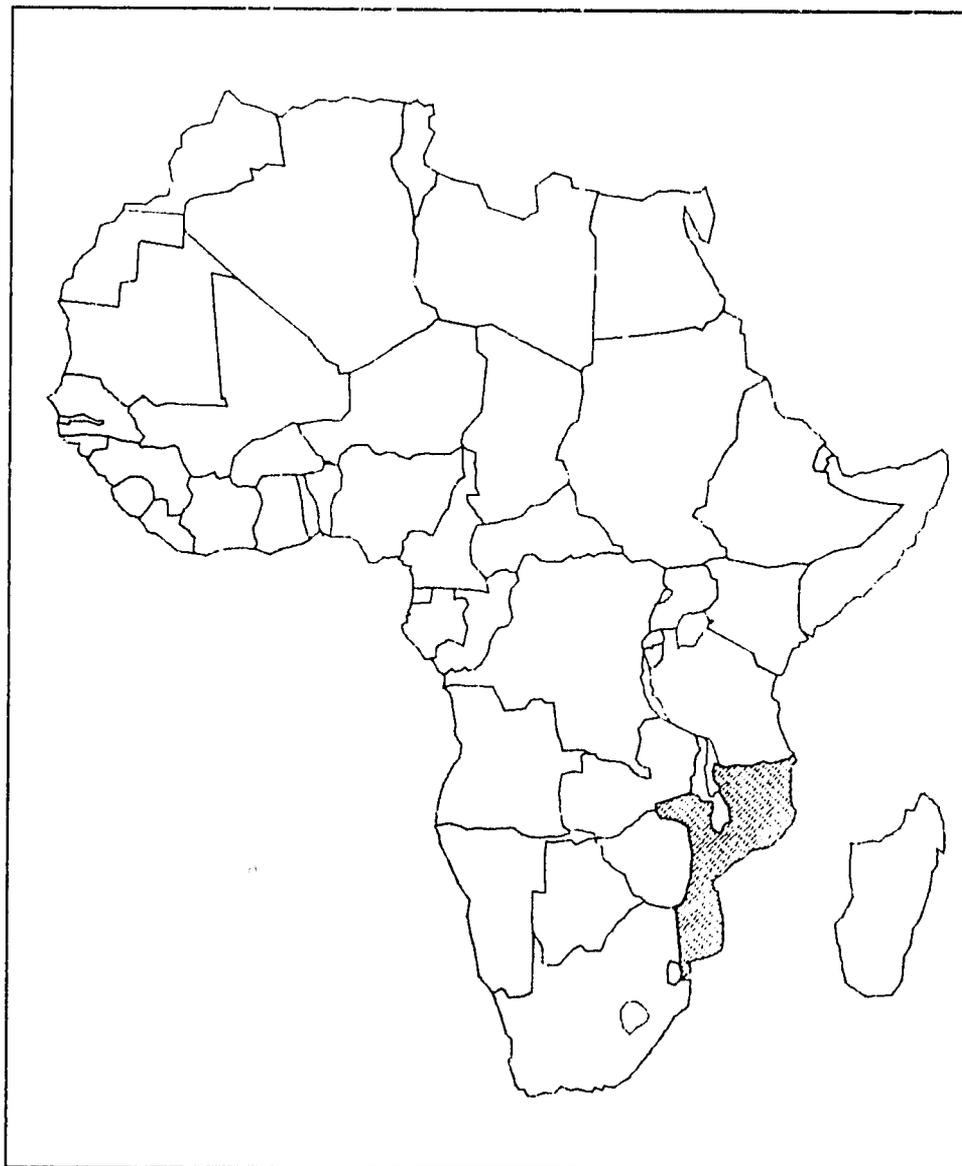


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Report 22
April 1988

FEWS Country Report

MOZAMBIQUE



Famine Early Warning System
Africa Bureau
U.S. Agency for International Development

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MOZAMBIQUE

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Prepared for the
Africa Bureau of the
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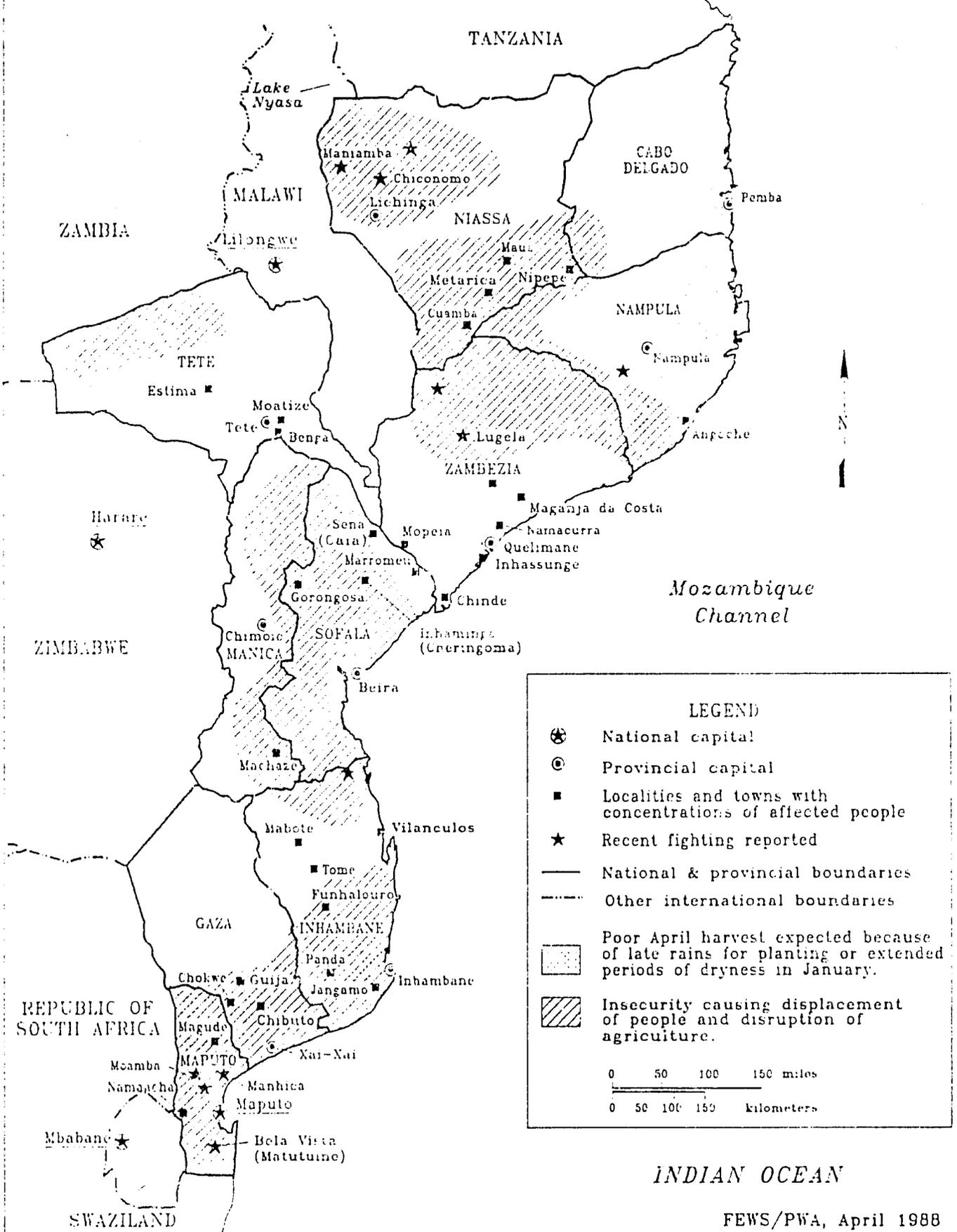
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Price, Williams & Associates, Inc.

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Mozambique



MOZAMBIQUE

Mixed Prospects for Upcoming Harvest



SUMMARY

There are currently 3,310,000 people at risk in Mozambique, according to estimates released on March 19th by the People's Republic of Mozambique (GPRM). Of this total, 1.1 million people are displaced from their homes and the remainder are termed "seriously affected." There are also 700,000-800,000 Mozambican refugees living in nearby countries. More than half of the refugee population is found in Malawi, where emergency resources have been strained by the sizable influx of refugees since early 1987. In January, emergency food distribution remained well below estimated requirements, with deliveries totalling 12% of the maize and 29% of the pulse requirements. The harvest outlook is poor in southern Mozambique, where extended dryness may have stressed crops; in coastal areas of central Mozambique, where winds and heavy rains from two tropical storms may have damaged crops; and in coastal areas of northeastern Mozambique, where very late planting rains shortened the normal growing season. Agricultural conditions appear to be favorable elsewhere in Mozambique, but continued insurgent disruption of the agricultural sector could reduce potential crop production. Preliminary calculations indicate that Mozambique may require 774,200 metric tons (MT) of cereals, 71,000 MT of pulses, and 20,220 MT of vegetable oil to meet the needs of the commercial market and emergency relief operations during the upcoming crop year (May 1, 1988 - April 30, 1989). Based on preliminary estimates, marketed domestic production and current donor pledges are expected to meet an estimated 35% of cereal, 44% of pulse, and 129% of vegetable oil requirements.

Key Events and Issues

- On April 26th and 27th, the International Relief and Rehabilitation Conference will convene in Maputo to review current relief and development activity, and to solicit additional food and nonfood aid assistance for the upcoming 1988-1989 crop year.
- USAID/Maputo estimates of emergency food aid requirements for the upcoming crop year are less than half of what they were for 1987/1988, even though the emergency population has increased by 100,500 people since 1987. This decrease in food requirements is attributable to the lower ration used in estimating food needs.
- Health workers report that, since 1984, the nutritional situation has been steadily deteriorating throughout Mozambique, with annual increases in the number of people suffering from malnutrition.

POPULATIONS AT-RISK

There are currently 3,312,400 people at risk in Mozambique, according to estimates released on March 19th by the GPRM Emergency Operations Committee (COE). Of this total, 1.1 million people are displaced from their homes and the remainder are termed "seriously affected." There are also 700,000-800,000 Mozambican refugees living in nearby countries. More than half of the refugee population is found in Malawi, where emergency resources are strained by the rapid influx of refugees since early 1987.

The estimate of 3.3 million affected people suggests an increase of 100,500 people since June 1987, when the GPRM estimated there were 3,211,900 people at risk. Earlier province level estimates of the at-risk population, presented by provincial authorities in December 1987 (see FEWS Report 19), were deemed too high by the COE because they included displaced people who had fled the province, and because some estimates double-counted people between the categories of "affected," "displaced," and "market dependent." However, if the 3.3 million at-risk figure currently used by the COE does not account for people living in inaccessible areas (the June 1987 estimate excluded inaccessible populations), the COE estimate may still underestimate the magnitude of the emergency situation in Mozambique. District level data which differentiate between accessible and inaccessible populations at risk are not available. If unsubstantiated claims by rebels are correct, up to 80% of rural areas are under rebel control, which implies a fairly sizable inaccessible rural population. By most accounts, poor nutrition and health conditions are prevalent in these areas.

FOOD DISTRIBUTION

The amount of food delivered between November 1987 and January 1988 remained well below the theoretical level needed for 3.2 million people (Table 1). Assuming the estimates of the affected population and emergency food requirements are correct, it is reasonable to expect that the level of malnutrition will increase unless food deliveries approximate food requirements. In fact, information collected by relief and health workers suggests that, since 1984, the level of malnutrition has been increasing annually, with malnutrition affecting a larger number of Mozambicans. If true, this trend indicates the long term effect of continuous food shortages over the same time period that Mozambique was becoming increasingly dependent on donor food assistance. One obvious implication is that the quantities of donor food aid delivered over the past four years have been insufficient to stem the increasing malnutrition. The current deficit between estimated food requirements and actual deliveries does not improve the nutritional outlook in Mozambique.

Table 1: Emergency Food Actually Delivered
(Expressed as a Percent of Theoretical Requirements)

	1987 November	1987 December	1988 January
Maize	18%	11%	12%
Pulses	27%	57%	29%
Vegetable Oil	55%	88%	71%

Source: WFP Emergency Telex Reports, No. 129, 131, and 133

Table 2: Food Balance For May 1, 1988 - April 30, 1989

	COMMODITY (MT)				
	Maize	Rice	Wheat	Pulses	Oil
REQUIREMENTS (A)					
Urban Market	173,288	67,766	135,533	34,851	9,681
Food Bank	98,550	29,565	0	13,140	3,285
Emergency Relief	199,489	0	0	22,971	7,254
Food Stock Reserve	35,000	5,000	20,000	0	0
Total Net Requirements	506,327	112,331	155,533	70,962	20,220
SUPPLY (B)					
Commercial Imports	0	0	0	0	0
Marketed Production	34,000	18,000	0	8,000	7,000
Opening Stocks	64,000	19,000	32,000	0	7,000
Donor Pledges	92,000	16,000	26,000	23,000	12,000
1988/1989 Pledges	35,000	16,000	7,000	15,000	5,000
1987/1988 Undelivered	57,000	0	19,000	8,000	7,000
Total Gross Supply	190,000	53,000	58,000	31,000	26,000
Less Milling Losses (C)	18,900	5,940	3,900	0	0
Total Net Supply	171,100	47,060	54,100	31,000	26,000
BALANCE	-335,227	-65,271	-101,433	-39,962	5,780

(A) Food Requirements:

- Food requirement was calculated for 365 days. Daily per capita rations, in grams, as provided by USAID FVA and the GPRM include:

	People	Maize	Rice	Wheat	Pulses	Oil
Normal Market	2,652,300	179	70	140	36	10
Food Bank	900,000	300	90	0	40	10
Emergency Relief	3,312,400	165	0	0	19	6

- The affected and displaced population is assumed to be 50% self-sufficient in food production (emergency rations are essentially half rations).
- The food requirements of the inaccessible population are not included in the analysis. All inaccessible people are assumed to be self-sufficient.
- Food Bank to provide food for purchase by workers at rural agro-industrial complexes or in other food-for-work programs.

(B) Food Supply:

- Because of a weak foreign exchange position, it is not expected that Mozambique will purchase significant quantities of food through commercial imports.
- Marketed production is expected to approximate that of the 1987/1988 crop year.
- Total 1988/1989 donor pledges include confirmed 1987/1988 food pledges which are expected to be delivered during the 1988/1989 crop year, and actual 1988/1989 donor food pledges as of March 1988.

(C) Milling losses include 15% of maize and wheat listed as marketed production and confirmed donor pledges, and 33% of rice listed as marketed production.

Sources: USAID/Maputo cable #00768, Mar. 3, 1988., USAID/Maputo cable #01212 Mar. 31, 1988, and WFP Emergency Telex #135, Mar. 18, 1988.

FOOD BALANCE

According to current USAID Mission estimates, Mozambique will require 774,200 net MT of cereals, 71,000 MT of pulses, and 20,220 MT of vegetable oil to meet emergency relief and commercial market requirements for the upcoming 1988/1989 crop year (Table 2). These food requirements assume full daily food rations for the 2,652,300 people who depend on commercial markets to purchase food. Since the 3,512,400 affected and displaced people are assumed by the GPRM and USAID Maputo to be 50% self-sufficient in food production, half rations are used for calculating emergency food aid requirements. Current estimates of the available net supply for the upcoming crop year include 272,260 MT of cereals, 31,000 MT of pulses and 26,000 MT of vegetable oil (assuming marketed domestic production will approximately equal that of 1987/1988, and that confirmed 1987/1988 pledges will be delivered during the 1988/1989 crop year). If these estimates are correct, Mozambique currently faces a deficit of 335,200 MT of cereals, and 40,000 MT of pulses. According to the USAID Mission, the vegetable oil requirements for 1988/1989 have been met by marketed production and donor pledges.

Table 3: Comparison of Estimated 1988/89 Food Needs Using Alternative Rations

	Daily Per Capita Ration Used (Grams)		1988/89 Food Needs (MT) Using:		Effect of Lowered Rations on 1988/89 Food Needs Estimates	
	1988/89	1987/88	1988/89 Ration (A)	1987/88 Ration (B)	MT (A-B)	Percent (A/B)
Emergency Relief						
Maize	165	350	199.5	423.2	-223.7	47.1%
Pulses	19	40	23.0	48.4	-25.4	49.2%
Vegetable Oil	6	10	7.3	12.1	-4.8	60.3%
Normal Market						
Maize	179	157	173.3	152.0	21.3	114.0%
Rice	70	70	67.8	67.8	0.0	100.0%
Wheat	140	123	135.5	119.1	16.4	113.8%
Pulses	36	40	35.0	38.7	-3.7	90.4%
Vegetable Oil	10	10	9.7	9.7	0.0	100.0%

(A) 1988/1989 food needs using USAID FVA daily per capita ration

(B) 1988/1989 food needs using same ration as used by WFP in 1987/1988

Total food needs for 1 year based on an emergency population of 3.31 million and a normal market population of 2.65 million.

As shown in Table 3, the per capita food rations used by USAID to calculate the 1988/1989 food needs differ from the rations used by the WFP in 1987/1988. In general, the emergency food rations have been reduced by half from last year, because the affected and displaced population is assumed to be 50% self-sufficient. Since the emergency component was calculated using half rations, Mozambique's total 1988/89 food requirement is 78% that of 1987/88 (when full rations were used) even though the

at-risk population has increased by 100,500 people since 1987. One reason for the lower food requirements, according to the Chairman of the COE, is that Mozambique lacks sufficient logistical capacity to transport larger quantities of food. A second reason for lowering food requirements, according to USAID/Maputo, is that the displaced and affected population is capable of producing or purchasing at least 50% of their food requirements. However, the four-year trend of increasing malnutrition suggests that an increasing number of people have not been able to produce or purchase sufficient quantities of food, and that essential nutritional requirements have not been met by donor food deliveries -- either because the amount of food delivered has been insufficient, or because logistical constraints have blocked food distribution. If inadequate logistical capacity to distribute the requisite quantities of food is the rationale for reducing food requirements, then the food distribution network may need to be strengthened. The reduction of 1988/89 estimated food requirements may lower the amount of food needed to a level which donors feel can be realistically delivered, but it may also exacerbate the deteriorating nutritional situation as a result of underestimated food requirements.

RAINFALL

In coastal areas of northeastern Mozambique, planting rains did not begin until mid-January, the end of the normal planting season. Once the rains began in late January, farmers were able to plant in coastal areas of southern Cabo Delgado, Nampula, and Zambezia. However, in early February, Tropical Cyclone Doaza dumped locally heavy rains along the coast of Zambezia, which may have flooded newly planted crops. In early March, Tropical Cyclone Filao ravaged the coast of Zambezia Province with winds up to 70 miles per hour. Damage was severe, according USAID/Maputo, with 100 people killed, 1,000 houses destroyed, and 4,000 people left homeless. The southern coastal area around Quelimane in Zambezia Province was particularly hard hit (Map 2).

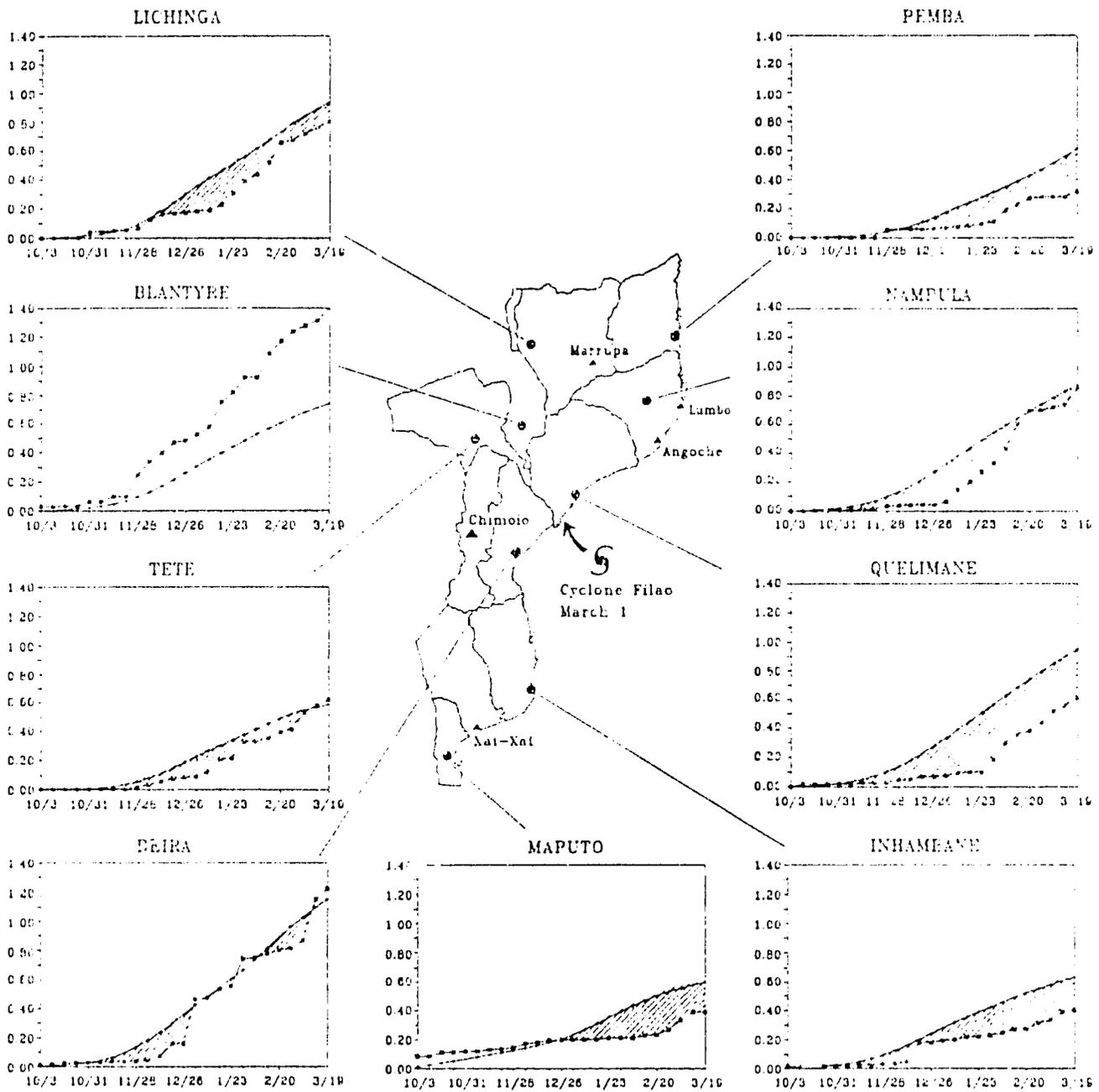
The harvest outlook for coastal areas of Zambezia Province is especially poor, given the late planting rains and subsequent damage caused by two tropical storms. According to USAID/Maputo, provincial authorities and local farmers near Quelimane expect this year's yield to be about 50% of normal. In other areas of northeastern Mozambique, including coastal Nampula and Cabo Delgado Provinces, the normal growing season was shortened by very late planting rains. The rains probably came too late in the season for planting sorghum -- a cereal crop which normally accounts for 40% of cereal production in northern Mozambique. Because of the poor outlook for sorghum, below normal cereal harvests are anticipated in coastal areas of Cabo Delgado, Nampula and Zambezia Provinces.

In northwestern and central Mozambique (Niassa, Manica, Sofala, and Tete Provinces), rains have been moderate-to-heavy since January 1988. Provided that the rains have not caused flooding, conditions for normal crop development appear to be good. Tete and Beira have recorded 106% of normal cumulative rainfall for the season (Map 2). Since the beginning of the year, three tropical storms have dumped heavy rains along coastal areas of Sofala, raising the possibility of crop flooding. The impact of these locally heavy rains on Sofala's harvest is not known.

Southern Mozambique experienced abnormally dry conditions and high temperatures from January through mid-February, which reduced the soil moisture available to cereal crops in the reproductive-to-filling stage of development. As moisture is critical during this stage of development, cereal crops may have experienced stress. In late February and early March, widespread, moderate-to-heavy rains finally brought relief to maturing cereal crops. The extended period of dryness during the moisture-critical stage of crop development, however, will likely result in below normal crop yields in areas of Maputo, Gaza and Inhambane Provinces.

Cumulative Weekly Precipitation

October 3, 1987–March 19, 1988

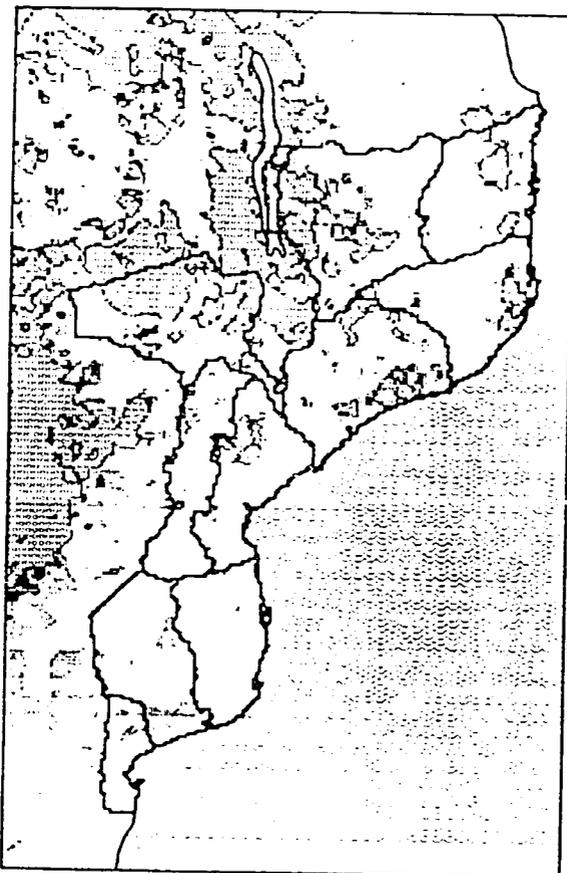


⊕ Cumulative weekly rainfall in millimeters (MM)
 ⊕ Reported cumulative rainfall curve
 + Normal cumulative rainfall curve
 ▨ Weekly cumulative rainfall deficit
 ● Reporting rain station
 ▲ Other infrequently reporting rain station
 □ Unfavorable harvest prospects.

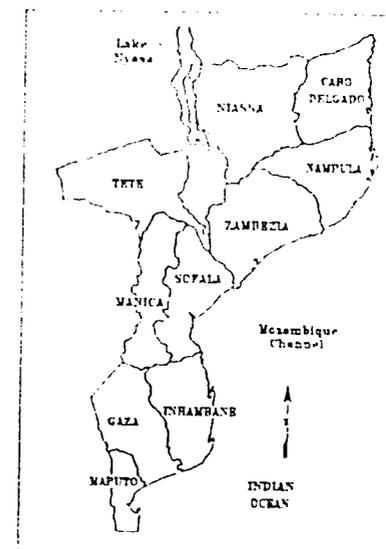
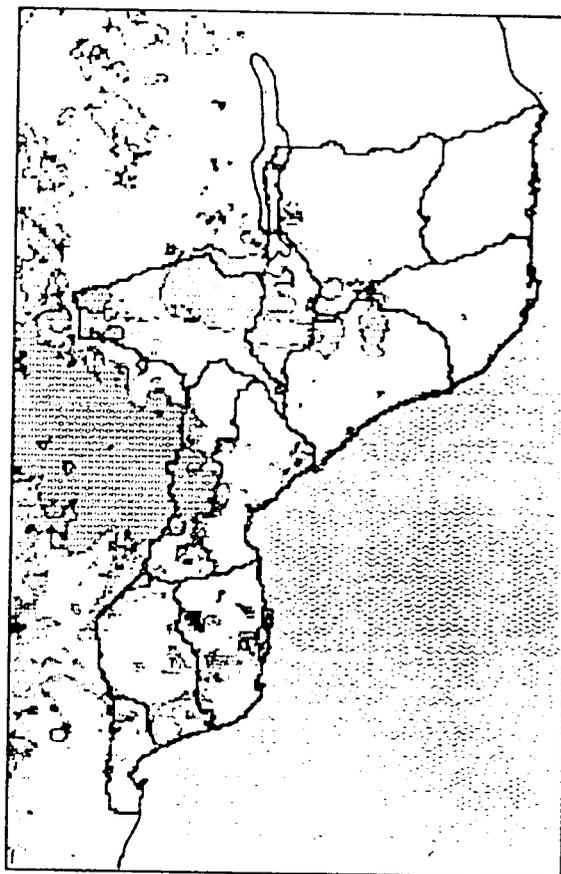
Source: Rainfall data from NOAA Climate Analysis Center, supplemented by NASA NDVI February 1–10, 1988.

NORMALIZED DIFFERENCE VEGETATIVE INDEX (NDVI) IMAGES

February 11-20, 1988



March 1-10, 1988



-  Limited Vegetation
-  Moderate Vegetation
-  Heavy Vegetation
-  Water
-  Ten Day Cloud Cover

Source: NASA NDVI derived from NOAA/GAC imagery. Ten day composite NDVI for the decades Feb. 11-20 and Mar. 1-10, 1988

FEWS/PWA April 1988

VEGETATION

Normalized Difference Vegetation Index (NDVI)¹ images for the second decade of February (11-20) and the first decade of March (1-10) indicate generally healthy vegetation throughout Mozambique (Image 1). In northeastern Mozambique, where vegetative conditions appeared stressed in early January, vegetative conditions improved significantly. Each of the NDVI images for the five decades January 11 - February 29, shows successive ten day periods of continuous cloud cover over the coastal areas of northeastern Mozambique, indicating potentially good rains in the area previously affected by dryness. The NDVI images (Image 1) for the second decade of February and first decade of March show isolated pockets of vegetative stress in southern Mozambique, probably related to the moisture deficit reported in the region.

Since January, vegetative conditions in northeastern Mozambique improved from below the 1982-1987 average to above average, whereas in southern Mozambique, conditions deteriorated from above average to below average. In northeastern Mozambique, January NDVI values for many coastal districts were less than the minimum NDVI recorded for the 1982-1987 series, but by the first decade of March, conditions had improved significantly. In many coastal districts of northeastern Mozambique, NDVI values are now above average, and in several cases, above the maximum NDVI recorded for the historic series (In northern Mozambique, below average NDVI values are probably related to cloud effects). In southern Mozambique, the trend was reversed. From late December through early January, the southern provinces generally exceeded the maximum NDVI for 1982-1987, but by the first decade of March, the NDVI values recorded for many districts was below average, and in some cases, below the minimum NDVI recorded for the historic series. The duration and rapidity of the decline in district level NDVI values suggests vegetation was stressed between January and February.

¹The Normalized Difference Vegetation Index (NDVI) is derived from NOAA satellite Advanced Very High Resolution Radiometer (AVHRR), Global Area Coverage (GAC) data. The photosynthetic capacity or vegetative vigor displayed by these images is generally believed to be indicative of the condition of vegetation on the ground, and, at least inferentially, of the growing conditions for crops and pastures. These relationships are, however, only indirect and still the subject of continuing research.

Famine Early Warning System (FEWS) Country Reports

FEWS publishes monthly reports on Burkina, Chad, Ethiopia, Mali, Mauritania, Mozambique, Niger, and Sudan. These reports are designed to provide decisionmakers with current information and analysis on existing and potential nutrition emergency situations. Each situation identified is described in terms of geographical extent and the number of people involved, and the proximate causes insofar as they have been discerned.

It is necessary to identify or "target" populations in-need or 'at risk' in order to determine appropriate forms and levels of intervention. FEWS reports will employ the term "at risk" to mean...

...those persons lacking sufficient food, or resources to acquire sufficient food, to avert a nutritional crisis (i.e., a progressive deterioration in their health or nutritional condition below the status quo), and who, as a result, require specific intervention to avoid a life-threatening situation.

Perhaps of greatest importance to decisionmakers, the process underlying the deteriorating situation is highlighted by the FEWS effort, hopefully with enough specificity and forewarning to permit alternative intervention strategies to be examined and implemented. Food assistance strategies are key to famine avoidance. However, other types of intervention can be of major importance both in the short term and in the long run, including medical, transport, storage, changes in economic development policy, etc.

Where possible, food needs estimates are included in the FEWS reports. It is important to understand, however, that no direct relation exists between numbers of persons at risk and the quantity of food assistance needed. This is because famines are the culmination of slow-onset disaster processes which can be complex in the extreme. The food needs of individual populations at risk depend upon when in the disaster process identification is made and the extent of its cumulative impact on the individuals concerned. Further, the amount of food assistance required, whether from internal or external sources, depends upon a host of considerations. Thus the food needs estimates presented periodically in FEWS reports *should not* be interpreted to mean food aid needs, e.g., as under PL480 or other donor programs.