjiro has remained fairly low and constant. Since these districts receive most of the food aid in the Region, one might link food production with food aid dependency (i.e. food aid impacting on food production incentives). However, these patterns could also be influenced by other factors, hence should be interpreted with caution. In Arumeru, production has followed an upward trend with considerable fluctuations, and cannot be explained to relate with food aid distribution.

[12] Food Aid distribution data before year 2000 was aggregated at Regional level.

Figure 4.3: Maize Production Trends in Districts of Arusha Region Receiving the Most Food Aid



Source: Arusha Social Economic Profile

4.5 Direct and Indirect Cost Implication of Food Aid and Import

The costs of food aid distribution depend very much on transportation costs to the targeted areas. Table 4.2 shows costs involved in the food aid distribution exercise of October 2003. The average transportation cost was Tshs 150/km/ton, which was also the prevailing commercial transport cost. The value of maize distributed in the country in that phase was Tshs 1.2 billion (Total Tonnage*Tshs 150,000/ton). Transportation and handling costs amounted to Tshs 230,392,232, which is almost 20 percent of the value of the consignment. Thus in total, almost Tshs 1.4 billion was used for food aid distribution. This food was however, not distributed free. Beneficiaries had to purchase the maize at a subsidized price of Tshs 50/kg. For the entire consignment, this amounts to Tshs 400,000,000 with government contribution remaining at Tshs 1 billion.

Table 4.3: Costs in Food Aid Distribution (October 2003)

Region	Food aid (tonnes)	Average distance from SGR* (km)	Total costs in Tshs (transportation + handling**)
Arusha	582	180	12 527 947
Shinyanga	973	300	19 258 219
Singida	741	350	22 505 637
Dodoma	448	160	10 084 086
Mara	1026	800	56 983 550
Morogoro	331	350	27 011 160
Mwanza	1345	600	35 000 833
Mbeya	410	100	7 556 677
Tabora	411	450	8 287 336
Iringa	1118	150	20 451 317
Coast	613	100	10 725 470
Total			**230 392 232**

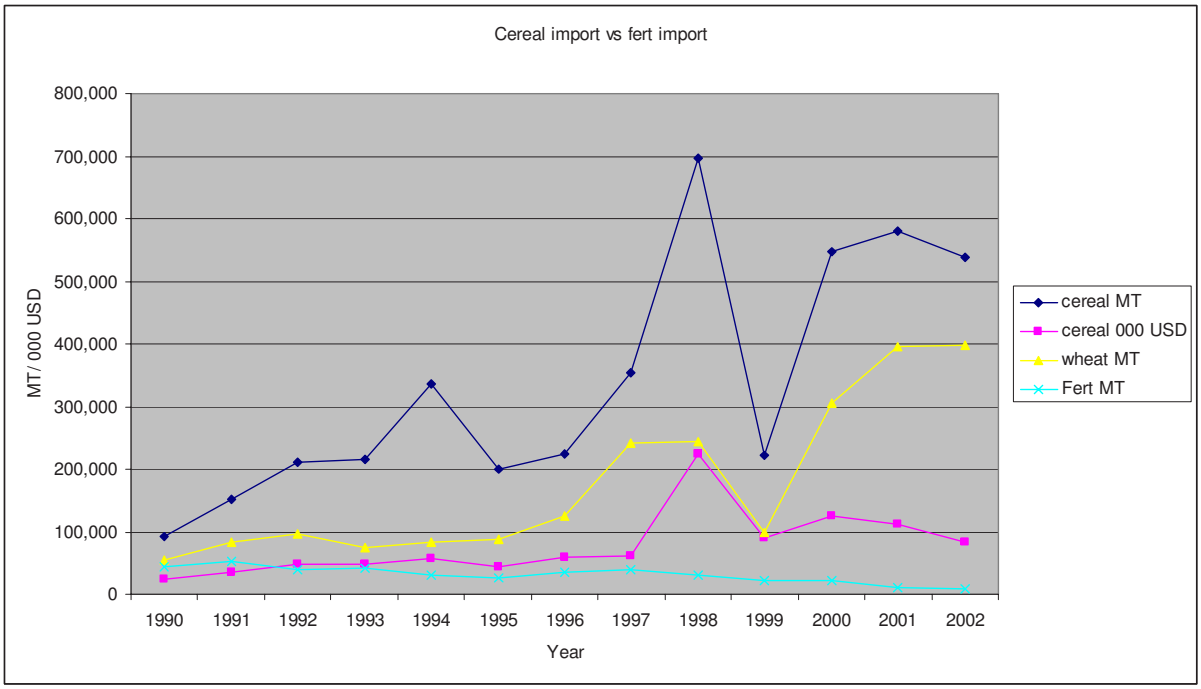
* Average Distance = Average distance from SGR to food deficit districts in the Region.
** Handling involves loading and off-loading activities.
Source: Vice Presidents Office, 2004

It is obvious that the government uses a lot of resources in food aid distribution when compared to domestic[13] funded expenditure to development activities in the agricultural sector. For example, the October 2003 food distribution exercise alone amounted to 15 percent of the planned domestic contribution to the development budget in the agricultural sector for the year 2002/2003 which was Tshs. 6.5 billion.

Comparison between quantity of imported cereal and fertilizer shows a very dangerous trend in Tanzania. While fertilizer import stagnated at less than 50,000 tons and declined further to a mere 9,372 tons in 2002, cereal import jumped from about 92,000 in 1990 to nearly 580,000 tons 2001. Dependency on import and food aid has significantly increased over time. Wheat is the major grain among cereal imported, reflecting a growing popularity of the grain, often at the cost of traditional crops such as cassava. More importantly, Tanzanian farmers would have produced more amounts of wheat and other crops at a much lower cost if only the foreign exchange (used for cereal import) was allocated to finance fertilizer import and support domestic production though new technology and infrastructure development. It should be understood that the real cost of imported food is much higher when internal transport costs are included and world prices are adjusted to take into account the huge subsidy in the West. Figure 4.4 shows that the value of imported cereals has gone down in recent years despite the increase in import volume owing to the decline in world prices. A strategy aimed at boosting domestic production could mean less distortion (due to cheap import /food aid) in the economy and, hence, a more favorable environment for sustainable development.

[13] Note that domestic resource contribution to development expenditure is less than 15 percent of total development expenditure

Figure 4.4: Cereal Import versus Fertilizer Import



CHAPTER 5: PROSPECTS FOR FOOD SECURITY SUSTAINABILITY

5.1 Accelerating Agricultural Development

The time has come for the agricultural sector to move ahead in terms of policy and strategy formulation to ensure sustainable food security. Tanzania has a comparative advantage in the production of many crops. There is a large potential for increasing production of items such as wheat and rice to replace imports and to expand food and livestock exports to neighboring countries. Another opportunity is the expanding domestic market for food, especially for livestock products and crops with a high-income elasticity of demand. Similarly, Tanzania's membership in regional trade groupings and as a signatory to international trade protocols is making markets within the region and globally increasingly available.

At the same time, the unexploited natural resource stock permits virtually unlimited expansion and diversification in crop and livestock production. Furthermore, the development of private agribusiness enterprises and a few large-scale farming enterprises in Tanzania is creating potential opportunities for strategic partnerships between these enterprises and smallholder farmers. The agricultural sector will also benefit from the ongoing structural reforms and the move towards devolved a government that is envisaged to improve the efficiency and effectiveness of providing public services.

Issues to be addressed and strategies to be used to attain a sustainable development path and ensure national and household food security and economic development are discussed below.

5.1.1 Completing the reform agenda

Liberalization and de-regulation of the sector and the withdrawal of the state from directly productive activities has, for the most part, been successfully achieved. Although there are a few critical areas in which further de-regulation is required, and where the implementation of reform policies has to be pursued more vigorously, Tanzania is, to all intents and purposes, a free market economy. It is now necessary to provide a favorable environment for the growth of the private sector in production; and in taking up the provision of services, processing and marketing, previously undertaken by the state. Privatization and divestiture of parastatals is far from complete, but the remaining state-owned entities pose no threat to the growth of the sector. The task ahead is to divest the remaining assets as quickly as possible, bearing in mind the natural depreciation in value and the costs to Government and the economy of retaining enterprises and assets that have ceased to be productive.

5.1.2 Market development

The most important area in which the state needs to give attention to is in the area of marketing. Throughout the world, the most successful and sustained examples of agricultural growth have been market-led. Indeed, the whole objective of market reforms is to enable producers to respond to market opportunities. For this reason, Government policies and actions should be aimed at encouraging the private sector to exploit domestic, regional and international markets for the country's products.

The official policy statements regarding trade in agricultural produce are unambiguously liberal particularly in the case of the main food crops. However, despite a clear central government commitment to free trade in agricultural produce, there are residual powers available to regional and district authorities, which contradict this. This power is mainly used to restrict or ban internal movement of maize, wheat or rice when the regional or district authority believes that the area is "food insecure". This of course penalizes local producers and traders, as they are unable to take advantage of higher prices elsewhere. Moreover, such bans are often imposed in an arbitrary way. There is no precise information available concerning food product availability in any given region or district at any given time. Furthermore, availability of maize is usually the "proxy" indicator for food availability. This fails to recognize the role that other staple foods such as cassava, sorghum, and millet play in making up for maize deficits. The practice inhibits the development of trade in staple foods, and as a result, farmers would normally respond by growing smaller volumes, thus leaving the locality less food secure in the long run.

At present the Strategic Grain Reserve (SGR) buys in certain regions of the country to maintain an emergency reserve, which can be used for distribution in times of drought or localized flooding. Although the size of the reserve is supposed to be 150,000 MT, finance is not available to maintain that level of stock. In order that operations of the SGR do not form a disincentive to the private sector, or destabilize market operations, it is important that purchases and draw downs from the SGR are according to a set of clear and transparent rules governing its operations. These rules should be well publicized. As the private grain-marketing sector develops in Tanzania, consideration should be given to re-analyzing the case of maintaining an SGR in its current form. The maintenance of physical stock is expensive, both in terms of operating costs, and in terms of tying up financial capital. In future, it may be more appropriate to reduce physical public stocks and develop arrangements, which include financial reserves, and greater reliance on privately held stocks.

5.1.3 Public/Private Investment

It is apparent that the withdrawal of Government from production, marketing and processing of agriculture products, as well as withdrawal of subsidy will result in significant reduction in public investment in agriculture sector. This implies that significant amounts of the investment needed in the sector will come from the private sector. However, this should not be seen as withdrawal of the public sector from agriculture, but refocusing its attention to, and channeling the funds released from the sector to other support activities (expanding and improving economic and social infrastructure, creating appropriate institutions and providing a regulatory framework) that would encourage the private sector, to bring capital, technology and management skill into the sector. In addition, it entails adequate funding of the core public sector activities, to improve service delivery.

5.1.4 Adding Value to Products

Engaging in activities that add value to agricultural products as well as activities that generate income outside of the agriculture sector is central for increasing incomes and to minimize risks. It is therefore important to encourage and support income-generating enterprises, which will contribute significantly to the growth of the real economy and, particularly, to the agriculture sector. Such enterprises might include: (i) those providing inputs and services, such as agro-service centres (tractor/equipment hire services), seed multiplication and distribution, wholesale and retail input distribution, and veterinary medicine dealers, veterinary clinics and livestock input dealers; (ii) agro-processing (cereal mills, canning, oil extraction, animal feed mills, tanneries, export crops processing, livestock product processing) and marketing; and (iii) those engaged in high value-added agricultural production.

5.1.5 Smallholders' Productivity

The ultimate constraint to increased growth in agriculture is low productivity on the part of the small farmers who constitute the backbone of the economy. Low productivity can be seen in terms of poor returns to land (low yields per ha), and poor returns to labour (with returns to family labor which often barely match the average rural wage). Until ways can be found to substantially lift small farm productivity in terms of returns to farm labour and increase the profitability of farming, the potential contribution of agriculture to reducing poverty and ensuring food security in rural areas will not be realized. Enhancing land and labour productivity and improving the efficiency and effectiveness of services destined to small farmers are critical to get out from the low productivity trap. For this to happen, there is a need to focus technology generation and dissemination on least-cost methods increasing returns to land and labor, and minimising risk.

5.1.6 Service Delivery

The provision of key services to farmers, often in collaboration with the private sector, is an important core function of Government. However, the way these services operate need to reflect the changing needs of the sector, in particular those of the small farmers and the imperatives of decentralization and reduced resource availability.

(a) Research: The objective of research should be to generate technology that will raise farmer productivity; is financially viable, and can demonstrably increase farmer incomes. Despite substantial external support and methodological reviews, research services are still unresponsive to farmers' needs.

(b) Extension: The country's extension services are undergoing a drastic change in the way they are administered and operate. Decentralization of administration and devolution of responsibility for extension services to the District level is a bold and potentially rewarding step. It should bring greater responsiveness and accountability on the part of the extension services to the needs of their clients, the small farmers. Ultimately, the District will be in a position to decide on the scope and scale of the services to be provided.

The institutional changes, which have occurred, as well as reduced funding for extension, a freeze on recruitment, and a halt to the training of graduates for agriculture, have major implications for the way' extension services are provided. Routine extension along the lines presently applied is no longer sustainable, and alternative approaches must be sought as a matter of urgency. A new way of delivering extension services should reflect the lessons that have been learnt across Africa. A basic principle should be that the system is demand-driven. A pluralistic extension approach that encourages partnership between the public sector, private sector and the voluntary sector has to be the norm, not the exception.

(c) Agricultural Inputs: Affordability and availability of agricultural inputs is one of the major constraints to productivity increase. This is true for fertilizers, seeds, farm implements, agro-chemicals, etc. Ways to reduce the cost of importing and distributing fertilizer have to be looked into and action taken to ensure the development of efficient and sustainable systems. In the case of agro-chemicals, farmers are sometimes cheated with fake, adulterated and non-effective products, and confused with ever changing brand names that they are not familiar with. Farm implements seem to be forgotten and the effort to promote improved implements is almost nonexistent. Although it is the private sector that will deal with agricultural input issues, there are functions that Government has to carry out to ensure that there is adequate response from the suppliers as well as from the users.

5.1.7 Rural Financial Markets

There is a need to move ahead as quickly as possible with plans to establish at least a minimum network of rural banks and to encourage other private sector initiatives. The absence of formal channels of finance in rural areas limits the number of small farmers who can purchase seasonal inputs or invest in other productivity-enhancing goods such as farm machinery. It also restricts the capacity of the small traders who play an important role in articulating rural commerce and those who might invest in local processing. Formal financial services are unlikely to be generally available in rural areas for the foreseeable future, because of the high costs and risks of lending to small farmers. Government has no intention of intervening directly, but is promoting micro-finance institutions that can address the needs of small savers and borrowers.

5.1.8 Irrigated Agriculture

Since both crops and livestock are adversely affected by periodic droughts, irrigation holds the key to stabilizing agricultural production. Sustainable increase in production and a shift to high value production cannot be attained unless agricultural production is supported by irrigation. Irrigation is now seen as an important aspect of Government's agricultural development strategy to improve food security, increase farmer's productivity and incomes, and to produce higher valued crops such as vegetables and even flowers. What remains is the political commitment to allocate the necessary resources and create an enabling environment for private sector investment.

5.1.9 Rural Infrastructure

The poor state of rural infrastructure serves as a major constraint to growth in the agricultural sector. Through its infrastructure development programmes, Government can stimulate land development, improve access to markets and facilitate the emergence of a vibrant private sector in rural areas. Rural infrastructure plays a critical role in determining growth in the sector. Rural roads are particularly important in developing market access in rural areas, opening up new land for production and reducing both input and output marketing costs. Similarly, rural electrification opens the opportunity for local processing and increasing value-added in the rural areas, whilst improved telecommunications facilitates market information flows.

5.2 Competitiveness in the export market

Different proxy estimates of competitiveness (see Appendix 6 – 8) including the Reveled Comparative Advantage (RCA) Index, the Regional Orientation Index (ROI) and the Hirschman Index (H) suggest that Tanzania's competitiveness in the Eastern and Southern Africa region has increased notably from 1998 onwards, although some products show a slight decline for year 2000/01. It is most likely that competition for Tanzanian export market has increased notably in 2000/01 (after adoption of the SADC Trade Protocol). South Africa's role in the region has minimized Tanzania's market share (hence reducing her competitiveness) in the SADC markets. In addition Tanzania's exports of agricultural and food products have increasingly become diversified as shown by the Hirschman Index. Generally the rate of protection has also been decreasing over years consistent to further trade liberalization and regional integration initiatives.

Products in which Tanzania has greater comparative advantage are relatively more protected and vice versa. Although some products can have a high comparative advantage, they are not necessarily more regionally oriented. In addition, the higher the export value (f.o.b.) relative to the import (c.i.f.), the less regionally oriented the commodities are. This shows that products in which Tanzania has greater trade balance are mostly traded to the rest of the world. The more positive the trade balance becomes, the less protected are the traded products. This may be obvious, since Tanzania does not import most of the agriculture primary exports, most of which have zero import duty.

For Tanzania, positive factors for competitiveness in agricultural commodities include the following:

- Climate, land, and water for agricultural production
- Growth of the private sector
- Open economy with low barriers to entry
- Reasonable access routes to East and Southern African markets
- Improving financial sector

Negative Factors against competitiveness include:

- Small domestic capital base for investment
- Expensive transport routes to international markets
- Limited direct air access to international markets
- High utility costs
- Bureaucracy still prevalent in administration of international business transactions
- Lack of credit for working capital needs
- Limited diversification of exportable products
- Limited knowledge of regional and international markets
- Poor market information dissemination
- Limited knowledge of pros and cons on trade agreements
- Limited technology transfer to increase value added production
- Weak linkages between various sectors of the economy

To address the issue of competitiveness, there are a number of key issues that need to be debated further by stakeholders in the trading sector. These include:

- The roles of the public and private sector
- Revenue implications of tariff reduction programmes
- National competitiveness in the context of production and supply constraints.
- Increasing efficiency and effectiveness of the trade facilitation system
- Capacity building of institutions involved in trade policy formulation and those facilitating competitiveness (Ministry of Trade, Customs, Export Promotion Board, Chambers of Commerce etc)
- Review of the legal and regulatory framework to ensure compatibility with Multilateral Trading Systems (MTS) agreements
- Review of the domestic taxation system and incentives to promote investments
- Review of bureaucracy and hidden costs affecting business operations
- Removal of confusion and overlapping agendas amongst different trade agreements and creation of linkages between such agreements
- Creation of export finance facilities
- Implementation of agreed policies and protection versus openness

Tanzania will continue to rely on its traditional exports for the medium term targeted at the developed European and Asian markets, but there is potential to increase exports of non-traditional products such as horticulture. These are resource based, and the objective would be to achieve some level of value added processing prior to export. Tanzania needs to enhance its trade development policies to upgrade skills, and increase productivity. Remaining anti-export biases in the economy need to be removed while the costs of utility services should be reduced. Corruption and weak administration are also seen as serious constraints that must be overcome if there is to be a conducive environment for trade.

5.3 Regional integration and multilateral trading systems

Tanzania is actively pursuing a regional integration strategy. She is a member of SADC and EAC, and ended her COMESA membership in 2000. The two trade blocs (i.e. SADC and EAC) have important prospects for Tanzania trade performance, given the long established trading relationships between Eastern African countries (especially Kenya), and the increasing role of Southern Africa in realizing SADC Trade protocol. The EAC member countries are currently working towards harmonizing their tariff and customs regimes and are expected to enact a common external tariff (CET) by November 2003. Under SADC, a Free Trade Area has almost been concluded which will bring the import duty to zero eight years from the date of its conclusion. Tanzania is also a member of Indian Ocean Rims-Association for Regional Cooperation (IOR-ARC). All these regional efforts are intended to harmonize economic policy and facilitate trade.

Tanzania is also a contracting party to the outcome of the Multilateral Trade Negotiations (MTN), which were launched in Punta Del Este in Uruguay at the end of 1986. Tanzania is a founding Member of the WTO, having signed the Final Act of the Uruguay Round and the Marrakesh Agreement on 15 April 1994. Tanzania grants at least MFN treatment to all its trading partners. As with other WTO Members, Tanzania has adopted in their entirety the results of the Uruguay Round.

As least developed country, Tanzania benefits from the special and differential treatment afforded to the developing countries in the form of exemptions or delayed implementation of certain provisions. Under the Lomé Convention, Tanzania receives the full range of aid made available to ACP countries by the European Union. Under Lomé IV, many Tanzanian exports to the EU enjoy non-reciprocal preferential treatment in the form of exemption from import duties. Likewise, Tanzania's goods enjoy non-reciprocal preferential access to the markets of other developed countries through the Generalized System of Preferences (GSP).

Regional and multi-lateral trade agreements have brought up new trade partners. South Africa is shown to be a significant player, and a notable partner for Tanzania’s prospective trade. However, due to its limited export capacity, the benefits that Tanzania reaps from these trade initiatives are minimal. Tanzania depends almost entirely on traditional export crops for which international market prices suffer from fluctuations depending on the forces of supply and demand. Often these prices have been low and sometimes declining.
On the production side, volumes have been decreasing because of lack of power, poor farming techniques, poor delivery to markets, due to poor roads, while in some places there are no roads at al to transport commodities. About 40 percent or more of farmers’ crop rots during the heavy rainy season either for being store in the open air or leaking store roofs. In addition, crops get destroyed by termites and also decline in weight on account of warm/hot weather conditions. Whatever is put on trucks for export suffers from heavy spillage while on transit because of poor truck condition and poor handling at the port while being loaded on ships. The costs of production, transportation, taxes and levies added to the losses related to the conditions mentioned above, makes the cost per kilogram (or per metric ton) about twice

the prices offered at international markets at FOB prices. Overall the quality of commodities is poor and therefore attracts lower prices. In addition, farm productivity per hectare is among the lowest in Africa. Besides producing traditional crops and commodities, Tanzania should also engage in the production of organic foods, which have higher demand. In order to become a net exporter of farm produce, Tanzania should strive to achieve the following:

- Improved yields per hectare to reach levels of international standards through, through use of quality seeds and modern technology;
- Improve the storage and transportation infrastructure to make them cost effective;
- Reduce losses arising from weather and termites; and
- Giving appropriate incentives to farmers.

5.4 Returns to investment and subsidy in agriculture

Intensification of agriculture is largely a direct effect of a price signal. However, there is a huge difference between border or consumer prices and the prices faced by smallholders, reflecting weak price transmission. Lack of adequate transport and communication infrastructure and high physical distribution cost have driven a wedge between what farmers receive for their products and what consumers pay for the same products. Transport costs constitute about 60 and 90 percent of the retail prices at Dar-es-salaam market for maize from Iringa and Mbeya (districts) respectively. In Tanzania, the road density per 100 sq km is 9 compared to 26 in Kenya and 27 in Uganda. Investments aimed at reducing transportation and transaction costs would significantly improve market access, trade and specialization. The return to investment in agricultural research, extension, credit facilities, farmer organizations, private sector development, etc. is also expected to be very high in Tanzania (Isinika, et al, 2003).

Up until the early 1990s, Tanzanian farmers benefited from explicit and implicit subsidies. Overvalued exchange rate provided implicit subsidy on imported fertilizer. Subsidies for fertilizer and pesticides enabled farmers in the high potential Southern Highlands to increase their share in the country's total fertilizer consumption from 35 percent between 1973 and 1975 to 65 percent between 1989 and 1991. Consequently, the region became the gain basket of the nation, producing roughly 45 percent of maize output. Maize production decreased by 13 to 19 percent in remote parts of the Southern Highlands following the removal of subsidies. The government has restored subsidized fertilizer supply to the four biggest maize producing regions of Iringa, Mbeya, Rukwa and Ruvuma of the Southern Highlands effective from July 2003 in order to ensure national food security. The measure is believed to reverse the declining trend in fertilizer consumption (Isinika, et al, 2003).

CHAPTER 6: RECOMMENDATIONS ON FUTURE FOOD SECURITY STRATEGIES

6.1 Introduction

From the study, it is evident that Tanzania has the natural resource endowment not only to feed itself, but also to export surplus of many types of agricultural products. There is enormous untapped potential for agriculture-led economic development, and failure to realize this potential is an opportunity cost. This cost cannot be easily quantified, but it adds up to the cost of food imports and the direct and indirect cost of food aid.

Given the limited financial resources available to the government, it is important that the specific policy instruments chosen to carry out food security policies and strategies are well focused and effective. They must also be consistent with overall government economic policy and strategies. Since Tanzania has made a firm commitment to follow a market-oriented path of development, the government should not directly intervene in markets but rather concentrate on developing an infrastructure, which encourages private sector market activity and growth. The only exception should be in very few cases such as restocking the Strategic Grain Reserve and distributing grain in emergencies.

Food security comprises three elements: availability of high quality food products, household access to these products and adequate nutritional content. At the national level, food insecurity is basically the result of a low level of development and a lack of a viable market. At household level, it is essentially a problem of insufficient income in other words poverty. Long-term improvement in food security must therefore be part of a strategy for sustainable development and poverty reduction. Food security is a valuable indicator of poverty reduction. At the same time, the concept of food security can be used to draw attention to factors such as the nutritional value of food and the status of women who are overwhelmingly responsible for food management in terms of both production and distribution within the household. Food security and poverty reduction should thus be addressed together and both should guide development strategies.

Tanzania will continue to be subject to periodic droughts, affecting significant parts of the country. Both the state and the private sector have significant roles to play. With declining government resources partly as a result of adjustment, the involvement of the private sector will help fill the gaps resulting from reduced public support. Given the lack of basic infrastructure in most rural areas, the state still has a significant role to act in providing the right signals for increasing agricultural investment. However, there are a number of areas where the government may be the most appropriate provider of services. These fall into the category often referred to as public goods, such as road infrastructure, market information services, and physical market infrastructure. In some instances, there may be the possibility of partial cost recovery through imposing charges for example in the use of storage facilities in market places. The government can also assist the private sector play an active role by creating a favorable legal and policy environment. Private sector activity has an inherent element of risk,

which can discourage potential businessmen and traders from participating in the food security-enhancing sector. Agriculture is in itself risky because of the importance of weather and its unpredictability, and therefore it is important that operating in an uncertain legal and policy environment does not reinforce the risk.

Tanzania aspires for all households to have access to adequate and safe food at all times of the year to meet their nutritional requirements. To achieve this aspiration, specific areas where action can be taken to improve agricultural sector performance in general and food security situation in particular are discussed below.

6.2 Improving Market Access

The Tanzania Trade Policy (2002) seeks to foster economic transformation towards an integrated and diversified economy that is able to compete within the Multilateral Trading System; promote technology and innovation and associated investment flows into export–oriented production systems in which Tanzania enjoys comparative advantage, thus boosting competitiveness; stimulate value-added activities for primary exports as a means of increasing national earnings; and attain and maintain long term current account balance of payments by drawing on complementarities between regional and international trading arrangements and increased efficiency in the utilization of imports. The government is also currently in the process of formulating the National Agricultural Marketing Policy. The overall objective being to achieve guidance and facilitation of the operations of agricultural marketing system in Tanzania, ensured coherence in the actions of the various stakeholders in the marketing sub-sector with the goal of improving farm incomes, and contributing towards food security and poverty reduction.

These policies must be backed by investment and institutional reform in order to bring about the desired changes. For instance, state withdrawal from the market may free the playing field but does not necessarily equate to competitiveness, thus government still has a role to play in creating efficient and competitive markets. Improving access to the market can be addressed in part through improving market integration. There are three major elements to this. First is improving transport infrastructure particularly feeder roads so as to reduce costs of marketing. Secondly is improving the collection and dissemination of market information so that potential participants know what opportunities exist. Lastly, is to remove artificial restrictions to trade such as movement controls. It should be acknowledged that for some surplus maize producing areas in Tanzania, the most suitable markets are not in Tanzania itself but in neighboring countries such as Rwanda, Zaire, Malawi, Zambia and Zimbabwe. Imposing export bans in normal years simply penalizes the farmers in these areas by reducing the price available to them, while many urban areas can be more cheaply supplied from elsewhere, both within and outside the country. Trade restrictions across borders do very little to improve food security and by discouraging production, they may even exacerbate food insecurity in the medium and long term. Instruments of export ban should be used cautiously and with reserve.

Agriculture continues to be one of the main issues in the WTO negotiations. The failure of the Cancun meeting was partly due to disagreement on the agenda on agriculture. In Tanzania, the agricultural sector remains the linchpin of food security not only in terms of supplying local markets, but also and importantly because a large proportion of the population depends on agriculture to survive. The WTO negotiations focus on development of world trade has not always taken these wider dimensions into account. For a country like Tanzania with fragile food security, the main issue in the negotiations should be to ensure that its particular priorities are recognized, especially in terms of food production and to reach an acceptable definition of effective supporting and development mechanisms. At the negotiations, consideration should be given to reinforce food-aid by other means such as financial and technical assistance to recipient countries to enhance local food production and ensure food security.

6.3 Improving Agricultural Services

The National Agricultural and Livestock Policy (of 1997) seeks to ensure that the direction and pattern of agricultural sector development meets social objectives by providing priority goods and public services. The strategy for bringing about such policy is contained in the country's Agricultural Sector Development Strategy (of year 2000), whose implementation framework is provided in the Agricultural Sector Development Programme currently under formulation. All the necessary resources and institutional capacity need to be created to provide adequate services to improving agricultural productivity on a sustainable basis.

6.3.1 Enhancing Input Use

Although, the government of Tanzania is clear in its support for private channels of input supply in general and fertilizer in particular, it sees a role in providing market information, monitoring, licensing and quality control. The government should continue along the same lines with strategies for enhancing input use, focusing more on the creation of an enabling environment for the efficient operation of the private sector in fertilizer supply, whilst at the same time providing the necessary regulatory framework. Competition should be encouraged at all stages in the marketing chain and devotion of the necessary resources to enforce quality control regulations. The Ministry of Finance announced revival of subsidized agricultural inputs supply to the Southern Highlands during his budget speech in June 2003[14]. This change of policy is in response to declining profitability of staple crops such as maize and complaints of farmers. Aggressive research and extension effort to improve the productivity of farmers and market development should be major components of the strategy to exit from the cycle of input subsidy and make the sector self-sustaining with less government support.

[14] A. C. Isinika, G. C. Ashimogo and J. E. D. Mlangwa, Africa in Transition: Macro Study Tanzania, Final Research Report, Lund University, African Food Crisis: The Relevance of Asian Models, August 2003.

6.3.2 Enhancing Productivity

For farmers who have resources, particularly land and labor, the challenge is to enhance resource productivity. Enhancing resource productivity requires focused efforts in research and development, extension services, and development of appropriate technology packages. These should allow farmers to produce marketable surpluses. Research and extension services should address this issue, and identify where and under what circumstances fertilizer application is economically viable and develop alternative approaches where input costs are unattractive.

6.3.3 Reducing Post Harvest Losses

Post-harvest loss is one of the major factors lowering final availability of farm produce. The losses occur in the stages of transportation, storage, processing and preservation. The losses compromise food security. The challenge is to develop clear policy and programmes on post harvest technology in order to reduce post harvest losses to less than five percent. Some strategic options available for reducing post harvest losses include:

- Supporting research in low cost post-harvest technology with financial and human resources;
- Promoting crop varieties with less susceptibility to post-harvest losses;
- Ensuring that the findings of research benefit farmers by developing guidelines on storage, processing and preservation for each of the major food commodities;
- Introducing village or community storage facilities to realize economies of scale;
- Training personnel in post-harvest handling processing preservation and storage of food crops; and
- Promoting cottage industries on food processing in rural areas to provide employment as well as improve food processing and preservation.

6.3.4 Supporting Irrigation and water resource management

The increasing frequency and severity of droughts has highlighted the need for more efficient management and use of water. A low proportion of the arable area is currently irrigated but the high cost of water harvesting and control systems preclude irrigation as the panacea for the country's domestic food production dilemma. The government needs to pursue strategies for optimizing use of existing water, development of strategic large-scale irrigation systems and enhanced exploitation of ground water. Because of the high investment costs, options for designing win-win partnerships with private firms in the construction of major dams and associated irrigation works need to consider as possible mechanisms for dampening the fluctuations associated with droughts.

The government has developed a National Irrigation Master-plan (NIMP), which will guide the country towards realizing irrigation potentials. The Government envisages increasing the area under irrigation from the current level of 17 percent to about 50 percent in a period of 5 years. This would ensure that the country has sufficient food even when there is shortage of rain. One of the reasons for poor realization of the irrigation potentials has been the low investment in irrigation. However, from the 2002/2003 experience there is an urgent need to direct more investment and resources in this sector. In addition, in areas where there are

streams and rivers, individuals have taken up the challenge to produce maize throughout the year and these should be supported so that they can increase production. There is also a need to raise efficiency of rain fed agriculture through improved farming practices, variety selection, and timing of planting. The ASDP is addressing this aspect.

The Water Policy (of 2002) covers three sub-sectoral issues; water resource management, rural water supply and urban water supply and sewerage. To this end, some of the key activity areas covered by the policy are: water resource allocation, water conservation and pollution control; and water resources assessment, planning and development. A very important use of the water is irrigation. The water policy is important for food security, as irrigation is very important for increasing food production. Water is also essential for domestic use and for attaining personal and general hygiene, all being crucial for food security. However, the linkage between water and food security needs to be clearly stipulated.

6.3.5 Assisting Rural Financial Institutions

The adverse impact of liberalization of the rural economy has been the reduction of the already limited sources of credit in rural areas. The National Micro-finance Policy (of 2000) forms the basis for developing an efficient financial system in the country over the long term, and provides a framework for enabling farmers and livestock keepers to access credit. It seeks to actively promote savings and credit societies of various types, such as rural community banks and local Cooperative Banks, by way of the National Micro-finance Bank (NMB).

This initiative has to be accelerated to fill the hiatus in the market for financial services. NGOs have a comparative advantage in delivering and recovering credit in rural communities and could be used in the delivery of services. It is therefore, important to develop an appropriate legal framework for rural financial institutions aimed at creating incentives and regulations, which will ensure a national network capable of providing the services required.

6.3.6 Investing in institutional Development

The emergence of institutions that replace those that have been dismantled as a result of the reform process is critical so as to enhance productivity and improve market accessibility. Reducing transport costs may attract traders to operate in remote areas. However, if neither traders nor farmers have access to credit sources, market growth will be constrained. Financial institutions are therefore critical. Prior to liberalization, institutions such as NMC and cooperatives provided credit, inputs and assured output markets in theory at least, if not in practice. Replacement institutions are slow in appearing, particularly in those areas away from consumption centers. It is important that new institutions evolve to enhance productivity and improve farmers' access to markets.

Over time, the Government has developed various policies, which address food security in one way or another. However, experience has shown that there is inadequate institutional mechanism and capacity for food security coordination, monitoring and evaluation, which have led to limited impact of these policies on food security. The Food Security Division (FSD) should have the overall responsibility for coordinating all food security issues in the

country, and food security focal points be created at district level, with responsibility for coordinating and monitoring and ensuring consistency in the implementation of the policy at district level.

Currently, there are numerous levies and taxes at district level. Local authorities clearly need to raise revenue, but to concentrate on traded output as a tax base will simply push communities back to subsistence production, and reduce the overall economic base of the communities. At the national level, the Prime Ministers Office, which has to approve the imposition of these levies, should take note of their cumulative impact and encourage district councils to identify other sources of income.

6.3.7 Improving Skills of Private Traders

Local traders lack or have little knowledge about standard contracts applicable to cross border trade, banking arrangements including letters of credit, market information about buyers in other countries and what is required in terms of quantities, quality, logistical arrangements and payments. Our traders need trading and documentation skills. There is a need to facilitate these traders to understand complexities of international transactions and proper contracts and the utilization of legal services available in the country. Appropriate institutions, which should be involved in improving skills of private traders, include Chambers of Commerce and Trade, mass media, traders associations and the Board External Trade (BET).

6.4 Safety Nets for the Most Vulnerable and food security

The Draft National Food Security Policy (of 2004) is expected to create institutional framework to ensure access to food for all vulnerable groups. While the aggregate food availability challenge can be managed from domestic production and maintenance of strategic grain and financial reserves, there remain intra-regional areas and communities facing chronic and acute food insecurity.

6.4.1 Safety net and food aid

Among the most vulnerable groups in Tanzania are households affected by HIV/AIDS as well as orphans, the elderly, people with disability and women with inadequate productive resources. These vulnerable groups are currently dependent on food aid and other assistance schemes. In the high-risk areas and communities, large numbers of households survive on subsistence farming, with limited or no opportunities for non-farm income. They generally have limited access to resources for sustainable continuous food supply. In some districts, land areas are too small, of poor quality, and prone to drought, making crop production particularly risky given the type of crops and technology employed. Those food insecure households who have insufficient land and labor resources to achieve food security through producing their own food are dependent on labor markets or selling non-agricultural output. They can be assisted with targeted programs offering a combination of training and credit to enhance income-generating opportunities. However, even when successful, these programs are very expensive and often have a poor track record. Realistically, the best hope for these households

depends on generating growth in rural areas and thus stimulating labor and employment opportunities.

The need for food aid will remain and in many cases, famine is most severe in certain regions or districts of the country owing to, for instance, local environmental calamity, remoteness, poor infrastructure, or higher pre-famine levels of hunger and malnutrition. This is now the case in some regions of Tanzania. A national famine mitigation strategy can be more effective and more cost-effective if it targets food aid to the areas with the most severe food shortages and uses other programs to address the threat of hunger elsewhere. Criteria for ranking the severity of the situation by regions/district might include crop production records, emigration numbers, anthropometrics measures of nutritional status, and reported mortality rates. There are ways of using food aid that are constructive and can build local capacity to cope with emergency more effectively rather than just being seen as a means to resolve an immediate emergency. Some of the issues to consider are:

- A clear forecast of food consumption needs for the district/regions in cases of emergencies is required to help guide plans on food famine relief supplies by the government, donor agencies and development organizations.
- Better coordination of food relief efforts between government and donors to avoid flooding the domestic market with food imports, which filtrate into the market thus depressing prices.
- Use of available food storage facilities and encourage domestic purchase of food relief to help provide more market outlets and therefore incentives for increased domestic production by the farmers. This will assist farmers get a ready market for their produce, and cut down on importation costs during low crop seasons.

6.4.2 Decentralization of Information Systems

One of the most important implications for information systems is the need for decentralization. The Government's Early Warning System was established in 1978, on the recommendation and with the assistance of FAO, its primary focus being early detection of drought-induced crop failure, and on the aggregate availability of food as estimated by a national balance sheet. Since 1991, when an Act of Parliament established the Food Security Department (FSD), the central institution of the early warning system has been the FSD's Crop Monitoring and Early Warning Unit (CMEWU). It should be noted that FSD is designed as centralized units, with no staff based outside Dar es Salaam. The development of capacity at district level will be crucial to its future effectiveness. Vulnerability, coping capacity or food economy (whichever approach is taken) cannot be analyzed or monitored at aggregate national levels. It must be based in a more detailed and location-specific understanding of people's livelihoods. In order to be affordable, such decentralized systems should not aim for national coverage but focus on selected food-insecure areas.

6.4.3 Improving Disaster Management

Tanzania should have a national disaster plan that can serve as a basis for mitigation and responding to disasters. The challenge is for Tanzania to mitigate and manage disasters effectively in order to ensure national food security and nutrition. The strategic options to improve disaster management include:

- Putting in place a sound national disaster management plan,
- Having adequate and appropriately located staple food storage facility in every district;
- Making budgetary allocations for financing strategic reserves; and
- Encouraging local initiatives for disaster preparedness.

6.4.4 Working towards Long-Term Prevention and Food Security

Food aid certainly saves lives in the short term but the search should be for appropriate long-term solutions that build bulwarks against a crisis, and minimize the need for food aid or to find ways of using it more constructively when it is required. Famines signal the failure of institutions, organizations, and policies. While various programs can minimize the impact of famines and lay the groundwork for future development, policies that assure both famine prevention and long-term food security are imperative. Such policies must promote and encourage agricultural growth, particularly among small farmers, infrastructure development, environmental rehabilitation, and more effective markets. Well-developed famine early warning systems and the proper management of buffer grain stocks are needed. The country must develop the capacity to design and implement appropriate food policies and programs at all levels.

Long-term food security also depends on sound governance. Without responsible governance, transparency, and accountability, investments in growth, development, and food security are likely to have little impact. The governments must have the will to ensure food security and protection from famine regardless of the political and social changes that the country undergoes. The Government must ensure that the poor and vulnerable can take an active part in determining their own lives and their nations' political future. If the government allows corruption, and poor policies to continue, it will remain vulnerable to famines. Indeed, to prevent future famines, the government will have to adopt the well being of its people as its overriding goal.

6.5 Addressing Gender Problems

Women are the main food and agricultural producers, they are also care providers, and therefore supporting them would contribute to both food supply and utilization. The Gender Policy (of 2002), captioned 'Women Development and Gender' and approved in 2000, requires all sector ministries to mainstream gender. For implementing this policy, several ministries have gender focal points; at the Local Government level, such focal points are located within the Community Development Departments. Existing practices at grassroots levels must change to realize the objectives of the policy. Women representation in all decision making committees or forum should be equal to at least to that of men in order to ensure that their prime interests are taken into account in the program decisions. Women support is indeed important for the success of the program.

6.6 Protecting the Environment

The National Environmental Policy provides the framework for making fundamental changes so as to integrate environmental considerations into mainstream policy formulation and decision-making in Tanzania. It aims at ensuring equitable use of resources to meet basic needs, safeguarding health and safety and, above all, environmental sustainability. The National Land Policy (of 1995) also seeks to promote a secure land tenure system, including access to land for disadvantaged groups, to encourage the optimal use of land resources. The policy intends to facilitate broad based socio-economic development without jeopardizing the ecological balance and recurring land conflicts. Institutional capacity needs to be created to implement these policies and monitor progress in reversing environmental degradation.

6.7 Addressing the Impact of HIV/AIDS epidemic

HIV/AIDS has had a significant impact on food production. Afflicted households suffer from shrinkage of the available labour force and loss of time on care and sharing grief with other members of the society due to frequent deaths. The objective of HIV/ AIDS Policy (2001) is fighting the scourge on a multi-level and using a multi-sectoral approach. The policy is important towards achieving food security as it emphasizes prevention of AIDS, which, if not controlled, would render many producers unproductive. The policy emphasizes direct support in terms of food supply and production inputs to HIV/AIDS victims.

However, the policy mainly concentrates on preventive measures (campaigns to distribute condoms) and very little on measures to assist those affected. It is crucial that the policy should also address issues of food and nutrition for the affected. To tackle the impact of HIV/AIDS epidemic on labour force and food production there is also an urgent need to develop labour saving technologies for affected households so that they are able to produce enough food. Use of animal power may help affected households use less labour force and at the same time increase yield.

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APPENDICES

Appendix 1: Trends in Food Crop Production 1986/87 – 2001/02 (000 MT)

Year	Maize	Sorghum	Millets	Rice	Wheat	Cereals	Pulses	Cassava	Bananas	Potatoes	Non-cereals	Total
1986/87	2,359	779	175	419	72	3,804	251	1,709	792	336	3,088	6,892
1987/88	2339	557	125	400	76	3,497	379	1,736	812	319	3,246	6,743
1988/89	3,125	656	148	468	97	4,494	385	1,948	743	337	3,413	7,907
1989/90	2,445	464	104	481	106	3,600	388	1,724	823	1,023	3,958	7,558
1990/91	2,332	612	138	406	84	3,572	425	1,566	750	291	3,032	6,604
1991/92	2,226	694	156	256	64	3,396	312	1,778	794	257	3,141	6,537
1992/93	2,282	758	171	417	59	3,687	406	1,708	800	260	3,174	6,861
1993/94	2,159	568	128	399	59	3,313	187	1,802	834	267	3,090	6,403
1994/95	2,567	1,020	230	470	75	4,362	378	1,492	651	451	2,972	7,334
1995/96	2,663	1,012	228	477	84	4,463	475	1,498	641	420	3,034	7,497
1996/97	1,831	690	155	357	78	3,112	374	1,426	603	372	2,776	5,888
1997/98	2,685	652	147	676	111	4,271	462	1,758	836	644	3,700	7,972
1998/99	2,452	617	139	506	82	3,796	528	1,795	752	570	3,645	7,440
1999/2000	2,009	667	150	508	33	3,368	674	1,781	703	798	3,955	7,322
2000/01	2,579	742	167	564	89	4,141	733	1,445	779	596	3,553	7,695
2001/02	2,705	834	206	640	77	4,462	683	1,725	752	950	4,111	8,572

Source: Ministry of Agriculture and Food Security

Appendix 2: Food Production and Requirements 1999/2000

REGION	Total Cereals				Total Non-cereals				Total Food				Deficit indicator	REGION
	Production	Requirement	Gap/Surplus	SSR	Production	Requirement	Gap/Surplus	SSR	Production	Requirement	Gap/Surplus	SSR	(*)	
Arusha	74274	323009	-248735	23	150223	209399	-59176	72	224497	532408-	307911	42	*	Arusha
Coast/DSM	103074	529327	-426253	19	319098	240235	-21137	94	373545	889562-	447390	49	*	Coast/DSM
Dodoma	172238	257568	-85330	67	92707	159233	-66526	58	264945	416801-	151856	64	*	Dodoma
Iringa	346789	276631	70158	125	158993	160140	-1147	99	505782	436771	69011	116		Iringa
Kagera	91715	278913	187198	33	476176	180425	295751	264	567891	459338	108553	124		Kagera
Kigoma	129266	176005	46739	73	204214	115348	88866	177	333480	291353	42127	114		Kigoma
Kilimanjaro	120559	209045	88486	58	158384	136093	22291	116	278943	345138-	66195	81	*	Kilimanjaro
Lindi	120364	123045	2681	98	123923	78359	45564	158	244287	201404	42883	121		Lindi
Mara	167459	207034	39575	81	206748	131911	74837	157	374207	338945	35262	119		Mara
Mbeya	345715	313842	31673	110	272624	205682	66942	133	618339	519524	98815	119		Mbeya
Morogoro	188606	250886	62280	75	162236	164422	-2186	99	350842	415308-	64466	84	*	Morogoro
Mtwara	79190	152349	113637	52	316795	99845	-12249	317	494854	620740-	125886	80	*	Mtwara
Mwanza	261350	374987	101794	70	233504	245753	55043	95	448297	291450	156837	154		Mwanza
Rukwa	277864	176070	101794	158	170433	115390	55043	148	448297	291450	156837	154		Rukwa
Ruvuma	181017	168649	12368	107	171337	110526	60811	155	352354	279175	73179	126		Ruvuma
Shinyanga	299392	367515	68123	81	252690	240857	11833	105	552082	608372-	56290	91	*	Shinyanga
Singida	78116	156040	77924	50	94515	102263	-7748	92	172631	258303-	85672	67	*	Singida
Tabora	180823	201644	20821	90	137861	132151	5710	104	318684	333795-	15111	95	*	Tabora
Tanga	149861	245450	95589	61	252214	160859	91355	157	402075	406309-	4234	99	*	Tanga
Total	3367672	4788099	(1245384}	70	3954675	3088891	703877	128	7322347	7916166	-541507	92	*	Total

Source: Ministry of Agriculture and Food Security

Appendix 3: Food Production and Requirements 2000/2001

REGION	Total Cereals				Total Non-cereals				Total Food				Deficit indicator	REGION
	Production	Requirement	Gap/Surplus	SSR	Production	Requirement	Gap/Surplus	SSR	Production	Requirement	Gap/Surplus	SSR	(*)	
Arusha	260940	359622	(98882}	73	158603	218465	-59862	73	419543	578287-	158745	23	*	Arusha
Coast/DSM	104431	553668	(449237}	19	269114	356226	-87112	76	373545	909894	536348	41	*	Coast/DSM
Dodoma	199688	265459	-65772	75	99922	163159	-63237	61	299610	428619-	129009	70		Dodoma
Iringa	392468	286268	106200	137	129827	164463	-34636	79	522294	450731	71564	116		Iringa
Kagera	122545	287791	-165245	43	459430	185297	274133	248	581975	473067	108888	123		Kagera
Kigoma	156220	180933	-24713	86	150730	118577	32153	127	306950	299510	7440	102		Kigoma
Kilimanjaro	191107	213284	-22177	90	147859	138951	8908	106	338966	352234-	13266	96	*	Kilimanjaro
Lindi	96926	124028	-27101	78	147219	79927	67292	184	244145	203954	40190	120		Lindi
Mara	179952	216382	-38430	83	180808	135737	45072	133	360760	352119	8641	102		Mara
Mbeya	380924	323571	57353	118	196282	212057	-15775	93	577206	535629	41577	108		Mbeya
Morogoro	271237	257409	13828	105	162762	168697	-5935	96	433998	426106	7893	102		Morogoro
Mtwara	91991	154482	-62491	60	253947	101242	152705	251	345938	255724	90214	135		Mtwara
Mwanza	305307	384737	-79430	79	358568	252143	106425	142	663676	636880	26996	104		Mwanza
Rukwa	301590	183993	117597	164	89948	120582	-30634	75	391539	304575	86964	129		Rukwa
Ruvuma	179950	174045	5905	103	156947	114063	42084	138	336897	288109	48788	117		Ruvuma
Shinyanga	414208	378173	36034	110	198648	247842	-49194	80	612856	626016-	13160	98	*	Shinyanga
Singida	99788	159942	-60154	62	60946	104620	-43874	58	160734	264761-	104028	61	*	Singida
Tabora	189535	206484	-16949	92	107032	135322	-28290	79	296567	341805-	45238	87	*	Tabora
Tanga	202442	250604	-48162	81	224785	164237	60548	137	427227	414842	12385	103		Tanga
Total	4141250	4961076	-819826	83	3553376	3181807	371569	112	7694626	8142882	-448256	94	*	Total

Source: Ministry of Agriculture and Food Security

Appendix 4: Food Production and Requirements 2001/2002

REGION	Total Cereals				Total Non-cereals				Total Food				Deficit indicator	REGION
	Production	Requirement	Gap/Surplus	SSR	Production	Requirement	Gap/Surplus	SSR	Production	Requirement	Gap/Surplus	SSR	(*)	
Arusha	278,716	374,746	-96,030	74	173,810	225,983	-52,174	77	452,526	600,730	148,204	75	*	Arusha
Coast	75,502	`96,088	-120,586	39	254,135	119,047	135,088	213	329,637	315,135	14,503	105		Coast
Dar es Salaam	7,774	388.322	-380,458	2	32,662	253,920	-221,258	13	40,436	642,242	601,806	6	*	Dar es Salaam
Dodoma	262,952	268,635	-5,683	98	175,023	165,531	9,491	106	437,974	434,166	3,808	101		Dodoma
Iringa	402,226	273,218	129,008	147	161,736	168,904	-7,167	96	563,963	442,122	121,841	128		Iringa
Kagera	126,817	277,064	-150,247	46	482,329	190,300	292,029	253	609,145	467,364	141,781	130		Kagera
Kigoma	162,123	173,587	(11,644	93	153,371	121,898	32,473	127	316,494	295,485	21,009	107		Kigoma
Kilimanjaro	195,677	217,071	-21,394	90	152,508	141,869	10,639	107	348,185	358,940	10,755	97	*	Kilimanjaro
Lindi	100,892	176,740	-75,848	57	171,644	81,525	90,119	211	272,537	258,265	-14,272	106		Lindi
Mara	190,571	222,625	-32,054	86	205,739	139,672	66,067	146	147	396,310	396,163	109		Mara
Mbeya	405,707	333,602	72,105	122	229,774	218,631	11,143	105	635,481	552,234	-83,247	115		Mbeya
Morogoro	289,604	264,102	25,502	109	181,627	173,084	8,543	105	470,691	437,185	33,506	108		Morogoro
Mtwara	98,829	156,645	-57,816	63	304,784	102,659	202,125	297	403,613	259,304	144,308	156		Mtwara
Mwanza	325,577	394,740	-69,163	82	422,979	258,699	164,279	164	748,555	653,439	95,116	115		Mwanza
Rukwa	318,548	192,272	126,276	166	95,388	126,009	-30,621	76	413,936	318,281	95,655	130		Rukwa
Ruvuma	186,860	179,615	7,245	104	180,236	117,714	62,522	153	367,096	297,328	69,767	123		Ruvuma
Shinyanga	443,836	389,140	54,695	114	237,805	255,029	-17,224	93	681,641	644,170	37,471	106		Shinyanga
Singida	166,912	163,940	2,972	102	109,554	107,441	2,114	102	276,467	271,381	5,088	102		Singida
Tabora	212,430	211,439	990	100	124,576	138,570	-13,994	90	337,005	350,009	13,004	96	*	Tabora
Tanga	210,771	255,867	-45,096	82	259,826	167,687	92,140	155	470,597	423,553	47,044	111		Tanga

Source: Ministry of Agriculture and Food Security

Appendix 5: Food Aid Distribution by Region (in MT)

Region	1991/92	1992/93	1993/94	1994/95	2000/02	2003	2004	TOTALS
Coast	244.3	456	456	1,421	0	613	2664	**5854.3**
Mtwara	0	0	0	0	0	0	2137	**2137**
Tanga	219	632	632	3,185	844	0	2500	**8012**
Shinyanga	0	918	918	2,380	2,509	973	6935	**14633**
Lindi	0	420	420	0	0	0	2452	**3292**
Arusha	3273	6002	6002	2,881	5,351	584	7,123	**31216**
Dodoma	255.3	1,056	1,056	2,380	2,030	448	5300	**12525.3**
Kilimanjaro	193.9	4,091	4,091	8,595	2,153	0	1320	**20443.9**
Mara	20	1,052	1,052	3,610	84	1026	4418	**11262**
Morogoro	145	0	0	188	422	331	2531	**3,617**
Kagera	0	596	596	8,919	0	0	0	**10111**
Tabora	0	0	110	847	1,867	411	3971	**7206**
Mwanza	0	0	74	2,623	1,179	1345	4896	**10117**
Singida	0	110	110	945	1,560	741	6276	**9742**
Kigoma		74	74	1,635	0	0	0	**1783**
Mbeya	0	0	0	750	0	410	570	**1730**
Iringa	0	0	0	0	670	1118	3910	**5698**
TOTAL	**4350.5**	**15407**	**15591**	**40,359**	**18669**	**8000**	**57003**	**159379.5**

Source: Prime Ministers Office, Disaster Management Unit

Appendix 6: Comparative Advantage Index (RCA) for Selected Agricultural Products

HSC3*	Commodities	1997	1998	1999	2000	2001
10	Live animals	14.8	2.5		5.5	3.2
11	L. animals for human consum.	4.3	1.1	0.8	0.8	10.8
20	Fresh/Frozen meat	3.2		4.9		4.9
21	Frozen/whole chicken		0.2	8.3		7.2
30	Fish	3.7	1.8	13.8	16.1	6.2
31	Fish Fillet	10.8	29.7	45.9	69.4	109.5
40	Milk	5.3	7.8	4.2	82.6	7.2
41	Milk Products				78	44.7
50	Animal hair	5.3				
51	Animal bones/horns	1.8	1.5	1.4	2.3	1.9
60	Live Plants incl. Flowers	2.6		2.7	2.8	
70	Vegetables	2.7	2.5	2.8	9.9	3.2
71	Peas and beans	1.1	1.9	1.8	0.5	1.8
80	Nuts		1.9	2.9	1.5	1.7
81	Grapes & Oranges	1.3		296.2	65.1	114.0
90	Tea	0.7	7.4	3.1	2.6	3.1
91	Spices	38.4	1.4	2.3	2.5	4.2
100	Wheat		7.6	138.8		2.8
101	Maize and other Cereals	1.1	3.8	2.6	0.0	18.7
110	Wheat/Maize & Cereal flour	0.6	1.1	1.3	0.9	1.7
111	Potatoes & other starch products					7.2
120	Soya beans &products	5.3	7.6	1.5	14.9	4.3
121	Oil seeds	1.8	1.8	2.7	1.4	1.4
130	Vegetable extracts	5.3				7.2
151	Crude Oils	0.8	2.5	2.1	1.4	1.5
152	Vegetable fats	8.7	3.9	4.2	1.7	2.3
170	Sugar cane	1.1	20.7	1.7	1.8	1.6
180	Cocoa paste	1.8	7.6	3.4		1.4
190	Food preparations	5.3	62.4	32.4	7.3	
191	Bakery and Confectionery	10.7	24.7	23.6	14.3	7.6
201	Vegetable products		7.8			7.2
210	Banking powder	1.1	7.8	6.5	16.7	13.4
211	Protein concentrâtes		5.4			
240	Tobacco	0.5	6.8	1.8	2.4	1.2
310	Fertilizers		7.8			7.2

HSC3*	Commodities	1997	1998	1999	2000	2001
311	Other Fertilizers, ness		5.4			
410	Hides & Skins	5.3	328.9	2.7	0.3	2
440	Wood and wood products	0.0	2.9	1.6	5.7	3.2
520	Yarn & cotton materials	49.9	3.8	8.6	6.1	6.9
530	Jute	4.5	5.6	5.4	4.1	39.2

* HSC3 refers to the "Harmonized Commodity Description and Coding System"

RCA of country *i* for product *j* is formulated as $RCA_{ij} = \left(ex_{ij} / EX_{tj} \right) \div \left(ex_{iSADC} / EX_{tSADC} \right)$ Where, ex_{ij} is country i's export of commodity j to country j in SADC; EX_{tj} is the total exports to country j in SADC; ex_{iSADC} is country i's exports of commodity j to SADC and, EX_{tSADC} is the total exports to SADC.

Source: Computed based on TRA Data,' Annual Trade Statistics' for selected years.

Appendix 7: Regional Orientation Index for Selected Agric Products

HSC3	Commodities	1997	1998	1999	2000	2001
10	Live animals	14.9	183.4	54.4	0.5	66.0
11	Live animals for human consumption	41.8	88.4	48.2	82.7	33.9
20	Fresh/Frozen meat	169645.2	3393.1			385.7
30	Live animals	1.0	9.9		8.5	8.2
31	Live animals for human consumption	537.3	183.9	253.2	138.5	63.8
40	Fresh/Frozen meat	102.1	6.3	31.5	1.0	1.8
51	Animal bones/horns	151.7	128.3	87.5	118.1	110.6
60	Live Plants incl. Flowers	0.0		12.6	9.3	
70	Vegetables	32.4	209.4	178.2	1.9	2.0
71	Peas and beans	677.6	52.9	100.4	361.8	91.8
80	Nuts		6.0	3.8	4.7	30.7
81	Grapes & Oranges	8.1		0.4	0.2	0.5
90	Tea	280.2	8.2	3.6	7.5	5.5
91	Spices	2.6	18.5	0.0	3.8	0.0
100	Wheat		4409.5	868.0		348.8
101	Maize and other Cereals	578621.4	3351.1	9847.0	533.1	1149.8
110	Wheat/Maize and other Cereal flour	2695.2	1539.5	196.7	926.5	882.4
120	Soya beans &products	11.2	6.9	54.7	17.8	11.6
121	Oil seeds	4.2	137.2	142.4	282.0	29.7
151	Crude Oils	7768.8	7361.7	7623.5	2530.0	1590.1
152	Vegetable fats	2.0	17.3	16.0	324.0	124.5
170	Sugar cane	792.9	14.3	12.4	8.7	10.2
180	Cocoa paste	11672.7		172.7		99.4
190	Food preparations	433.4	471300.7	587.6	744.3	
191	Bakery and Confectionery	483.9	531.1	940.7	972.4	109.2
210	Baking powder	6806.4	98.4	142.8	404.2	185.6
240	Tobacco	10972.9	21.0	259.9	268.6	404.9
410	Hides & Skins	0.0	0.3	1.1	25.8	4.1
440	Wood and wood products	179.6	1.0	20.2	73.7	6.5
520	Yarn & cotton materials	4.5	0.4		82.0	33.8
530	Jute	29.0	38.1	44.5	58.0	28.9

* HSC3 refers to the "Harmonized Commodity Description and Coding System"

ROI index for each item can be computed as $ROI_j = \left(x_{rj} \div X_{tr}\right) \div \left(x_{oj} \div X_{to}\right) * 100$ where xrj is the value of export of j in SADC intra-trade; Xoj is the export to other countries other than SADC members; Xtr are total value of export within SADC members; and Xto are the total values of export to other countries other than SADC member countries.

Source: Computed based on TRA Data,' Annual Trade Statistics' for selected years.

Appendix 8: Hirschman Index of Agriculture Products for Tanzania: 1997-2001

Years	Index
1997	4.6
1998	0.3
1999	0.3
2000	0.2
2001	0.2

If, x_i is the country *j*'s export of commodity *j*, and X is country *j*'s total exports, (*H*) can be **expressed as** $H_j = \sqrt{\sum}(x_i \div X)^2$

Source: Computed based on TRA Data,' Annual Trade Statistics' for selected years.

POLICY ASSISTANCE WORKING PAPERS

0/1 E	FAO Subregional Office for Southern and East Africa	Food security and agricultural development in sub-Saharan Africa - Building a case for more public support *Background document*
0/1 F	Bureau Sous-régional de la FAO pour l'Afrique de l'Est et Australe	Sécurité alimentaire et développement agricole en Afrique sub-Saharienne - Dossier pour l'accroissement des soutiens publics *Document de Cadrage*
0/2	FAO Subregional Office for Southern and East Africa	Food security and agricultural development in sub-Saharan Africa - Building a case for more public support *The Case of Ethiopia*
0/3	FAO Subregional Office for Southern and East Africa	Food security and agricultural development in sub-Saharan Africa - Building a case for more public support *The Case of Kenya*
0/4	FAO Subregional Office for Southern and East Africa	Food security and agricultural development in sub-Saharan Africa - Building a case for more public support *The Case of Malawi*
0/5	FAO Subregional Office for Southern and East Africa	Food security and agricultural development in sub-Saharan Africa - Building a case for more public support *The Case of Nigeria*
0/6	FAO Subregional Office for Southern and East Africa	Food security and agricultural development in sub-Saharan Africa - Building a case for more public support *The Case of Tanzania*
0/7	FAO Subregional Office for Southern and East Africa	Food security and agricultural development in sub-Saharan Africa - Building a case for more public support *The Case of Zambia*

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