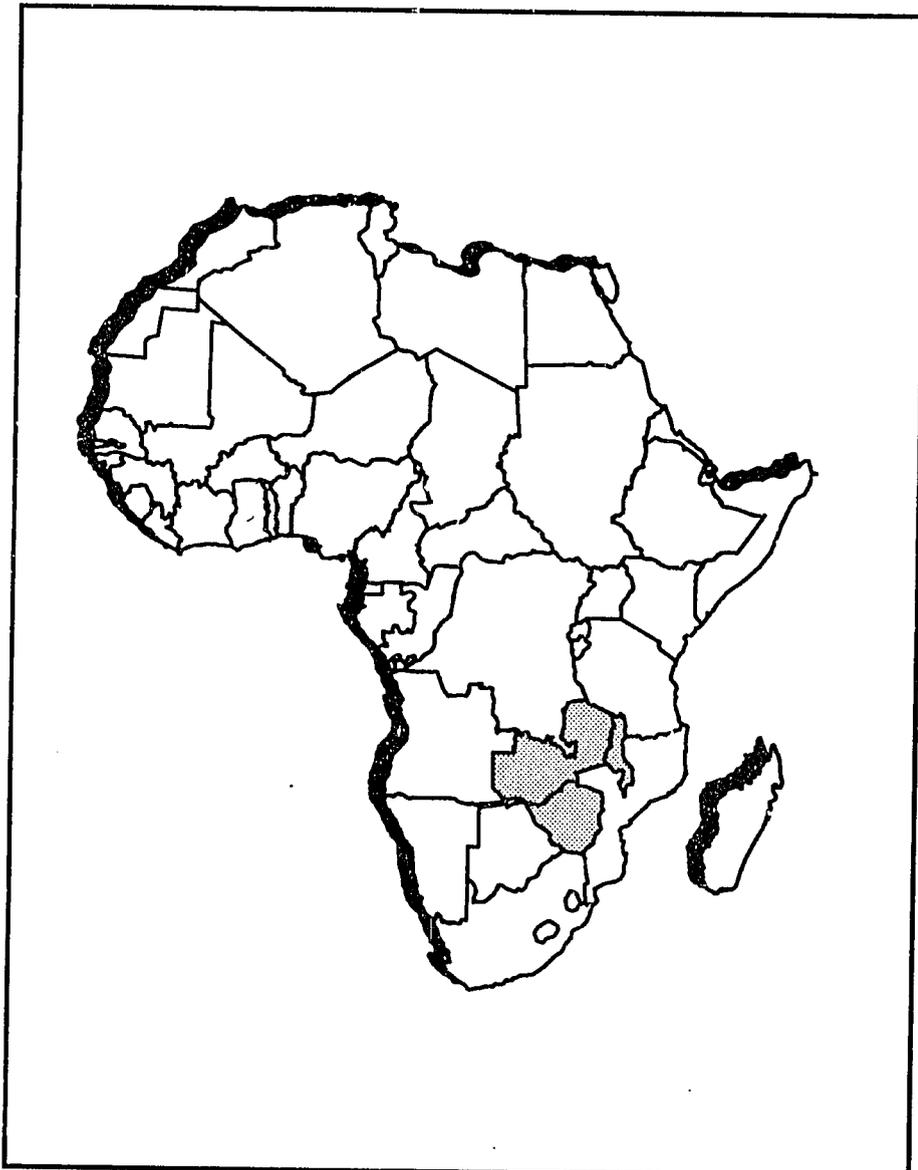


Harvest Assessment



Contains reports on:

Malawi

Zambia

Zimbabwe

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Executive Summary

MALAWI

The national estimate of agricultural production indicates a well below average cereal harvest for the 1993/94 season, and a cereal deficit of almost 500,000 MT. This estimate indicates a gross cereal production of 88 kg per person/per year, which is 92 kg per person below the Government of Malawi (GM) recommended consumption rate of 180 kg. Late and insufficient rainfall, and the failure of the agricultural credit program, contributed to low agriculture productivity. The GM has requested 175,000 MT of emergency food aid that has been provisionally targeted to the 84 most needy of the 149 existing Extension Planning Areas (EPAs).

ZAMBIA

The absence of adequate rainfall for crop development during early to mid-1994 affected most of southern Zambia, and led to the third poorest national cereals production in 15 years. The current national estimate of 1,125,616 MT is 34 percent below average and 45 percent below last year's production of 1,686,351 MT. National production of maize, the main staple food (91 percent of all cereals harvested this year), is estimated at 1,020,749 MT, which is 40 percent below the excellent 1992/93 harvest of 1,597,767 MT, and is 30 percent below average production. Based on the poor 1994 production estimate, the Ministry of Agriculture, Food and Fisheries (MAFF) has estimated there is a national cereals deficit of approximately 300,000 MT, about 30 percent of the national deficit following the devastating 1992 drought. The Government of the Republic of Zambia (GRZ) is encouraging the private sector to import enough food to make up for the production deficit, but is considering food assistance (including food-for-sale and food-for-work programs) in rural areas where markets are weak or nonexistent.

ZIMBABWE

The national estimate of agricultural production indicates an average grain harvest for the 1993/94 season, although widespread damage was done to the smallholder communal farming sector by an early end of the rains. Nevertheless, it is possible that much of the food stress currently found among rural farming households will be dampened by relief food distributions from the government. The absence of sub-national data on the 1993/94 grain production outcomes, malnutrition rates, and grain prices hinders a complete assessment of the food security situation.

FEWS REGION

Malawi's poor cereal production is the focus of the 1993/94 season

The countries included in the 1994 FEWS Southern Africa Harvest Assessment report—Malawi, Zambia, and Zimbabwe—had varied cereal production following the 1993/94 agriculture season. In Malawi and Zambia, national cereal production was below average, while it was above average in Zimbabwe. Malawi has the largest production deficit, about 500,000 metric tons (MT).

Country Briefs

Malawi

The final 1993/94 harvest production estimate of gross cereal production (maize, rice, sorghum, millet, and wheat) for Malawi is well below average. 1993/94 production is estimated at 886,717 MT, which is 59 percent less than 1992/93 and only 24 percent higher than the most recent drought year (1991/92). This estimate indicates a gross cereal production of 88 kg per person per year, which is less than half of the Government of Malawi (GM) recommended consumption rate of 180 kg. Late and insufficient rainfall and the failure of the agricultural credit program contributed to the low agriculture productivity. The Malawian Strategic Grain Reserve currently stands at 180,000 MT. An additional 165,000 MT is needed to supplement the commercial sector until the next harvest in April 1995.

The cereal shortfall of 497,000 MT is based on a domestic availability of 1,167,000 MT, and a utilization of 1,664,000 MT. Of this deficit, there are 106,000 MT not covered by anticipated commercial imports of wheat and rice, donor pledges to purchase maize through the national grain board—ADMARC, or requested emergency food aid (of which only 120,100 of a requested 175,000 MT have been pledged).

Zambia

The national production estimate of 1,125,616 MT is 34 percent below average, and 45 percent below last year's production (1,686,351 MT). National production of maize, the main

staple commodity in Zambia (91 percent of all cereals harvested this year), is estimated at 1,020,749 MT, which is 40 percent below excellent harvest (1,597,767 MT) of 1992/93 and is 30 percent below average production. Based on this, the national cereal deficit is estimated to be approximately 250,000 MT, about 30 percent of the national deficit following the devastating 1992 drought. Large staple food deficits are expected in Southern, Central, Western, Lusaka, and Eastern provinces.

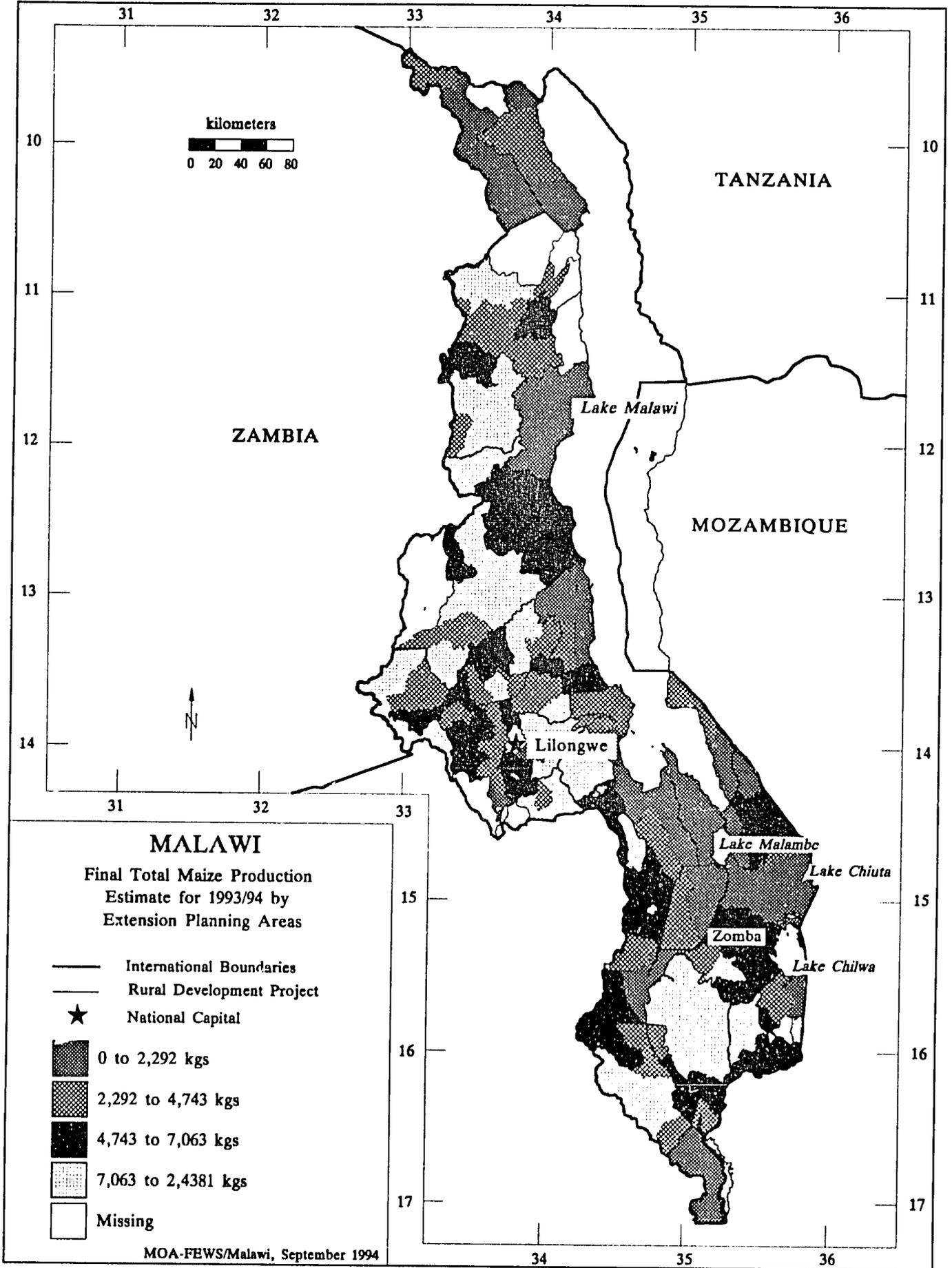
The Government of Zambia is encouraging the private sector to import enough food to make up for the deficit, but is considering food assistance (including through food-for-sale and food-for-work) in rural areas where markets are weak or nonexistent. A total deficit of approximately 85,500 MT of cereals was calculated for the rural areas of Zambia, which could be covered by the GRZ's Strategic Reserve.

Zimbabwe

The national estimate of grain production indicates an above-average grain harvest for the 1993/94 agricultural season, although widespread damage was done to the smallholder communal farming sector by an early end of the rainy season. National grain production is estimated at 2,228,000 MT, of which 1,810,000 MT is white maize. The combined sorghum and millet crop production is estimated at 166,000 MT, and the winter wheat crop at 250,000 MT.

Despite these positive numbers, there are areas of the country that had sub-national production shortfalls, including Mberengwa, Zvishavane and Kwekwe in Midlands Province; Beitbridge, Gwanda, Kezi, and Filabusi districts in Matabeleland South Province; Chiredzi, and Mwenezi districts in Masvingo Province; Chipinge, Chimanimani, Buhera, and Mutare districts in Manicaland Province. Many smallholders and other residents in these areas will be among the 1,700,000 people who are projected to be eligible for drought relief assistance during 1994/95. It is anticipated that much of the food stress currently found among rural farming households will be met with relief food provided by the government.

Map 1. Malawi: Final Total Maize Production Estimate for 1993/94 by Extension Planning Areas (EPAs)



MALAWI

Poor 1993/94 Rainy Season and Below-average Production Result in a Cereal Deficit of 493,000 MT

SUMMARY

Based on the final annual crop estimate, the 1993/94 gross cereal (maize, rice, sorghum, millet, and wheat) production for Malawi is well below average, and is estimated at 891,000 MT. The final national maize production for the 1993/94 is estimated at 819,000 MT, which is 59 percent less than 1992/93 and only 24 percent higher than the most recent drought year (1991/92). This estimate indicates a gross cereal production of 88 kg per person per year, which is 92 kg per person below the Government of Malawi (GM) recommended consumption rate of 180 kg and 54 kg per person below-average. Late and insufficient rainfall, and the failure of the agricultural credit program contributed to the low agriculture productivity. The Strategic Grain Reserve currently stands at 180,000 MT. An additional 157,000 MT is needed to supplement the commercial sector and emergency food aid provisions until the next harvest in April 1995.

FACTORS AFFECTING FOOD AVAILABILITY

Harvest Outcome

The 1993/94 gross cereal production for Malawi (estimated at 891,000 MT) is well below the ten year 1982/83–1992/93 average of 1,445,536 MT. The 1993/94 gross cereal harvest estimate is 58 percent lower than that for 1992/93 (2,143,502 MT), and only 29 percent higher (690,267 MT) than during the 1991/92 drought year. The cereal estimate indicates a gross cereal production of 88 kg per person per year, which is 92 kg per person below the GM recommended consumption rate of 180 kg and 54 kg per person below-average. This figure includes both smallholders (estimated at 9,286,295 people) and urban populations (1,015,595 people).

The final national maize production estimate for the 1993/94 agricultural crop is 819,000 MT, which is 59 percent less than 1992/93 (2.03 million MT) and only 24 percent higher than the 1991/92 drought year (657,469 MT). Estate production is not reflected in the above totals, but an estate survey is near completion. Estate production is reportedly used to feed estate tenants, for sale to ADMARC (the national grain marketing board) and the Grain and Milling Company (depot deliveries), as well as to farmers near the estates. Estate production is not normally exported even in high production years.

Only two of the eight Agriculture Development Divisions (ADDs)—Karonga and Ngabu, have estimated maize production that is greater than their six-year median production figures. Twenty-one out of 61 Rural Development Projects (RDPs) have an estimated maize production at least 10 percent below their six-year median production figures, and seven RDPs have an estimated maize production less than 50 percent of average. Still, the analysis at the RDP level masks food deficits at the Extension Planning Area (EPA) level (see Map 1). In both Northern and Southern regions production was well below 180 kg/person, while Central Region production was more than 180 kg/person. FEWS/Malawi estimates that 84 of the 149 EPAs have produced less than 1,800 kcal/person/day. The highest concentration of EPAs that have produced less than 180 kg/person are located in the southern portion of the country, which is traditionally a food deficit area.

Cash and noncereal crops often significantly contribute to the purchasing power and caloric intake of the average smallholder. This year, however, despite increases in area planted compared to 1993 (groundnuts 56 percent; sunflower 43 percent; and soybeans 16 percent), production did not increase correspondingly due to inadequate rainfall.

Poor 1993/94 rainy season

The 1993/94 agricultural season was adversely affected by both low levels and poor distribution of rainfall. As a proxy of the rainfall received during the season, the vegetative growth was monitored using the Normalized Difference Vegetation Index (NDVI).

During the early part of the season, there were three distinct patterns of vegetative growth. In the northern portion of the country, the early part of the vegetative season was characterized by a delayed season start, a one month increase in vegetation, followed by two months of minimal to slight vegetative growth. In the central portion of the country, the beginning of the vegetative season was characterized by a delayed season start, a one to two month normal increase in vegetation, followed by two to three weeks of no increase or in vegetative growth. Finally, in the southern portion of the country, there was a delayed season start, followed by a steady increase in vegetation. Still, during a critical stage of maize development (grain filling) there was a dry period that resulted in substantial yield reductions.

The Credit Failure

Poor performance within the agricultural credit system con-

tributed to low agriculture productivity. Campaign rhetoric preceding Malawi's first multi-party presidential election (August 1994) led many smallholders to believe that loans taken during 1993 would be forgiven. Typically, the recovery rate of agricultural loans to smallholder clubs has been above 80 percent. Smallholder clubs that do not repay 100 percent of their loans granted in each year are not issued credit for the following season. At the onset of the 1993/94 season, only 15 percent of 1992/93 loans had been recovered. The GM was unable to supplement the credit fund. The International Bank for Reconstruction and Development (World Bank), Malawi's main multilateral donor, was unwilling to support the agricultural credit scheme unless all 1992/93 loans were repaid. Therefore, only 4,137 clubs (about 103,425 farmers) were eligible for seed and fertilizer credit this season, compared to 15,730 clubs (393,250 farmers) in 1992/93.

The impact of the credit problems was felt most heavily on purchases of hybrid seed (primarily maize) and thus inevitably in yields and production. Seed and fertilizer inputs were available for sale, but smallholders rely on the credit scheme for purchases. A comparison of 1994 production and yield to that of 1992/93, shows hybrid maize hectareage fell from 326,408 hectares to 207,629 hectares. Hybrid maize yields fell from 3.04 to 1.36 MT/ha.

Projected Food Aid

In estimating the food aid emergency requirement, FEWS worked with the Ministry of Agriculture/Agro-Economic Survey to develop a new methodology using per capita energy equivalents (kcal/person/day) by Extension Planning Areas (EPA). Food crops were converted into their energy equivalents (kcal), and all the cash crops were converted into the caloric value of the quantity of maize which could be purchased by their sale. Using the FAO minimum requirement for temporary maintenance of 1,800 kcal/person/day, a comparison was made with the 1994 available energy values to determine the energy deficit (later converted to kg/person/day) per EPA.

By using the FAO minimum requirement for temporary maintenance of 1,800 kcal/person/day, a comparison was made with the 1994 available energy values to determine the energy deficit (later converted to kg/person/day) per EPA. Population affected was calculated from Ministry of Agriculture (MOA) EPA figures which exclude the urban population. This EPA level analysis indicates 84 EPAs require emergency food assistance as a result of the crop failure (see Map 2). The GM has requested from donors 175,000 MT of emergency food aid.

FACTORS AFFECTING FOOD ACCESS

Projected Food Consumption Needs

The consumption requirements for Malawi were calculated for the 1994/95 consumption year (from April 1994 through March 1995). The analysis shows that there is a cereal shortfall of 493,000 MT (see Table 1). This calculation is based on a domestic availability of 1,171,000 MT, and a utilization of 1,664,000 MT.

Projected cereal shortfalls will be addressed in several ways. A

May FAO/WFP crop and food supply report anticipated that the commercial sector would import 48,000 MT, of which 35,000 MT are wheat and 13,000 MT are rice. An additional 270,000 MT of cereal are needed for sale through ADMARC selling points. Pledges for loans to purchase 168,000 MT of maize have been received from donors for commercial maize purchases. Pledges include the World Bank (100,000 MT), Canada (16,000 MT) E.U. (50,000 MT), and France (2,000 MT). The deficit not covered by commercial imports (102,000 MT) or emergency food aid pledges is (55,000 MT) 157,000 MT.

The estate production of maize could be as high as 222,000 MT. Estate production is normally not included in the cereal balances for Malawi. It is unclear what proportion will be available for sale through ADMARC. Also, *dimba* (recessional) maize production which will be available later in the year will contribute to easing the shortfall. Unknown amounts of crossborder trade should also influence the cereal balance.

As of late September, ADMARC stocks and purchases nationwide were adequate (148,000 MT in September) to meet national demand for white maize through late November. Although the Strategic Grain Reserve (SGR—currently at 180,000 MT) is included as part of the stock carryover, the GM has agreed as a contingency to provide 105,000 MT through ADMARC for sale and 45,000 MT to be distributed as emergency food aid. At present there are 120,100 MT (of the required 175,000 MT) of emergency relief maize pledged to Malawi through the WFP Emergency Operation Program (EMOP) and bilateral aid partners. Pledges include: U.K. 20,000 MT; U.S.A. 50,000 MT; Germany 5,000 MT; Sweden 7,000 MT; and Taiwan 14,300 MT; E.U. 10,000

Table 1. Malawi: Estimated cereal balance (000 MT)

| | | |
|----------------------------------------------------------------------------|-------|------------|
| Domestic availability | | 1,171 |
| Gross cereal production (smallholder) ¹ | 891 | |
| Stock carryover ² | 280 | |
| Utilization | | 1,664 |
| Cereal consumption needs ³ | 1,526 | |
| Other uses | 138 | |
| Cereal Deficit | | 493 |
| Commercial imports (anticipated local sector) | | 48 |
| Emergency food aid requests | | 175 |
| Pledged | | 120 |
| Unpledged | 55 | |
| Other import requirements | | 270 |
| Pledged loans | | 168 |
| Unmet commercial | 102 | |
| Deficit not covered by commercial imports or emergency food pledges | | 157 |

Notes: 1 = 1994 population figures (10.3 million; WFP/FAO uses 10.03 million) for smallholder estimate by MOA and NSO.

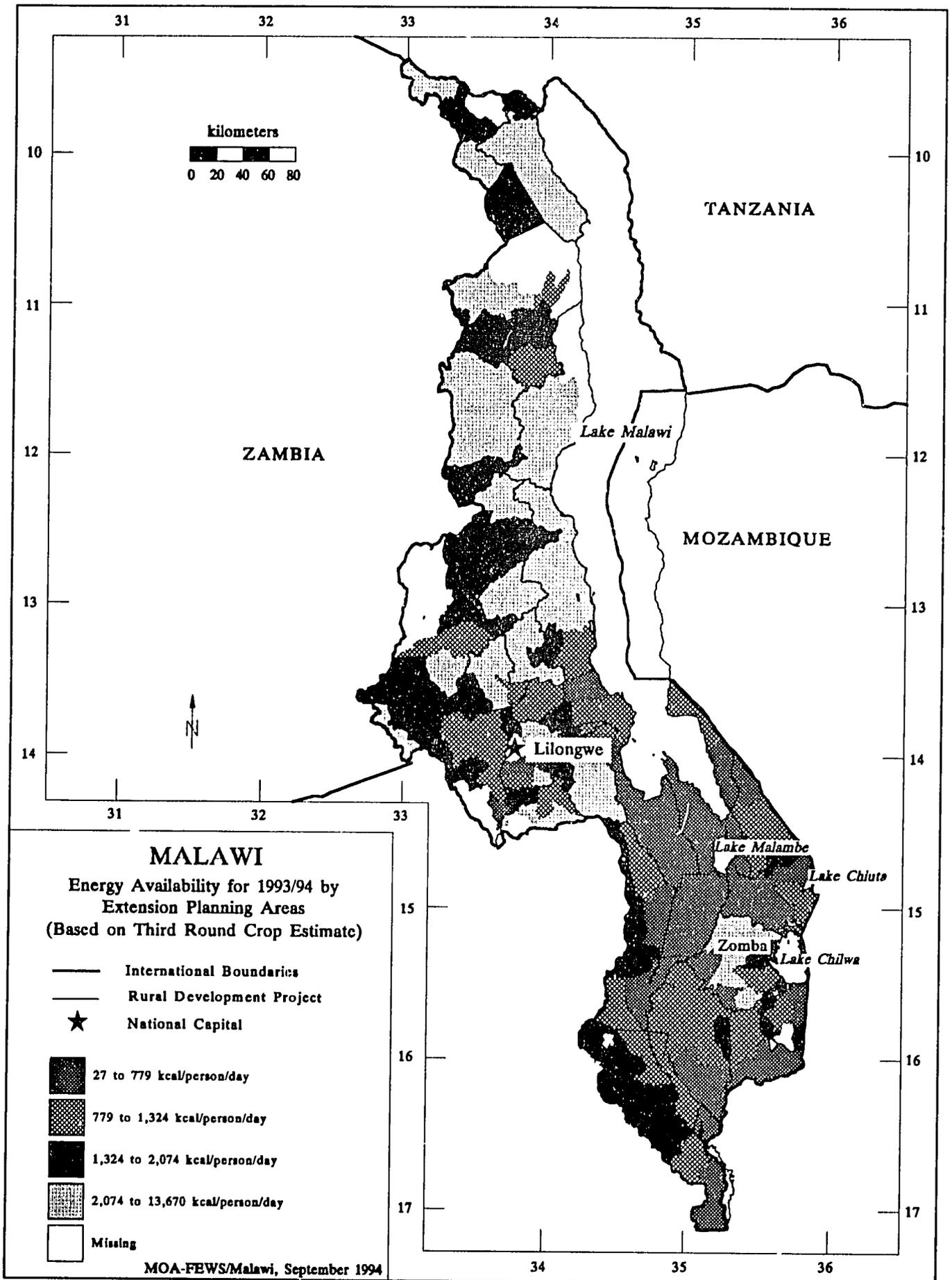
2 = 150,000 MT available from the 180,000 MT SGR, 105,000 from ADMARC, and 25,000 MT from various on farm stocks.

Source: FAO/WFP Mission

3. MOA uses 180 kg/per capita/per year, losses included. WFP/FAO uses 150 kg/per capita/year excluding losses.

Sources: FAO/WFP, MOA/FEWS

Map 2. Malawi: Energy Availability for 1993/94 by Extension Planning Areas (EPAs)



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MT; Canada 5,000 MT; and remaining refugee stocks 8,800 MT. This still leaves an emergency food aid deficit of about 55,000 MT. The GM is still soliciting donor assistance for the remaining emergency food assistance. This figure of 175,000 MT of food aid has been provisionally targeted to the 84 most needy of the 149 existing EPAs. Twenty-three of these EPAs merited allocations before September, which is the earliest possible time for food aid distribution.

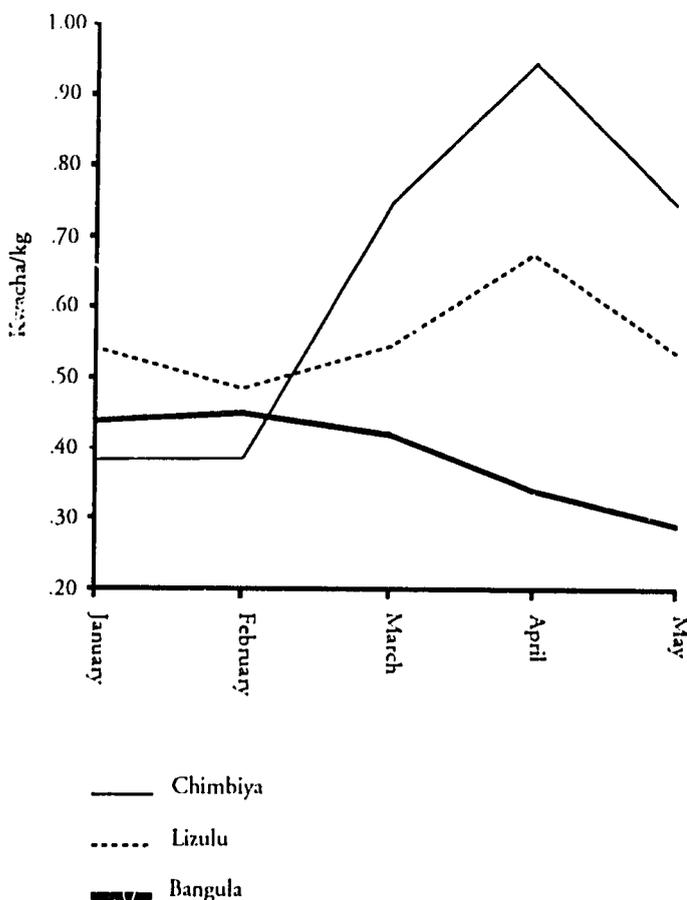
Economic Data

Data from the Agro-Economic Survey market information survey indicates that maize prices throughout the country have been stable since March, and were actually declining by May as expected soon after the harvest (see Figure 1). Through September, prices indicate that, despite the poor harvest and low to depleted household stocks, maize is readily available in the markets. As reported stocks are nonetheless low, stable prices will depend upon the continued availability of adequate stocks.

VULNERABILITY UPDATE

The 1993 preliminary vulnerability assessment indicated that 1,751,400 people were moderately vulnerable nationwide, falling

Figure 1. Malawi: 1994 Maize prices in three production deficit areas



Source: MOA/FEWS Malawi

into the categories of smallholders, female-headed households, estate laborers, and fish farmers. The number of people who are now estimated to be moderately to highly vulnerable has risen to nearly 4.8 million people. EPA level energy availability data indicate geographical areas where the highest levels of acute and chronic food insecurity are located. The 48 EPAs chronically food insecure, or those chronically below 1,800 kcal/person/day (adjusted historical average), are found in 17 of the 30 RDPs (see Map 2) and predominate in the Southern and lower Central regions. Mechanisms known to support these poor producing areas include dry season *dimba* cultivation, livestock sales, estate labor and dealings with the Mozambican refugees who have inhabited those areas over the last eight years.

Consultants funded by UNICEF and WFP have joined FEWS in assisting the GM to develop mechanisms to help direct food aid to the 84 "most needy" EPAs, and in regularly reassessing the vulnerability of all EPAs. Monitoring will consist of a monthly nutritional assessment and a weekly market component. It is funded jointly by the efforts of WFP, FEWS, all participating NGOs, and UNICEF; and is scheduled to continue until the next harvest in April. The nutritional assessment will survey the Mid-Upper Arm Circumference (MUAC) and number of meals in 200 households per EPA. The market component will follow the weekly fluctuations of maize, cassava, chicken, and goat prices in five markets per EPA. The first EPA level monitoring data should start arriving in Lilongwe for nationwide analysis before November. FEWS/Malawi has helped in presenting the data in geographical format (for all the District Commissioners, ADD Program Managers, and NGOs), in developing the data collection and reporting formats for the District Commissioners and NGOs to use in the field, and in choosing and weighing indicators to be used to re-rank each EPA monthly. The nationwide EPA analysis will be conducted and documented by FEWS/Malawi.

CONCLUSIONS

Based on 1993/94 cereal production figures, Malawi will only be able to satisfy about 70 percent of its cereal consumption. ADMARC stocks are not expected to last past mid-November, so SGR stocks may be needed to support the commercial and relief sectors. Assistance from donors is required and the GM has requested a minimum of 175,000 MT to bring the 84 neediest EPAs up to 1,800 kcal/person/day. Current receipts and/or promises total only 120,100 MT. Loans for an additional 168,000 MT of maize, to be sold through ADMARC, have been pledged.

ZAMBIA

Poor Rains and Low Per Capita Production Result in a Maize Deficit of Nearly 260,000 MT

SUMMARY

Crop production during the 1993/94 agricultural season was seriously affected by the early end of rains across most of southern Zambia. This has led to the third poorest national per capita cereals production in 15 years (see Map 3). National production of maize, the main staple commodity in Zambia, is estimated at 1,020,749 metric tons (MT), or 40 percent below last year's excellent harvest of 1,597,767 MT.

A national maize deficit of about 250,000 MT is expected. This assessment supports the national food security monitoring system (FHANIS) report that a significant proportion of households already have less than one month's stock of food, just 2-3 months after the 1994 harvest in most southern districts.

Water shortages are expected in many districts in the coming months, reducing rural populations' access to potable water sources and farmers' ability to combat cattle diseases. The combination of decreased food availability and limited access to water in the rural areas is likely to further increase high rates of malnutrition. There will be increased food insecurity in many parts of Zambia during 1994/95.

FACTORS AFFECTING FOOD AVAILABILITY

Harvest Outcome

Estimated agricultural production of most crops for the 1993/94 agricultural season is significantly below average. Large staple food deficits are expected in Southern, Central, Western, Lusaka, and Eastern provinces. The 1993/94 per capita maize production (124 kg) is only 70 percent of the average 180 kgs, and larger than only two of the previous 18 years' harvests (1981/82 had a per capita maize production of 112.5 kg and 1991/92, the worst drought year in many decades, 62 kgs per capita).

The relatively poor 1993/94 harvest is primarily due to insufficient and poorly distributed rainfall across most of southern Zambia, as well as in parts of Northwestern, Copperbelt, and Northern provinces. Rains in many southern regions began normally, but were interrupted by long dry spells that caused severe wilting, thus necessitating replanting. From late December 1993 to early February 1994 rains were generally plentiful and well distributed throughout Zambia, but in mid- to late February a

long dry spell essentially ended the agricultural season one to two months earlier than normal in Western, Southern, Central, Lusaka, and Eastern provinces. Crops planted after mid-December did not have enough time to reach the grain filling stage and wilted. Many rain stations recorded large cumulative rainfall deficits (percent of normal) with the largest being in Lusaka, 54 percent; Mazabuka (Southern Province), 49 percent; Msekera (Eastern Province), 40 percent, Choma and Magoye (Southern Province), 35 and 33 percent; Isoka (Northern Province), 33 percent; and Chipata and Mfuwe (Eastern Province), 33 and 30 percent.

The poor harvest can also be attributed partially to delays in planting caused by practical and financial difficulties. A scarcity of oxen for field preparation and delays in payment for crops produced during 1992/93 made it difficult for some farmers, particularly smallholders (those with less than 5 hectares of cultivated land), to plant early. Many farmers in Eastern, Western, and Central provinces did not receive payment for their 1992/93 maize crop until February, 1994 or later, essentially preventing them from obtaining improved seeds and fertilizers. In addition, the number of borrowers from the major agricultural lending institutions (CUSA (Z), ZCF/Financial Services, and Lima Bank) was lower in 1993/94 than in previous years, since many farmers were ineligible for credit due to nonpayment of outstanding loans, some dating back as far as 1990.

Eleven out of 21 districts in Eastern, Lusaka, Southern, and Central provinces saw per capita cereal¹ production of less than 50 percent of average, and another six districts had per capita cereal production of less than 65 percent of average (see Map 4). Western Province production was mixed, with Mongu registering only 35 percent of average, while Senanga and Sesheke both had above-average production. Per capita production in Senanga and Sesheke is still insufficient to satisfy consumption requirements for the entire year. In other parts of Zambia, harvests were generally good with per capita cereal production better than average in many areas, and over 250 percent above average in some districts of Northern and Luapula provinces.

Production and yields of other food crops also fell substantially in 1994 (see Table 2). Sunflower production and yields dropped 51 percent and 38 percent, respectively; soya beans 12 percent and 31 percent; groundnuts 18 percent and 45 percent; paddy rice 55 percent and 14 percent; sorghum 1 percent and 17 percent; and mixed beans 5 percent and 22 percent. Cash crop production of Virginia tobacco and cotton also dropped this year,

1. "Cereals" in this report refer to maize, sorghum, and millet.

Table 2. Zambia: Production of 10 crops, 1992/93 and 1993/94

| Crop (unit) | Production | | Percent change 1993/94-1992/93 |
|-----------------------------|------------|-----------|-----------------------------------|
| | 1992/93 | 1993/94 | |
| Maize (90 kg sack) | 1,597,767 | 1,020,749 | -36 |
| Sunflower (50 kg sack) | 21,176 | 10,336 | -52 |
| Soybeans (90 kg sack) | 28,026 | 24,630 | -12 |
| Groundnuts (80 kg sack) | 42,301 | 34,740 | -18 |
| Paddy rice (80 kg sack) | 13,993 | 6,358 | -55 |
| Sorghum (90 kg sack) | 35,448 | 35,070 | -1 |
| Millet (90 kg sack) | 37,394 | 62,644 | +68 |
| Mixed beans (90 kg sack) | 23,534 | 22,465 | -5 |
| Burley tobacco (MT) | 3,175 | 3,115 | -2 |
| Virginia tobacco (MT) | 3,472 | 1,900 | -45 |
| Cotton (MT) | 58,324 | 33,093 | -43 |

Source: Ministry of Agriculture, Food and Fisheries/Central Statistics Office Final Crop Forecast Survey for 1993/94

with harvested production of Virginia tobacco declining 45 percent and cotton by 43 percent. Burley tobacco remained effectively unchanged with only a 2 percent reduction in production.

Due to difficulties in surveying cassava and other tuber crops such as sweet potatoes, no data are yet available on area planted or expected production for 1993/94. This is unfortunate because cassava is a significant staple food for households in Northwestern, Luapula, and Northern provinces, and in parts of Western and Central provinces. MAFF and CSO intend to include information on these crops in future crop forecasting exercises.

Water Supply Conditions

Access to water for human and livestock consumption is expected to be poor in many areas of Eastern, Lusaka, Central, Western, and Southern provinces. The situation in many areas is reported to be worse than following the 1991/92 drought. Many wells and small streams are already dry, and reports have been received by the Department of Water Affairs (DWA) that cattle are being moved to major rivers such as the Luangwa and the Zambezi. This migration normally does not occur until much later in the year. The reduced availability of water could lead to a higher incidence of water-borne diseases and reduced labor availability in the early months of the 1994/95 agricultural season.

The DWA, through its Provincial and District Water Engineers, has assessed the situation throughout Zambia and prepared a plan of action to respond to water problems. Thirty priority sites for immediate intervention have been identified in each district.

Livestock Conditions

Insufficient numbers of oxen for field preparation was frequently cited by smallholders as a main constraint they faced in

preparation for the 1993/94 agriculture season. This reflects the ongoing problem of a reduced cattle population due to losses to diseases. Fields that failed during the mid-season drought were often those planted late because of the dearth of plow oxen. While no reliable quantitative information is available on the current cattle population, numerous reports have been received by the Food, Health and Nutrition Information System (the FHANIS food security monitoring program) that cattle deaths continue to be higher than normal in Southern, Western, and Central provinces. These deaths are linked to outbreaks of anthrax and East Coast Fever/Corridor Disease (sub-species of the *Theileria parva* virus).

The high incidence of cattle diseases is in part due to smallholder's difficulties in purchasing medications and infrequent, or no, dipping. As water supplies become scarcer in the coming months, current dipping efforts will be affected by the lack of sufficient quantities of water to operate dipping tanks.

GRZ Strategic Reserve

Beginning in April 1994, ZCF/Agri-Business, on behalf of the GRZ, began taking over stocks of maize which had been controlled by buying agents during the 1992/93 agricultural marketing exercise. These stocks, taken over as partial repayment of the agents' debts to the government, totaled about 198,000 MT or 2.2 million 90 kg bags (unless otherwise noted, a bag of cereal refers to the 90 kg standard bag used in Zambia) in late June 1994 and constitute the initial capitalization of the GRZ's Strategic Reserve.² These stocks are located primarily in Northern Province (where retained food stocks appear to be sufficient for the local rural population's consumption requirements in 1994/95), and in Central, Eastern, and Southern provinces where, along with Western Province, the majority of food insecure populations live.

The Ministry of Agriculture, Food and Fisheries owns these 2.2 million bags of maize and intends to release them for distribution in food deficit areas only upon payment. The proceeds will be used to purchase replacement maize stocks in 1995/96 or will serve as a reserve for the purchase of emergency supplies when future needs arise.

Projected Food Aid and Commercial Imports/Exports

Projected food aid

Rainfall deficits in Lusaka, Southern, Western, Central and Eastern provinces this year have not been as devastating to agricultural production as the 1991/92 drought. Nevertheless, household food insecurity has increased in some rural areas, particularly those where smallholders had not fully recovered from the drought two years ago. Over 39 percent of households in 17 of 27 districts of Southern, Central, Lusaka, Eastern, and Western provinces are already reporting availability of less than one month's foodstock (see Map 4).

2. The Strategic Reserve is being established as a major component of the proposed Food Security Reserve Act, which will be considered for passage by Parliament in its next session in August. The resulting Food Security Reserve Agency will be responsible for managing the GRZ's grain storage facilities throughout the country and ensure that a strategic reserve is maintained in physical stocks and/or financial reserves for future national emergencies.

The Task Force on Disaster Relief, through the Vice-President's office, with assistance from the Programme Against Malnutrition (PAM)³ and various government ministries and agencies, has formulated a request to donors for K17.1 billion (\$US25.3 million; K675 = US\$ 1 in June 1994) for the purchase of approximately 90,000 MT of maize and to fund emergency water supply construction and rehabilitation projects. The food stocks are to be targeted to food deficit areas using the network of NGOs affiliated with PAM. These funds account for 54.5 percent of the total K32.1 billion (US\$47.5 million) that the Vice President's office estimates are needed for food assistance and water projects. The remaining K15 billion (US\$22.2 million) is to be provided by the GRZ from the 1994 budget.

The only confirmed scheduled food assistance for 1994/95 is a 13,395 MT WFP shipment of maize, roller meal, High Energy Protein Supplement (HEPS), sugar, cooking oil, and other foods to be distributed to recently arrived refugees,⁴ food-for-work project participants in urban areas of Copperbelt and Southern provinces and the city of Lusaka, and families of underweight children in Luapula Province, Chama District (Eastern Province), Siavonga District (Southern Province), Zambezi District (Northwestern Province).

Commercial imports/exports

The GRZ intends to avoid directly importing any maize this year. It is encouraging private traders and major purchasers, such as the National Milling Company, to do so on their own in order to meet urban area demand. To date, 50,000 MT of maize have been purchased by, or are committed on option to, Zambian purchasers. No additional cereal stocks are yet known to have been ordered or purchased by private traders operating in Zambia.

No information is available on intended exports of cereal stocks either. Because prices for maize are currently higher in Malawi, which had an extremely poor harvest this year, traders with stocks in Eastern Province, where transportation costs to Malawi are lower than to the urban areas of Copperbelt Province and Lusaka, are known to be considering delivering maize there. The GRZ intends to adhere to its market liberalization policy for agricultural products, and will not impose restrictions on cereal exports.

Since private traders may not import enough food to make up for the staple deficit, the GRZ is considering options for how it might facilitate the procurement of sufficient food stocks later in the consumption year.⁵ Providing loans to private traders is one strategy being considered as it will help fill the food gap and build capacity within the private sector to fulfil this function in the future. However, specific mechanisms and the required budgetary resources are not in place.

3. PAM is an independent NGO originally created to coordinate food relief distribution following the 1991/92 drought. With funding from USAID, IFAD, WFP, and other donor agencies, it has continued working with NGOs throughout Zambia on food security-related projects (e.g., the creation of revolving seed banks, community grain storage facility construction, and road construction and repair) in the post 1991/92 drought period.

4. WFP provides food to refugees for two years after their arrival in Zambia. The refugees come from Mozambique, Angola, Zaire, and a few from Somalia, Sudan, and Rwanda. Those who have been in the country longer than two years are expected to be self-sufficient from their own agricultural production. Currently there are approximately 27,000 refugees in three camps (25,000 in Northwestern Province, 1,200 in Western Province, and 500 in Lusaka), of whom less than 25 percent still require food aid.

FACTORS AFFECTING FOOD ACCESS

Projected Food Consumption Need

Two different estimates of consumption requirements were calculated for the 1994/95 consumption year in Zambia. The first, by the Ministry of Agriculture, Food and Fisheries, estimated the urban shortfall of maize for 1994/95 to be 1.6 million bags (144,000 MT). This was largely based on an observed reduction in average monthly consumption of maize in urban areas (including commercial use of maize for breweries and stockfeed) of 100,000 bags— from 750,000 bags/month in 1992/93 to 650,000 bags/month in 1993/94. In addition, this calculation took into account an expected carryover maize stock of 225,000 MT. Recent reports indicate that stocks may amount to only 2.2 million bags (198,000 MT). If accurate, the actual urban deficit may be as high as 1.9 million bags (171,000 MT).

Using information from MAFF, CSO, FEWS, the World Food Programme, and PAM, a total deficit of approximately 85,500 MT of cereals was calculated for the rural areas of Zambia. The GRZ's Strategic Reserve should be able to cover the rural deficit (see Table 3). Whether the Strategic Reserve stocks are used to compensate for shortfalls in the rural or the urban areas, the total staple food deficit for urban and rural areas is expected to be 256,500 MT (see Table 4).

These estimates are necessarily rough, given uncertainties about actual consumption preferences and requirements at the district level.⁶ Nevertheless, they are generally consistent with food balance estimates which have been conducted by the Early Warning Unit of MAFF and the FAO. The difference in total deficits calculated using FEWS/Zambia data and the ZIEU food balance sheet (27,500 MT) can be attributed to differences in estimating food requirements and post harvest losses.

Agricultural Marketing

The GRZ's liberalization of the agricultural sector took place this year as planned. No official producer or consumer prices have been announced and the government does not intend to purchase maize or other crops, either directly or through appointed buying agents. The marketing season has begun, and prices for maize have dropped in recent months from about K10,000 (US\$14.80) per bag in high production rural areas of Eastern and Central provinces in early May 1994 to an average of about K6,000 (US\$8.90) in mid-July.

The government is registering maize and input traders, but for informational and statistical purposes only. No license is required and no limit is set on the number who can be registered.

5. The standard period used for the marketing and consumption year in Zambia is 1 May to 30 April. This roughly coincides with the normal end of rainfed crop harvesting and the beginning of crop marketing.

6. The most recent comprehensive nationwide study of food consumption patterns was conducted in 1974 by the then Ministry of Agriculture and Water Development and the FAO. While the findings of this study are useful in providing general information about consumption preferences and patterns, the actual situation has undoubtedly changed significantly in some or all districts of the country.

Table 3. Zambia: Estimates of rural staple food requirements unmet by own retention, and balance of GRZ Strategic Reserve in each district after meeting food requirements (MT)

| Province | Estimation Deficit | ZCF Strategic Reserves as at 31 May 1994 | Balance |
|--------------|--------------------|------------------------------------------|----------------|
| Central | 9,135 | 55,318 | 46,183 |
| Copperbelt | 495 | — | -495 |
| Eastern | 15,165 | 21,461 | 6,296 |
| Luapula | 1,170 | 3,395 | 2,225 |
| Lusaka | 8,280 | 8,396 | 116 |
| Northern | 990 | 41,568 | 40,578 |
| Northwestern | 2,295 | 1,606 | -689 |
| Southern | 34,110 | 64,176 | 30,066 |
| Western | 13,995 | 4,168 | -9,827 |
| Total | 85,635 | 200,088 | 134,476 |

Source: MAFF/CSO Final Crop Forecast for 1993/94, FEWS/Zambia Population Projections, Programme Against Malnutrition community assessments by Partner NGOs, and ZCF - Agri-Business Stock Reports as at 31 May 1994

Table 4. 1994/95 Marketing and consumption balance (000 MT, except population figures)

| | |
|------------------------------------------------------------------------------------------|-------------------|
| 1994 Population ¹ | 8,250,000 |
| Domestic Availability of Maize, Millet and Sorghum | 1,317 |
| Opening Stocks [*] | 198 |
| Expected Production (maize, millet and sorghum) ^{**} | 1,119 |
| Domestic Consumption of Maize, Millet and Sorghum | 1,574 |
| Urban Consumption Requirements, including beer brewing and stockfeed use (MAFF estimate) | 702 |
| Rural Consumption Requirements (FEWS/PAiM estimate) | 641 |
| Post Harvest Losses (17.5 percent) ² | 231 |
| BALANCE (MT) | -257 |
| BALANCE (90 kg bags) | -2,855,856 |

1. FEWS/Zambia projection from the 1990 Census and the 1980-90 population growth rate of 2.78 percent per annum (calculated from official district populations for 1980 and 1990).

2. Calculated at 20 percent of marketed and carryover stocks and 10 percent of retained stocks.

* Source: ZCF Agri-Business accounts of GRZ Strategic Reserves.

** Source: Ministry of Agriculture Food and Fisheries/Central Statistical Office Final Crop Forecast Survey for 1993/94.

Source: FEWS/ZAMBIA

Over 200 traders have already registered and it appears that orders for purchases amount to more maize than is estimated to be available (5.3 million bags, or 477,000 MT).

Agricultural Credit

Expected loan recoveries by the three primary agricultural lending institutions—the Cooperative Union and Savings Association (CUSA), the Zambia Cooperative Federation Financial Services agency (ZCF/FS) and Lima Bank—are low this year. This is the second time in three years that farmers in the southern half of the country have faced very poor harvests due to drought. MAFF estimates that 80 percent of outstanding loans are owed by farm-

ers in this part of Zambia. Accumulated outstanding loans from the 1990/91 to 1992/93 agricultural seasons total K10.6 billion (US\$15.8 million), or almost half of the K21.7 billion (US\$31.5) in loans provided. Expected recoveries of loans from the 1993/94 agricultural season will leave an additional K20.5 billion unpaid (US\$30.4 million), a third of the total K30.7 billion (US\$45.5 million) disbursed last year. These large outstanding debts have led to bankruptcies of some commercial farmers and could prevent smallholders and other commercial farmers from obtaining inputs for the 1994/95 agricultural season.

The large increase in agriculture debts has led the GRZ to propose two programs to assist farmers.

- A debt relief program has been developed for farmers in drought affected areas. Loan repayments will be rescheduled over three years, with reduced interest rates of 5 percent in the first year, 10 percent in the second, and 20 percent in the third. The three main lending institutions—ZCF/Financial Services, CUSA (Z), and Lima Bank—and commercial lenders such as Barclays Bank will determine which farmers were seriously affected by the drought and could benefit from the program.
- A revolving fund has been established to provide credit at lower than commercial interest rates to traders of maize and agricultural inputs. The target start-up fund is K15 billion (US\$22.2 million), to be financed by commercial banks (25 percent) and the GRZ (75 percent).

Vulnerability Update

Few Zambians were considered food insecure in 1993/94, primarily as a result of an above average harvest in 1992/93 (national per capita cereals production was 119 percent of average). Nevertheless, many smallholders in southern Zambia—particularly those without cattle—remained moderately vulnerable throughout the 1993/94 consumption year due to:

- Effects of the 1991/92 drought; and

- Low selling prices of marketed crops (particularly in isolated areas), and nonpayment of formal and informal agricultural loans.

These moderately vulnerable populations are found in the Gwembe Valley of Southern Province, the Luano and Luangwa valleys stretching from eastern Lusaka Province to northern Eastern Province (and comprising parts of Central and Northern provinces), and the west bank of the Zambezi River in Western Province. Small isolated populations on the plateau areas of Western, Southern, and Central provinces (e.g., in Namwala and Sesheke districts) also were moderately vulnerable.

The highly varied distribution of rains during the 1993/94 rainy season—in which areas separated by only a few kilometers often had greatly different harvest results—resulted in a patchy distribution of vulnerable populations in the plateau regions of Southern, Central, Western, Lusaka, and Eastern provinces. In the river valley areas mentioned above, the poor harvest this year and chronic food insecurity problems could put most of the rural population into the moderately and highly vulnerable categories in 1994/95. Some groups are already seriously food insecure as their self-produced food stocks are depleted. An initial estimate of the population of these areas is 550,000 people, with 150,000 in the Gwembe Valley, 50,000 in Chama District (Luangwa Valley), 200,000 in other parts of the Luangwa and Luano valleys, and 150,000 on the West Bank of the Zambezi.

Fishing, trade, beer brewing, and charcoal production will provide income for food purchases for some people with totally depleted food stocks. Others will be obliged to sell livestock, gather wild foods, take out high interest loans, or engage in time-consuming wage or barter labor in order to obtain food.

These rural households will benefit from food aid assistance requested by the Vice-President's office that is to be distributed through food-for-sale efforts (at partially subsidized prices in ar-

reas that private traders usually do not reach), food-for-work projects, and free food distributions (to the handicapped, the elderly, and large female-headed households). The majority of these people are found in the valley areas of Southern, Eastern, Central, and Lusaka provinces (the Gwembe Valley—Southern Province, and the Luano, and Luangwa valleys), and on the western banks of the Zambezi River in Western Province. Large pockets of moderately vulnerable people can also be found in the plateau areas of the same provinces.

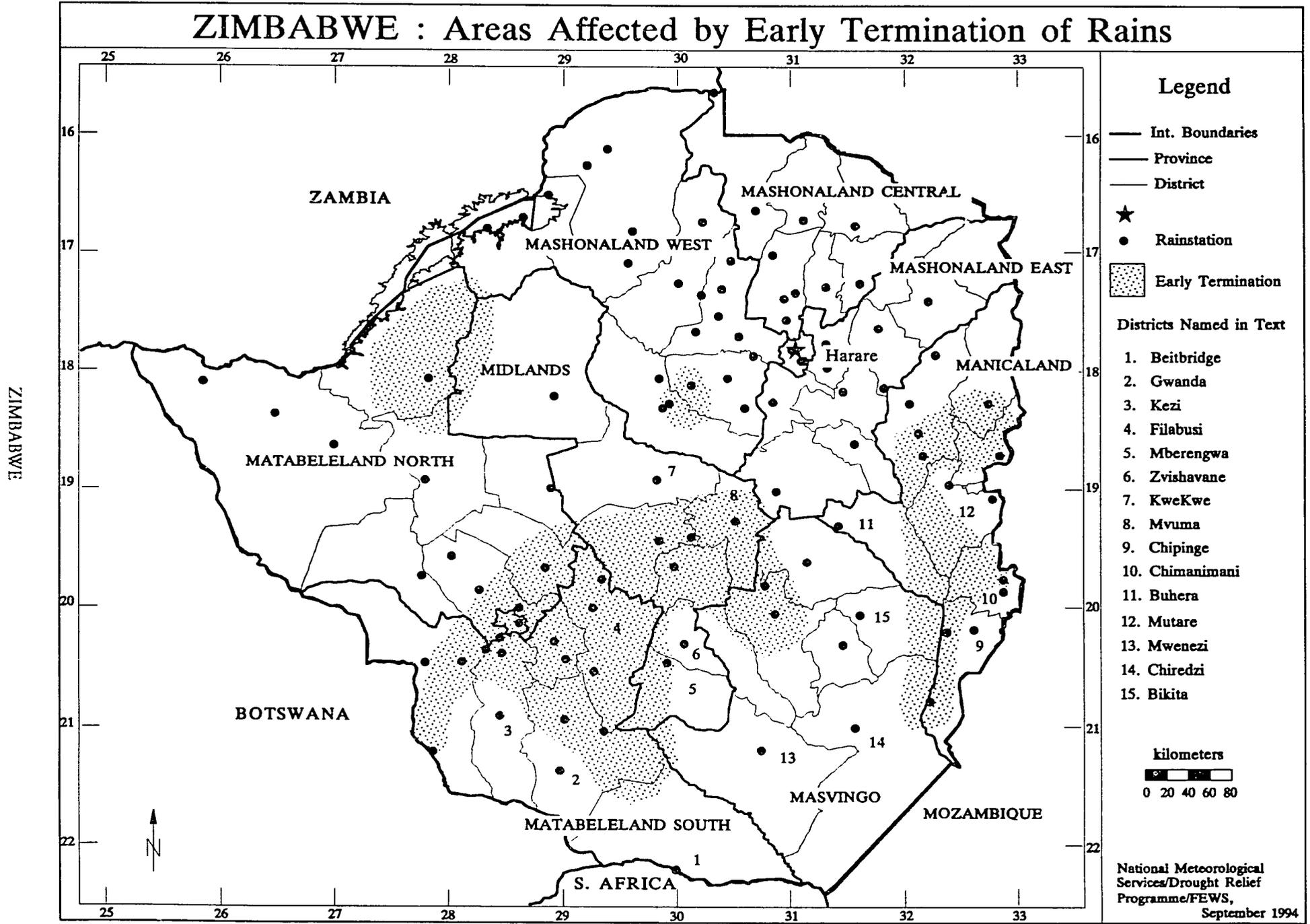
CONCLUSION

Zambia will face a staple food deficit of approximately 260,000 MT in 1994/95 due to a disappointing 1993/94 harvest. The GRZ operating on a strict cash basis, does not have the necessary resources to cover the expenses of importing food (should the private sector not be able to meet demand) for distribution in rural food-deficit areas. A donor appeal was issued in July for K17.1 billion (US\$25.3 million) to add to the K15 billion (US\$22.2 million) already committed by the GRZ, to the purchase of relief food and the implementation of an emergency water supply rehabilitation and construction program. Sufficient quantities of maize exist in the Ministry of Agriculture, Food, and Fisheries' Strategic Reserve to meet the national maize deficit. Those stocks, however, will not be released without payment. Portions of donor responses to the government's appeal will, therefore, be used to purchase these maize stocks from MAFF, so that the Strategic Reserve can purchase replacement bags of maize next year (should the Zambian harvest be plentiful enough) and/or maintain a fund which would be used to import emergency stocks of food, should the necessity arise.

Acronyms

| | |
|----------|------------------------------------------------------------------------------------------|
| AMIC | Agricultural Marketing Information Centre (Ministry of Agriculture, Food and Fisheries) |
| CSO | Central Statistical Office (National Commission for Development Planning) |
| CUSA (Z) | Cooperative Union and Savings Association, Zambia |
| CMMU | Community Management and Monitoring Unit (Department of Water Affairs) |
| DWA | Department of Water Affairs (Ministry of Energy and Water) |
| FAO | Food and Agriculture Organization of the United Nations |
| FEWS | Famine Early Warning System Project (United States Agency for International Development) |
| FHANIS | Food Security, Nutrition, and Health Monitoring System |
| GRZ | Government of the Republic of Zambia |
| HEPS | High Energy Protein Supplement |
| MAFF | Ministry of Agriculture, Food and Fisheries |
| MCDSS | Ministry of Community Development and Social Services |
| NEWS | National Early Warning System |
| NGO | Non-Governmental Organization |
| PAM | Programme Against Malnutrition |
| ZAMSEED | Seed Company of Zambia |
| ZCF/AB | Zambia Cooperative Federation, Agri-Business Division |
| ZCF/FS | Zambia Cooperative Federation, Financial Services Division |

Map 5. Zimbabwe: Areas affected by early termination of rains



ZIMBABWE

Good Harvest Production Should Cover Current Consumption

SUMMARY

At the national level, grain harvest estimates indicate an average to slightly above-average harvest for both the commercial and communal (smallholder) sectors. Nevertheless, the damage done to the communal sector by an early termination of rains is widespread and substantial. Subjective assessments suggest that there is no imminent starvation or widespread malnutrition, that grain prices are still relatively low, and that some farmers still have stocks from the excellent harvest of 1992/93.

The Government of Zimbabwe (GZ) is planning to feed more than 1.7 million people with more than 70,000 metric tons (MT) of drought relief assistance through food-for-work projects (providing a ration of 5 kilograms/month/recipient). Zimbabwe currently suffers from an almost total breakdown in its generation of key food security information. Grain production data at the communal, district, and province levels have not been released. Current malnutrition and grain price data are also unavailable. Conclusions about food security are, therefore, based on subjective assessments and anecdotal evidence.

FACTORS AFFECTING FOOD AVAILABILITY

Harvest Outcome

The second (and final) harvest production forecast released in May by the Government's Crop Forecast Committee (CFC) estimated national grain production at 2,228,000 MT. Of this, 1,810,000 MT was white maize. This estimate for white maize, and for the entire grain harvest, is slightly above the 1983/84–1992/93 average (average production for that period was 1,770,195 MT). The combined sorghum and millet crop production is estimated at 166,000 MT, and the winter wheat crop at 250,000 MT.

The breakdown by sector of the maize production estimate shows an average production in both the commercial, where 750,000 MT of production is slightly above the 717,035 MT ten-year average, and communal sectors, where 1,085,000 MT is close to the 1,053,160 MT average. These estimates are far below the 1992/93 maize harvest totals for both the commercial (1,238,000 MT) and communal sectors (2,011,850 MT).

The 1993/94 growing season was characterized by a generally good start-of-season in November 1993. Still, an abnormally late onset of the rains in the northeast and unusually heavy rainfall in the south were both reversed by the midpoint of the season. Optimism for a second consecutive excellent harvest was high until the rains tapered off in mid-February, about a month earlier than normal for most farming areas.

Areas which were particularly hard hit by the early cessation of rains included much of Matabeleland South, the southern half of Midlands, lowland areas in Manicaland and parts of Masvingo, scattered areas in Matabeleland North, and Mashonaland provinces (see Map 5).

Farmers who were seriously affected by the early termination of rains were those who planted relatively late (October–December). This included a high percentage of the smallholder communal farmers, and most of those farmers who were waiting to receive the drought recovery seed packs distributed by the GZ. Although not all eligible farmers received their seed packs, those who did, received them late. These farmers planted in mid- to late December, and saw their maize wilt in mid-February.

Reliability of Estimate

In a departure from previous years, information about the distribution of this production at the communal, ward, or even at the higher district or province levels has not been released by the Ministry of Lands, Agriculture, and Water Development's (MLAWD) Agricultural, Technical and Extension Service (AGRITEX). This has greatly hampered assessments of food security at the sub-national level. This is important because there are large areas where production was abnormally low, and where food security rests heavily upon each year's production.

The reasons for not releasing this information have not been given officially. Nevertheless, one reason may be an uncertainty about the accuracy of the estimate. The official estimation procedure has never been based upon an objective measurement of either area or yield. This introduces, in any given year, a great amount of caution among those who are responsible for compiling the estimate since it forms the basis for major decisions of producer pricing and export approval. This may be the underlying reason why subjectively-based amendments by the CFC of the field production assessments are common.

There are indications that such amendments have again occurred this year, and that estimates of production from the field may have been substantially higher than the CFC national estimate that was released. This may have led to a dilemma in which the field-generated estimates do not add up to the national estimate released by the CFC, and are therefore not being released. Beyond the difficulty that this raises in making accurate food security assessments, these actions ultimately undermine the credibility of the government's agricultural production information that is key to many national, and international, decisionmakers.

Pastoral Conditions

The early termination of rains had less of an impact on the growth of fodder grasses than on grain production. Most grassland pastoral areas in the country are in average condition. Nevertheless, average conditions may limit the regeneration of the nation's herds, which were decimated during the 1991/92 drought. This could be a problem in Matabeleland South, Masvingo, southern Midlands, and Manicaland provinces, where a large share of the nation's herd, and people dependent upon it, reside.

Food Stock Information

Government policy directs that 936,000 MT of grain should be held in its Grain Marketing Board (GMB) Strategic Grain Reserve (SGR). At the beginning of July 1994, the GMB actually held 1,123,923 MT of grain. Of this amount, 426,308 MT has come from GMB intake from this year's harvest.

Projected Food Aid and Commercial Exports/Imports

Currently, there are no publicized plans to request food aid from national or international donors. The government's Drought Relief Programme (DRP) is currently projecting a maximum of 1,700,000 people who will require food assistance (food-for-work). The projected amount of food aid required to support the DRP is approximately 78,000 MT for the July 1994-June 1995 period. Recent indications are that the GZ will have financial difficulty in providing this amount of grain as relief, which means the government could eventually seek financial assistance.

The government has allowed the GMB parastatal to accept export commitments for substantial amounts of white maize (approximately 486,000 MT according to the AGRITEX NEWU June report). At the beginning of July, the GMB reported 408,603 MT of commitments, leaving 715,320 MT uncommitted. It is uncertain which of the existing commitments will eventually be fulfilled, although the government did export at least 130,000

MT of a request for 300,000 MT of grain on commercial terms to Malawi. Other commercial sales to Kenya, Tanzania, and Zambia are also possible.

The *Herald* newspaper announced early in July that the GMB, private, and Government representatives are now engaged in talks with various South African entities about the possibility of importing South African grain to more economically meet food import needs (reflecting transportation costs) in the dry southern areas of the country, while grain produced in the northern areas of the country would be exported to Malawi and other regional customers.

FACTORS AFFECTING FOOD ACCESS

Projected Food Consumption Needs

Between the current SGR stocks and current harvest production, all national grain consumption requirements can be met for the entire 1994/95 year, even with substantial exports (see Table 5). Nevertheless, this would be at the cost of reducing the SGR to somewhere near the 271,000 MT mark, far below the Government's target of 936,000 MT.

Economic Data

There is no current information available on countrywide pricing of maize or other staple food products. Nevertheless, unofficial sources suggest that retail grain prices are still relatively low in rural areas at prices ranging between Z\$450 and Z\$700 per MT. These low prices have prevailed since last year's excellent harvest. This suggests that there is still a substantial amount of maize being held in household and commercial stocks.

In June 1993, the Government made changes to liberalize grain markets, including the relaxation of restrictions on grain

Table 5. Zimbabwe: 1994/95 Staple food balance (000 MT)

| | Maize | Rice | Wheat | Miller | Total cereals |
|-------------------------------|-------|------|-------|--------|---------------|
| Domestic Availability | 2,746 | 6 | 37 | 177 | 3,305 |
| Formal Opening Stocks | 934 | 6 | 126 | 11 | 1,077 |
| Gross Harvested Production | 1,812 | — | 250 | 166 | 2,228 |
| Annual Requirement | 3,101 | 15 | 478 | 200 | 3,794 |
| Gross Consumption Requirement | 2,165 | 15 | 278 | 200 | 2,658 |
| Normal Strategic Reserves | 936 | — | 200 | — | 1,136 |
| Domestic Balance | -355 | -9 | -102 | -23 | -489 |
| Domestic Cross Substitution | -23 | — | — | 23 | — |
| Import/Export Requirement | -378 | -9 | -102 | — | -489 |
| Imports—94/95 Marketing Year | — | 10 | 50 | — | 60 |
| Exports—94/95 Marketing Year | -436 | — | — | — | -436 |
| Uncovered Imports/Exports | -814 | 1 | -52 | — | -865 |
| Closing Stocks (3/95) | 122 | 1 | 148 | — | 271 |

Source: National Early Warning Unit (NEWU), AGRITEX

marketing and milling, and the removal of Government subsidies on roller meal (refined maize flour). These changes have had enormous impact on consumers, producers, the GZ budget, and large milling companies.

These changes immediately raised the price of roller meal, Zimbabwe's principal staple food product, by 40 percent. These changes in marketing and milling restrictions also allowed large numbers of small hammer-mills to open, providing farm families with a way to grind their own grain (producing a whole-grain meal called "straight-run meal"). Following this development, the fourth round of the UNICEF Sentinel Site Survey (SSS) found that "there has been a dramatic shift in maize consumption away from roller meal to straight-run meal". Households consuming straight-run meal rose from 33 percent in March 1993 to 71 percent in December 1993. The survey showed that families who bring their own maize grain to local hammer-mills save an average of Z\$24 on each 50 kg bag of maize milled. UNICEF also estimates that the cost of "straight-run" meal currently is approximately 27 percent less than roller meal, and only 12 percent higher than the pre-May 1993 subsidized price of roller meal.

The U.S. Agency for International Development (USAID) in Zimbabwe estimates that the cost savings to consumers may be much greater than those found by UNICEF. Using the price of maize that has prevailed in rural areas for almost the entire year (Z\$450-700 per MT), USAID finds that the current price of "straight-run" meal is about the same price compared to the subsidized price of roller meal before the changes of June 1993. In fact, when inflation is factored in, the "straight-run" meal is actually less expensive. The difference is that the GZ no longer bears the cost of the subsidy (Z\$40,000,000 a month), and the producer price of maize has risen from approximately Z\$550 to Z\$900 per MT.

Finally, the recent change in government in South Africa, and the increased contact, movement, and commercial linkages that will certainly flow from these changes, are still to be quantified as far as their eventual impact on the food security of Zimbabweans. Undoubtedly, however, the impact from Zimbabwe's economically strong southern neighbor will be great.

UPDATE ON VULNERABILITY

Recent changes in levels of vulnerability are difficult to quantify without disaggregated production, price, and malnutrition data. This season's poorly distributed rainfall and early termination of rains, decreased the household food security of the poorest smallholders in several areas (see Map 5). Fortunately, average grazing conditions and rising meat prices have not put any additional stress on smallholders, who are greatly dependent upon herding for income.

A high vulnerability to food insecurity as a result of food shortages is currently found in Mberengwa, Zvishavane and Kwekwe in Midlands Province; Beitbridge, Gwanda, Kezi, and Filabusi districts in Matabeleland South Province; Chiredzi, and Mwenezi districts in Masvingo Province; Chipinge, Chimanimani, Buhera, and Mutare districts in Manicaland Province; and scattered areas elsewhere. Many of these farmers will be among the 1,700,000 people who are projected to be eligible for drought

relief assistance during 1994/95.

For commercial farm laborers, low grain prices and the relatively average harvest of the commercial sector have generally prevented further degradation of their already precarious food security. Despite the presence of only limited information about their economic status and available resources, many feel that commercial farm worker households remain the most vulnerable population in Zimbabwe.

CONCLUSIONS

Conclusions about the food security of households in Zimbabwe are based only on anecdotal and subjective evidence. While the recent harvest was poor for those who are the most dependent on rainfed agriculture, large grain stocks from the 1993/94 harvest, low grain prices, and an ongoing and substantial national drought relief program appear able to largely maintain current levels of household food security until the next harvest. Nevertheless, as these supplies are drawn down throughout this year, an excellent harvest in 1995 becomes a more essential condition for improving the food security of most Zimbabweans.

FEWS Vulnerability Index

| Level of Vulnerability | Conditions of Vulnerability | Typical Coping Strategies and/or Behaviors | Interventions to Consider |
|----------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SLIGHTLY VULNERABLE | Maintaining or Accumulating Assets and Maintaining Preferred Production Strategy | Assets/resources/wealth: either accumulating additional assets/resources/wealth or only minimal net change (normal "belt-tightening" or seasonal variations in) assets, resources or wealth over a season/year. i.e., coping to minimize risk. Production Strategy: any changes in production strategy are largely volitional for perceived gain, and not stress related. | Developmental Programs |
| MODERATELY VULNERABLE | Drawing-down Assets and Maintaining Preferred Production Strategy | Assets/resources/wealth: coping measures include drawing down or liquidating less important assets, husbanding resources, minimizing rate of expenditure of wealth, unseasonable "belt-tightening" (e.g., drawing down food stores, reducing amount of food consumed, sale of goats or sheep). Production Strategy: only minor stress-related change in overall production/income strategy (e.g., minor changes in cropping/planting practices, modest gathering of wild food, inter-household transfers and loans, etc.). | Mitigation and/or Development: Asset Support (release food price stabilization stocks, sell animal fodder at "social prices," community grain bank etc.) |
| HIGHLY VULNERABLE | Depleting Assets and Disrupting Preferred Production Strategy | Assets/resources/wealth: liquidating the more important investment, but not yet "production," assets (e.g., sale of cattle, sale of bicycle, sale of possessions such as jewelry). Production Strategy: coping measures being used have a significantly costly or disruptive character to the usual/preferred household and individual life-styles, to the environment, etc. (e.g., time-consuming wage labor, selling firewood, farming marginal land, labor migration of young adults, borrowing from merchants at high interest rates). | Mitigation and/or Relief: Income and Asset Support (Food-for-Work, Cash-for-Work, etc.) |
| EXTREMELY VULNERABLE or AT-RISK | Liquidating Means of Production and Abandoning Preferred Production Strategy | Assets/resources/wealth: liquidating "production" resources (e.g., sale of planting seed, hoes, oxen, land, prime breeding animals, whole herds). Production Strategy: Seeking nontraditional sources of income, employment, or production that preclude continuing with preferred/usual ones (e.g., migration of whole families). | Relief and/or Mitigation: Nutrition, Income and Asset Support (food relief, seed packs, etc.) |
| FAMINE | Destitute | Coping Strategies Exhausted: no significant assets, resources, or wealth; no income/production. | Emergency Relief (food, Shelter, medicine) |

Key Terms

At Risk — FEWS Reports use the term “at risk” to describe populations either currently, or in the near future, expected to have insufficient food, or resources to acquire food, to avert a nutritional crisis (i.e., progressive deterioration in health or nutritional condition below the status quo). “At risk” populations require specific intervention to avoid a life-threatening situation. Food needs estimates are sometimes included in FEWS reports. Famines are the culmination of a slow-onsetting process, which can be extremely complex. The food needs of specific “at-risk” populations depend on the point in this process when the problem is identified and the extent of its cumulative impact on the individuals concerned. The amount of food assistance required, from either internal or external sources, depends upon many considerations.

Vulnerability — FEWS Reports use the term “vulnerability” to indicate relative susceptibility to food insecurity of groups of people or areas. In FEWS usage, vulnerability is always characterized by its degree: slight, moderate, high, or extreme. Extreme vulnerability is synonymous with “at risk.” Vulnerability is a dynamic concept that incorporates both chronic and current conditions. Chronic vulnerability involves long-term conditions that predispose a particular group or region to food insecurity. Current vulnerability highlights short-term changes in food security status and their implications. Vulnerability analysis involves three levels of concern: food availability, food access, and food utilization. These levels are linked by a common analytical framework that interprets all relevant information for its food security impact on the diversified income generating possibilities of different groups of households.

ITCZ — The Intertropical Convergence Zone (ITCZ) is equivalent to a meteorological equator; a region of general upward air motion and relatively low surface pressure bounded to the north and south by the northeast and southeast Trade Winds, respectively. The upward motion in the ITCZ forms the rising branch of the meridional Hadley Circulation. The ITCZ moves north and south following the apparent movement of the sun. It is at its most northerly position in the summer months. The position of the ITCZ normally defines the northern limits of possible precipitation in the Sahel; rainfall generally occurs 100 to 300 kilometers south of the ITCZ, with local convective activity organized by westward moving “Easterly Waves.”

NDVI — Normalized Difference Vegetation Index (NDVI) images are created at the laboratory of the National Aeronautics and Space Administration (NASA) Global Inventory Modeling and Monitoring System (GIMMS). The images are derived from Global Area Coverage (GAC) imagery (of approximately seven kilometers resolution) received from the Advanced Very High Resolution Radiometer (AVHRR) sensors on board the National Oceanic and Atmospheric Administration (NOAA) Polar Orbiting series of satellites. The polar orbit satellites remotely sense the entire Earth and its atmosphere once each day and once each night, collecting data in five spectral bands. Bands 1 and 2 sense reflected red and infrared wavelengths, respectively, and the remaining three bands sense emitted radiation in three different spectral bands. The NDVI images are created by calculating $(\text{infrared} - \text{red}) / (\text{infrared} + \text{red})$ for each pixel from the daytime satellite passes. Since chlorophyll reflects more in the infrared band than in the red band, higher NDVI values indicate the presence of more chlorophyll and, by inference, more live vegetation. A composite of daily NDVI images is created for each 10-day period, using the highest NDVI value for each pixel during that period. This technique minimizes the effects of clouds and other forms of atmospheric interference that tend to reduce NDVI values. NDVI is often referred to as a measure of “greenness” or “vegetative vigor.” The NDVI images are used to monitor the response of vegetation to weather conditions.

METEOSAT — METEOSAT-based Rainfall Estimates. FEWS uses estimates of current rainfall based on cold cloud duration as measured by thermal infrared radiometers on the METEOSAT satellite. The estimates are calculated every 10 days by the Department of Meteorology at the University of Reading in the U.K. Cold cloud duration correlates well with thunderstorm generated rainfall and, thus, is suitable for use in the semi-arid Sahel. The method works best on level terrain; hilly areas may produce local enhancements or rain-shadow areas that are not detected. In level areas the method has an accuracy of “rain/no rain” of at least 85 percent (based on a comparison with ground data). At a dekadal (ten-day) scale, 80 percent of rainfall amounts under 60 millimeters (mm) are accurate to plus or minus 10 mm, while rainfall over 60 mm is accurate to plus or minus 20 mm. This accuracy is acceptable for use in the FEWS-monitored region given that the method provides near-real-time coverage for a large area at a resolution of less than 10 kilometers.