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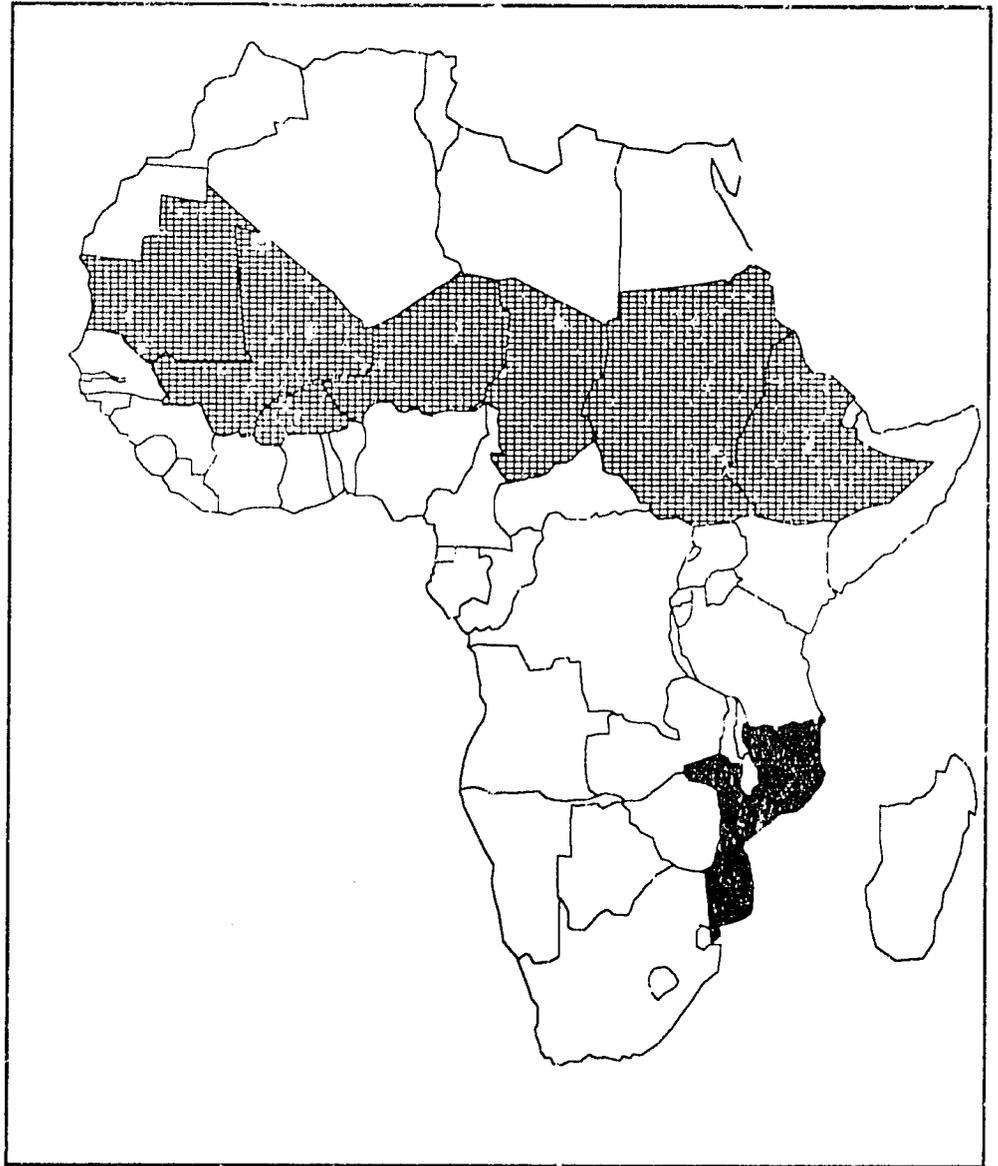
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Report Number 20

February 1988

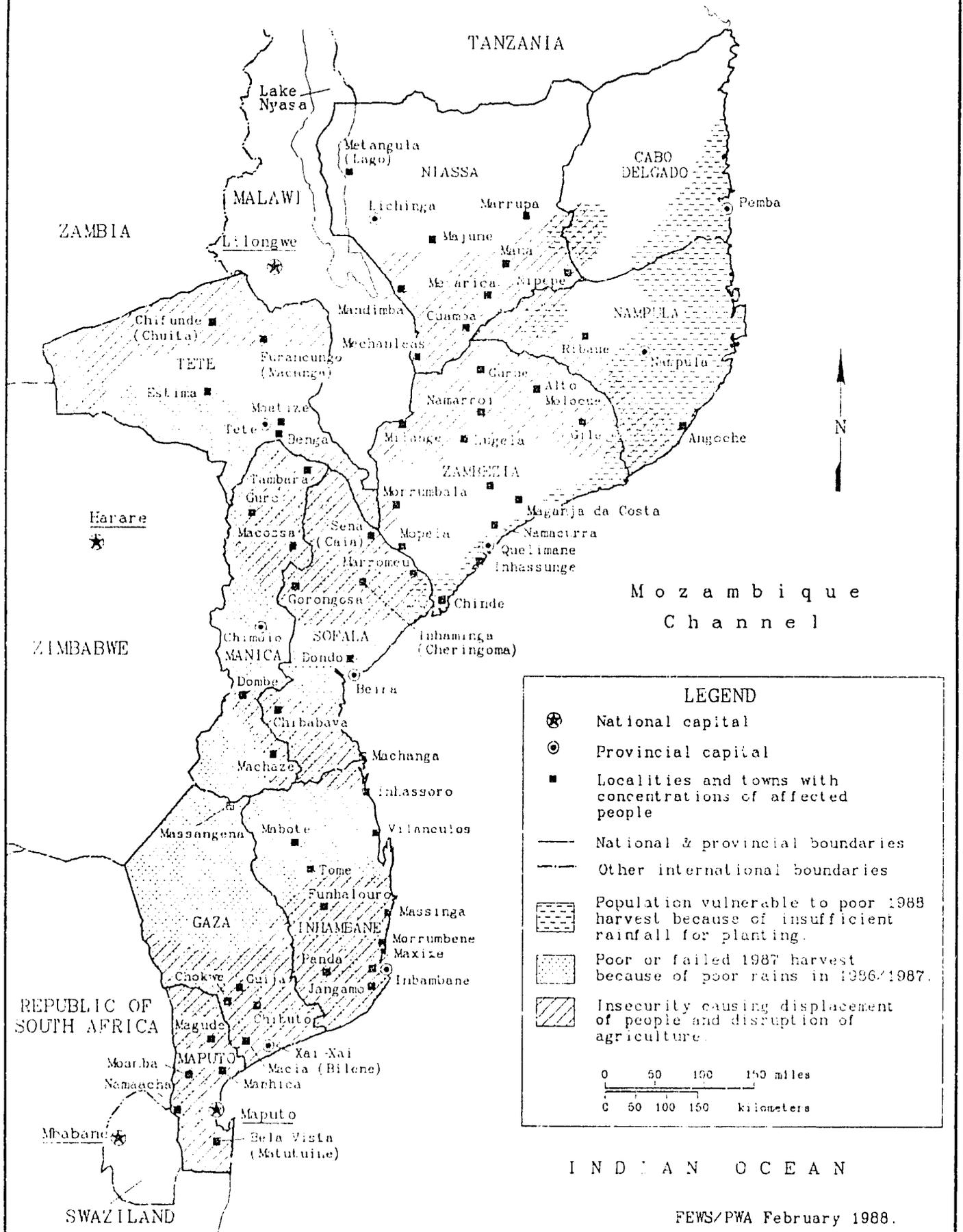
FEWS Country Report

MOZAMBIQUE



Africa Bureau
U.S. Agency
for International
Development

Summary Map



Mozambique Channel

LEGEND

- ⊛ National capital
 - ⊙ Provincial capital
 - Localities and towns with concentrations of affected people
 - National & provincial boundaries
 - - - Other international boundaries
 - ▨ Population vulnerable to poor 1988 harvest because of insufficient rainfall for planting.
 - ▧ Poor or failed 1987 harvest because of poor rains in 1986/1987.
 - ▩ Insecurity causing displacement of people and disruption of agriculture.
- 0 50 100 150 miles
0 50 100 150 kilometers

INDIAN OCEAN

MOZAMBIQUE

Critical Food Shortages

Likely To Get Worse

Prepared for the
Africa Bureau of the
U.S. Agency for
International Development

Prepared by
Price, Williams & Associates, Inc.
February 1988

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Summary

There has been no new information regarding the number of people at risk in Mozambique since the January FEWS Report. The Government of the People's Republic of Mozambique (GPRM) continues to cite the June 1987 official estimate of 3.2 million people at risk. However, based on unofficial estimates released by provincial authorities since June, there may be as many as 4.3 million people at risk. The GPRM and donor groups are currently reassessing the emergency situation. The emergency situation is partially a holdover from the poor April 1987 harvest, caused by widespread insurgent disruption in northern and central Mozambique during the 1986/1987 agricultural campaign, and exacerbated by poor rains in central and southern Mozambique. Since June, the civilians living in southern provinces have been subjected to an increasing number of armed attacks. The situation could become even worse. An estimated 2.5 million people in southern Cabo Delgado, eastern Nampula, and coastal Zambezia Provinces are vulnerable to poor or failed harvests in April because of insufficient rains during the planting season. Recent reports from the World Food Programme (WFP) indicate that in most provinces, emergency food stocks are nearly depleted. An estimated 35,000 metric tons (MT) of cereals are needed each month for relief operations, but according to relief workers, only 20% of the monthly requirement is actually being delivered on schedule.

Key Events and Issues

- Extremely poor rainfall in southern Cabo Delgado, eastern Nampula, and coastal Zambezia Provinces has probably precluded farmers from planting. As mid-January signals the end of the normal planting season, the drought is expected to have a significant adverse impact on the upcoming April harvest.
- The lean season, when food stocks from the previous harvest are depleted, is generally most pronounced between January and March, prior to the April harvest.
- Estimates from the field suggest an increase of up to 1,083,700 people at risk since the GPRM estimate was prepared in June. If correct, additional shipments of maize are required to meet food needs through the remainder of the current crop year.
- Relief workers report that monthly food shipments are not meeting the caloric needs of the population, and that food distribution is increasingly being hampered by insurgent disruption.

Populations At-Risk

There has been no new information regarding the number of at-risk people in Mozambique since the January FEWS Report was published. Officially, the GPRM estimates there are 3,211,900 people at risk. The estimate was prepared by the Emergency Operational Committee (COE) in June 1987, and only includes people living in areas accessible to relief operations. Since June, estimates by provincial authorities and foreign news reports indicate that the emergency situation has deteriorated rather dramatically, primarily because of insurgency, and secondarily because of poor rains during the 1986/1987 agricultural campaign.

Between June and December of 1987, reports of insurgent activity in southern provinces increased significantly, particularly in Inhambane and Maputo Provinces (Table 1). These attacks on the civilian population have resulted in sizable increases in the number of displaced people, and have disrupted food convoys in northern Maputo Province. The emergency situation in the south is compounded by last year's poor harvest, the result of abnormally poor rains in January and February.

In northern Mozambique, last year's agricultural campaign was disrupted extensively, as hundreds of thousands of people fled a major rebel offensive late in September of 1986. Particularly affected was Zambezia Province, the "breadbasket" of Mozambique. Although GPRM and Zimbabwean forces recaptured many towns and district centers in northern Sofala, Tete, and Zambezia Provinces, rural areas remain insecure. Compounding the agricultural disruption caused by insurgency, below normal rainfall resulted in poor 1987 harvests throughout much of southern Tete, Manica, and Sofala Provinces.

It is likely that Mozambique's affected and displaced population has increased, but the size of the increase is not known. Based on unofficial estimates prepared by provincial authorities of the COE and the Department for the Prevention and Control of Natural Calamities (DPCCN), there may be as many as 4,295,600 affected and displaced people in Mozambique, an increase of 1,083,700 people (25%) over the official June estimate (Table 1). However, all estimates await the findings of the COE and donor groups that are currently reviewing the emergency situation in Mozambique.

A Vulnerable Population in April

Since the start of the planting season in December 1987, northeastern Mozambique has received extremely poor rainfall (See the Rainfall and Vegetative Conditions sections of this report). This trend continued through mid-January, the end of the normal planting season. In many areas, farmers were probably unable to plant because of insufficient soil moisture (Map 2). Even if normal rains began in late January, it was probably too late to plant, as many varieties of cereals require

TABLE 1: POPULATIONS AT-RISK
Thousands of People

Province	1987 Population	OFFICIAL GPRM June, 1987		OTHER ESTIMATES Post-June, 1987		LIKELY AT-RISK			
		People (A)	% 1987 Pop.	People (B)	People (C)	People (D)	Change Actual	Change Percent	
Maputo	1,594.9	268.2	16.8%	---	---	357.5	89.3	25.0%	(1)
Gaza	1,111.5	326.8	29.4%	604.3	---	465.6	138.8	29.6%	
Inhambane	1,192.0	515.8	43.3%	845.0	869.9	857.5	341.7	39.8%	
Sofala	1,285.1	404.7	31.5%	598.7	---	501.7	97.0	19.3%	
Manica	774.4	235.6	30.4%	387.5	485.0	436.3	200.7	46.0%	
Tete	1,012.8	226.9	22.4%	400.0	---	313.5	86.5	27.6%	
Zambezia	3,000.0	342.1	11.4%	694.0	660.0	677.0	334.9	49.5%	
Nampula	2,884.0	588.2	20.4%	982.8	200.0	394.1	-194.1	-49.3%	(2)
Niassa	606.4	303.6	50.1%	---	171.3	237.5	-66.2	-27.9%	(3)
Cabo Delgado	1,114.7	0.0	0.0%	110.2	---	55.1	55.1	100.0%	
Total	14,575.8	3,211.9	22.0%			4,295.6	1,083.7	25.2%	

SOURCES:

(A) Official GPRM At-Risk Estimate as first reported by the World Food Programme (WFP), Telex Report No. 104, July 1987. The estimates were compiled by the Food Assessment Working Group and approved by the Emergency Operational Committee (COE). These estimates DO NOT include people at risk living in inaccessible areas.

(B) Unofficial estimates presented by 8 provincial COE authorities to the National COE at a meeting in Inhambane Province on December 5, 1987. These figures have not been verified or officially adopted by the GPRM. It is not known whether people living in inaccessible areas are included in the provincial totals.

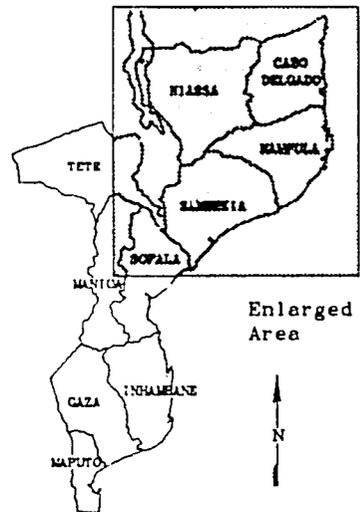
(C) These estimates are from the DPCCN August and October newsletters, with the exception of the Niassa estimate, which was prepared by a WFP assessment team in early September. It is not known whether people living in inaccessible areas are included in these estimates.

(D) The Likely At-Risk figures are a "best estimate" of the current situation in Mozambique, based on the estimates received from the field since June, and supplemented by news reports. These figures should be used with caution, as they are based on unverified information. The National COE and donor groups are verifying the figures prepared by provincial COE authorities, and FEWS will publish the official COE estimates when they are made available.

(1) There have been no revised at-risk estimates for Maputo Province since the official COE estimate in June, but the situation has deteriorated. The 25% increase in people at risk is a judgement based on qualitative information in DPCCN newsletters and news reports.

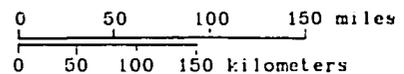
(2) The wide discrepancy in at-risk estimates for Nampula Province remains a mystery. The October DPCCN newsletter reported 200,000 people at risk, primarily because of insurgency. It is not clear why the provincial COE estimate is so high. There have been no news reports which would substantiate the high COE estimate. Therefore, the estimated decrease in Nampula is based on the DPCCN figure.

(3) The decrease in the Niassa at-risk estimate is based on the findings of a WFP assessment team which visited the province in early September. Since the WFP assessment, field reports indicate that insurgent activity increased in the province, causing thousands of refugees to flee to Malawi from Niassa. For this reason, the number of people at-risk is probably higher than the WFP figure.



DROUGHT AFFECTED AREAS

- PEMBA District Name
- Pemba District Capital Name
- District Capital
- ⊙ Provincial Capital
- National & Provincial Boundaries
- ▭ Areas where extremely late and sporadic rains may have precluded planting during the 1987/1988 agricultural season.



Sources: World Meteorological Organization for weekly rainfall data reported by rain stations
 NOAA/GAC/NDVI imagery, by decade, for the period
 September 1, 1987 through January 21, 1988

between 14 and 18 weeks to mature. In northeastern Mozambique, the rains usually diminish in late March. If cereals were planted late in January, the crops would reach the moisture-critical tasseling stage at approximately the same time the rains would be diminishing. Farmers could rely on drought-resistant crops such as cassava, but it is not known what proportion of the diet normally consists of cassava. Farming in the drought-affected area largely consists of semi-subsistence family fields containing crops of maize, sorghum, millet, cassava, groundnuts and beans. Cattle rearing is also important throughout Nampula Province. In the Zambezia River Delta region of Chinde and Marrómeu Districts, rice is a staple crop. Other primarily commercial crops in the drought-affected area include cotton, sisal, cashews, and coconuts.

A large portion of Mozambique's population lives in, or near, the coastal cities and towns. For this reason, the area affected by poor rains is highly populated. According to available data, nearly 4 million people live in the area affected by drought, and approximately 2.5 million people are expected to be vulnerable to the poor harvest in April (Table 2). This estimate does not distinguish between people currently considered self-sufficient, at-risk, or dependent on the commercial market, as these figures are not available at the district level. Estimating the vulnerable population is further complicated by the substantial displacement of the population caused by insecurity. Because of the scale of this inter-province migration, most provincial population projections are no longer valid.

TABLE 2: Population Vulnerable to Drought

Province	Province Population	People Living in Drought-Affected Areas		
		Total	Vulnerable	% of Province
Cabo Delgado	1,114,700	410,000	246,000	22%
Nampula	2,884,000	2,405,000	1,803,700	63%
Zambezia	3,000,000	1,040,000	416,000	14%
Sofala	1,285,100	93,400	18,700	1%
Total	8,283,800	3,948,400	2,484,400	30%

Food Distribution

Information received from the World Food Programme (WFP) indicates that in October 1987, food destined for emergency relief was not distributed in sufficient amounts to meet the estimated food requirements. According to the WFP data, only 24% of maize and 38% of pulses requirements were actually distributed (data for November and December are not yet available). The WFP did not identify the reasons for the

inadequate food distribution, but according to numerous sources, food distribution has been hampered by increasing rebel attacks on food convoys, as well as by a lack of fuel and spare parts. Since 1984, according to The Washington Post (January 24, 1988), rebels have destroyed or damaged 25 trucks belonging to CARE, in addition to 450 tons of food and relief supplies which were in transit. An additional 500 tons of supplies stored in warehouses have also been destroyed or stolen. As a result, relief agencies have been increasingly relying on airlifts. At a cost of between \$500 and \$600 per ton, airlifts are an expensive alternative to ground transport. Recently, the International Committee of the Red Cross (ICRC) was forced to suspend airlifts after insurgents refused to guarantee safe passage over rebel-held territory.

Food Stocks

According to the CARE Operations Chief in Mozambique, only 20% of the 35,000 tons of monthly grain requirements for both the normal market channels and emergency relief are actually being delivered on schedule. As reported by The Washington Post article, the Mozambican Trade Minister predicted, "We are going to have a food crisis in this country in the next months that we have not had in six years. Our [food] stocks are zero, and this is a bad year for weather." This remark is substantiated by the DPCCN, which in early January reported nearly total depletion of emergency food stocks in all affected provinces except for Tete and Zambezia. According to the DPCCN, the problem is most serious in Inhambane Province. In addition, commercial stocks of maize are also nearly depleted, and rice stocks are adequate only in Gaza Province.

Food Balance

The food balance for the remainder of the crop year (November 1, 1987 - April 30, 1988) shows a negative balance of maize (-138,100 MT), rice (-4,000 MT), and pulses (-20,000 MT). This food balance only includes confirmed donor pledges, and assumes a constant at-risk population of 3,212,000 people for the entire period (Table 3). If the at-risk population has increased as dramatically as indicated, the unmet food balance for the current crop year may actually be higher. Since provincial authorities indicate the number of at-risk people increased in December, an adjusted balance has been calculated using two at-risk populations (3,212,000 people for May 1 - November 30, 1987 and 4,295,600 people for December 1, 1987 - April 30, 1988). Based on these adjusted emergency requirements, the unmet food balance increases by 57,700 MT of maize, 6,600 MT of pulses, and 1,600 MT of vegetable oil. These calculations are preliminary, however, as the size of the unmet food balance depends on the estimate used for the at-risk population -- a figure that is presently being reassessed by the GPRM and donor groups.

TABLE 3: FOOD BALANCE: November 1, 1987 - April 30, 1988

	COMMODITY (MT)					
	Maize	Rice	Wheat	Pulses	Oil	Sugar
REQUIREMENTS						
Market Consumption	94,123	41,966	73,739	23,980	5,995	14,988
Emergency Relief (A)	204,604	0	0	23,383	5,846	14,615
Emergency Relief (B)	262,252	0	0	29,972	7,493	18,732
Total Requirements (A)	298,727	41,966	73,739	47,364	11,841	63,700 (1)
Total Requirements (B)	356,375	41,966	73,739	53,952	13,488	63,700
SUPPLY						
Marketed Production	0	0	0	0	3,600	19,200
Stocks	9,762	14,400	34,484	4,543	5,605	4,335
Donor Pledges, Confirmed	177,537	23,600	86,000	22,960	9,995	10,810
Total Gross Supply	187,299	38,000	120,484	27,503	19,200	34,345
Less Milling Losses	26,631	0	12,900	0	0	0
Total Net Supply	160,668	38,000	107,584	27,503	19,200	34,345
BALANCE (A)	-138,059	-3,966	33,845	-19,861	7,359	-29,355
BALANCE (B), Adjusted	-195,706	-3,966	33,845	-26,449	5,712	-29,355
Difference Between Balances	57,647	0	0	6,588	1,647	0

(A) Balance uses the Emergency Relief Requirement (A), calculated using a fixed at-risk population of 3,212,000 people for the period November 1, 1987 - April 30, 1988. Balance uses confirmed pledges only.

(B) Adjusted Balance uses the Emergency Relief Requirement (B), calculated using two at-risk population figures in order to account for an increase in the at-risk population since June (Table 1). Balance uses confirmed pledges only.

Period	At-Risk	Metric Tons (MT)			
		Maize	Oil	Pulses	Sugar
Nov 1 - Nov 30, 1987	3,212,000	33,726	964	3,854	2,409
Dec 1 - Apr 30, 1988	4,295,600	228,526	6,529	26,117	16,323
Emergency Relief (B)		262,252	7,493	29,972	18,732

Source: World Food Programme Report No. 124, Dec. 30, 1987 provided the per capita daily ration, stocks, marketed production, confirmed pledges, as well as market and at-risk population figures used in calculating Total Requirements (A).

1) WFP Daily Per Capita Rations, in Grams:

Distribution:	People	Maize	Wheat	Rice	Oil	Pulses
Market Channels	3,294,000	157	123	70	10	40
Emergency Relief	3,212,000	350	0	0	10	40

Total sugar requirement for 14 million people for 6 months using an historic consumption factor of 25 grams/person/day.

2) Milling losses are based on reported figures:

Maize:	15 % of marketed production and confirmed pledges
Wheat:	15 % of marketed production and confirmed pledges
Rice:	33 % of marketed production

3) The balance does not account for unconfirmed donor pledges pledged against the 1987/1988 crop year. Confirmed pledges are as of Nov. 1, 1987.

Rainfall

As of January 16th, rain stations in Mozambique continued to report below normal cumulative rainfall (Map 3). Throughout the planting season, the general pattern of rainfall has been sporadic, with considerable geographic and temporal variation in rainfall. Chronically dry weather continued to plague northern Mozambique, with northeastern coastal areas particularly affected by abnormally low rainfall. Of Mozambique's 9 reporting rain stations, Pemba and Quelimane have recorded the worst rainfall deficits, with less than 33% of normal cumulative rainfall. **The extremely poor rains throughout the planting season probably precluded farmers from planting in coastal areas of southern Cabo Delgado, Nampula, and Zambezia Provinces. As planting is usually completed by mid-January, it is probably too late in the season for farmers in northeastern Mozambique to plant cereal crops.** In Niassa Province, good rains in early December may have encouraged farmers to plant, but a 4-week period of extended dryness in late December and early January probably stressed early-planted crops.

In central and southern Mozambique, good rains in December should have enabled farmers to plant, but these crops may have been stressed by below normal rains and above normal temperatures in late December and early January. Maputo reported a 4-week dry spell with above average temperatures since mid-December. In isolated areas, rainfall tended to be heavy. Beira reported 3 days of heavy rains in late December, which may have resulted in flooded crops. Manica Province also received heavy rains in early January, which according to the WFP, resulted in flooding and a loss of life. The town of Chokwe, in Gaza Province, reported heavy rains in early January.

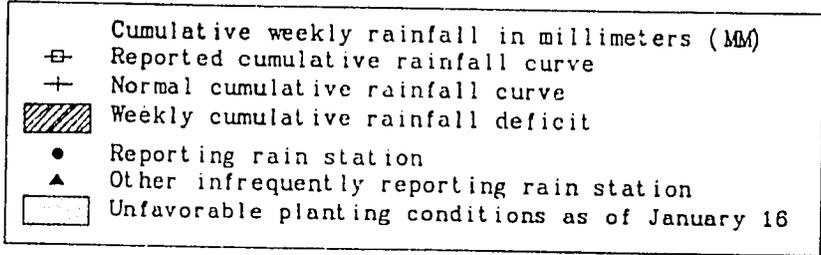
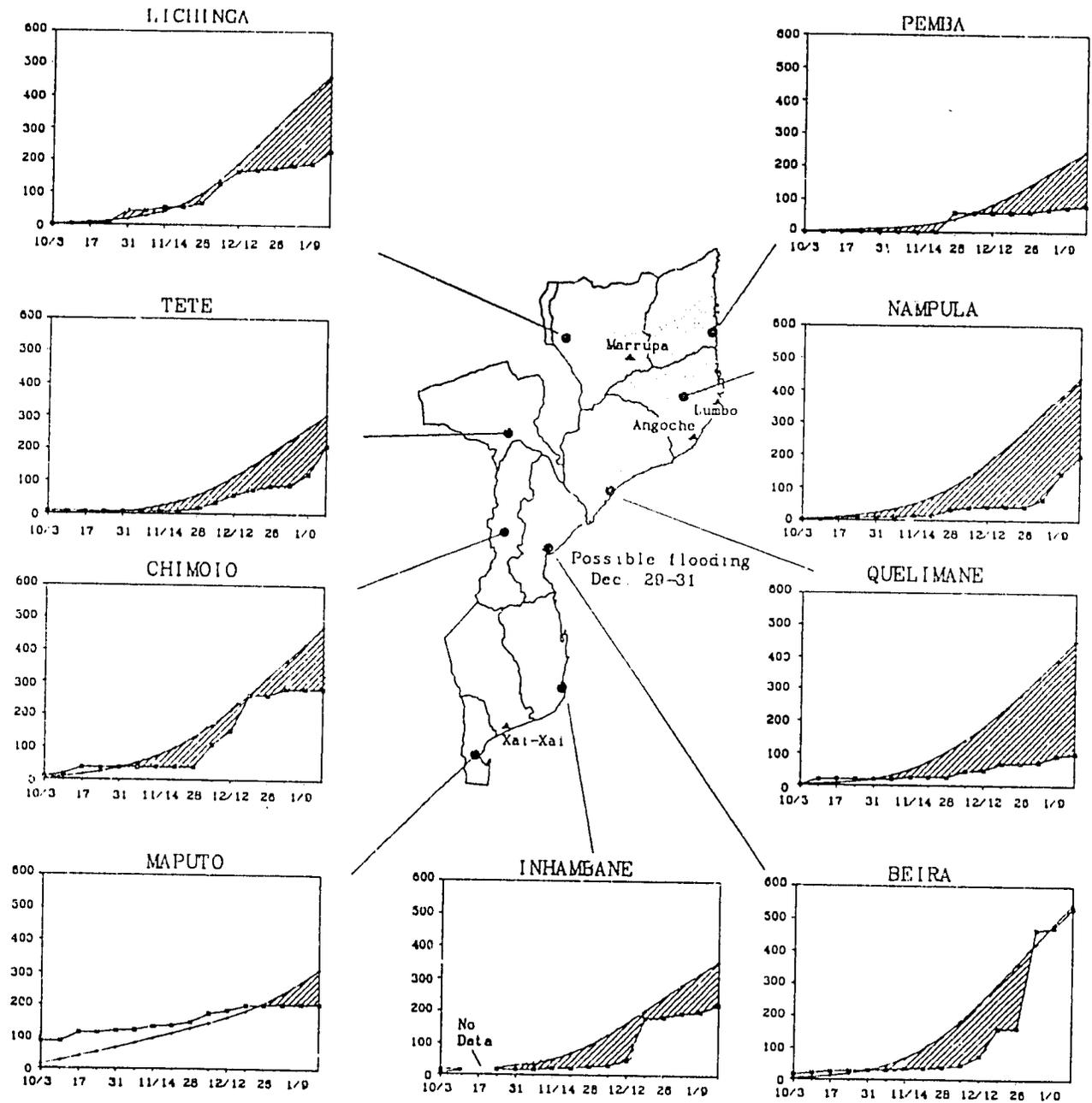
Vegetative Conditions

Normalized Difference Vegetation Index¹ (NDVI) images for the first two decades of January (1-10 and 11-20) generally indicate healthy vegetation throughout most of Mozambique, with the exception of northeastern Mozambique (Image 1). The January 1-10 image clearly shows vegetative stress related to a lack of rainfall in southern Cabo Delgado, eastern Nampula, and coastal Zambezia Provinces. The second decade of January shows general improvement in vegetative conditions, especially in northern Mozambique (Image 2). Southern Cabo Delgado and eastern Nampula Provinces were covered by 10 days of continuous cloud cover, suggesting rains may have finally come to this drought-stricken area. Even so, it is likely that rains arrived too late to benefit the farmers. The apparent decrease in NDVI values in northern Tete

¹The NDVI, derived from the National Oceanic and Atmospheric Administration's (NOAA) Global Area Coverage satellite imagery, represent 10-day (decade) composites which measure the photosynthetic vigor of vegetation. Changes in NDVI values between decades can be used to monitor the progression of the agricultural season.

Cumulative Weekly Precipitation

October 3–January 16, 1988

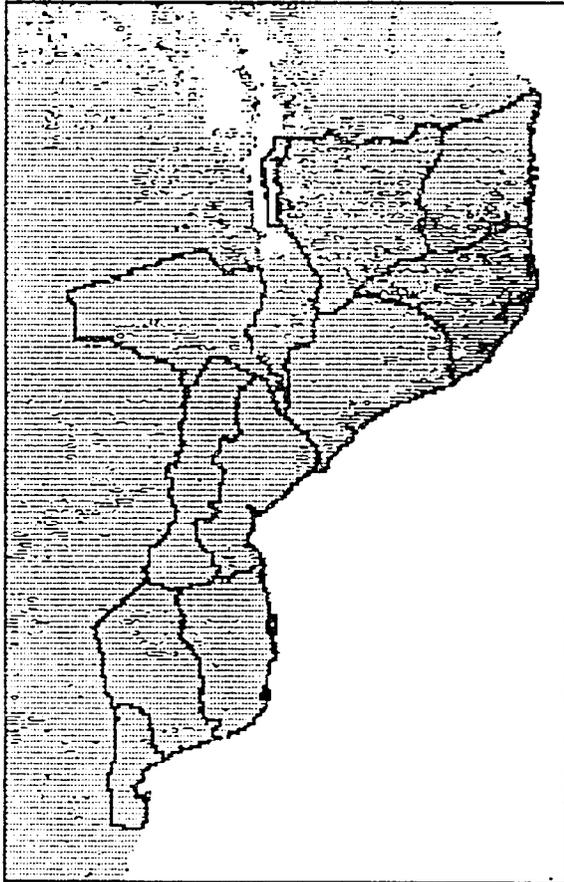


Source: World Meteorological Organization, 1987
 NOAA NDVI January 1-10, 1988 image

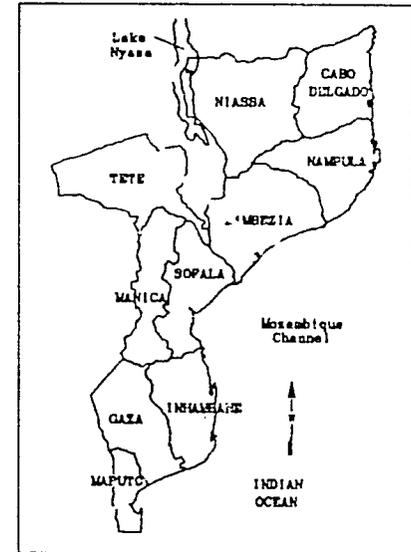
NDVI IMAGES

For The Ten Day Period:

JANUARY 1-10, 1988



JANUARY 11-20, 1988



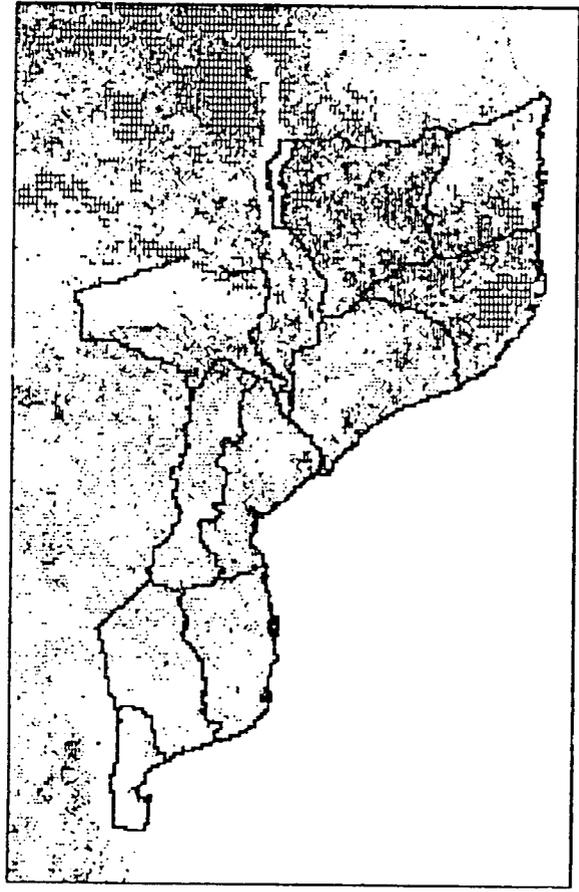
-  Limited Vegetation
-  Moderate Vegetation
-  Heavy Vegetation
-  Ten Day Cloud Cover

Source: NOAA NDVI derived from GAC imagery for the decades Jan. 1-10 and Jan. 11-20, 1988.

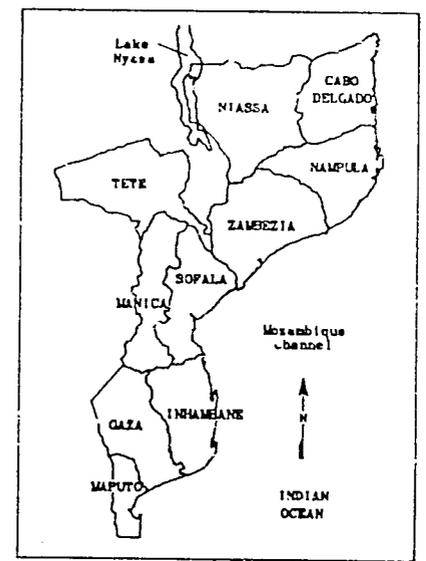
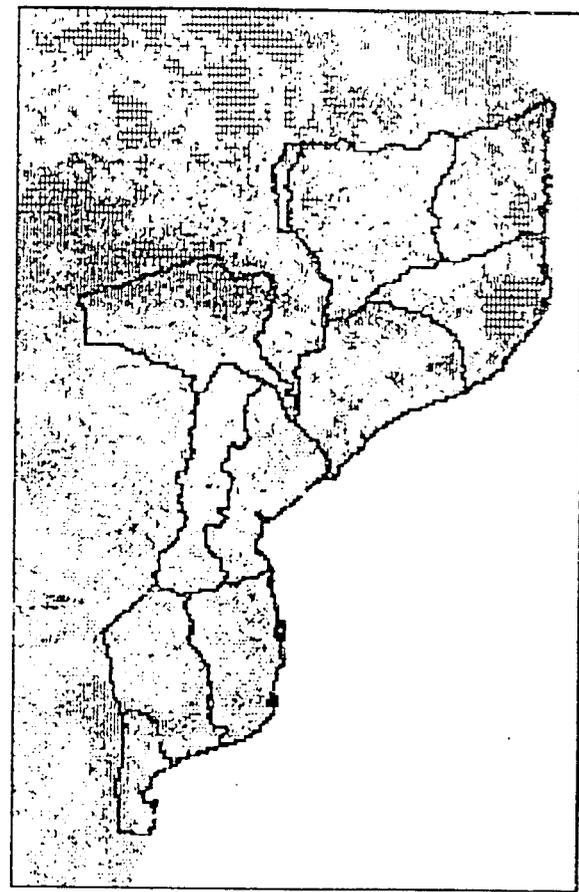
CHANGE IN NDVI VALUES

January 1-10 Compared With January 11-20

Increase in NDVI



Decrease in NDVI



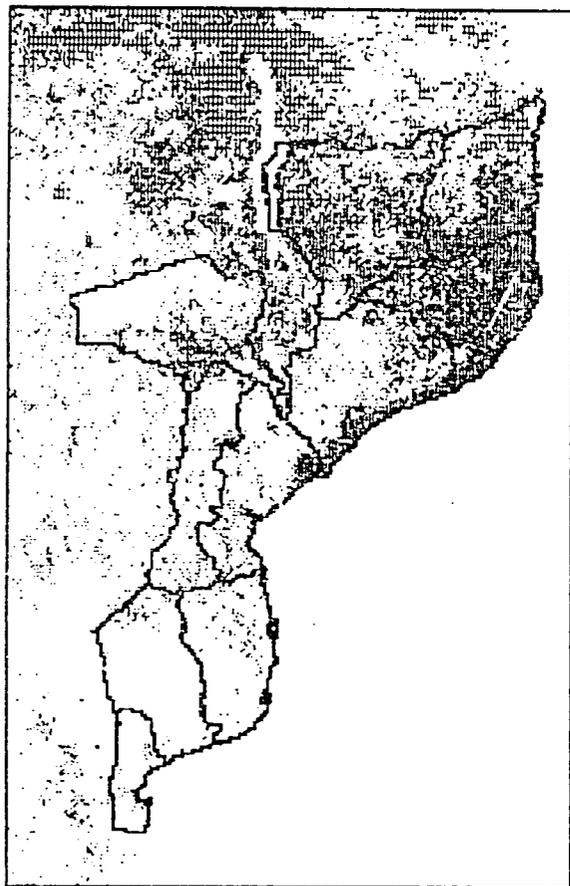
-  Slight Change
-  Greater Change
-  Ten day cloud cover in one of the two images.

Source: NOAA NDVI derived from GAC imagery for the decades Jan. 1-10 and Jan. 11-20, 1988.

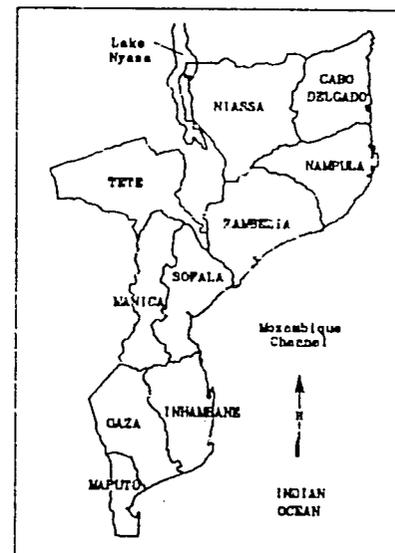
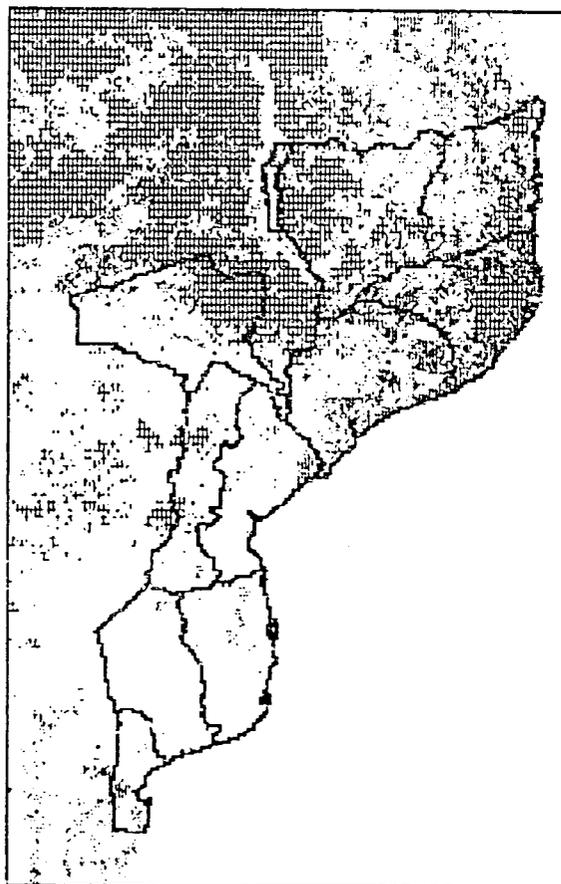
DECREASE IN NDVI VALUES

January 1988 Compared With January 1987

First Decade, Jan. 1-10



Second Decade, Jan. 11-20



-  Slight decrease.
-  Greater decrease.
-  Ten day cloud cover in one of the two images.

Source: NOAA NDVI derived from GAC imagery for the decades Jan. 1-10 1988, Jan. 1-10 1987, Jan. 11-20 1988, and Jan. 11-20 1987.

Province is probably related to the effect of cloud cover, but in southern Maputo Province, the decrease in NDVI may be related to the poor rains and high temperatures experienced in late December and early January.

Current NDVI values for many coastal districts in eastern Nampula are below the minimum NDVI values recorded, when compared with the same decades for the years 1983, 1984, 1985, and 1987 (Map 2). This indicates a more severe level of vegetative stress than any experienced during the 4-year historical series (1986 is not available for comparison). In contrast, NDVI values for southern and central Mozambique have remained near average during the current 1987/1988 agricultural season. In fact, districts in Maputo Province have generally exceeded the maximum NDVI for the historical period. The recent dryness in Maputo is reflected by a decrease in mean NDVI values in January, but even with this decrease, most of Maputo's districts remain at, or above, the maximum NDVI for the 1984-1987 historical series.

FAMINE EARLY WARNING SYSTEM

This is the twentieth in a series of monthly reports on Mozambique issued by the Famine Early Warning System (FEWS). It is 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, or at-risk, and the proximate causes insofar as they have been discerned.

Use of the term "at-risk" to identify vulnerable populations is problematical since no generally agreed upon definition exists. Yet, it is necessary to identify or "target" populations in-need or "at-risk" in order to determine appropriate forms and levels of intervention. Thus for the present, until a better usage can be found, 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 most importance to decisionmakers, the FEWS effort highlights the process underlying the deteriorating situation, 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, economic development policy change, etc.

Where possible, estimates of food needs 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 the 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 estimates of food needs presented periodically in FEWS reports should not be interpreted to mean food aid needs, e.g., as under PL480 or other donor programs.

FEWS depends on a variety of US Government agencies, private voluntary organizations (PVO's), international relief agencies, foreign press and host government reports as sources of information used in the country reports. In particular, a debt of gratitude is owed to many individuals within various offices of the US Agency for International Development (USAID) who routinely provide valuable information, especially, the USAID Mission in Maputo, the offices of Food For Peace and Voluntary Assistance (FFP/FVA), and the Office of Foreign Disaster Assistance (OFDA). Meteorological information is provided courtesy of the U.S. Department of Agriculture Joint Agricultural Weather Facility (USDA/JAWF), the Climate Analysis Center (CAC), and the Climate Analysis Branch of the National Oceanic and Atmospheric Administration (NOAA/NESDIS/AISC). NDVI imagery is derived from the NOAA Advanced Very High Resolution Radiometer (AVHRR) imagery, and processed by the National Aeronautic and Space Administration (NASA). Additional useful information is frequently provided by the UN Food and Agriculture Organization (UNFAO) Global Information and Early Warning System (GIEWS), the World Food Programme, UNICEF, and the Department for the Prevention and Control of Natural Calamities (DPCCN) of the Government of the People's Republic of Mozambique (GPRM), as well as nongovernmental humanitarian organizations.

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