

SPECIAL REPORT

FAO/WFP CROP AND FOOD SUPPLY ASSESSMENT MISSION TO SWAZILAND

23 May 2007



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME



WORLD FOOD PROGRAMME, ROME

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Mission Highlights

- Prolonged dry spells and high temperature levels at critical stages of the maize crop development have decimated Swaziland's maize crop, resulting in the lowest annual harvest on record.
- Maize production in 2006/07 is estimated at about 26 000 tonnes, nearly 60 percent below last year's level.
- Total cereal import requirement in the 2007/08 marketing year (April/March) is estimated at about 173 800 tonnes, of which 129 000 tonnes are expected to be imported commercially.
- With about 4 800 tonnes of food aid in stocks and in the pipeline as of 1 April 2007, the uncovered deficit, for which international assistance is needed, is estimated at 40 000 tonnes.
- Extended dry conditions and ensuing water shortages caused some stress on livestock, but late rains improved pasture and animal conditions in most parts of the country. Livestock production is expected to help offset, to some extent, the impact of crop failure.
- The high prevalence rates of HIV/AIDS will likely exacerbate the already severe impact of adverse weather through ill health, income inequality and poverty.
- A targeted approach for food aid is required, focused on mitigating adverse effects on the most vulnerable households, and on direct support to those with no access to sufficient food and agricultural inputs.
- Timely support is also recommended with agricultural inputs, including seeds, fertilizers, credit facilities, as well as tractor availability to revive production capacity in time for the 2007/08 cropping season.
- The apparent pattern of erratic and late rains in the last several years requires a speedier uptake of appropriate farming strategies and techniques.
- A total of about 407 000 food insecure and vulnerable people will need assistance of approximately 40 000 tonnes of food to meet basic consumption needs and protect their livelihoods..

1. OVERVIEW

Swaziland continues to suffer below-average and declining maize production because of erratic rainfall patterns, which are exacerbating the impact of rising unemployment and increased poverty. The rainfall pattern in the 2006/07 cropping season was generally characterized by a late start in November and a prolonged dry spell coupled with high temperatures in most parts of the country affecting maize at the critical development and flowering stage between January to March. Concerned about the potential impact of the dry spell on the nation's staple maize production, the Government of Swaziland requested FAO and WFP for assistance in assessing crop performance and overall food situation for the 2007/08 marketing year (April/March).

Consequently, an FAO/WFP Crop and Food Supply Assessment Mission visited Swaziland from 8 to 22 April 2007 to estimate the 2006/07 maize harvest and import requirements – including food assistance – for the 2007/08 marketing year (April/March).

The Mission's findings are based on discussions held with relevant government units, including various departments of the Ministry of Agriculture and Cooperatives (MoAC), Central Statistical Office (CSO), National Meteorological Services (NMS), National Disaster Management Agency (NDMA), Central Bank of Swaziland, United Nations Country Team, various NGOs, parastatals such as National Maize Corporation (NMC) and National Agricultural Marketing Board (NAMBOARD), major milling companies including Ngwane Mills, and Swazi Vulnerability Assessment Committee (VAC).

Field visits were conducted in four teams to all Rural Development Areas (RDA) of the country's four regions. Available relevant reports and documents were reviewed, and satellite-based estimated rainfall and normalized difference vegetation indices (NDVI) were analysed. Pre-harvest data on area were provided by CSO and preliminary model based yield estimates were later provided by NMS. The Mission then cross-checked and adjusted data where necessary, following field inspections, interviews with farmers and extension and senior extension officers and spot-check crop measurements, where possible. The Mission was accompanied in the field by government officials from MoAC, CSO, NMS, Ministry of Health and Social Work (MoHSW), NERCHA, NDMA; NGO representatives from World Vision International (WVI) and Lutheran Development Service (LDS); Africa Cooperative Action Trust (ACAT); and from the UN agencies of UNICEF and WHO. Members of the UN country team also joined the mission at various locations.

The Mission found that the 2006/07 agricultural season was characterized by erratic rainfall (started late with unusually heavy rains in November and December followed by a prolonged dry spell in the critical months of January to March) and below-average cumulative rainfall. Unusually high temperatures accompanied the dry spells, thus increasing moisture loss. The most important damaging factor in the 2006/07 crop production is the prolonged dry spell during the second half of the agricultural season (January to March 2007) - the most critical period of maize development.

Overall, the Mission estimated the 2006/07 maize production at 26 170 tonnes, which is about 60 percent below the previous year's crop. Other important crop sources of food and cash such as cabbage, beans, potatoes, cotton and sugar cane were also observed in farmers' fields. However, with the exception of vegetables in places where late rains encouraged production, yield stress and decline in production were reported for these other crops. The extended dry periods and resultant water shortages caused some stress on livestock, but late rains improved pastures and animal condition in most parts of the country. Livestock production is expected to help offset, to some extent, the impact of crop failure. However, livestock prices, although stable, may start to decline with increased sales to buy grain.

Prices of major cereals have increased significantly in response to the shortages, locally and as a result of significant maize price increases in South Africa, the main exporter to Swaziland. The upward trend in prices is expected to continue during the rest of this year as supplies from domestic and regional sources may be rather limited due to poor rainfall conditions in South Africa and other neighbouring countries.¹ The cereal import requirement in 2007/08 marketing year (April/March) is estimated at 173 800 tonnes, of which an estimated 129 000 tonnes are expected to be imported commercially. With food aid in stock and in the pipeline estimated at about 4 800 tonnes, the uncovered deficit for which international assistance is required is estimated at 40 000 tonnes.

Field observations confirmed that the poorest households currently have either no cereals in stock or enough to last a month. Farming households typically producing sufficient food are facing a prospect of food shortages before the next harvest. With markets already responding to the reduced supply access to food by vulnerable people is expected to be very difficult. The mission therefore recommends that assistance be programmed for a total of about 407 000 food insecure and vulnerable people who are unable to meet their food requirements. Approximately 40 500 tonnes of food would be required to meet their basic consumption needs and protect their livelihoods.

General mission recommendations include increased surveillance of the health and nutrition situation. In the short term increased targeted food assistance which this year may need to include selected areas in the Middleveld and Highveld that were never targeted before. Linking these interventions to community asset and value creation, such as water harvesting projects, is important.

Furthermore, timely assistance is required to support agricultural production in the next cropping season through the provision of farm inputs including seeds, fertilizers and credit facilities to minimize further depletion of valuable assets such as livestock and farm implements. With current erratic rainfall trends there is also a need to pursue vigorously appropriate technologies, such as small scale irrigation and water harvesting, and crop diversification.

2. SOCIO-ECONOMIC CONTEXT²

2.1 General

Swaziland is largely a rural society where a large proportion of rural households practice subsistence agriculture. The economy is based on agriculture and agro-industry, mainly sugar, citrus and wood pulp. Growth sectors include soft-drink concentrates, food products, textiles and paper products. Coal is the major mineral resource. Swaziland is classified as a lower middle-income country with a per capita income of US\$2 280 in 2005. Yet income distribution within the country is extremely unequal: the wealthiest 20 per cent of the population account for more than half of total consumption and there is an ever-widening gap between urban and rural development. According to the *Human Development Report 2005*, produced by the UN Development Programme (UNDP), the Gini coefficient measure of income inequality for Swaziland is 60.9, one of the highest in the world. About 43 per cent of the population live in extreme poverty and about 76 per

¹ South Africa's maize crop is expected to decline in 2006/07 due to poor rainfall conditions.

² This section is based on data and information obtained from Central Bank of Swaziland; IMF, *Country report* No. 07/132, Washington DC, March 2007; Economist Intelligence Unit (EIU), *Swaziland Country Report April 2007* and *Swaziland Country Profile 2006*; bi-annual HIV Sentinel Surveys conducted by the Ministry of Health and Social Welfare; UNDP *Human Development Report*, 2006

cent of the country's poor people live in rural areas. Such high poverty levels mean that much of the population is vulnerable to food insecurity. In the last few years between one fifth and one quarter of the country's population have depended on food assistance. The country's ranking in the UNDP's human development index in 2006 is 146th of 177 countries.

The contribution of agriculture to GDP is estimated at an average of 11 percent (2001-2006), compared to 50 percent from industry and 34 percent from the service sector. Maize is virtually the sole staple for the majority of the population. Major export income earners, according to 2005 estimates, include soft drink concentrates (49 percent), textiles (29 percent), wood pulp (11 percent) and sugar (7 percent). South Africa is the main trading partner from which it receives over 80 percent of its imports and to which it sends 74 percent of its exports.

GDP growth averaged at only 2.2 percent in 2005 and 2006, primarily as a result of low agricultural productivity, erratic weather, and declining domestic and foreign investment. The main merchandise exports are sugar and sugar derivatives, consumer goods and pulpwood. Imports include mainly capital and intermediate goods, manufactured goods, machinery and transport equipment, agricultural and farming goods and energy.

2.2 Recent macroeconomic developments

Official estimates of real GDP growth in the last three years indicate generally slowing rates of about 2 percent. This reflects declining rates in foreign direct investment, the slowdown in manufacturing output spurred by closures of companies such as textile mills, and weak demand for the country's exports, particularly in South Africa, her main trading partner, and low agricultural productivity from erratic weather, mainly drought conditions. Some general indicators of Swaziland's economic performance in recent years are summarized in Table 1 below.

Table 1. Swaziland: Performance of the economy in recent years

Indicator	2001	2002	2003	2004	2005	2006
GDP (US\$bn)	1.3	1.2	2.0	2.4	2.6	2.7
GDP growth (percent)	1.7	3.6	2.9	2.1	2.3	2.1
Average inflation (percent)	7.5	11.7	7.4	3.4	4.8	5.3
Foreign exchange reserves (US\$m)	271.8	275.8	277.5	323.6	243.9	372.5
Exchange rate (E:US\$1)	8.6	10.5	7.6	6.5	6.4	6.8

Inflation, as measured by the consumer price index, rose 6 percent year-on-year in February 2007 compared to 4.9 percent in January 2007. The annual average inflation rate increased by 0.5 percent to 5.3 percent in 2006 compared to the previous year. Inflation was mainly driven by increases in the price index for food, which accounts for about 25 percent of the consumer basket. Food inflation soared to an annual 14.6 percent in 2006 from an average of 9.1 percent in 2005. The upward trend was in tandem with the increase in South Africa. Although increasing, the inflation rate is still lower than the high levels observed 4 to 5 years ago. However, with rising oil and food prices coupled with weakening exchange rates, further rises in inflation are expected in 2007. for instance, the price of maize has risen from E1 250 (US\$169) per tonne in January to E2 300 in April 2007, an almost 90 percent increase.

The country's net foreign exchange reserves have improved and are expected to improve further during the 2007/08 fiscal year following budget estimates of a sizable 57 percent increase in customs union revenue from the Southern African Customs Union (SACU). In terms of imports, the available reserves in January 2007 are enough to cover an estimated 3.2 months compared to only 2.3 months reflected the previous year.

Employment projections in 2006 indicate a contraction in formal employment due to the erosion in AGOA preference, the restructuring in the sugar industry together with shedding of workers by companies. The situation was exacerbated by the strength of the lilangeni/rand exchange rate, which continued to exert pressure on competitiveness of export commodities. The formal sector absorbs approximately 30 percent of the labour force. Currently unemployment in Swaziland is estimated at more than 30 percent of the economically active population, but if the definition included discouraged job seekers, the rate would be over 40 percent. The situation is likely to get worse with company closures, and it is projected that private sector employment will decline at -0.2 percent per annum over the foreseeable future.

Although migrant labour has been declining over the years it continues to be an important source of employment for Swaziland's labour force. However, increased mechanization of operations, higher wages and a stronger exchange rate have led to a reduction in employment opportunities in South African mines.

2.3 Population estimates

According to the 1997 census, the total resident population was estimated at 930 000 with an annual rate of growth of 2.9 percent. However, the forecast population growth rate has fallen rapidly since then and now stands at less than 2 percent.³ Central Statistics Office (CSO) estimates put the total population in 2007 at 1.16 million.⁴ The average life expectancy has also fallen from 56.4 in 1997 to 41.4 in 2004. A continued decline in average life expectancy is projected until 2010, when it will reach its lowest level at 31.3. By the Year 2010, the population growth rate for Swaziland is projected to be negative (-0.4 percent) due to the high levels of HIV prevalence and relatively low fertility.

The Government plans to undertake a population and housing census this year, which will generate improved data on a range of population and demographic variables.

2.4 HIV/AIDS

The HIV/Aids pandemic continues to be a major obstacle to economic and social progress. According to the results of a sentinel survey released by the Ministry of Health in May 2005, the proportion of sexually active adults (aged 19-49 years) who are infected with HIV/AIDS had risen from 38.6 percent in 2003 to 42.6 percent in 2004. This means that Swaziland has the highest infection rate in the world. The rate was as high as 56 percent in the 25-29 year age group, and the probability of a Swazi aged 15 years today reaching the age of 50 is only 28 percent for males and 22 percent for females.

In addition to its humanitarian and social consequences, HIV/AIDS costs the country severely in economic terms, as it constrains output growth, eliminates work skills and knowledge, shrinks the tax base, raises health-related costs, reduces disposable incomes, and increases financial imbalance in the public pension funds. For instance, a study of subsistence agriculture in the country found that due to AIDS related sickness and deaths 38.5 percent of the households suffered reduction in area under cultivation, 47 percent decline in crop yield, 42 percent change in cropping pattern, 31 percent diversion of labour to care for the sick, 22 percent increase in health costs and 39 percent loss of regular remittances. All this has contributed to the increased levels of poverty in the country from 66 percent in 1995 to 69 percent in 2002.⁵

3. AGRICULTURAL PRODUCTION IN 2006/07

The agricultural sector in Swaziland contributes to the livelihoods of the majority of the population and provides raw materials for the largely agro-based industries. Maize remains the staple food and is grown by the vast majority of rural households, accounting for approximately 86 percent of the entire land cropped on communal Swazi National Land (SNL) (*2004 Agricultural Sector Policy Report*). The remaining SNL area is cropped to relatively small amounts of cotton, groundnuts, pumpkins and sweet potatoes. In terms of contribution to GDP, however, irrigated sugar cane production dominates the agricultural sector, providing approximately two-thirds of agriculture's 11 percent contribution to GDP. Sugar cane dominates agricultural production on the roughly 31 percent of the total geographic area of Swaziland held by individuals and companies as Title Deed Land (TDL). Much of TDL is planted to commercial forests in the Highveld and is used for grazing, but a small proportion is used for the production of citrus, pineapples, vegetables, maize and fodder.

3.1 Agro-meteorological conditions

The 2006/07 cropping season in Swaziland was characterised by late start of rains, with the exception of some early rains in August in few areas, and a prolonged dry spell at critical stages of crop development. In the early months of the season (September and October), rainfall was below normal in all agro-ecological

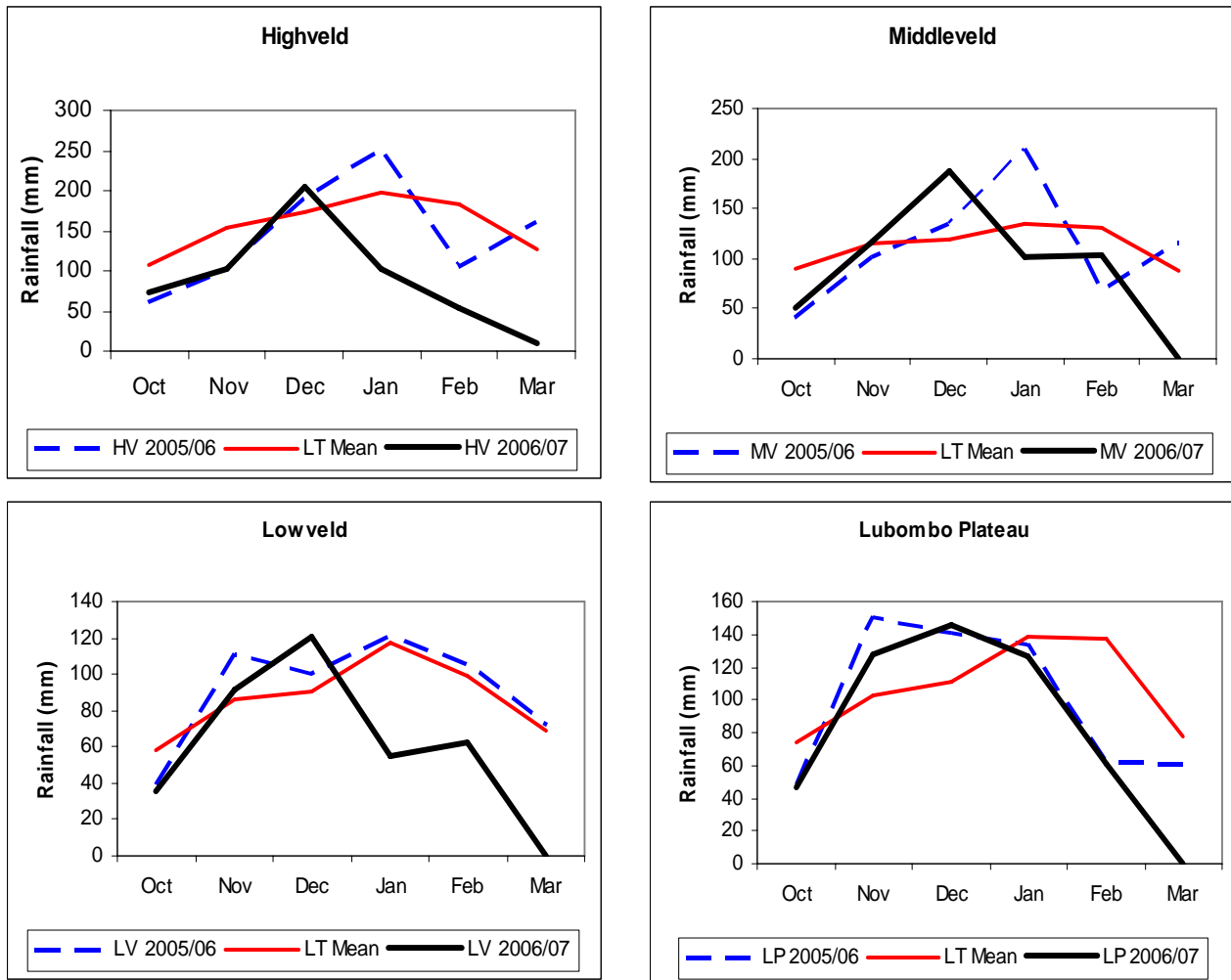
³ The US Census Bureau estimates that the actual growth rate has been slowing since the mid-1990s, and forecasts that the population will start to decline from 2006 onwards.

⁴ Based on reports from the National Early Warning Unit, Ministry of Agriculture and Cooperatives.

⁵ Ministry of Agriculture and Co-operatives, the Federation of Swaziland Employers and UNAIDS (2003), *The Impact of HIV/AIDS on Agriculture and the Private Sector in Swaziland*, Jubilee Printers, Matsapha, Swaziland.

zones of the country. During the months of November and December normal to above normal rainfall was received. This prompted a busy, although relatively late, planting period. However, during the months of January, February and March, as the maize crop was flowering/tasselling, the rains tailed off, with totals falling below normal for all regions of the country. The dry spell lasted between 9 to 12 weeks with the exception of some patchy and intermittent showers (figure 1). The prolonged dry spell was accompanied by a heat wave which seriously damaged growing crops, particularly maize.

Figure 1. Swaziland: rainfall amounts in 2006/07, 2005/06 and long-term average, by agro-ecological zone



Source: National Meteorology Services, Swaziland.

The most important feature of the 2006/07 agricultural season was the scarcity or virtual absence of rains when the crop needed it most. In earlier years, despite worse drought conditions, reasonable production levels were obtained due to some rains at the critical flowering stage, particularly in Highveld and some Middleveld areas. Once the flowers aborted and crops started to dry up, rains were received, mainly from early April, but that was already too late. Unlike previous years, even the Highveld was hit very hard, receiving only 51 percent of its long-term average

A recent article by staff from the National Meteorological Service of Swaziland made an interesting comparison of total water requirement (TWR) of maize by agro-ecological zones to the seasonal cumulative rainfall (October – March) received in the last 4 years (Table 2).⁶ The results are revealing even without information on the distribution of rainfall.

⁶ Times of Swaziland Sunday, April 15, 2007

Table 2. Swaziland: Total Water Requirement (TWR) for maize compared to seasonal rainfall (mm) 2003/04 – 2006/07

Agro-ecological zones	TWR for Maize	2003/04	2003/04 minus TWR	2004/05	2004/05 minus TWR	2005/06	2005/06 minus TWR	2006/07	2006/07 minus TWR
Highveld	462	774	312	870	408	930	468	482	20
Middleveld	493	639	146	669	176	859	366	456	-37
Lowveld	536	530	-6	543	7	539	3	287	-249
Lubombo Plateau	489	632	143	595	106	589	100	414	-75

According to the article, there is not enough moisture, specially in the Lowveld to sustain the maize crop. In 2006/07 it is clear that almost all regions had seen rainfall amounts that are either well below or struggling to keep up to the water requirement levels for maize in the respective zones.

Vegetation for livestock was affected by the dry spell in the first quarter of 2007, but made a strong recovery from April 2007. Average monthly satellite based vegetation indices indicate generally average to above-average values in November through January but fell to well below-average values for the months of February and March 2007. The beginning of a recovery in most agro-ecological zones was observed in April

3.2 Supply of agricultural inputs

Seed: Existing maize varieties used by SNL farmers are either hybrid varieties produced by private seed companies or local open pollinated varieties selected by farmers. It is estimated that 98 percent of the total maize seed sold in Swaziland is hybrid and about 1 200 – 1 300 tonnes of maize seed was sold during the past two seasons. Hybrid maize seed use went down from 4 000 tonnes in 1995/96 to 1 183 tonnes in 2000/01 and to 1 153 tonnes in 2001/02. This decline followed a government decision to stop providing free seeds to farmers; seeds are now supplied at market prices by the private sector and cooperatives. Farmers in the drier areas of the Lowveld and Lubombo districts have benefited from free distribution of seed from FAO's emergency programme and NGOs that work with WFP.

Fertilizers: Farmers use both organic (farm-yard or kraal manure - FYM) and modern chemical fertilizers on the maize crop. FYM is mostly either heaped out in the fields and broadcast just before ploughing, or placed in the fertilizer bins of the planter and mixed with chemical fertilizer. No information is available on the volume of FYM. According to the Ministry of Agriculture and Cooperatives over 60 percent of the SNL farmers use FYM and a small number purchase it. Farmers use different formulations of chemical fertilizers and the types available to growers are: 2:3:2 (22); 2:3:3 (38) and LAN 28 percent. The first two types are used as basal dressing and LAN is used as top dressing. Data from the major commercial supplier indicate that in 2006/07 fertilizer sales increased by about 36 percent to nearly 11 000 tones compared to the previous year (Table 3).

Table 3. Swaziland: Maize Fertilizer Sales by Farm Chemicals Ltd. (2003/04 – 2006/07) in tonnes

Fertilizer type	2003/04	2004/05	2005/06	2006/07
2:3:2 (22)	3 477	2 150	2 687	4 185
2:3:3 (38)	1 860	858	2 352	2 612
LAN (28)	3 598	2 346	3 000	4 135
Total	8 935	5 354	8 039	10 932

Farmers interviewed by the Mission generally indicated that high fertilizer prices - A 50 kg bag of 2:3:2 (22) costs E 120 (previous year E110) and similar bag of 2:3:3 (38) costs E 150 (previous year 130 to 140). From the mission's enquiries most farmers use the cheaper formulations unless fertilizer is supplied on credit against payment with maize.

Farm power:

Despite the leasing of tractors by the government, small-scale farmers, many SNL farmers still use animal power. Draught animal power is very important in Swaziland and some 55 percent of rural households are estimated to use animals for land cultivation.⁷ The majority of farmers use cattle for draught power. More

⁷ A.M. Dlamini, *Welfare and use of livestock for draught in Swaziland*, Proceedings of an ATNESA Workshop, September 1999, South Africa

than 88 percent of draught animals found on the Swazi Nation Land (SNL) are cattle. Those who own cattle use mainly oxen. The statistics show that over 20 percent of the cattle population in the SNL are oxen. Oxen are mainly used for primary tillage, secondary tillage, weeding and transport. In the case of transport, oxen drag a sledge for carrying firewood, timber, kraal manure and dry.

Tractor use is also widespread but lack of timely access to tractor hire services usually delays planting. Most farmers interviewed indicated that in 2006/07 the delayed rains prompted long queues for hiring the services of government tractors (which are cheaper) as farmers rushed to cultivate before the end of the planting season. This was exacerbated by the late deployment of government tractors. Prices for hiring tractors has gone up by E10 in 2006/07 to E120/hr compared to the previous year.

3.3 Planted areas

Official statistics for area planted, yield and production statistics in Swaziland are issued by the Central Statistics Office (CSO). During the course of the agricultural season, information on area planted is also collected by the agricultural extension service. Until the final end-of-season production estimates are issued by the CSO – several months after harvest – production forecasts are published by the National Early Warning Unit (NEWU) of the Ministry of Agriculture and Cooperatives (MoAC) which uses information provided by the Meteorological Department.

As shown in Table 4, the maize area in the 2006/07 cropping season is slightly above the previous year but about 20 percent below the 5-years average.

Table 4. Swaziland: Total maize planted area (ha) in 2006/07 compared to 2001/02–2005/06 average^{1/}

Agro-ecological zones	2001/02	2002/03	2003/04	2004/05	2005/06	5-year average	2006/07	Percent of average
Highveld	24 358	16 700	17 236	15 340	13 713	17 469	14 682	84
Middleveld	24 354	22 940	23 642	21 840	19 114	22 378	16 645	74
Lowveld	15 831	22 142	11 064	15 730	11 320	15 217	13 331	88
Lubombo Plateau	3 355	5 900	2 528	3 355	2 826	3 593	2 751	77
Swaziland	67 898	67 682	54 470	56 265	46 973	58 658	47 409	81

Source: Central Statistics Office (CSO).

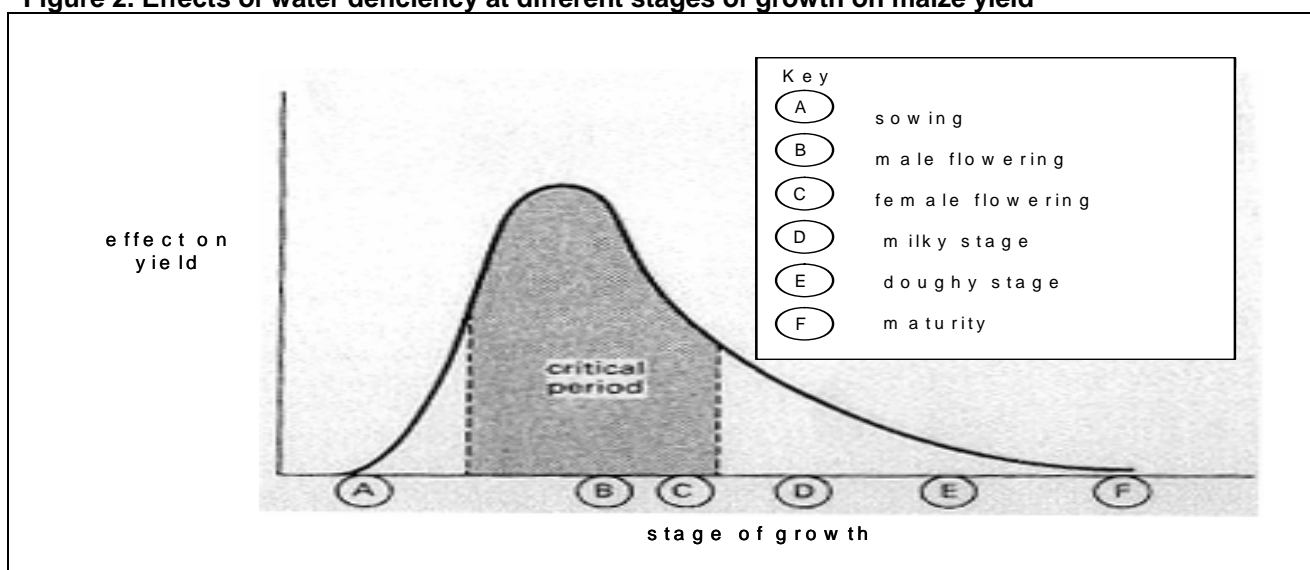
^{1/} Swaziland National Land – State Land.

Although early rains in August in parts of the country prompted some early planting, mission interviews with farmers indicate that the late start to the rainy season in 2006 affected many farmers. Land preparation was severely constrained by dry soils at normal planting time. Most farmers began planting late towards mid to end of November and continued planting through December to take advantage of the good rains. Government authorities have been encouraging the production of crops more tolerant to drought than maize and the use of irrigation wherever feasible. Very few substitution of sorghum for maize was observed by the Mission. There is some movement of subsistence maize farmers towards formation of associations of irrigated sugar cane producers. The Mission observed irrigated maize on some of these fields earmarked for sugar cane production, but total land on these new schemes is still limited.

3.4 Yields

Several studies have shown that maize is particularly sensitive to a shortage of water 30 to 40 days either side of flowering. This stage of the plant's growth is known as the critical period (Figure 2). Water stress at this stage reduces yield of crop by 40 to 80 percent. A vigorous growing maize plant requires about 2-3 litres of water per day during peak growing period or an average consumptive use of water varies from 2.5 to 4.3 mm/day.

Figure 2. Effects of water deficiency at different stages of growth on maize yield⁸



The pre harvest yield forecasts in 2006/07 for each agro-ecological zone are presented in Table 5. The yield estimates were derived from a sample of over 100 households interviewed, focus group discussions, consultation with extension workers of all the RDAs of the four regions and NGOs. Also, visual observations during transect journeys and crop cuts from sample areas were used to estimate the crop yields. In addition, physical examination of the maize crop stands in field and the condition of stalked crops in the fields after harvesting were assessed.

Table 5. Swaziland: Estimated area, yield and production of maize in 2006/07, by agro-ecological zone

Zone	Planted area (ha)	Yield* (tonne/ha)	Production (tonnes)
Total SNL^{1/}	47 409	0.5	23 670
Highveld	14 681	0.86	12 623
Middleveld	16 646	0.49	8 206
Lowveld	13 331	0.11	1 475
Lubombo Plateau	2 751	0.49	1 366
TDL^{2/}	1 000	2.50	2 500
Swaziland	48 409		26 170

*Yields are Mission estimates.

^{1/} Swaziland National Land – State Land.

^{2/} Title-Deed Land – Commercial farmers' land (Mission estimates).

The Mission also had a chance to discuss a yield forecast made by the agro-meteorological department of the National Meteorological Services (NMS). The forecast is based on Water Requirement Satisfaction Index (WRSI) and was designed as a preliminary indication of potential yield, based on agro-meteorological information. Estimates based on the index indicated a 31 percent decline in maize production. The Mission used data that combined farmer interviews, historical yields and current agro-climatic information to estimate yields for each zone; the findings were well below the figures indicated by the WRSI.

Title-Deed Land:

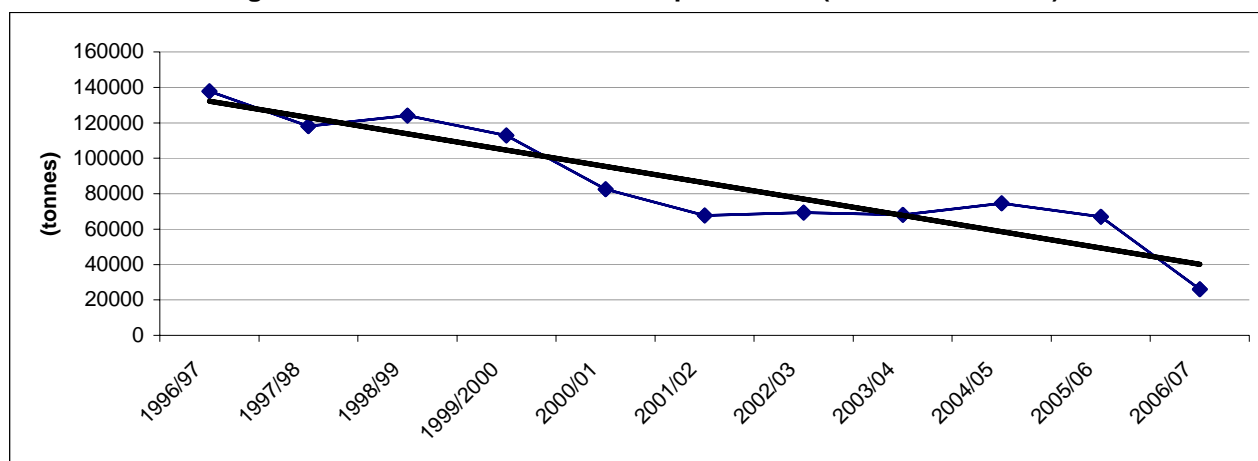
Private commercial farms on Title Deed Land (TDL) are producing maize on an estimated land area of about 1 000 ha using high levels of inputs. Normally, average yields vary from 5 – 8 t/ha depending on the performance of the season. Mission interviews with some TDL farmers, including those who use supplementary irrigation, indicated that the dry spell in January through March has had serious damage on their maize crop and estimated that the average yield for this sector will not be more than 2.5 t/ha. Accordingly, it is expected that this sector will contribute about 2 500 tonnes of maize to the 2006/07 national figure.

⁸ Guy Rouanet (1987), MAIZE - The Tropical Agriculturalist, TCTA. MACMILLAN Publishers Ltd. London and Basingstoke.

3.5 Overall production

Trends in maize production over the past eleven years are shown in Figure 3 below. It is quite evident that maize production in Swaziland is on a long-term decline as indicated by the trend line. Fluctuations around the trend reflect poor or relatively good years but the overall trend is downward. Several factors may be contributing to the overall decline including the erratic weather, impact of HIV/AIDS, and decline in the use of improved agricultural practices and inputs.

Figure 3. Swaziland: trend in maize production (1996/97 – 2006/07)



Source: Central Statistics Office (CSO) and National Early Warning Unit (NEWU).

Table 6 shows annual maize production from 2001/02 to 2005/06. In 2006/07, maize production, including TDL production, is estimated at a well below average level of 26 170 tonnes. At this level, production is a bit more than a third of the five-year average. The decline is registered across all agro-ecological zones. Unusually low yields in the Highveld and the Middleveld were the major contributing factors to the 2006/07 drastic production decline.

Table 6. Swaziland: Total maize production (tonnes) in 2006/07 compared to five year average^{1/}

Agro-ecological Zones	2001/02	2002/03	2003/04	2004/05	2005/06	5-year average	2006/07	percent of average
Highveld	25 567	22 078	33 367	30 058	27 058	27 625	13 123	48
Middleveld	24 693	32 722	26 537	32 629	28 629	29 042	10 206	35
Lowveld	14 545	9 462	7 128	7 642	7 528	9 261	1 475	16
Lubombo Plateau	2 834	5 011	1 055	4 211	3 911	3 404	1 366	40
Swaziland	67 639	69 273	68 087	74 540	67 127	69 332	26 170	38

Source: Area estimates by CSO; Mission estimates of yield for 2006/07.

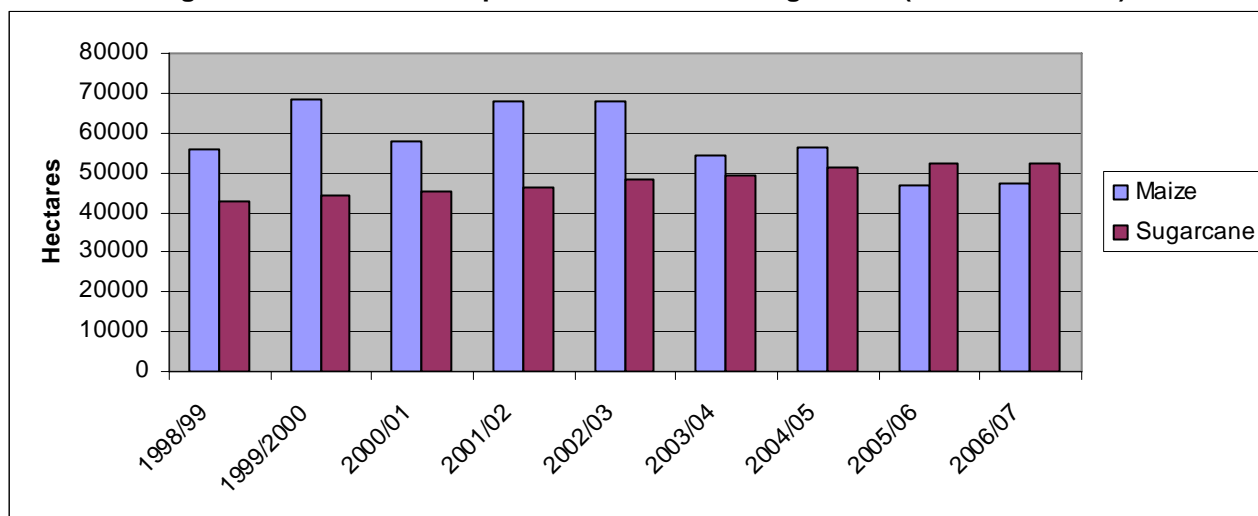
^{1/} The TDL production is included in the Highveld and Middleveld production figures.

No significant diseases or pests occurred, except mild stock borer attack on maize. In the majority of these areas, no control measures were taken due to the drought which had already damaged the crop. The presence of invasive weed especially on the grazing lands, on farmlands and boundary areas was increasing.

3.6 Other crops

In recent years the land and inputs allocated to sugar cane production have shown a slow and steady increase, whereas the area planted to maize has shown a decline (Figure 4). The Government of Swaziland has encouraged sugar cane production on irrigated TDL in order to improve its foreign exchange earnings through exports of sugar-based products. Meanwhile the production of maize remains mostly on non-irrigated.

Figure 4. Swaziland: area planted to maize and sugar cane (1998/99–2006/07)



Source: CSO and Swaziland Sugar Association.

In 1992/93 area under cane was at 37 384 ha and had increased in 2005/6 to 52196 ha. In line with the increase in area under cane, cane production in the industry increased from 3.9 million tonnes to 5.2 million tonnes respectively. It must be noted that the increase in area under cane (and cane production) has coincided with the increase in the entry of smallholder sugarcane farmers in the industry.

Presently, the industry has about 500 small-scale sugarcane growers, which were virtually non-existent in the early 1990s. Cane yields have remained high, with an average of 99.52 tonnes of cane per area harvested, over the same period. Sucrose content has also improved from 13.95 percent in the first ten years (1992/3 to 2001/02) of the period reviewed, to 14.3 percent in the last 5 years (2002/3 to 2005/6). Projections for the 2006/7 season reflect a total cane production of 5.01 million tonnes from an area planted of 52 220 ha. The cane yield is expected to be at 98.6 tonnes of cane per area harvested. Sucrose content is projected to be at 14.44 percent.

3.7 Livestock situation

Livestock play an important role in the production system and the livelihoods of smallholders. Cattle population is the largest but a large proportion of the households interviewed own goats and other back yard stock such as chicken and ducks. The number of livestock has been declining in recent years from a contraction of the country's rangelands as a result of allocating more land for human settlements. The cattle population which comprises the largest component of the country's livestock industry fell to 522 260 in 2002 from a revised figure of 588 288 in 2000 – a drop of 11 percent.

The condition of pastures and livestock across the country had begun to deteriorate with successive years of low rainfall. In 2006/07, cattle condition was reported to be generally unfavourable during January/March due to scarcity of water and pasture. At the time of the Mission, livestock conditions were generally stable due to the good rainfall received in April 2007. Livestock prices, although stable, may start to decline with increased sales to buy grain.

4. FOOD SUPPLY AND DEMAND SITUATION

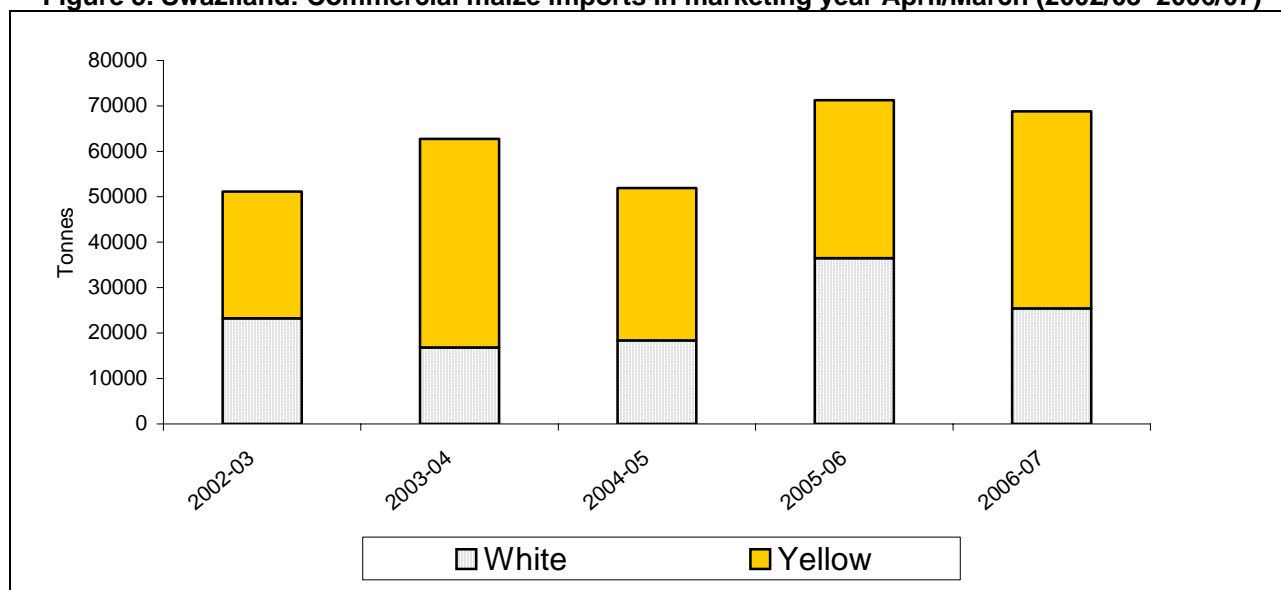
4.1 Current market situation

In a normal year, roughly 60 percent of the food consumed in the country is imported. Figure 5 indicates annual maize imports (both white and yellow maize) as recorded by the National Agricultural Marketing Board (Namboard).⁹ The direct convertibility of the Lilangeni into the South African Rand means that availability of foreign exchange is not a constraint to commercial imports from South Africa. Commercial food imports appear to have been quite responsive to the fluctuations and general downward trend in national

⁹ The National Agricultural Marketing Board (Namboard) is a government authority whose main function is to control the quantity imported of selected agricultural products through the issuing of permits.

production. However, the impact of erratic weather in recent years combined with declining off-farm incomes, remittances and the impact of HIV/AIDS have rendered large number of households dependent on food assistance.

Figure 5. Swaziland: Commercial maize imports in marketing year April/March (2002/03–2006/07)



Source: National Agricultural Marketing Board and National Maize Corporation

In normal production years, about 10 percent of domestic maize is marketed, mostly through the National Maize Corporation (NMC) and Ngwane Mills. NMC, a parastatal entity established in 1985, acts as a buyer of last resort for domestic production. However, NMC local purchases in the last decade averaged at about 8 000 tonnes (Table 7).

Table 7. Swaziland: Local Maize procurement by NMC 1998/99-2005/06 in tonnes

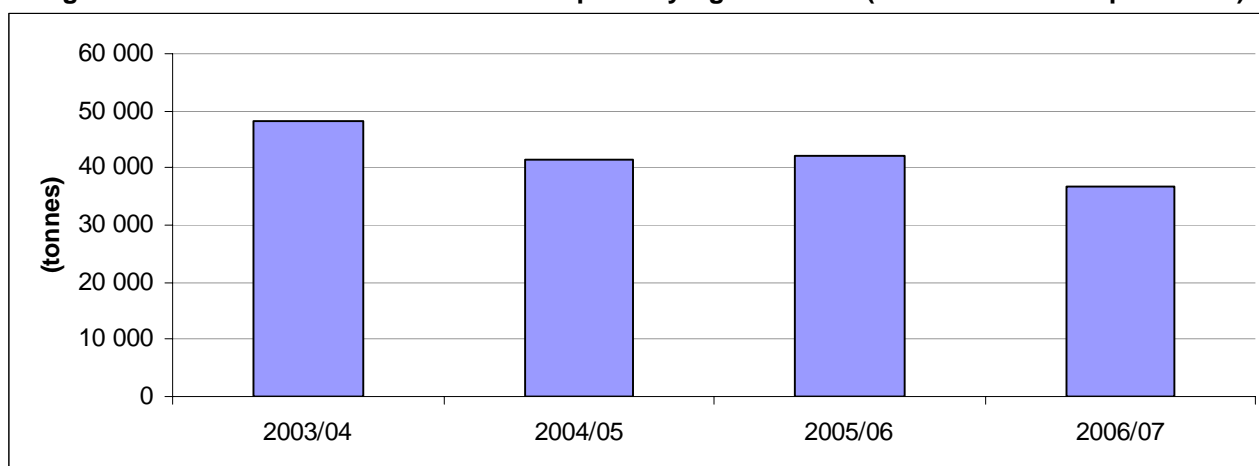
	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
Local Purchase	9 645	7 123	5 969	5 449	7 447	7 507	18 216	8 554

Source: National Maize Corporation.

The dual role of NMC as the an importer as well as the competitor in the domestic market gives it an unfair advantage over its competitors, thus creating market imperfections that distort producer and consumer incentives. It sells the imported maize to millers (two main ones control about 90 percent of the domestic maize flour market) at a price it determines, while the millers in turn determine the prices to charge consumers for maize meal. Maize meal prices tend to be on the high side for poor households which, therefore, have difficulties accessing adequate supplies.

Markets for imported wheat and rice have risen in recent years. Imports of wheat have risen to more than half of the level of imports of maize. Figure 6 indicates wheat imports by Ngwane Mills alone. Another growing cereal import is rice, with average annual import levels of about 15 000 tonnes in the last few years.

Figure 6. Swaziland: Commercial wheat imports by Ngwane Mills (2003/04–2006/07 April/March)



Source: Ngwane Mills.

The average annual inflation rate increased by 0.5 percent in 2006 to register 5.3 percent from 4.8 percent the previous year. The consumer price index, rose 6 percent year-on-year in February 2007. This is a 1.1 percentage point increase on the Corresponding annual rate in January 2007 which was 4.9 percent. Main contributors were “food” and “education” indices. Food accounts for about 25 percent of the consumer basket and remains a key factor in the movement of the overall index. Food inflation registered 13.5 percent in February from 12.8 percent in January. Rising oil and food prices coupled with weakening exchange rates may result in further rises in inflation in 2007. For instance, the price of maize has risen from E1 250 (US\$169) per tonne in January to E2 300 in April 2007, an almost 90 percent increase.

4.2 Cereal supply/demand balance, 2007/08 (April/March)

The forecast of the cereal supply/demand situation for the marketing year 2007/08 (April/March) in Table 8 is based on the following estimates, assumptions and Mission observations:

- Government and millers’ opening stock figures were provided by the National Agricultural Marketing Board, National Maize Corporation, and Ngwane Mills.
- The closing stocks are based on two weeks of maize requirements, and one month each for rice and wheat.
- Mid-marketing year 2007/08 population is estimated at 1 179 285,
- Per capita consumption is estimated to be 90 kg for maize, 36 kg for wheat and 11 kg for rice. These respective apparent consumption rates are based on trends in production and imports (as shown above).
- Feed, use, estimated at 33 000 tonnes, is based on the average of yellow maize imports in recent years (see figure 5)
- Post harvest losses and seed use are estimated at 6 percent for maize. Virtually all wheat and rice is imported.

Based on the above parameters, total cereal utilization for the marketing year 2007/08 (April/March) is estimated at about 207 400 tonnes against a domestic availability of 33 600 tonnes. This leaves an import requirement of about 173 800 tonnes, of which total commercial imports are forecast at 129 000 tonnes. With WFP stock and pipeline inventory estimated at 4 800 tonnes (grain equivalent), the uncovered gap, for which government and donor contributions are required, is estimated at about 40 000 tonnes.

Table 8. Swaziland: Cereal supply/demand balance for 2007/08, April/March ('000 tonnes)

	Maize	Wheat	Rice	Total
Domestic availability	28.6	4.5	0.5	33.6
Opening stock	2.6	4.5	0.5	7.6
Domestic production	26.0	0.0	0.0	26.0
Total utilization	147.4	46.5	13.5	207.4
Food use	106.3	42.6	12.9	161.8
Feed	33.0	0.0	0.0	33.0
Seed use and losses	2.4	0.0	0.0	2.4
Closing stock	5.7	3.9	0.6	10.2
Import requirements	118.8	42.0	13.0	173.8
Anticipated commercial imports	74.0	42.0	13.0	129.0
WFP stock and pipeline	4.8	0.0	0.0	4.8
Uncovered deficit	40.0	0.0	0.0	40.0

Access to food remains financially difficult for certain segments of the population. High unemployment and inflation rates, coupled with the impact of HIV/AIDS, all mean that certain segments of the population do not have the purchasing power to access food on the market.

5. HOUSEHOLD FOOD SECURITY AND VULNERABILITY ANALYSIS

5.1 Main factors determining rural food security in Swaziland

Almost 80 percent¹⁰ of the Swazi population is rural-based with livelihoods predominantly dependent on subsistence farming and/or livestock herding. Over the past years, multiple interrelated factors such as small fragmented landholdings and minimal access to agricultural inputs, reduced employment opportunities, market inefficiencies and high HIV/AIDS prevalence have contributed to chronic food insecurity and gradually weakening livelihoods. In addition, the agricultural system is dominated by a single crop –maize combined with extensive dependence on rain fed agriculture which increases households' vulnerability to erratic weather. Minimal shocks to agriculture therefore have a profound impact on the ability of rural households, especially the chronically poor to maintain their food security. Thus the estimated 60 percent reduction of the 2006/2007 agricultural season will have a dual impact on these households: On the one hand reliance on own production is compromised; on the other hand increased market purchases are required at a time of increasing prices and reduced labour opportunities. In 2006, a year enjoying a relatively good harvest, the VAC estimated that 21 percent of the population is food insecure while 69 percent were below the poverty line.

5.2 Method of assessment

WFP's role in the CFSAM was to assess the impact of the crop failure in the 2006/2007 farming season on the food security and vulnerability status of the population. The mission drew on the most recent primary and secondary data available. The former included a 5-day field visit where household surveys¹¹, key informant interviews with extension workers, farmers, traders, and public health workers as well as focus group discussions with community members were conducted. Fieldwork was carried out in collaboration with government and NGO staff¹².

Household questionnaires used to interview farming households were designed to examine the effect of the drought on: household food production, the availability and use of agricultural inputs, household livelihoods, level of cereal stocks, productive assets and market activities. Community focus group interviews provided contextual understanding of livelihood patterns of various socio-economic groups and their current and expected household responses to the drought. A broad range of key informant interviews provided information regarding health and markets and allowed the verification and generalization of household farming interviews. Secondary data reviewed included: Swaziland Vulnerability Assessment (VAC 2006) and

¹⁰ Central Statistics Office, Housing and Population estimation projections.

¹¹ The mission conducted 115 household surveys, 52 key informant interviews and 15 focus group interviews.

¹² Staff from Ministry of Agriculture, Central Statistics Office, National Disaster Task Force, World Vision, FAO and WFP participated in the fieldwork.

a Peri-Urban Livelihood Based Food Security study (2006). The mission found that some of the official statistics were outdated¹³.

The results of the 8th round of the Community and Household Surveillance Survey conducted by WFP in March 2007 provided detailed livelihood and food security information on households in Lubombo and Shiselweni regions.

5.3 Livelihood strategies and food security status

5.3.1 Livelihood patterns

Swaziland is comprised of four agro-ecological zones (Highveld, Middleveld, Lowveld and Lubombo Plateau) and nine livelihood zones (defined by types of crops produced, susceptibility to various shocks, and economic activity¹⁴). Though clearly livelihood patterns vary across the zones, commonalities across all zones are shared by economic groups.

There exists a mutually dependent relationship between the poorer households and those relatively better off. When the harvest is good, the poorer households fare better, as their agricultural labour is more in demand, and they earn food and or cash through informal employment performed for more productive farmers. Such activities would include weeding, cultivating and harvesting lands of more productive farmers. Cereal stocks tend to deplete within one to three months after harvest depending on the livelihood zone, and typically cope for the remainder of the year through market purchases from additional income earned through petty trade in commodities such as firewood, vegetables, and sale of handicrafts. Reliance on the market leaves these households vulnerable to market price fluctuations. Furthermore the most vulnerable, labour constrained households rely on neighbours and community members rather on the market for cereal purchases at higher cost. Other income transfers include government pension schemes for the elderly and remittances. Food assistance is widely received, approximately a quarter¹⁵ of the rural population are recipients of food aid. Gift receipts and other community support play an important role in their ability to cope particularly during the lean season.

Households described as moderately well off own more productive assets, have more stable income flows and access to fertilizers, improved seeds and labour. This results in the realization of higher yields in their overall agricultural production. In addition these households engage in formal and/or seasonal employment including sugar cane plantations, timber industry, as well as in citrus and other commercial enterprises, and typically also sell a range of livestock including poultry, goats and cattle. These households will usually retain more than 6 months of cereal stock and sell off some of their agricultural produce in order to purchase essential non-food items and to avoid spoilage or loss due to inadequate storage facilities. Their cereal requirements are then met through market purchases later in the year as the lean season approaches and when their stocks are depleted. Because these households produce more for their own consumption relative to the poorer households, the direct impact of the drought is more severe, particularly for those who borrowed heavily to purchase agricultural inputs.

Relatively better off households tend to have more diversified and more stable income strategies with members in formal employment in industries, in government as civil servants and/or are owners of business enterprises such as groceries and butcheries. Maize production and the sale of livestock (goats and cattle) further supplement the household income flows which can generally be described as stable. Cereal stocks are retained throughout the lean season. Although employment in the South African gold mines has reduced¹⁶ remittances from migrant workers remain an important source of income for them as well as for all socio economic groups.

¹³ The Central Statistics Office is currently conducting a Population and Housing Census, as well as a labour force survey and a demographic and health survey. These were currently in various stages of finalization. Census and population projections used in this report are based on 2001 estimates.

¹⁴ The only livelihood zone that is not dependent on agro economic zones is the peri-urban corridor where non-food production, and other economic factors dominate.

¹⁵ SVAC 2006.

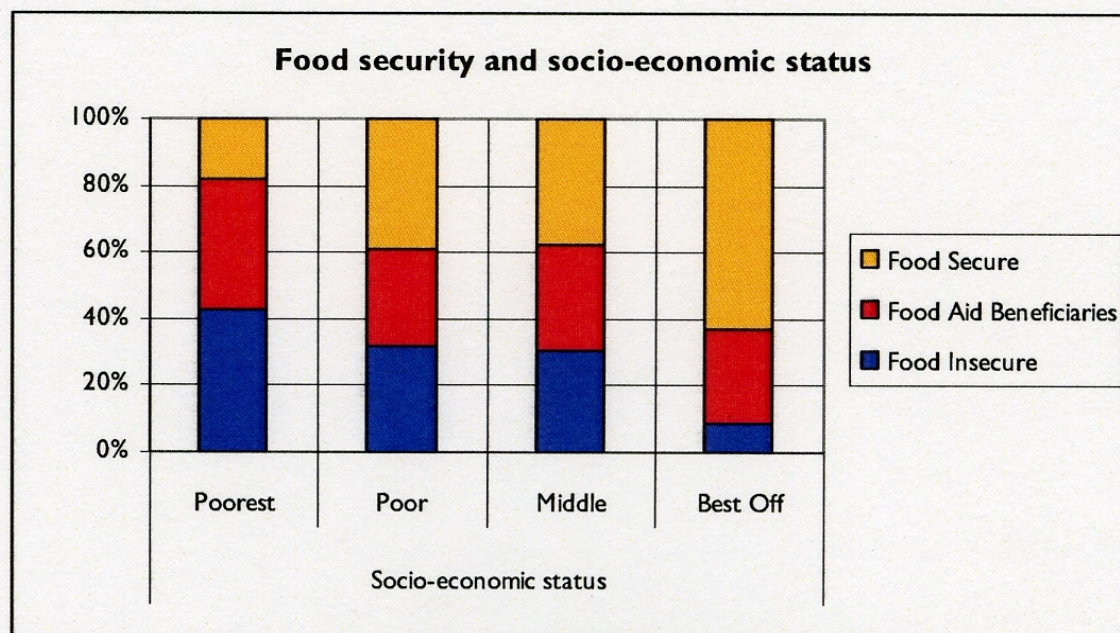
¹⁶ Remittances in the past decade have reduced significantly due to decline in gold mining in South Africa, EIU 2006.

According to WFP’s Community Household Surveillance (CHS) food security monitoring system¹⁷ food production represents the primary livelihood activity, either for subsistence or for cash, for approximately 15 percent of rural households, with a further 8 percent who engage in casual labour and 9 percent on petty trade or small business. On average, the primary livelihood activity accounts for about 70 percent of a household’s income. Formal employment is the primary source of income for only 8 percent of the households. Unsustainable and non self reliant transfers such as food aid, gifts, begging and remittances is the predominant livelihood for over half the rural households interviewed.

5.3.2 Food security and poverty

The SVAC estimate of 21 percent food insecure households is based on an approach that measures a household’s capacity to access adequate food (purchasing power), dietary diversity and production levels. Lubombo region has the highest share of food insecure households. Of the poor, approximately 40 percent were not accessing sufficient food, with a further 40 percent who were receiving food aid. The assessment further found a strong relationship between food insecurity and poverty, although a smaller share of food insecure households can also be found in the better off category. The graph below illustrates that food assistance reaches a higher share of the poorest household but is otherwise distributed almost equally amongst all other socio-economic groups, suggesting that more rigorous targeting systems may be required.

Figure 7. Swaziland: Distribution of food insecurity by socio economic group



Source: Swaziland Vulnerability Assessment, SVAC 2006

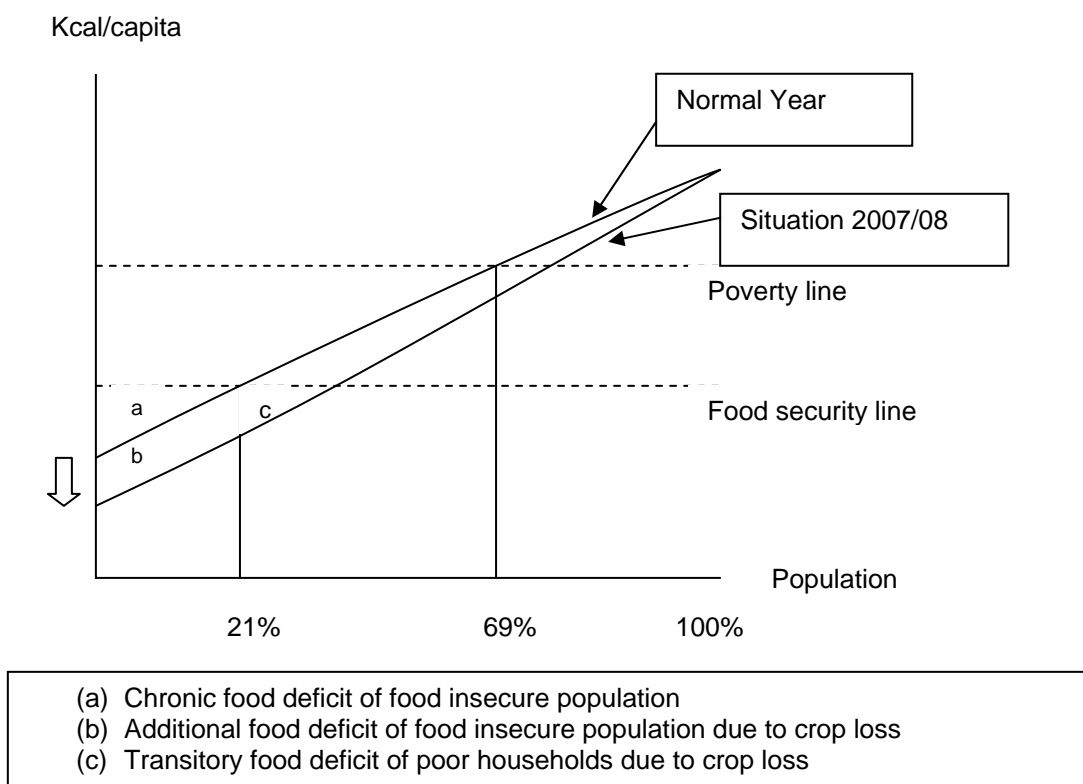
5.4 Current food security situation and outlook

Food insecurity may last a relatively short period of time (transitory) affecting households who normally are food secure, or may be maintained over a relatively long period (chronic). Figure 8 illustrates the relationship between the chronic situation in a normal year, and the effects of the current drought. The period before the harvest, lasting from around December to March referred to as the “lean season”, is generally one during which households struggle to meet their food needs. In Swaziland, this cyclical pattern of food shortages during these months repeatedly affects the poorest households and is thus chronic in nature. This chronically food insecure population estimated at 21 percent (SVAC 2006) are represented by area “a” in the figure. However, given the extent of the production loss in the 2006/2007 agricultural season, the “food and resource gap” of these chronically food insecure households will be larger than normal. The impact of the

¹⁷ Since 2003 WFP has been implementing the CHS system to measure food assistance programme impact and to monitor food security food security trends. The data is collected twice yearly, at the start of the harvest season, and just prior to the lean season in the Shiselweni and Lubombo regions. The sample comprises of 50 percent beneficiary households and 50 percent non beneficiary households for comparison purposes and doesn’t necessarily reflect the beneficiary, non beneficiary composition of the general population.

drought on this population group is expressed in the figure as area “b”. Moreover, some poor households that in normal year’s can make ends meet will this year face a period of “transitory food insecurity”. These are farming households who typically produce sufficient food and income but are now facing the prospect of their stocks depleting earlier than usual without having the means to meet the food needs from other sources (such as savings or increased income earnings). The assistance needs of this group of transitory food insecure households is illustrated by area “c”.

Figure 8. Swaziland: Impact of drought on chronically and transitory food insecure households



Source: SVAC 2006 estimated 21 percent of the population as food insecure, The Survey of Income and Household Expenditure, 2001 CSO estimated that 69 percent of the population was poor.

Field observations at the time of harvest confirmed that the poorest households currently have either no cereals in stock or only enough to last a month. Those relying on casual labour will experience reduced opportunities as their better off neighbours themselves face up to the impact of the dry spell. The increasing maize price caused by cereal supply shortages is likely to compound the problem of accessing any available food in the coming months and throughout the remainder of the consumption season until the 2008 harvest. Increasing maize prices will also result in unfavourable terms of trade in the exchange of labour against food; daily labour will buy a reduced quantity of maize.

Better off farming households generally have more than 6 months of stock, and will deplete their stocks within 3 to 4 months. While some maize is generally reserved for sales to allow purchase of essential non-food items, these households are reporting that they will retain all their stocks which will further reduce the overall supply of food available in the markets. Although no indications of an acute deterioration of the food security situation at the time of the field visit, it should be noted that the mission was fielded at harvest time and thus the situation is likely to deteriorate as the full impact of the crop shortages and the associate market price increases set in. Maize flour price increases of about 20 percent were already observed in the field. Moreover there were early indications of rising reliance on negative coping strategies observed and confirmed through CHS data.

5.4.1 Coping

Coping strategies refer to the specific behaviour changes employed by households in an effort to tolerate, reduce, or minimize the impact of shocks on their livelihoods. Clearly, the range of options available to a given household depends on the resources available to them. With the current crop loss, some evidence of more severe coping strategies was already observed. For example, livestock sales to purchase food during the harvest season are generally rare. Last year at this time, less than 8 percent of households reported selling livestock for food while this year it has increased to 14 percent. Some households owning livestock indicated to the mission that they intended to sell some of their livestock not only for food purchases but to pay for school fees and associated educational costs to compensate for reduced income from crop sales. Although there is evidence of some livestock sales, the market prices for livestock at present appear stable.

When faced with an income deficit, it is not uncommon for Swazi households, especially the poorest, to pull children out of school for a period of time. The mission interviewed households across the social spectrum and while none reported having taken this step as yet, several indicated they would do so if their food security situation continued to deteriorate. It was reported that in the previous year, some households had removed children from school to work for food or cash.

Table 9. Swaziland: Comparison of coping strategies

Coping Strategies	March 2006 (%)	March 2007 (%)
Sell assets for food	7.6	13.9
Limit portions	64.1	63.9
Reduce meals	61.3	58.7
Skip entire day	24.6	36.1
Consume Green crop	7.2	22.2
Adults eat less	52.8	54.1
Labor for food	31.2	37.3
Consume more than usual amount of wild foods	26.6	32.5
Credit	24.3	22.8

Source: Community Household Survey (CHS) WFP, March 2006, March 2007

Table 9 above provides a comparison between March 2006 and March 2007 in typical coping mechanisms adopted by households. Although some early indications of strain are evident severe distress strategies are not yet being widely used. This is likely to change over the coming months.

5.5 Health and nutritional status

There is no nutrition surveillance system in place in Swaziland. However, nutrition data were collected as part of the 2006 VAC assessment. The results indicated high levels of stunting but relatively low levels of wasting. These results were similar to the MICS survey in 2000. The results of the CHS survey in March 2007 showed evidence of an increase in wasting levels¹⁸, an early nutritional indicator in both Lubombo and Shiselweni. This is confirmed by reports from rural health centre staff of a rise in the numbers of malnourished children admitted to clinics. mission from rural health centre staff.

Table 10. Swaziland: Comparison of nutritional status 2006 – 2007

Region	Percent stunted		Percent underweight		Percent wasted	
	2006 (VAC)	2007 (CHS)	2006 (VAC)	2007 (CHS)	2006 (VAC)	2007 (CHS)
Lubombo	29.3%	28.5%	11.0%	9.8%	1.0%	3.6%
Shiselweni	31.3%	22.8%	9.1%	15.8%	1.0%	1.8%
Hhoho	28.1%		8.0%		2.7%	
Manzini	31.3%		8.4%		1.6%	

The clinics and communities also reported an increase in the number of diarrhoea and scabies cases since the start of the year. In some areas, the diarrhoea cases reported to the clinic since the start of the year have been equivalent to those recorded for the whole of the previous year. The mission observed the levels of water in rivers and dams as being unseasonably low for this time of year and this has negatively impacted on both availability and quality of water for domestic purposes. The outlook for the coming months suggests

¹⁸ It is acknowledged that the VAC and CHS are not entirely comparable though it may provide some indications.

further deterioration in both supply and quality of water, with an expected increase in the incidence of water borne diseases and consequent negative impact on the ability of the body to effectively utilize food. The groups likely to be hardest hit by this are young children (0-5 years) and people with compromised immune systems and/or suffering from TB.

With a prevalence rate of 42.6¹⁹ percent Swaziland leads the Southern Africa region in a HIV/AIDS pandemic that is characterized by high levels of morbidity and mortality as well as an increased number of orphans. Persons living with HIV have higher than normal nutritional requirements: up to 50 percent additional protein and up to 15 percent additional calories. For the poorest, the present livelihood failure means that the chronically ill among them are at even greater risk of malnutrition. Malnutrition shortens the a-symptomatic period of HIV infection, hastening the onset of AIDS and ultimately death, and possibly also increases the risk of HIV transmission from mothers to child.

There were some reports from clinics and communities that individuals receiving Anti Retroviral Therapy and TB medication have begun to default on their treatment regime due to inadequate access to food. In a number of areas, NGOs have been encouraging households with chronically ill members to start vegetable gardens that supplement their diet while also providing income generation opportunities. These gardens have however been destroyed by the dry conditions, further limiting the opportunities for diet diversification among these households.

5.6 Estimation of emergency food requirements

This year's estimated small farmer maize production in Swaziland is 68 percent below normal production levels, a serious shock for poor households whose livelihood predominantly depends on crop production. However, most rural households in Swaziland have also other sources of income. Thus, to estimate the impact of the production shortfall three factors are of particular importance: first, regionally specific crop loss figures; second, the degree of self-reliance in crop production; and third, the share of poor households.

Table 11. Swaziland: Socio-economic status and crop loss by region

Region	Total Population	Chronically food insecure ^{1/} (%)	Below Poverty line ^{2/} (%)	Crop self reliance normal year ^{3/} (%)	Crop loss compared to normal year ^{4/} (%)
Hhoho	323 255	21	61	38	67
Manzini	358 360	18	70	40	64
Shiselweni	244 337	16	76	66	79
Lubombo	237 356	30	73	28	69
Total	1 163 308	21	69	42	68

1/ Source: Regional food insecurity percentage breakdown of Vulnerability Assessment Report SVAC 2006, figure page 35.

2/ Source: Household Income and Expenditure Survey, 2001 CSO.

3/ Source: FAO CFSAM estimates of crop production and per capital cereal utilization.

4/ Source: FAO CFSAM crop estimates for SNL only.

As illustrated in figure 8, it is useful to distinguish chronically and transitory food insecure households when estimating the impact of this year's production loss. For the 21 percent chronically food insecure households the existing programme assistance should be complemented by additional assistance for approximately three months to buffer the increased hardship faced. While the on-going programme assistance is mainly provided in form of school feeding and assistance to vulnerable groups such as orphans and HIV/AIDS victims, the three months additional rations should be provided to households largely in the form of food for asset programmes and targeted transfers to vulnerable groups.

To estimate the number of poor households that now have fallen below the food insecurity line, a scoring model has been applied based on calculating a simple product of the three variables "crop loss", "crop reliance" and "share of poor but not chronically food insecure households". The resulting scores for the four regions are as follows: Hhoho = 0.10; Manzini = 0.13; Shiselweni = 0.31; Lubombo = 0.08²⁰. This calculation

¹⁹ Sentinel Survey, Ministry of Health, 2005.

²⁰ The product of "crop reliance" and "crop loss" describes the impact of drought conditions on the household budget. Farmer households that are self-sufficient in terms of crop production (=100% crop reliance) and who suffer a crop loss of 100% would lose all current income and require 100% assistance, if they are poor and do not have reserves or are other means to cope. To capture a household's coping capacity the third factor "below poverty line" is included in the score. Given the approximate nature of the method the resulting scores were rounded to the next decimal, i.e. either 10% or 30%.

is in line with field estimates which suggest that a segment of additional 10-15 percent of the population²¹ would not be able to access sufficient food due to production loss compounded with increased food prices. Self-reliant households who normally manage to access sufficient food would likely face temporary food shortages, and would require assistance for a shorter period of time. A five-month assistance period for these transitory food insecure households should be sufficient to cover the food gap and help them to protect their livelihood assets. The distribution of people requiring assistance by region is presented in Table 12.

Table 12. Swaziland: Estimated assistance needs (2007/08)

Region	Total Population in Need	Total Food Requirements (tonnes)
Hhoho	100 000	10 500
Manzini	100 000	10 300
Shiselweni	112 000	9 300
Lubombo	95 000	10 400
Total	407 000	40 500

Currently WFP and the Government are providing food assistance to approximately 182 000 and 100 000 people respectively. The total transfers amount to 27 000 tonnes per annum. According to first indications the Government would aim to increase its own assistance so that the following burden sharing in terms of beneficiary and tonnage figures would emerge: Government 15 600 tonnes for 157 000 people; external assistance 24 900 tonnes for 250 000 people.

At the time of writing, the SVAC is fielding an assessment mission, with a report expected at the end of June. This should be used to refine programme of assistance needs and inform more accurate geographic targeting of the most affected areas and vulnerable groups.

5.7 Possible strategies for food assistance

The mission recommends that current programmes (Government and WFP) be expanded to absorb households affected by the current drought. Food assistance to affected populations implemented under the following modalities are proposed:

- Targeted relief food to vulnerable households in affected areas. This includes households with little or no productive land unable to engage in wage earning activities.
- Food for asset creation (FFA) to avert affected farming households from engaging in actions that would be irreversibly detrimental to their livelihoods. Food in exchange for building community assets can assist the most affected population to meet their short-term food needs and re-establish their livelihoods while progressively improving their ability to resist future shock.

5.7.1 Vulnerable groups

Affected labour constrained households are unable to produce sufficient food to meet their food requirements and will be stretching already scarce resources to access food. With reduced overall availability of food and market prices steadily rising, options normally adopted such as reliance on charity from community members will be severely limited. As appropriate food transfers should include nutritional supplements for pregnant and lactating mothers as well as for HIV/AIDS patients receiving ARV treatment. Orphans and vulnerable children remain one of the most important groups to be targeted for continued assistance, which should be channelled through NERCHA's. The mission recommends that these groups receive food assistance until the next harvest in March 2008.

5.7.2 Farming households

Given that many rural households face challenges to meet their food security needs, efforts should be made to link the short-term food interventions with longer-term developmental benefits. Food for asset (FFA) activities aimed at addressing underlying factors of chronic food insecurity should be targeted at able bodied, farming households whose current food security is compromised due to a significantly reduced crop production. Scope for labour-based creation of community productive assets and services such as such as water management schemes, dam construction and rangeland rehabilitation should be actively explored. Such activities should commence as soon as possible and be phased out as the planting season

²¹ It should be noted that field work was based on a qualitative assessment and results are not statistically representative.

approaches in October to allow farmers to prepare their own land for the following harvest. A shift towards targeted food assistance will be required²² as food for work is phased out, allowing continued food assistance, for a reduced caseload, while they work their land.

5.8 Non-food assistance

The mission noted that farming households recognize their need for technical assistance in agricultural techniques to assist them in improving their productivity. Subsistence farmers should be targeted for guidance and training on crop diversification and shifting towards more drought resistant crops. During the upcoming planting season, seeds will be required, and agricultural inputs such as fertilizers could be provided. In addition, the mission noted widespread request for provision of fences for growing of vegetable gardens as a strategy to compensate for income lost. There is possibility that FAO can incorporate this into their current assistance.

Given the importance of market purchases, and the likelihood of further increased prices, market based policy interventions may be required to stabilize food market prices. The VAC highlights, as a longer-term strategy, the important role markets can play in determining food security and recommends that food market policy, infrastructure and services should be developed.

Given the reduced availability of maize and already observed price hikes cash transfers are presently not seen as a suitable mechanism for ensuring household food security. However, depending on further developments at the maize market this option might be reconsidered during the upcoming assessments.

5.9 Markets

In surplus producing areas, generally in the Highveld areas, farmers sell their maize to the NMC at the regional centres, from which traders buy and redistribute to deficit areas in the Lowveld areas. In addition, more localized sales within the community through cash or exchange interactions take place. At present, the availability of grain locally is low and in some places non-existent as confirmed by millers who noted a decline in quantities milled compared to this time last year. Local markets have little or no maize grain available for sale, and distances of up to 30 km for households to purchase maize flour in the nearby towns were observed. The present observed price increases of 20 percent for maize flour is a reflection of the lowered levels of supply. Higher import prices and transport costs are putting additional up-ward pressure on maize prices, further reducing accessibility particularly for the poorest households. Households who have the greatest problems to access markets are forced to purchase from neighbours at even higher prices.

5.10 Scope for local purchase

WFP's procurement policy encourages support to local and regional markets and economies. Given the extent of crop failure and the high prices observed in Swaziland, local procurement does not appear to be an option. However, there may be some scope for regional purchase. This year, Malawi has had a bumper harvest with an estimated 1 million tonnes surplus of maize., Discussions are currently underway to investigate this possibility.

5.11 Information requirements - recommendations

The proposed interventions should be supported by additional more detailed information and localized studies. The following is recommended:

- The more in-depth assessment under the SVAC framework scheduled for June should help to refine the estimated population in need of assistance and to inform more effective targeting of the most affected households and vulnerable groups. Compared to the CFSAM mission which was fielded in early April the SVAC in June will be able to observe better the full impact of the drought.
- Early warning capacity in Swaziland is weak and has recently been discontinued. Efforts should be made to reinstate basic monitoring capacities with a focus on: rainfall and crop monitoring and surveillance of markets in terms of availability and prices for maize and labour. Moreover, it should be considered to extend the WFP-sponsored CHS system to the entire country and enhance Government ownership. The CHS monitors household level food intake and coping behaviour on a sentinel sites basis.

²² Calculations assume that one third of food-for-asset beneficiaries will require continued assistance beyond planting season and until the following harvest.