

SPECIAL REPORT

FAO/WFP CROP AND FOOD SUPPLY ASSESSMENT MISSION TO ZAMBIA

24 June 2005

Mission Highlights

- A series of dry spells during the 2004/05 growing season and early cessation of rains, especially in Southern and Western provinces, sharply reduced yields and production of cereals.
- Reduced availability and late delivery of inputs together with shortage of animal draught power were important factors adversely affecting performance of staple crops.
- The 2005 production of white maize is estimated at about 820 000 tonnes, 32 percent below last year's bumper crop and 12 percent lower than last ten years' average.
- Prospects for winter crop production (planted in June/July and harvested in November/December) are limited by dry weather conditions and low availability of seeds.
- Cereal import requirements for marketing year 2005/06 (May/April) are estimated at 269 000 tonnes in cereal equivalent. Commercial imports are projected at 222 000 tonnes, with a remaining deficit of 47 000 tonnes to be covered by Government and/or external assistance.
- The Zambia VAC estimates that approximately 185 000 people will require food or cash assistance starting from July 2005, with the numbers rising to about 1.2 million during the hunger period from January to March 2006. A total of 118 300 tonnes of maize (or equivalent cash transfer) will be needed to meet the deficits of the affected households throughout the season.

1. OVERVIEW

An FAO/WFP Crop and Food Supply Assessment Mission visited Zambia from 1 to 21 May in order to assess and forecast the 2005 harvest of the main cereal and root crops, and to estimate the country's cereal import requirements for the 2005/06 marketing year (May/April), including food aid needs.

The Mission benefited from the active participation, in the field, of the Ministry of Agriculture and Cooperatives (MACO) and USAID, and was also joined for one day by an EC observer. They also held useful discussions in Lusaka with MACO staff, the Central Statistics Office (CSO), the National Early Warning Unit (NEWU), the Vulnerability Assessment Committee (VAC), the Famine Early Warning System (FEWSNet), the National Food and Nutrition Commission, the Food Reserve Agency (FRA), the Zambia National Farmers' Union (ZNFU), the Millers' Association, Pannar Seed Limited, Zambia Seed Company Limited, SeedCo, Omnia fertilizer company, Zambia Leaf Tobacco, Dunavant Cotton, the Programme Against Malnutrition (PAM), CARE International, the Agricultural Consultative Forum (ACF) Secretariat, SIDA's Agricultural Support Programme (ASP), the World Bank, WHO, UNICEF, UNDP, UNHCR, ECHO, the Food Security Research Project of Michigan State University, Oxfam and the UK's Department for International Development (DfID).

In the field, the Mission interviewed Government officials at provincial, district, camp and block level, as well as farmers, householders and community leaders, and observed standing and harvested crops. Organized into four teams, they visited seven of the country's nine provinces (Copperbelt and Northwestern were omitted) and 30 of its 73 districts. The Mission collected secondary data from concerned agencies (principally MACO) and cross-checked these with information and impressions collected in the field through discussions with farmers, traders and other key informants.



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME



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This year's maize production is significantly lower than that of 2003/04, a consequence both of low rainfall amounts and poor rainfall distribution, and of a poor management response to the rainfall situation. Southern Province was worst affected, while Northern and Luapula Provinces (and, according to MACO, Copperbelt and Central Provinces) showed least yield reduction. Eastern, Central and Lusaka Provinces were intermediate between these extremes. The season was relatively free of crop pests and diseases. The national maize harvest is forecast to be 32 percent below that of last year and 12 percent below the country's 10-year average. The food gap in cereal equivalents is expected to be 269 000 tonnes, of which 222 000 tonnes are expected to be imported commercially. Current dry conditions are expected to limit winter crop production in many parts of the country.

Cash crop production has also been set back by this year's poor rainfall, with lower yields and poorer quality of cotton and tobacco. Groundnuts have done particularly badly where the rains stopped early.

With unusually dry conditions in Western and Southern Provinces, the feed and water outlook for cattle is not encouraging. Cattle, the numbers of which fell dramatically in 2001, continue to suffer from contagious bovine pleuro-pneumonia (CBPP) and Corridor Disease (East Coast Fever), though control of the latter appears to be improving. Foot-and-mouth disease is present in Southern Province. Current dry conditions are expected to increase the spread by the last quarter of this year, amongst cattle and possibly amongst humans, of anthrax, which is already present in Western Province. Poultry production continues to be severely hampered by Newcastle Disease, and pig production by African Swine Fever.

Access to food will be a serious problem for many poor households, especially in the Southern and Western provinces. HIV/AIDS is compounding the effect of lower crop production by reducing the ability of households to earn incomes and by increasing expenditures on health services. The number of orphans is reaching alarming levels, and is stretching the ability of communities to provide for these children.

The Zambia VAC estimates that approximately 1 233 000 people will be unable to face their minimum dietary requirements during the 2005/06 marketing season. Approximately 185 000 will require food or cash assistance starting from July, and the numbers could rise to just over 1.2 million in the hunger period from January to March 2006. A total of 118 300 tonnes of maize (or equivalent cash transfer) will be needed to meet the deficits of affected households throughout the season.

2. SOCIO-ECONOMIC SITUATION

2.1 Macro-economic situation

According to the 2004 Human Development Report of the United Nations Development Programme, Zambia is ranked 164th out of 177 countries in the human development index, with about 64 percent of the population living below the poverty line of one US\$ a day. Between 1975 and 1995 Zambia's per capita income fell by 60 percent due to the crisis of the metal mining sector and, despite the positive growth in the last ten years, it remains very low at only US\$361 per capita. Life expectancy at birth has worsened in the last 40 years: it was 43 years at independence (1964), improved to 51 in 1980, but in 2002 declined to 33, as the lowest in the world. HIV/AIDS prevalence is estimated to be about 20 percent of the adult population aged from 15 to 49 years.

Since 1999, the Zambian economy has been showing signs of recovery with positive GDP growth rates. In 2004, the expansion in copper mining and construction activities and the good agricultural production have been the main drivers of the GDP growth rate of 5.0 percent. In particular, the performance of the mining sector in 2004 has been outstanding with an estimated growth of 18.4 percent compared to 3.4 percent in 2003: copper production in 2004 rose by 16.2 percent to 411 000 tonnes from 354 000 tonnes in 2003 and, at the same time, the average price of copper increased by about 54 percent to US\$1.20 per pound from US\$0.78 per pound in 2003. Despite an anticipated decline in world metal prices, improvements in production techniques together with the opening of new mines and the rehabilitation of old ones are expected to continue boosting the Zambian economy in the coming years.

In April 2005, the International Monetary Fund and the World Bank agreed that Zambia has implemented the requested series of economic measures and structural reforms to reach the completion point under the enhanced Heavily Indebted Poor Countries (HIPC) Debt Initiative and it is now eligible for debt service relief of about US\$3.9 billion.

The current exchange rate against the US dollar has been stable over several months, fluctuating between 4 700 and 4 900 kwacha per US dollar. However, the local currency weakened against the South African

rand, depreciating by 23.0 percent and consequently affecting the prices of goods originating from South Africa, which accounts for over 45 percent of Zambia's imports. Despite higher-than-expected fuel prices, average annual inflation was 17.5 percent in 2004, the first time in decades that it has been below 20 percent, mainly the joint result of the 2004 good harvest of maize and tighter fiscal policy.

Zambia's external sector viability shows mixed performances. In 2004 average official gross foreign exchange reserves have been around US\$280 millions, equivalent to only 1.2 months of import cover. However, the total external debt as a percentage of GDP declined from 142 percent in 2003 to 117 percent in 2004, in part as a consequence of the funds received from the IMF under the Poverty Reduction and Growth Facility (PRGF) that were used in debt payments. At the same time, trade deficit declined from US\$242 millions in 2003 to US\$109 in 2004. The improvement is due to a higher increase in the value of exports (essentially metal receipts) compared to imports. As a result, the external current account deficit (excluding grants) narrowed from 16.2 percent of GDP in 2003 to 11.9 percent of GDP in 2004. Metal products are the main export, accounting for about US\$1 100 millions in 2004, equivalent to 70 percent of total exports, followed by fresh vegetables, cut flowers, processed foods and textiles.

2.2 The agricultural sector

Zambia has a considerable untapped potential for agriculture compared with many African countries. Its geographical profile is characterized by a vast plateau consisting of permanent pastures (representing about 85 percent of country's agricultural land), becoming semi-arid in the south-west and wet in the north-east, with some fertile valleys along the main rivers Zambesi, Kafue and Luangwa. The country is divided into three main agro-ecological regions on the basis of the average precipitation pattern and the quality of the soils.

Nearly 75 percent of the population directly or indirectly depends on the agricultural sector which accounts to 22 percent of national GDP. The performance of the agricultural sector in 2004 was favourable for the second consecutive year with an increase of the real GDP by 7.5 percent compared to 4.5 percent in the previous year. This result was essentially due to last two years' bumper crops as a consequence of good weather conditions and input availability.

The vast majority of farmers, about 800 000 households, own less than 5 hectares of land and uses very basic production technologies, relying on family labour, recycled seeds, a hoe and minimal quantities of fertilizers. They are responsible for about 65 percent of national production of maize, 75 percent of groundnuts and 85 percent of sorghum and most of the production is retained for self-consumption. Some 50 000 emergent farmers cultivate between 5 and 20 hectares using draught power and purchased inputs (hybrid seeds and fertilizers). They are mostly located along what is known as the "line of rail" built before independence to connect Southern Rhodesia with Livingstone and Lusaka to the Copperbelt province. About 700 large scale farmers own between 20 and 150 hectares using mechanized farming techniques and growing maize and cash crops. Only a dozen of large corporate farms own more than a thousand hectares with high levels of mechanization, irrigation systems and using hired labour force. An increasing number of commercial farmers formerly based in Zimbabwe are now moving to Zambia and are involved in the production of cash crops, mainly tobacco.

Zambia's agriculture is mainly rain-fed, with the main growing season going from October/November to April/May. Lowlands have potential for winter cropping, with planting in July and harvesting in November/December before the arrival of first rains. Irrigable land is estimated at about 420 000 hectares, but less than 10 percent is currently irrigated, mostly by commercial farmers cultivating sugar, wheat and other cash crops. White maize is the major staple crop and it is grown in the entire country, mostly in pure stand. Other important crops for local diet are sorghum, millets, cassava, sweet potatoes and pulses. Rice production is increasing due to favourable market prices. Main cash crops are groundnuts, tobacco, cotton, coffee, paprika and cut flowers. Cereal yields are generally low and post-harvest losses are frequently high due to inadequate structures for grains drying and storage.

Livestock accounts for about 35 percent of national agricultural output and it is concentrated especially in Western and Southern provinces. In the last few years, cattle population has declined because of the outbreak of some diseases (foot-and-mouth disease, contagious bovine pleuro-pneumonia, "corridor" disease (ECF) and anthrax). Since 2003, the Government has launched the livestock restocking program to restore breeding stock and increase animal draught power, and the Animal Disease Control Programme to preserve the current population of livestock.

In July 2002, the Zambian Government officially launched the implementation of programmes and activities under the framework of the Poverty Reduction Strategy Paper (PRSP) for 2002/04. In agriculture, major PRSP interventions were the Fertilizer Support Programme (FSP), out-grower schemes, land and infrastructure development, technology development, agriculture extension and maize marketing in support of small-scale farmers. Total funding to the programmes of intervention were ZMK 46.1 and ZMK 79.6 billion for 2003 and January to June 2004 respectively. In 2004, about 50 percent of total PRSP resources were spent on the FSP. The programme aims at supporting vulnerable households through the provision of subsidized agricultural inputs such as fertilizers and seeds. A total of 150 000 farmers benefited, of which, 130 000 grew rain fed crops and 20 000 used wetlands and winter agriculture.

2.3 HIV/AIDS and agriculture

The incidence of HIV/AIDS in Zambia is considered to have increased since the figure of 16.5 percent infection rate amongst adults aged 15-49 was published at the end of 2003. By that time it was estimated that about 90 000 people had died of AIDS and that the disease had left 630 000 children under the age of 17 orphaned. The adverse effect of HIV/AIDS on smallholder agricultural production in Zambia is disputed by some NGOs who contend that, since land preparation is carried out almost exclusively using oxen rather than manual labour, the impact of a shortage of manpower is negligible. This view, however, overlooks several important facts. Other key agricultural tasks, such as sowing, weeding and harvesting, are dependent on manual labour, as are the principal conservation-farming practices which were often so critical to satisfactory crop production this year. Even those operations where draught power is used, such as ploughing and transport of the harvested crop from the field, require a considerable manual input, not to mention time.

From discussions with rural households in the field, the Mission gained the distinct impression that the negative impact of HIV/AIDS on household production is often highly significant. Not only do these relatives require care and attention, but they would often have previously provided the family with some financial support from an urban salary. Reduction of available labour force due to the need to attend sick relatives is considered an important reason to limit the size of cultivated land. Many households include a large number of orphaned children whose care requires time and money which might otherwise be spent on farm activities. There is a concern that the infection of HIV/AIDS in rural areas may increase during years characterized by food shortages. In fact, the increasing needs to travel to urban areas for trading and for seasonal job opportunities may expose farmers to higher risks of contracting the disease.

3. CROP PRODUCTION IN 2004/05

3.1 Main factors affecting production in 2004/05

Rainfall

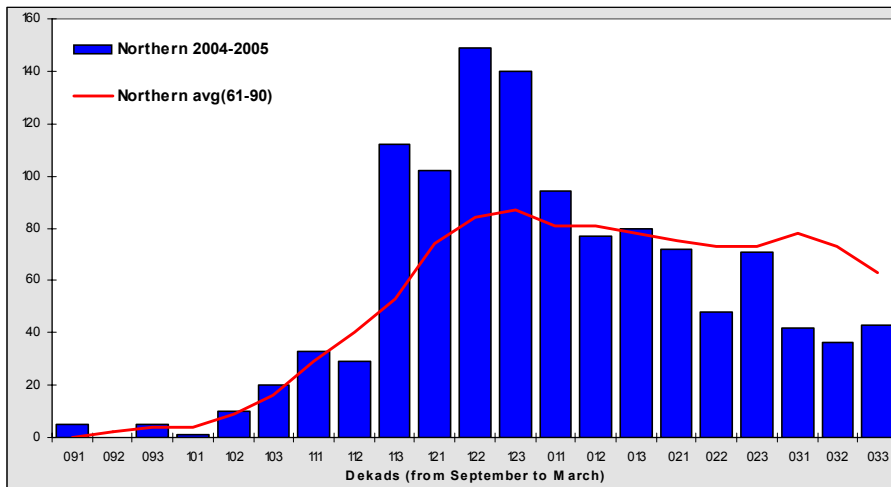
Rainfall was the chief determinant of crop production in 2004/05. The season started with a measure of promise in most parts of the country, although the early rains in the south were slightly below average (see Figures 1 - 4). In the north and in parts of the east, early rains were often much heavier than usual, and many lowland areas experienced flooding. The poor distribution of early rains in the south often necessitated replanting, while some first plantings in the wetter parts of the country were reported to have been lost to flooding.

Assuming that the rainfall pattern would soon stabilise along its average trend, many farmers in areas with above-average initial rainfall considered that there was no urgency to plant early. By the beginning of February the rains in the north began to exhibit a trend that was consistently below average, though without indicating a serious deficit. In the east, however, the situation was more critical. Rainfall there was very sparse after the end of January, apart from some heavy showers in certain parts at the end of February. Although the cumulative rainfall in the west was only slightly below the long-term average, rainfall there was erratic, the season being characterised by frequent dry spells. The south of the country was worst affected by poor rainfall distribution this year. Again, although cumulative rainfall was only slightly below average, dry spells and high temperatures led to very harsh cropping conditions in the latter part of the season.

The early cessation of adequate rainfall coincided, for many growers, with maize tasseling, and often resulted in severely depressed yields. Farmers who planted early, however, often achieved satisfactory yields as their crops had already passed that critical stage by the time the rains slackened. Because of the dry conditions, even sorghum was reported to have performed badly in parts of the south. This was especially notable in the case of farmers who, having lost their initial planting of maize, decided, at a

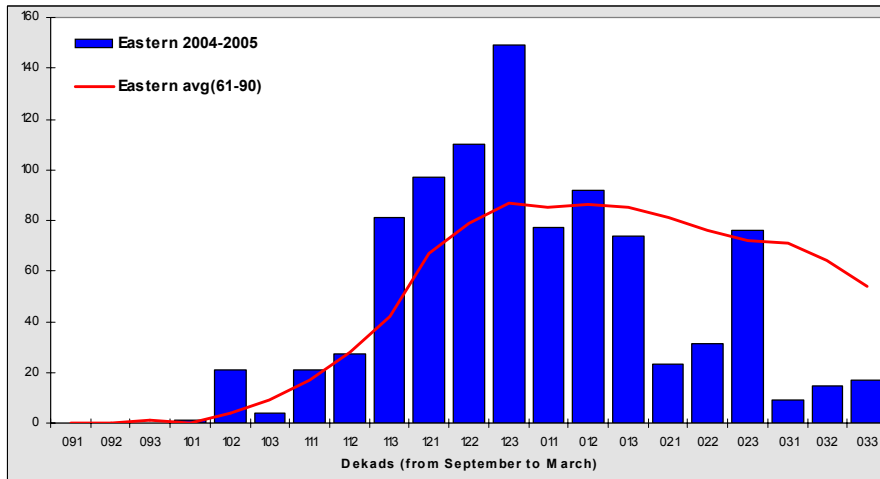
relatively late date, to plant sorghum instead. The dry conditions of the latter part of the season also had a negative impact on cash crops such as groundnuts and sunflower which are customarily planted in January.

Figure 1: Dekadal rainfall (mm), Northern Province, 2004/05



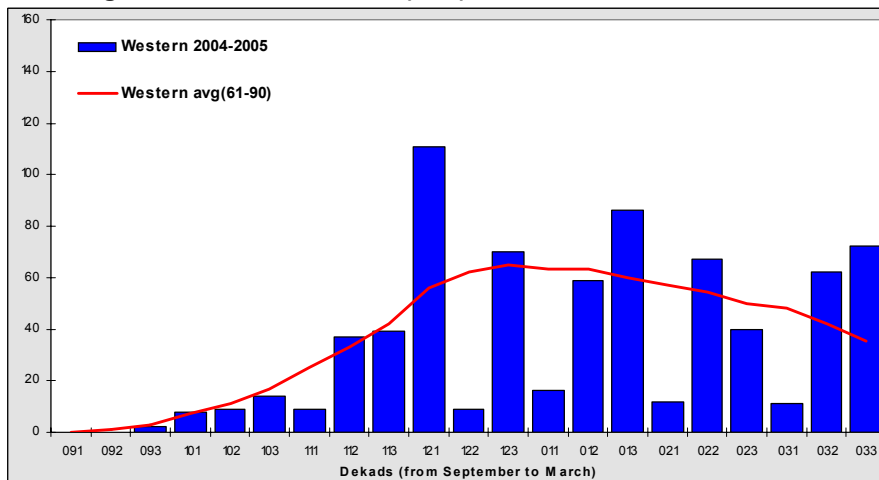
Source: Zambia Meteorological Service.

Figure 2: Dekadal rainfall (mm), Eastern Province, 2004/05



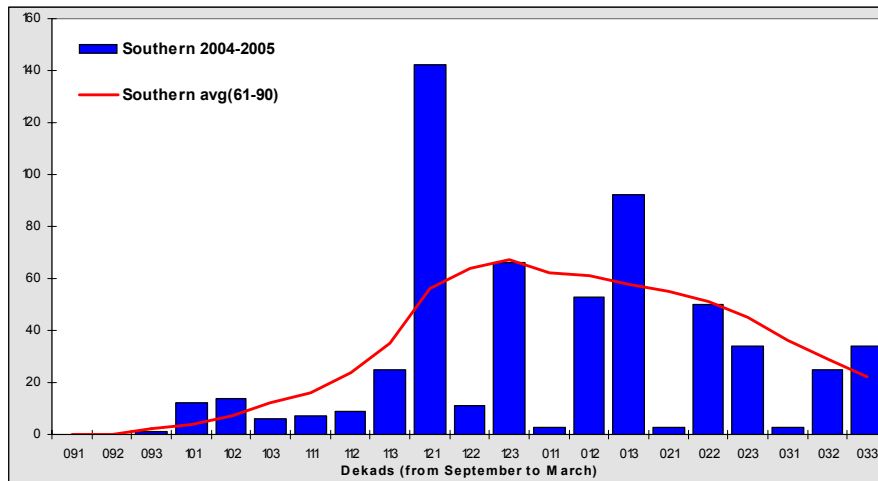
Source: Zambia Meteorological Service.

Figure 3: Dekadal rainfall (mm), Western Province, 2004/05



Source: Zambia Meteorological Service.

Figure 4: Dekadal rainfall (mm), Southern Province, 2004/05



Source: Zambia Meteorological Service.

Agricultural inputs

The Fertilizer Support Programme (FSP), which is sponsored by the Government and implemented by various NGOs, was significantly reduced this year. The number of farmers benefiting from the programme, which provides them with packages of fertilizer (urea and compound D (10.20.10)) and seed (mostly maize) at half price, was halved compared with the previous year. For instance, PAM (the Programme Against Malnutrition) distributed 60 000 packages for 2004/05 compared with a target of 200 000 for 2003/04; likewise CARE's distribution fell from 520 000 to 240 000. It had been proposed that the FSP subsidy be reduced in 2004 from 50 percent to 25 percent, but this is not expected to happen for at least another two years.

Delivery of the FSP package to smallholders appears to have been at least as timely in most parts of the country as in previous years. There were, however, reports of farmers in some areas receiving both seed and fertilizer late, and of others receiving top-dressing at the time of planting and basal dressing about six weeks later. The fertilizer companies believe that delays could be minimised if they were to receive Government orders earlier in the year, since importation can take up to six weeks depending on whether the manufacturing company already has the raw materials in stock. Some instances were reported of non-arrival at the cooperatives of inputs for which farmers had already paid; the farmers were refunded their money but their planting was inevitably delayed.

Total fertilizer use for the whole country for the 2004/05 season amounted to slightly more than 150 000 tonnes, with about 70 000 tonnes of this being accounted for by the commercial or large-scale (more than 20 hectares) sector. Nationally, fertilizer use has not changed significantly in recent years, suggesting, with the reduction in the FSP, that an increasing number of smallholders are now buying unsubsidised fertilizer. The number of fertilizer companies competing in the relatively small Zambian market has recently grown to eight.

Several NGOs and other organisations are involved in the provision of seed and planting materials to smallholders, both through the FSP and through their own programmes. Maize seed provided through the FSP is almost exclusively hybrid, since the potential yield from hybrids is usually significantly higher than that of open-pollinated varieties. However, many farmers, especially after a poor year, are unwilling to invest in new hybrid seed (even with a 50 percent subsidy) and prefer to recycle the seed produced by their hybrid crop, often for several generations, with a consequent decline in productivity. Some districts voiced complaints this year that the varieties they received were not the most suitable for their environment. There were also some complaints of poor germination, though this might have been the result of planting practice.

Recently there has been a rational move on the part of some NGOs (notably CARE International) to provide sorghum rather than maize seed, especially in the drier areas of the country which are better suited to the more drought-tolerant crop. There has also been a small but steady increase in the provision of cassava planting material. This, however, has not been without its problems; this year there were numerous complaints of sticks being already too dry to plant at the time of delivery (due to the long time spent on transporting the material from northern producing areas to the south) or being delivered not at the most appropriate time for planting, and of at least some planting material harbouring the cassava mosaic virus.

With increased input support from five private companies, the number of cotton growers has recently risen to about 250 000. Tobacco production is similarly supported by three companies that provide their growers with inputs on credit.

Husbandry practices

Early planting was crucial to the achievement of satisfactory yields of maize this year in all but the driest of areas. Farmers cited several reasons for late planting, including the late delivery of inputs, the eventual non-availability of ordered inputs, long delays in hiring oxen for land preparation, and, in areas where the rains started encouragingly, an expectation that later planting might achieve better results. Over a sizeable area in Katete District, Eastern Province, planting was delayed by three weeks as a result of a traditional ban imposed on work in the field, following the death of a paramount chief in early December.

Conservation farming practices have been advocated for some years by the MACO extension services and the Conservation Farming Unit, initially with an encouraging response from smallholders. Chief among these practices is the digging of small basins to trap sparse rainfall and increase soil moisture. However, this season, following the two good years of 2002/03 and 2003/04, it appears that many farmers became complacent about implementing these measures, which require extra time and labour, and decided to ignore them. The result is that in areas of low rainfall the difference in yields was often very great between farms where conservation farming was practised and those where it was not.

Pests and diseases

Nationally, pests and diseases had a minor influence on crop production this year, although they were of local importance in some parts of the country. The incidence of cutworms was reported to have been above average in Central Province, and to have resulted in some yield reduction in maize. In the lowlands of Mambwe District in Eastern Province, maize and other crops were said to have been attacked in their early growth stages by an unusually large population of snails, which presumably resulted from the wet conditions prevailing in December. Elsewhere in Eastern Province, there were localised reports of maize being attacked to a greater extent than usual by African bollworm. Overall, however, the impact of pests and diseases was negligible when compared to that of poor rainfall.

3.2 Maize production forecast for 2005

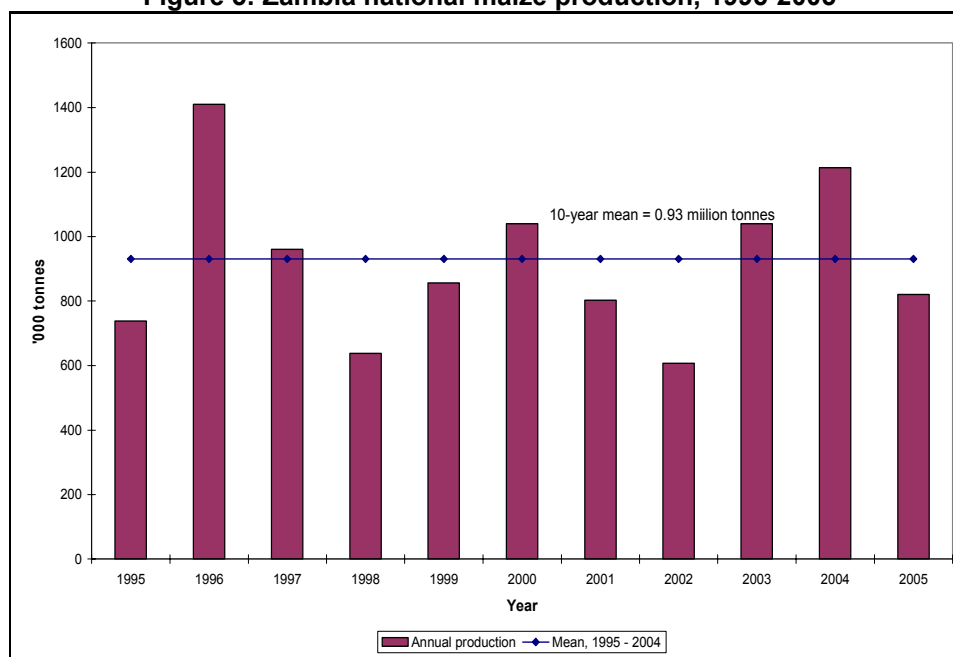
2004/05 has seen a sharp reduction in national maize production compared with the two good years of 2002/03 and 2003/04 (see Table 1); at 820 000 tonnes, production is 32 percent down on 2003/04 and 21 percent down on 2002/03. The largest reductions were in Southern, Western, Lusaka and Central Provinces, with Northern and Northwestern being least affected. In a longer-term context, however, national production is just less than 12 percent below the ten-year average of 0.93 million tonnes (1994/95 - 2003/04), and significantly higher than the bad year of 2001/02 (see Figure 5). There will be less maize from large commercial growers this year, partly because of the poor rainfall (average yields down from 6.8 to 5.8 t/ha), but more importantly because of a reduction in area in favour of soya beans which, given the increasing costs of production of maize, are financially more attractive. Recent years have also seen a reduction in the amount of early maize being produced commercially; its milling quality is generally lower than that of the main-season product and it no longer fetches a competitive price.

Table 1: Maize production 2002/03-2004/05 (area in '000 hectares, production in '000 tonnes)

Province	2005			2004			2003			Percent change in production	
	Area	Yield t/ha	Prod.	Area	Yield t/ha	Prod.	Area	Yield t/ha	Prod.	2005 vs 2004	2005 vs 2003
Central	130	1.36	177	118	2.80	332	129	2.65	343	-47	-48
Copperbelt	64	1.75	112	57	2.47	141	62	2.33	144	-21	-22
Eastern	202	0.90	182	169	1.54	260	187	1.08	202	-30	-10
Luapula	24	1.32	32	13	1.54	20	10	1.50	15	60	113
Lusaka	29	0.95	28	20	2.96	59	22	2.73	60	-53	-54
Northern	75	1.20	90	54	1.71	92	51	1.57	80	-2	13
Northwestern	32	1.40	45	29	1.65	48	23	1.43	33	-6	35
Southern	110	1.10	121	117	1.80	212	139	0.91	127	-43	-5
Western	52	0.65	34	54	0.91	49	47	0.76	36	-31	-6
Zambia	718	1.14	820	631	1.92	1 214	671	1.55	1 040	-32	-21

Note: Calculations computed from unrounded data.

Figure 5: Zambia national maize production, 1995-2005



Source: FAOSTAT and CSO figures 1985-2004.

3.3 Production forecast for other foodcrops

Production forecast for other crops

Despite frequent acknowledgements of the superiority of sorghum over maize as a grain crop for the drier areas of Zambia, there has, if anything, been a slow but steady decline in the area planted to it over the last 20 years. Maize is the preferred grain for human consumption, and there is currently no financial incentive to produce sorghum; this may change (to a very limited extent) if, as is rumoured, a market emerges for the grain for brewing. This year's production was down on last year's. In parts of Southern Province, conditions were said to be so dry that fields of sorghum had reached permanent wilting point. Millets (finger and pearl) are most important in Northern and Western Provinces. Production was similar to that of last year. This year's national rice production was also similar to that of last year. Reductions in area and yield in Western and Central Provinces resulting from poor rainfall were compensated for by an expansion in area in Chama District of Eastern Province. Provincial production figures for millets, sorghum and rice are given in Table 2.

Commercial wheat production has increased considerably in the last ten years from about 30 000 tonnes in the early 1990s to 100 000 tonnes in 2004. The main areas of production are Mkushi, Mpongwe, Kabwe and Mazabuka. It is expected that production this year will again be about 100 000 tonnes.

Table 2: Production of cereals other than maize and wheat, 2003/04 and 2004/05 ('000 tonnes)

Province	Millets		Sorghum		Rice (paddy)	
	2005	2004	2005	2004	2005	2004
Central	2.5	2.2	3.0	3.5	0.1	0.3
Copperbelt	0.1	0.05	1.5	2.1	0.03	0.03
Eastern	0.6	0.6	1.4	1.4	4.7	3.0
Luapula	2.0	1.5	0.7	0.7	0.6	0.5
Lusaka	0.02	0.02	0.07	0.1		
Northern	25.0	28.6	3.3	2.2	5.0	4.9
Northwestern	0.5	0.6	4.9	4.9	0.1	0.7
Southern	1.2	1.5	2.0	3.6		
Western	5.5	4.8	4.2	6.0	1.5	2.2
Zambia	37.4	39.8	21.1	24.5	12.0	11.7

Note: Calculations computed from unrounded data.

Estimation of the production of cassava in smallholder mixed farming systems is notoriously difficult for several reasons. Cultivars of different maturation periods ranging from less than one year to more than two years may be grown; planting may be done at different times of the year; cassava may be intercropped with a number of other crops, making its area of cover difficult to estimate; harvest may be delayed and mature roots left in the ground for several months depending on household food requirements; in years when other crops are in good supply, cassava plants may be abandoned completely and never harvested. CSO has recently estimated an annual national production figure of between 900 000 and 1 million tonnes fresh weight. The Mission finds this reasonable but considers that CSO's yield assumption of 7 tonnes per hectare may be too high for this year. The area is reported to have expanded slightly in 2004/05. Consequently, this year's production is expected to be 900 000 tonnes, with an average yield of 5 t/ha (see Table 3). Northern, Luapula and Western Provinces are the largest producers, accounting for almost 90 percent of the country's total production.

The area under sweet potato appears to have remained fairly constant over the last three years. Yield and consequently production are expected to be slightly lower this year than last (see Table 3).

Table 3: Production of cassava and sweet potato, 2003/04-2004/05 (area in '000 hectares and production in '000 tonnes)

	2005			2004			2003		
	Area	Yield (t/ha)	Production	Area	Yield (t/ha)	Production	Area	Yield (t/ha)	Production
Cassava ^{1/}	180	5.0	900	165	5.8	957	165	5.8	957
Sweet potato	33	2.5	83	33	3.1	102	33	3.1	102

^{1/} For cassava, the figure for area refers to the area that can be harvested during the year in question.

3.4 Livestock and pasture

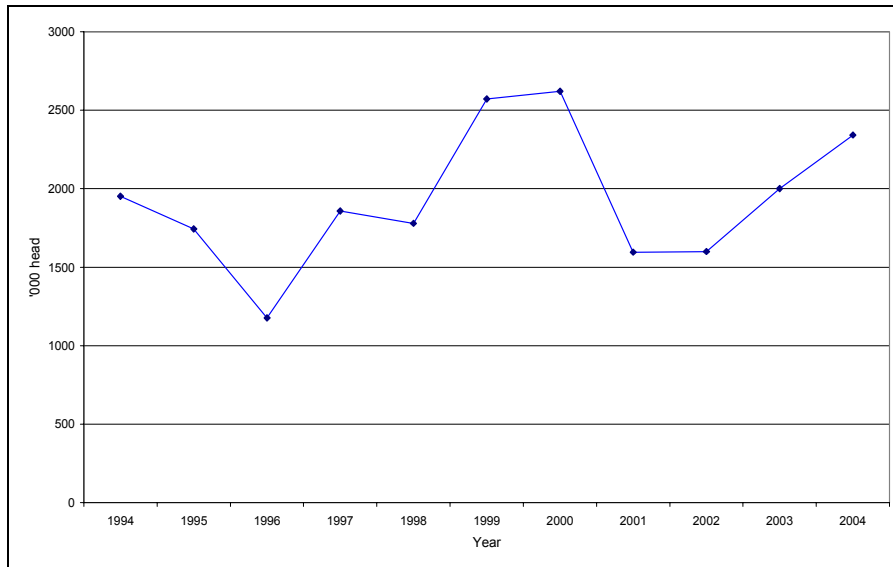
Cattle were generally in good condition by mid-May, but the negative effects of the poor rainfall at the beginning of the year were already starting to make themselves evident, especially in the south and west where cattle play a particularly important socio-economic role. Because of the increasingly dry conditions, cattle must now expend more energy walking long distances in search of water and pasture. The reduction in the number of watering places will inevitably lead to a greater concentration of cattle at each one, which in turn will lead to an increased probability of transmission of diseases such as FMD and CBPP unless preventive measures are taken. The situation may be further exacerbated if watering holes are also shared with wild animals.

Western Province has seen a decline in its cattle population in recent years, mostly attributable to the incidence of CBPP, which is thought to have been introduced by refugees from Angola in 2001. The disease continues to be reported there, with Sesheke, Kalabo, and Shangombo Districts currently being most affected. In Central and Southern provinces, though outbreaks of FMD were reported, no significant reduction of cattle numbers were recorded. However, the disease had a negative impact on land preparation and the ban on the movement of livestock affected household incomes. To date, the incidence of other diseases this year, such as East Coast Fever (ECF), black-quarter and anthrax, has remained generally low in the country as a whole. However, with such dry conditions, there is a danger of increased incidence of anthrax in Western Province, since spores are easily spread from the dry carcasses of infected animals. Similarly in Southern Province, in the absence this year of flooding which normally clears ticks from pasture, the coming months may see a dramatic increase in the incidence of ECF unless preventive measures are taken soon.

African swine fever continues to be a serious impediment to pig production, especially in Eastern Province, as does Newcastle Disease to smallholder poultry production throughout the country.

There has been no comprehensive livestock census in Zambia since 1993. However, approximate numbers of cattle have been estimated annually since then from figures provided by the veterinary field services (see Figure 6). By 2004, the national herd was reckoned to comprise about 2.34 million head.

Figure 6: Zambia: cattle population, 1994-2004



Source: MACO Veterinary Service.

4. AGRICULTURAL SITUATION BY PROVINCE

Central Province

Effective rains started in the second half of November and were generally plentiful during December. By January, however, rainfall had begun to dip below the average for the time of year. At the beginning of February, even drier conditions started to prevail, relieved only by some sporadic rainfall in mid-February and mid-March. Total rainfall amounts received were about 20 percent below normal for the season.

Although the area under maize increased this year in anticipation of good rainfall and attractive financial returns, overall yields were about half of those achieved in the previous two years and production was about 47 percent below that of 2003/04. Large commercial farms, especially in Mkushi and Chibombo Districts, account for about 20 percent of the province's maize production. Although their yields were less affected by the dry conditions than those of smallholders, the area under commercial maize production has shrunk in recent years in favour of the more lucrative soya bean.

Smallholder maize planting was slightly later than usual, in part because of confusion concerning the wisdom of early planting in a season when plentiful rain was expected. FSP inputs were often late in arriving and total amounts were greatly reduced this year. Complacency led many smallholders to neglect to implement conservation-farming measures, although some did attempt them retrospectively (and in vain) when it was realised that the season was going to be less benign than had originally been expected. The result was a patchy pattern of smallholder production, with those farmers who planted early and used conservation measures achieving by far the best results. There was also a perceptible geographical yield gradient within the province with the southern portions of Chibombo and Mumbwa being worst hit by the dry conditions. This gradient was reflected in grain prices which, by mid-May, ranged between ZMK 25 000 and ZMK 36 000 for a 50 kg bag. Serenje also recorded poor maize yields, but food security is less vulnerable there because cassava, which performed satisfactorily, is the staple of much of the district's population.

The incidence of cutworms, especially on the maize crop, was reported to be heavier than usual this year in parts of the province. Otherwise there were no significant outbreaks of crop pests or diseases. Amongst poultry, outbreaks of Newcastle Disease were locally severe with many households losing entire flocks.

The FRA still held grain stocks in the province at the beginning of May, held over from last year's good harvest.

Copperbelt Province

Rainfall in Copperbelt Province started on time and continued normally till the end of January. Thereafter rainfall was erratic, with significant dry spells. Total rainfall for the season was about 20 percent below the long-term average.

Maize planted area slightly decreased between 2005 and 2004. However maize production is expected to be down by about 20 percent on last year, mainly as a result of reduced yields. With the reduction in rainfall from February onwards and the lower total amounts received, it is expected that winter production from dambos will be substantially reduced.

Eastern Province

Over most of the province, planting rains started towards the end of November, although several areas received unseasonably heavy isolated showers during October. Rainfall was generally good throughout December and during the first part of January. Most areas then experienced an abrupt reduction or even cessation of useful rains, this change occurring sooner and more pronouncedly in the west of the province than in the east. February, March and April were generally drier than average with only occasional light showers, although some significant single rainfall events were reported locally between the end of March and late April, especially in the east. In most cases however, these were too late to be of any use to the maize crop. Current dry conditions and low water levels in the dambos will curtail the prospects for winter cropping.

With low rainfall and prolonged dry spells in the latter part of the season, early planting and the use of conservation measures were the key to success this year. Crops planted in November or very early December generally performed satisfactorily, while those planted in late December did poorly. Crops planted as late as January often failed completely. Although a very large number of farmers had been exposed to conservation farming practices, relatively few used them this year following the previous two good rainfall years when, as it turned out, the practices were usually not essential for satisfactory production. The superiority of crops produced under conservation-farming practices this year was striking.

The area planted to maize this year showed an increase compared with the previous year in response to farmers' expectations of good rainfall and attractive prices for their produce. Seed and fertilizer were generally available through the FSP, though in reduced quantities compared with last year. Delivery of inputs to the cooperatives was timely in most cases, but there were some reports of late arrival, and of basal fertilizer arriving after the top dressing and several weeks after the recommended planting date. Nyimba District complained that inappropriate varieties were received and that some of the seed was of low germination percentage.

There were some reports of increased pest incidence, such as snails in low-lying parts of Mambwe District, and cutworms, stem borers and African bollworm elsewhere. However, their impact was only locally serious. The larger grain borer (LGB) continues to attack stored grain.

Average maize yields were down by about one-third on last year, but, with an unusually wide range, this figure masks the fact that significant numbers of farmers got extremely poor crops. Production was down by about 30 percent on last year. Provincial grain stocks at the beginning of May amounted to almost 25 000 tonnes, about 90 percent of which was in FRA siloes.

There is reportedly a slow but perceptible increase in the area under cassava and sweet potato. However, some of the cassava planting material received this year carried cassava mosaic virus and some was no longer viable on arrival because of long transport delays. The area under rice expanded this year in Chama District, raising the province's production by more than 50 percent. Groundnuts, which are usually planted in January, have done badly this year because of the dry conditions. Many plantings failed completely. The area under cotton increased this year in anticipation of attractive prices but the yield was down. Tobacco area showed little change, but yields and quality are poor as a result of the dry conditions.

Luapula Province

Total rainfall in Luapula was close to normal this year, though its distribution was skewed towards the first half of the season. Rains at the end of November and throughout most of December were heavier than normal, but by January they had settled down to a normal pattern. Thereafter, for the rest of the season, the rains, though lighter than normal, were generally adequate. There were some localised dry spells during February. There were no significant outbreaks of crop pests or diseases.

In Luapula maize is essentially grown as a cash crop. Although the 2005 average yield of maize is estimated at 1.32 t/ha, about 14 percent less than previous year, production is expected to increase to 32 000 tonnes from 20 000 tonnes in 2004 as a consequence of the substantial increase in the area planted. Production of cassava, which is the province's staple, was unaffected by the dry spells in February.

Lusaka Province

The rains arrived late over much of the province, especially in some parts of the west where the first planting rains fell during the first week of December. December and January rainfall was satisfactory in most areas, but by the end of January unseasonably dry conditions began to set in. Rainfall was below average during February and March, relieved only by more normal rainfall in the last days of March. Not only was this late rainfall too late to benefit most crops, but it was often a setback for maize drying in the field. Water levels in dambos are lower than normal and some streams that should still be flowing at this time of year have already dried up. Winter production of vegetables and other crops is therefore expected to be lower than usual.

Planting of maize was often late, partly because of uncertainty about the likely prospect of rains at the start of the season, but also because of delays in gaining access to oxen for land preparation. The number of smallholders benefiting from the FSP fell this year to about 5 000, but the percentage using certified hybrid seed is considered by the provincial agriculture office to be relatively high at 30 percent. On the other hand, the proportion practising conservation-farming measures this year fell to about 10 percent, largely because of complacency induced by two years of good rainfall.

The area under maize increased this year compared with last, but average yields, which in recent years have been close to 3 t/ha, dropped to just below 1 t/ha. The contraction of the commercial sector in terms of area under maize has contributed to this drop in average yield for the province; the commercial sector also saw a yield reduction of about 30 percent as a result of the dry conditions.

The area under cassava and sweet potatoes is small in Lusaka province and has not changed significantly this year. Sweet potato yields are expected to show some reduction because of the relatively dry conditions, but cassava yields will be less affected. The area under beans and groundnuts was less than last year, and with reduced yield overall production was halved. However, both the area and yield of cotton are expected to be slightly higher than last year.

The province has applied to benefit from the Government's livestock re-stocking programme but its application has not yet been approved. Some cases of FMD have been reported.

Northern Province

The rains started around mid-November and continued with above-average amounts through December, leading to flooding in some areas. Dry spells occurred during January and February, but total rainfall for the season was normal to above normal. In the far north the rains continued into May.

There was an overall reduction of FSP inputs this year though certain areas such as Kasama actually received more than last year. In some areas, early-applied fertilizer may have been washed away or leached by the heavy rains during December.

Maize production was slightly lower than that of 2003/04, yields of late-planted fields having been reduced as a result of the dry spells at the beginning of the year. Maize streak virus and soya bean rust were reported but were not serious.

Cassava, which is the staple of much of the population in Northern Province, was unaffected by the dry spells. Beans and soya beans saw an expansion of planted area this year in response to commercial contracts, and are reported to have performed well. The performance of groundnuts, finger millet, sorghum, rice and sweet potato was similar to that of last year, but sunflower did badly.

There were still significant stocks of grain in the province by mid-May, mostly held by the FRA but some thought to be held by householders.

Northwestern Province

Rainfall in Northwestern Province started on time but began to become erratic in February with dry spells punctuated by some good showers. Total rainfall was similar to that received in 2003/04 at about 10 percent below the long-term average. Distribution, however, was rather more even last year.

Maize yields are expected to be lower than those of 2003/04 because of the erratic nature of the second half of the rainy season. With a slight increase in planted area, maize production is expected to be similar to last

year's good result. Rice is expected to have suffered more, with a reduction of both planted area and yield. With the reduction in rainfall from February onwards and the lower total amounts received, it is expected that winter production from dambos will be substantially reduced.

Southern Province

This season's rainfall pattern was characterized by below-average quantities and a very poor and erratic distribution. Although some areas received some light showers in mid-October, planting rains were generally late and concentrated at the end of November and the beginning of December. The whole province experienced a series of prolonged dry spells that started in mid-December and continued into April when what little rainfall there was finally came to an end.

The area planted to maize was slightly down on last year, despite many farmers' intentions to plant more. Factors contributing to the reduction in area included the late start to the rains, the short period of good planting rains, delays in accessing oxen for ploughing, and late availability of inputs. Provision of inputs through the FSP was greatly reduced this year; most of the province's smallholders use recycled seed and there is only a minimal use of fertilizer. Many farmers were compelled to replant, often more than once, because of the erratic rains early in the season. Some, after several false starts and with the season already well advanced, decided to plant sorghum instead, but in such cases the sorghum often performed badly. Only those farmers who were able to plant their maize by the end of October - and especially those who also used conservation-farming measures - obtained a satisfactory crop. The beneficial effects of conservation farming were also apparent amongst those who planted later in November, the conservation farmers often obtaining some yield while their neighbours experienced varying degrees of crop failure. Average maize yields for the province show a 40 percent reduction on last year; combining this with the reduced area, the province is expected to produce only 57 percent of what it produced in 2003/04.

Sorghum and millet, which were often planted late, when it was evident that the maize crop was going to have serious problems, have also been affected by the unfavourable weather conditions. Cassava production is minimal in the province. Some attempts have been made to promote its adoption but they have been thwarted by the fact that when it arrives from the north much of the planting material is too dry to use. The area under cotton and tobacco is reported to have increased this year, but yields and quality have been adversely affected by the dry conditions.

FRA stocks of maize in the province stood at about 10 000 tonnes by mid-May, but were said to be under threat from the larger grain borer (LGB).

The water table in many parts of the province has fallen to unusually low levels as a result of the poor rains, with many wells and some boreholes already dry. The Gwembe Valley has been worst affected, but water shortages are expected to affect both people and livestock in most parts of the province. Evidence of the gravity of the situation is the abnormally early start of transhumance which usually occurs much later in the year.

Western Province

Cumulative rainfall in Western Province was substantially below average this season, but the main problem was poor distribution. The rains started rather weakly and erratically in October, improving in late November and early December, but by mid-December, a pattern of long dry spells ranging from two to six weeks became established. In some localities only very light showers of as little as 5 mm were recorded between these dry spells. The need to replant maize - often more than once - was widespread, and established crops frequently suffered at tasseling.

The area under maize is was similar to previous year although farmers had the intention to plant more. This was not possible due to the constraints faced by farmers having to replant, such as shortage of inputs, pressure on oxen hire and diminishing suitability of planting date. Average maize yield for the province, at 0.65 t/ha, is about 30 percent less than that achieved last year. Those farmers who managed to get their crop established early did significantly better than those who planted late or who were forced by dry spells to replant. Farmers generally consider that the conservation measure of digging small basins to capture rainwater in the field is not suitable for most of the province's soils which are predominantly sandy. Input availability through the FSP was satisfactory in Senanga and in most of Shangombo, but elsewhere farmers complained that seed and fertilizer should be made available separately, and that in some instances inappropriate maize varieties were delivered.

Sorghum, pearl millet and cassava are widespread but, despite their suitability to Western Province conditions, only small amounts are produced. Rice production was down as a result of low water levels.

Crop production in general was better in the uplands than in the lowlands. This geographical variation is reflected in prices for a 50 kg bag of maize which by mid-May ranged from ZMK 30 000 to ZMK 45 000. An indication of the relative shortage this year is apparent when this year's prices are compared with the price range of ZMK 15 000 - ZMK 24 000 for the same time last year. There were said to be no stocks left in the province by the beginning of the harvest.

5. FOOD SUPPLY SITUATION

5.1 Current market situation

More efficient and integrated markets are concentrated along the 'line of the rail', where about 60 percent of Zambian population lives. They are ensured mainly for large export-oriented farms and for farmers involved in out-grower schemes that link them to buyers (especially regarding cotton, sugar, paprika and fresh vegetables for export). On the other hand, small farmers in remote areas have limited access to markets and have to face high transaction and transportation costs that reduce the profitability of their products. Major constraints to market access are the poor condition of roads and the increase in fuel prices.

Despite several attempts to diversify Zambian agriculture, maize is still considered as the best market option. As a result of post-independence government strategies to achieve food self-sufficiency, maize cultivation has been promoted throughout the country by distributing subsidized inputs and guaranteeing an artificial floor price. Consequences of this policy have been the diffusion of maize cultivation also in areas that are poorly suited and the limited development of markets for other crops such as sorghum, millets and cassava that have a great potential especially in drought-prone areas. Market policy measures oriented to generate an industrial demand for these crops are needed in order to change the system of relative prices and consequently to reduce the demand for maize.

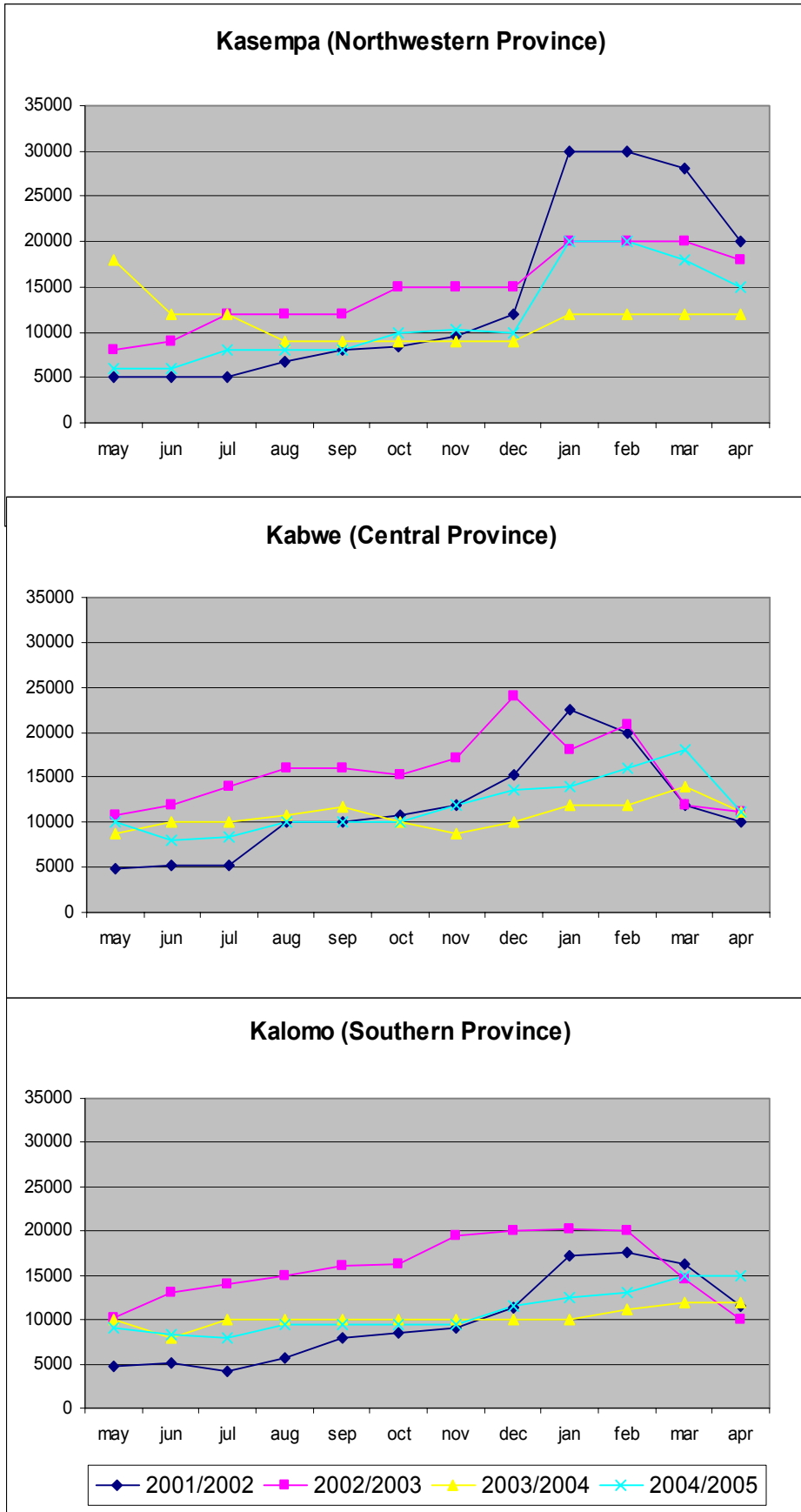
Normally, maize prices are lowest in June-July following the harvest period. They start rising gradually and typically peak in February-March. Prices begin to fall from April two to three weeks before the harvest. Following the good harvest in 2004, nominal retail prices for maize throughout the country remained stable and on average up to January 2005 when the possibility of repeating the previous year's good harvest was severely endangered by the negative impact of dry weather conditions. Figure 7 shows monthly nominal retail maize prices for three selected markets in North Western, Central and Southern provinces. It is evident that the last two droughts that affected the country, namely in 2001/02 and 2004/05, had a very different impact on maize prices: nominal prices skyrocketed in the lean period (January-March) more in 2001/02 than in 2004/05, especially in low producing markets as Kesampa, and this difference is even greater if considering real prices.

There is a great variation of prices between locations reflecting long distances between markets, coupled with poor state of roads in many areas and high fuel costs. In April 2005, maize grain prices went from a minimum of 10 000 ZMK/15 kg in Mumbwa (Central province) to a maximum of 17 450 ZMK/15 kg in Mongu (Western province). The same situation applies to processed products such as roller maize (from 15 800 ZMK/15 kg in Petauka in the Eastern province to 35 300 ZMK/15 kg in Senanga in the Southern province) or breakfast maize (from 32 000 ZMK/15 kg in Kalomo in the Southern province to 45 000 ZMK/15 kg in Luwingu in the Northern province).

In mid-May the mission found that retail prices of white maize grain, especially in Southern and Western provinces that have been seriously affected by the drought, are showing an upward trend, frequently already above the floor price of 36 000 ZMK/50 kg established by the Food Reserve Agency (FRA).

In 2004/05 marketing year, over 23 000 tonnes of maize, 12 000 tonnes of rice and 12 000 tonnes of beans have been recorded as informal cross border trade from Zambia to neighbouring countries, especially to Zimbabwe (for maize) and DRC (for rice and beans). The introduction of a maize export ban at the beginning of February 2005 is expected to reduce significantly the volume of informal trade flows in the current marketing season.

Figure 7: Retail prices of white maize grain in selected markets



Source: Central Statistics Office.

5.2 Cereal supply/demand balance in 2005/06 (May/April)

The 2005/06 projected cereal supply/demand balance is summarized in Table 4 based on the following parameters and assumptions:

- A mid-marketing year (May 2005/April 2006), population of 11.08 million, based on the Central Statistics Office (CSO) 2000 census figure of 9.89 million, projected to increase at an average annual growth rate of 2.3 percent;
- The 2005 total cereal production (in cereal equivalent, with cassava, sweet potatoes and rice on milled basis) is estimated slightly below 1.3 million tonnes;
- Opening stocks held by the Government are estimated at about 110 000 tonnes of maize. In addition, stocks held by millers and traders of about 40 000 tonnes of maize, 1 000 tonnes of rice and 2 000 tonnes of wheat are anticipated as in the past years. It is assumed that farmers and small-scale traders still have about 40 000 tonnes of maize;
- Similar to the CFSAM Report of 2003, the annual cereal per caput consumption is estimated at 112 kg per year, including 90 kg of maize, 13 kg of wheat, 6 kg of sorghum and millets and 3 kg of rice. In addition 18 kg of cassava and 5 kg of sweet potatoes, both in cereal equivalent, are included. These main cereals, roots and tubers are estimated to provide about 62 percent of the minimum daily requirement of 2 100 kcalories (52 percent from cereals and 10 percent from cassava and sweet potatoes). The remainder of the calories are expected to be derived from fish, livestock products (especially chicken), pulses, oil seeds, pumpkins and fruits and vegetables;
- Seed requirement for each crop is estimated on the basis of recommended seed rate and anticipated crop area. The following seed rates are used: 15 kg/ha for maize (excluding commercially produced hybrid seed); 40 kg/ha for rice; 10 kg/ha for sorghum and millets; 100 kg/ha for wheat. Anticipated planting areas ('000 ha) are as follows: maize, 750; rice, 15; sorghum and millets, 90; wheat 15;
- Other uses include post harvest losses (estimated at 10 percent for maize, 3 percent for wheat and 5 percent for the other crops); a provision of 35 000 tonnes of maize to meet the needs of the animal feed industry; and 20 000 tonnes of maize used by the breweries;
- Given the recent Government ban on maize exports, exports of maize through unrecorded cross-border trade with neighbouring countries are assumed to be low, at 10 000 tonnes;
- For the current marketing year, closing stocks are assumed at 100 000 tonnes of maize which include a strategic grain reserve and the balance required by milling companies to operate.

Table 4: Zambia - Food Balance Sheet 2005/06 (May/April) ('000 tonnes in cereal equivalent)

	Maize	Rice (milled) ^{1/}	Sorghum & millet	Wheat	Cassava ^{2/}	Sweet potato ^{3/}	Total
Domestic availability	1 010	9	58	102	288	23	1 490
Opening stocks	190	1		2			193
Production	820	8	58	100	288	23	1 297
Total utilization	1 207	34	58	149	288	23	1 759
Food use	997	33	66	144	199	55	1 496
Seed use	11.3	0.6	0.9	1.5			14
Losses, feed and other uses	133	0.4	2.9	3			139
Exports (unrecorded)	10						10
Closing stocks	100						100
Cross-commodity substitution	-45		-12		89	-32	0
Import requirements	197	25	0	47	0	0	269
Commercial imports	150	25		47			222
Unfilled gap	47	0	0	0	0	0	47

Note: Calculations computed from unrounded data.

^{1/} Paddy to rice milling rate of 66.67 percent.

^{2/} Cassava cereal equivalent conversion factor of 32 percent.

^{3/} Sweet potato equivalent conversion factor of 28 percent.

6. HOUSEHOLD FOOD SECURITY AND VULNERABILITY ASSESSMENT

6.1 Food security background

A Rapid Vulnerability Assessment by the National Vulnerability Assessment Committee (NVAC) in March revealed that dry spells adversely affected crop production in many districts, particularly in Southern and Western provinces of Zambia.

The current situation followed two years of relatively good production, which was the outcome of good rains and government support. This included a fifty-percent subsidy on fertilizer and maize seeds to small-scale farmers under the Fertilizer Support Programme (FSP) and 'food security packs' to vulnerable but viable households through the Programme Against Malnutrition (PAM). The Food Reserve Agency (FRA) was mandated to purchase maize from small-scale farmers countrywide at favourable price, thus serving as incentive for production. In the livestock sector, restocking programmes were undertaken in addition to measures to combat outbreaks of livestock diseases such as foot and mouth, east coast fever and contagious bovine pleuro-pneumonia (BCPP).

During the 2003-2005 agricultural seasons, surplus maize production in Zambia enabled WFP to purchase maize in the country to meet food assistance requirements for Zambia and other countries in the region. The total quantity of maize bought in the two years was nearly 150 000 tonnes at total cost of just under US\$30 million¹. Meanwhile MACO, NGOs and WFP supported agricultural activities, such as promotion of conservation farming and diversification of crops to include drought resistant crops such as cassava and sorghum.

Most of the above government programmes were continued to some degree during the 2004/05 season. Although government input subsidies were maintained at 50 percent level, the number of beneficiaries were reduced drastically in all provinces. The quantity of fertilizers distributed through the support programmes fell from 79 445 tonnes in 2003/04 to 45 900 tonnes in 2004/05. The overall outcome was that the number of beneficiaries was down from 336 000 to 134 000. The late delivery of seeds and poor quality of inputs compounded the situation created by the dry spells that affected most parts of the country.

In March, when evidence of crop failure started to emerge, there were initial speculations that the production shortfall of maize would be around 300 000 tonnes. This prompted a number of government actions beginning with a ban on export of maize. The Disaster Management and Mitigation Unit (DMMU) in the Vice-President's Office moved to distribute food assistance to households earlier affected by floods in Kalabo, Lukulu, Mongu, Senanga, Nyimba and Samfya districts. Some of these districts are among those now severely affected by the dry spells. Measures were also taken by the Food Reserve Agency (FRA) to ensure availability of maize grain on the market in order to stabilise prices in affected areas. These included the release of stocks for sale in affected areas (such as Kalomo and Kazungula) and moving strategic reserve stocks from surplus locations (e.g. Mpika, Kasama, Mbala) to affected districts in the south. The FRA also announced its plan to purchase maize starting on 20 May and ending on 30 September 2005, at a floor-price of ZMK 36 000 per 50 kg bag (US\$153/tonne).

6.2 Vulnerability and coping mechanisms

Sources of livelihood and livelihood patterns

Agriculture is the main source of livelihoods for the majority of rural households. However, livelihood patterns in different regions are largely determined by agro-ecological conditions. Maize is the staple food in most parts of the country. Although grown in all regions of the country, the main maize belt is concentrated in the southern half of the country – covering Southern, Central, Lusaka and Eastern provinces. Cassava is grown in Northern, Luapula and North-Western provinces, where it is the main staple; maize is grown in relatively small quantities, mostly as cash crop. Other food crops grown across the country include sorghum, millet, potatoes, beans and vegetables, with beans, soybeans, sunflowers and vegetable also grown as cash crops. However, these tend to be grown more widely in the northern part of the country, most especially in the case of beans and soybeans that have ready markets. The increased cereal production in two previous years was largely the result of increased small-scale production as commercial producers shifted to cash crop production, primarily tobacco and cotton.

¹In 2003, WFP purchases from Zambia included 31 219 tonnes of maize distributed as food aid in Zambia and 30 754 tonnes for DRC, Namibia and Zimbabwe; in 2004 purchases included 41 165 tonnes for Zambia and 43 725 tonnes for Angola, DRC, Malawi, Tanzania and Zimbabwe collectively.

Livestock production plays a very important role in the livelihoods in Southern, Eastern, Western and in parts of Central provinces. In addition to being the main source of cash income in some of the districts, livestock also provides draft power for cultivation. However, due to diseases, the number of livestock has declined by as much as 50 percent in some areas since 2002. This has negatively affected household incomes and agricultural production in Southern and Western provinces.

Zambia has about 40 percent of the waters in Southern Africa, which are rich in fish resources. These provide important sources of livelihoods for communities living along these waters.² Fishing provides lucrative cash income and rich proteins to the diet. However, a fishing ban is routine between December and March to enable breeding and regeneration of stocks. This causes short-term disruption to livelihoods and short-term food insecurity, particularly as this period coincides with the peak hunger period, when food prices are highest.

The population of Zambia is highly urbanised, with about 40 percent living in urban areas. Copperbelt, Lusaka and Livingstone have the highest proportion of the population. Households living in the urban areas rely on incomes from employment and trade to meet their food needs. However, the purchasing power has been declining for many years, especially in Copperbelt Province due to the closure of the mines and the consequent job losses. As a result many households have taken up informal employment and petty-trade as their main sources of livelihoods. Petty-trade is particularly high in Siavonga, Sinazongwe, Luangwa, Livingstone and Mbala where opportunities for cross-border trade and tourism are very high. Common items traded include foodstuffs, handicrafts, livestock and consumer goods. However, the informal sector is oversaturated, with many households selling similar items.

Household food security and coping capacity

Poor households have few assets, low levels of own-food production and very little access to alternative income sources. Many households in this category are female-headed, elderly-headed, child-headed, and/or housing chronically ill members or orphans.

The 2000 Census revealed that one fifth of farming households are female-headed. The 2003 Zambia Vulnerability Assessment Committee showed that female-headed households attain only two-thirds of production levels of male-headed households. This has been attributed to absence of and/or inability to hire labour for critical farming operations such as tilling. On average, they own half the size of livestock of male-headed households. Further, they tend to eat nutritious foods less frequently and support more orphans than their male counter-parts.

Elderly-headed households (household head is 60 year or older) had broadly similar characteristics to female-headed households, especially with regards to own-food production. However, male elderly-headed households had more assets and consumed more frequently nutritious food than female elderly-headed households. Elderly headed households were also hosting more orphans than households headed by other age categories.

In 2003, it was estimated that approximately 9 000 households in rural Zambia were child headed. It is likely that the numbers have risen significantly to reflect the projections in the *Zambian HIV/AIDS Epidemiological Project Report (1985-2010)* of approximately 1 150 000 orphans in the country in 2005.

Household food security has deteriorated in many districts as a direct result of the dry spells. The Mission established that the situation was significantly worse in many of the districts that have perennial shortages. The worst affected districts were in Southern and Western provinces. These findings were corroborated by the *FAO/MACO crop-monitoring project* which established that food shortages would set in about 3-5 months earlier than in normal times. For example, in Choma, many households will run out of food by June instead of the normal time of January. The projected period for others include Kazungula (May instead of December); Kalomo (June instead of September); Sinazongwe (June instead of October); and Shangombo in (June rather than February). Other monitored districts that revealed a similar pattern included Lusaka, Luangwa, Mambwe, Lukulu, Mongu and Sesheke.

The Zambia VAC also established that most poor households in the districts rely on own-production for about 40-60 percent of their food needs; on purchases for 10-20 percent and on labour exchange for 20-60 percent in Kazungula, Zambezi flood plains and Luano. Thus, crop failure immediately translated into food insecurity

²Water bodies include rivers such as Zambezi, Luangwa, Luapula and Kafue; lakes including Tanganyika, Kariba, Bangweulu and Mweru; and dams including Itezhi-tezhi.

for the majority of the households in the affected districts. The situation has been worsened because of diminished work opportunities due to failure of cash crops. Moreover, prices of food in the deficit area in the south are higher and are likely to continue to increase due to the crop failure. The mission found that poor households in Kazungula, Chama and Lundazi were already relying on wild foods more than normally for this period.

Another important compounding factor in Southern and Western was livestock diseases and its effect on household income and draft power. Households with livestock can not expect to earn a cash income due to the ban on livestock movements, and where there is no ban, livestock prices can be expected to decrease, as households sell livestock to buy food. In addition, the growing of vegetables and other crops in wetlands to fill the food gap in bad years, such as this one, has been constrained by poor water availability induced by the drought.

Urban Areas

The Central Statistical Office puts the rate of urbanization at 2.6 percent per year. This suggests that about 40 percent of Zambians are living in urban areas, with Copperbelt and Lusaka provinces having a combined total of more than 2.5 million persons.

Although the mission did not visit the Copperbelt Province nor assess food insecurity in urban Lusaka, there is evidence from several sources that food insecurity in urban areas is rife. According to the Jesuit Centre for Theological Reflection's most recent analysis, the cost of a food basket (for a family of six) in May was ZMK 504 430 compared with ZMK 482,820 in April. The rise was attributed to an increase in the price of maize meal. It is argued that this is beyond the reach of a majority of households, most of whom are either unemployed, underemployed or depend on petty trade for their livelihood. According to the Living Condition and Monitoring Survey of 2002/03, unemployment levels in urban areas are as high as 23 percent for person aged 12 years and above residing in urban areas. Even among the employed, a majority fall in the category of underemployment since their low income can not meet most of their basic needs. This situation has been exacerbated by a growing number of orphaned children due to HIV/AIDS related deaths of parents. Urban intervention is therefore a crucial issue especially for orphans in drop-in centres and provision of food to recipients of Anti Retro-Viral treatment (ARV).

Household food access, prices and purchasing power

Availability of food through markets is a very important source. Even in years of surplus production, many households still fail to meet their food requirements because of entrenched poverty levels, especially in rural households that have suffered from successive shocks of droughts and floods coupled with increased dependency ratio due to increased number of orphans. The main underlying cause is the high levels of poverty.

The mission established that access to food through markets will vary markedly. The southern part of the country will experience difficulties in access to food due to a combination of reduced food availability that translates into higher consumer prices and limited opportunities for employment to earn cash income to command effective demand. This contrasts with the situation in the north, where there is general availability of food, wider variety of foodstuffs and greater opportunities for work. The price of a 50 kg bag of maize ranged from ZMK 25 000 to ZMK 30 000 in Kasama in the Northern Province compared with ZMK 36 000 - 42 000 in Namwala in the Southern Province, compared to the previous month when the commodity price was in the range of ZMK 20 000 to ZMK 25 000 in the north and ZMK 28 000 to ZMK 32 000 in the southern parts of Zambia.

Coping strategies

A number of coping strategies were being utilized; but the options were fairly limited in the south compared to the north. These included the following:

Piecework either for food or cash on commercial or semi-commercial farms was relatively abundant in the Northern Province compared to the Southern and Western provinces. The picture was mixed in the Eastern and Central provinces. Households engaged in petty trade in all provinces, but the intensity was greater in the Southern and Western provinces. In many parts of the country, winter farming in wet valley areas (*dambos*) was undertaken, mainly maize and vegetable production. However, many of these wetlands are dryer than normally, and may not provide viable opportunities for most households this year. In the Southern Province, crops perceived to be inferior (e.g. cassava, potatoes) were being consumed.

Evidence of negative coping mechanisms was also starting to emerge. Some households in the southern districts had already started reducing the number of meals. The overall pattern was 1-2 meals per day in the Southern and Western provinces compared to 2-3 in surplus producing areas of the Northern and Luapula provinces. In addition, the variety of food items on the market was greater in the north than in the south. Sale of assets (livestock, farm implements, etc.) and charcoal and wood sales were also reported to be on the increase in the south and west.

6.3 Health and nutritional status

HIV/AIDS

The Zambia HIV/AIDS Epidemiological Project Report (1985-2010) suggests that national HIV prevalence has declined from 16.7 percent in 1995 to 13.9 percent in 2005. However, field interviews appear to suggest that the number of households with orphans and widows attributed to HIV/AIDS were on the increase. Some estimates are as high as 30 percent of households in parts of the Southern Province. Key informants reported increase in the frequency of funerals and numbers of widows/widowers, child-headed and elderly-headed households in almost all districts visited. In some health centres visited by the mission where HIV tests had been conducted, the records showed HIV/AIDS prevalence rates ranging from 30 to 40 percent.

Provinces with the highest urban population, such as Lusaka, Copperbelt, Southern and Central also have the highest levels of HIV prevalence. Districts which have more than 20 percent prevalence rates include Kabwe (Central), Chingola, Kitwe and Ndola (Copperbelt), Chipata (Eastern), Kafue and Lusaka (Lusaka Province), Livingstone and Mazabuka (Southern), and Mongu (Western). The Northern and North-Western provinces, more remote provinces, have the lowest prevalence rates.

One of the impacts of HIV/AIDS is the creation of orphans, where about two-thirds (750 504) of 1 150 000 orphans in 2004 were due to AIDS. It was estimated that 43 percent of the AIDS orphans were maternal, 40 percent paternal and 17 percent dual (i.e. both parents died due to AIDS). The table below shows that the Copperbelt Province had the highest number of AIDS orphans, followed by the Southern and Lusaka provinces. North-Western Province had the lowest number.

Table 5: HIV prevalence rate and number of AIDS orphans by province

Province	HIV Prevalence (2005)	Number of AIDS orphans (2004)
Central	14.4	59 248
Copperbelt	18.0	267 536
Eastern	12.8	51 103
Luapula	10.4	38 286
Lusaka	20.1	107 850
Northern	7.9	43 250
North-Western	8.4	20 563
Southern	15.7	124 982
Western	12.3	37 686
Zambia	13.9	750 504

Source: Central Statistical Office of Zambia, 2005: Zambia HIV/AIDS Epidemiological Projections, 1985-2010.

Links between HIV/AIDS and Vulnerability

Key informants at district and community levels cite HIV/AIDS as a major contributor to food insecurity through its effects on production. In particular, illness or death of a member of family directly results in loss of vital labour and thereby production and income. Healthcare expenses also compete with households' food needs. The impact is greatest when the household head or an adult member is affected. Labour for farming is also lost through time taken to care for the terminally ill and to attend funerals.

Thus, the loss of income due to HIV/AIDS and increased expenditure on treatment results in a reduced household capacity to access food through markets. Moreover, individuals with AIDS require higher levels of nutrients to fight the disease, which in most cases is beyond their reach or unsustainable.

Nutrition Status – Recent Trends

The Mission did not find strong evidence of widespread acute malnutrition among children in the districts visited. But the NGOs assessment mission found pockets described as ‘serious cases’ in Mambwe-Petauke Valley, Mufumbwe-Kasempa and Chama-Lundazi rice livelihoods zones. Meanwhile Zambezi East, Sioma plain, Chongwe-Nyimba plateau and Eastern Province cash crop zones were classified as being ‘risky’ in view of the fact that poor households rely on income from working on farms of the better off, and this option is affected by the drought.

6.4 Population affected and food assistance requirements

Estimates of population affected

The VAC assessment shows that 27 districts mostly in the Southern and Western provinces were adversely affected by the dry spells. Table 6 estimates the number of people in need of food aid or cash assistance, and the corresponding tonnage of required food. Approximately 1 233 000 people are unable to meet their minimum dietary intake from crop production or other sources of income, and will therefore require food or cash assistance equivalent to 118 300 tonnes of maize, beginning in July 2005 until the next harvest in 2006.

Table 6: Estimated number of people requiring assistance and cereal requirement by time period and district

District	July-September 2005		October-December 2005		January-March 2006		July 2005-March 2006
	Number of people	Tonnes	Number of people	Tonnes	Number of people	Tonnes	Tonnes
Mambwe	2 523	242	8 412	565	16 823	808	1 615
Zambezi	2 631	253	8 769	589	17 537	842	1 684
Chavuma	936	90	3 119	210	6 237	300	599
Mkushi	6 656	639	22 188	1 491	44 375	2 130	4 260
Petauke	15 273	1 466	50 910	3 421	101 820	4 888	9 775
Kapiri Mposhi	9 052	869	30 173	2 028	60 346	2 897	5 793
Lukulu	3 455	332	11 517	774	23 034	1 106	2 211
Kaoma	12 623	1 212	42 075	2 827	84 150	4 039	8 078
Kalabo	8 123	780	27 078	1 820	54 156	2 600	5 199
Mumbwa	9 773	938	32 577	2 189	65 154	3 128	6 255
Chibombo	16 164	1 552	53 879	3 621	107 757	5 173	10 345
Mongu	6 794	652	22 646	1 522	45 291	2 174	4 348
Luangwa	724	69	2 414	162	4 827	232	463
Kafue	6 728	646	22 425	1 507	44 850	2 153	4 306
Senanga	7 522	722	25 074	1 685	50 148	2 407	4 814
Mazabuka	12 303	1 181	41 010	2 756	82 019	3 937	7 874
Sesheke	5 538	532	18 460	1 240	36 920	1 772	3 544
Namwala	6 130	588	20 433	1 373	40 865	1 962	3 923
Monze	9 287	891	30 956	2 080	61 911	2 972	5 943
Shang'ombo	6 016	578	20 053	1 348	40 105	1 925	3 850
Siavonga	2 769	266	9 231	620	18 461	886	1 772
Kazungula	6 096	585	20 320	1 365	40 639	1 951	3 901
Choma	12 756	1 225	42 520	2 857	85 039	4 082	8 164
Kalomo	12 007	1 153	40 022	2 689	80 044	3 842	7 684
Gwembe	1 690	162	5 634	379	11 267	541	1 082
Sinazongwe	1 042	100	3 472	233	6 944	334	667
Livingstone	291	28	972	65	1 943	94	187
TOTAL	184 902	17 751	616 339	41 416	1 232 662	59 175	118 336

Source: Zambia VAC, 2005.

The VAC assessment has identified Chadiza, Chama, Chipata, Katete, Lundazi, Nyima and Itezhi-tezhi districts at risk of food insecurity and has recommended monitoring to enable timely response should the food security situation deteriorate.

6.5 Possible strategies for food assistance

The basic principle is that food and non-food assistance should address the short-term needs with a view to securing long-term food security. Food assistance to the vulnerable groups should in as much as possible, be linked to activities that restore livelihoods and/or build capacities for sustainable food security and resilience to future adverse rainfall patterns. This would move in the direction of government's intention of 20 percent free-food and 80 percent for food for works/assets ratio, including support for general agriculture or education and nutrition programmes. The underlying concern is the potential to create disincentives to producers and dependency. This was echoed by provincial and district authorities in Central and Northern Provinces.

WFP Country Office is currently implementing the following programmes:

1. Country Programme (CP) with planned coverage of 237 000 beneficiaries through the following activities:
 - a. Nutritional support to vulnerable groups;
 - b. Assistance to basic education;
 - c. Food for assets and food for training;
 - d. Supplementary feeding.
2. A Regional Protracted Relief and Recovery Operation (PRRO) planned for January 2005 to December 2007 with a planned coverage of 447 750 beneficiaries. The PRRO will be revised to cover the additional needs identified in this report. The PRRO will provide food assistance through the following activities:
 - a. Food for assets/Food for Work and food for training;
 - b. Orphaned and vulnerable children in community schools;
 - c. Nutritional support to anti-retroviral therapy programmes.
3. A Refugee Protracted Relief and Recovery Operation covering 81 300 people.
4. Local Purchase Programme to support local producers by buying from surplus producing areas.

Meanwhile food assistance programmes are also being carried out by NGOs. The Consortium of Southern Africa Food Emergency (C-SAFE) currently has approved food assistance programmes in place that could cover about 100 000 people.

In principle, there is scope for local food purchase from parts of the Eastern, Central and Northern provinces to meet part of the food aid requirements in the Southern and Western provinces. This would be broadly in line with the WFP Local Purchase Programme, now in its third year of implementation. However, WFP will depend on availability of cash donations, availability of reliable sources and adequate quantities of food, and the cost-effectiveness of these purchases. In early June, WFP and the Government of Zambia signed an agreement of US\$64 million for WFP assistance programme representing funding approved by the Regional Bureau in October 2004.

6.6 Non-food assistance programmes

The Mission recommends non-food assistance to address some of the causes of the current food insecurity – such as lack of farm inputs, inadequate infrastructure and HIV/AIDS. Assistance may be required to address constraints in food processing, preparation and storage.

Longer-term non-food assistance through FFW/FFA/FFT will require concurrent provision of tools, seeds, equipments and technical support. This is essential for the implementation of activities such as conservation farming and community-based social and economic infrastructure projects.

The following projects could be considered to address the medium to long-term needs:

- Establishment of small irrigation schemes to mitigate the effects of future droughts and reduce the heavy dependence on rainfall;

- Restocking of livestock to restore asset base and recovery of draft power in areas severely affected – especially for households that face labour shortage for ploughing in the southern districts;
- Support of crop diversification – for example the promotion of markets of sorghum and cassava. Support for development of productive non-food crops as alternative to maize and other food crops could in some location provide greater assurance to food security;
- Provision of fertilisers for winter farming already undertaken by the government will increase food supply within the current consumption year;
- Construction of water wells and boreholes in communities that face perennial water shortages for humans and livestock.

This report has been prepared by Mario Zappacosta and Swithun Goodbody and Simon Dradri under the responsibility of the FAO and WFP Secretariats with information from official and other sources. Since conditions may change rapidly, please contact the undersigned for further information if required.

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