

## **SPECIAL REPORT**

# **FAO/WFP MISSION TO ASSESS THE IMPACT OF CYCLONES AND DROUGHT ON THE FOOD SUPPLY SITUATION IN MADAGASCAR**

**1 June 2000**

### Mission Highlights

#### 1. OVERVIEW

#### 2. SOCIO-ECONOMIC CONTEXT

- 2.1 Macroeconomic Situation
- 2.2 Population and the Environment
- 2.3 Performance of the Agriculture Sector

#### 3. FOOD PRODUCTION IN 1999-2000

- 3.1 Major Climatic Disasters
- 3.2 Impact of the cyclones and drought on the main crops
- 3.3 Cyclone Damages to Other Sectors
- 3.4 Production forecast
- 3.5 Agriculture Rehabilitation Needs

#### 4. REGIONAL ANALYSIS

- 4.1 The Northeast Region
- 4.2 Central East Coast Region
- 4.3 The Lake Aloatra Region
- 4.4 Vakinankaratra Region
- 4.5 The South Region

#### 5. FOOD PRICES AND ACCESS TO FOOD

#### 6. CEREAL SUPPLY AND DEMAND BALANCE FOR 2000-2001

## Mission Highlights

- The cyclones and tropical storm from mid-February to early April 2000 caused severe damage to crops and agricultural infrastructure in central and northern parts of the East Coast.
- Drought in the South Region and central parts has also sharply reduced agricultural production.
- About 155 000 hectares of cereals and 33 000 hectares of export crops were lost to floods and high winds. Reduced exports of vanilla, coffee and cloves over the next 3 years will have serious food security implications for the affected farmers.
- Total 2000 cereal production, mainly paddy, is estimated at 2.33 million tonnes, 15 percent lower than last year. Cereal import requirements for 2000/01 are estimated at 518 000 tonnes, of which 426 000 tonnes are anticipated to be imported commercially. Emergency food aid for affected people is estimated at 30 000 tonnes. International food assistance will be needed to cover the remaining gap.
- The overall food supply situation is expected to be tight in 2000/01 (April/March). Serious food shortages are anticipated in 17 communes of the traditionally food-deficit South Region in the coming months.
- Seeds of rice and maize are also urgently required for agricultural rehabilitation in the most affected areas. Food for work programmes could be used in the rehabilitation of the damaged irrigation facilities, roads and other infrastructure.

## 1. OVERVIEW

Following three successive cyclones and tropical storm in February, March and April 2000 which devastated the North-eastern and Central East Coast areas of Madagascar, coupled with persistent drought in the South, an FAO/WFP joint Mission visited the country from 23 April to 13 May 2000. The Mission evaluated the cyclone damage and assessed the overall crop production and food supply situation for the year 2000-2001. Three officers from the Ministry of Agriculture assisted the Mission. Meetings and briefings with various government and international agencies, as well as local and international non-governmental organizations (NGOs) were held, in order to assess the overall situation in the country and to collect relevant reports and statistics. The Mission was then divided into three teams for field visits. One team visited the cyclone affected north-east areas of Sava (covering Antalaha, Sambava and Andapa sub-Prefectures) and Maroantsetra; the second team visited the central regions of Lake Aloatra, Vakinankaratra and Centre-East, areas affected by a cyclone as well as the drought. The third team visited the South covering the Sub-Prefectures of Ambovombe, Amboasary, Bekily, Ampanihy, Beloha, and Tsihombe affected by drought. Thus, the Mission's assessment is based on the statistical and other reports received in the capital as well as on the field, discussions with national and regional agency staff, field technicians, farmers, traders, community leaders and personnel from schools, churches and medical services. Farmers' fields were visited to assess the crop damage and markets were visited to verify the availability and prices of the produce.

The Mission found that the cyclones had affected a total cropped area of about 1.14 million hectares with varying degrees of severity, of which about 190 000 hectares are estimated to have been lost. Almost 80 percent of the area damaged was under rice. Other food crops which were damaged were maize and cassava. The cyclones also caused serious damage to export crops such as vanilla, coffee and cloves. The impact on these is expected to last for next three to four years, depending on the economic life of

these plantation crops. The effect of the drought is mostly confined to the South as well as Lake Alaotra region which was hardest hit. The main crops affected by the drought are maize, cassava and sweet potatoes.

The Mission estimates the total production of rice paddy at 2.19 million tonnes, maize at 0.14 million tonnes and cassava at 2.08 million tonnes for the year 2000. This represents a decrease in production of 15 percent for rice, 22 percent for maize and 18 percent for cassava, compared to last year. The total cereal (rice, maize and wheat) requirements are expected to exceed the total cereal availability by about 518 000 tonnes. With anticipated commercial imports of about 376 000 tonnes there is a deficit of 142 000 tonnes to be covered by food aid. From this amount, 27 000 tonnes are expected as emergency food aid, leaving 115 000 tonnes to be sourced by bilateral programme food aid.

## 2. SOCIO-ECONOMIC CONTEXT 1/

<sup>1/</sup> Statistical information presented in this section is based on the publications of the World Bank and the Economic Intelligence Unit's country profile.

### 2.1 Macroeconomic Situation

Recent economic reforms in Madagascar have produced some economic gains. Real gross domestic product (GDP) grew by 3.7 percent in 1997 and 3.9 percent in 1998 surpassing the population growth rate of 2.8 percent for the first time in recent years. Unemployment has come down from a level of 6.3 percent in 1995 to 5.9 percent in 1998 and inflation has been brought under control from a high level of about 38 percent in 1994 to under 6 percent in 1997. Inflation, however, is slowly creeping up and was around 12 percent by the end of September 1999. In spite of this economic recovery, per capita income in Madagascar remains low (\$234 in 1998), 72.3 percent of the population is under the poverty line<sup>1</sup>, and the country ranks almost at the bottom (153<sup>rd</sup> out of 174 countries) on the development scale as measured by the UNDP's human development index.

Madagascar has one of the poorest road networks in the world. Many towns and communities in the south as well as in the north are isolated because of lack of roads. Some major towns, for example Bekily and Ampanihy in the prefecture of Toliara in the south, are served only by bullock-cart tracks often cut-off by streams and other natural obstacles. All weather roads to the central highland plateau where the capital Antananarivo is located do not link the north and the southern areas of the country. Whatever roads exist, they are in extremely poor condition. They are also very costly to maintain due to constant damage caused by climatic conditions such as cyclones and tropical rains. Most of the important infrastructure such a rail-line (single-track system of 1095 km) and ports are also in poor state needing urgent and substantial repairs. Long term development of these areas is not possible without proper transportation and other infrastructure.

### 2.2 Population and the Environment

Population in mid-1998 according to the World Bank estimate was 14.3 million growing at 2.8 percent per annum<sup>2</sup>. Population density of 28 persons per square kilometre is relatively low but the ecology of the island is fragile, made worse by years of deforestation and the resulting serious soil erosion. The island once completely covered by forest is now less than 25 percent with green cover. Use of forest trees for fuel wood and timber as well as clearing of forestlands for livestock grazing

and slash and burn agriculture, are the primary reasons for the deforestation. The Mission was appraised of the recent damage, such as land slides and erosion gullies on the deforested areas, caused by the torrential rains and cyclones on the north-eastern mountain ranges of the country. Soil erosion in some areas has been estimated at a rate as high as 250 tonnes per hectare.

Almost one third of the island is set afire every year in order to encourage new grass growth and to collect charcoal for cooking. Environmental degradation results in decreased agricultural productivity and increased costs of infrastructure. Some estimates put the loss in the country's GDP at about 15 percent or \$290 million annually due to the environmental degradation. For the long-term sustainable development and food security, this environmental degradation needs to be stopped and reversed wherever possible.

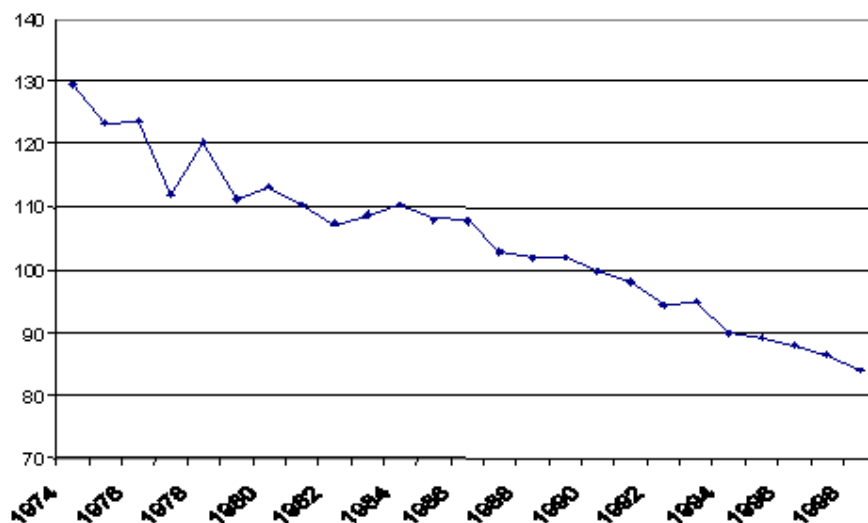
Madagascar as a fourth largest island in the world is blessed with marine resources in the Indian Ocean. These remain under exploited and could have greater potential in solving the country's food security problems in the long run.

### **2.3 Performance of the Agriculture Sector**

The per capita agricultural production index, as shown in Figure 1, has steadily declined from a high of about 130 in 1974 to a low of 84 in 1998. Agriculture's share in GDP has gradually fallen from about 37 percent in 1994 to 28 percent in 1998. The country has gone from being a net exporter of rice in the 1960s to a net importer since 1971.

Agricultural production is not constrained by lack of cultivable land. In fact, less than 10 percent of the island's total 33 million hectares of potential arable land is cultivated. Lack of basic infrastructure (roads for transportation, credit and marketing facilities, extension services, etc.) and near absence of technological improvements in crop varieties and farm equipment and tools have kept the state of agricultural development at the subsistence or semi-subsistence level. In general, irrigation is practised extensively in terms of total land irrigated, however, it is mostly by diverting or broadening of the natural streams to flood paddy fields. More efficient irrigation infrastructure and techniques of irrigating paddy are badly needed to increase farm productivity. The main food crops are rice (which represents about 60 percent of total farmed area and about 80 percent of the irrigated area), maize, cassava, sweet potatoes and groundnuts. Cash crops include coffee, vanilla, cloves, sugarcane, cotton, cocoa and sisal.

**Figure 1: Madagascar - Per capita agricultural production Index, 1974-1998**



Agricultural exports represent about 17 percent of the total exports (\$523 million) of which coffee (8.1 percent), vanilla, cloves and peppers (4.8 percent), and cotton (4.1 percent) are the leading export crops (1998 estimates). Agricultural imports are about 7 percent of the total imports (\$788 million). Agricultural trade is important to the country since typically there is a trade surplus for agricultural commodities when overall trade deficit amounts to about 50 percent of total exports (1998 estimates).

## 3. FOOD PRODUCTION IN 1999-2000

### 3.1 Major Climatic Disasters

During the main 1999/2000 agricultural season from November to May, Madagascar has been hit by two major cyclones, a tropical rain storm and floods due to heavy rains, while drought has been affecting central and southern parts of the country.

**Drought:** Rains, which normally start in late October, were well below both the average and last year's levels in most agricultural zones of the island until January 2000. Rains resumed in late January and became widespread over the country with the exception of the drought-prone South Region and major central paddy growing Lake Aloatra Region (see figures 2a and 2b). Despite successive replanting, the dry weather resulted in a general reduction of the area planted. Yields were also adversely affected, particularly in southern areas.

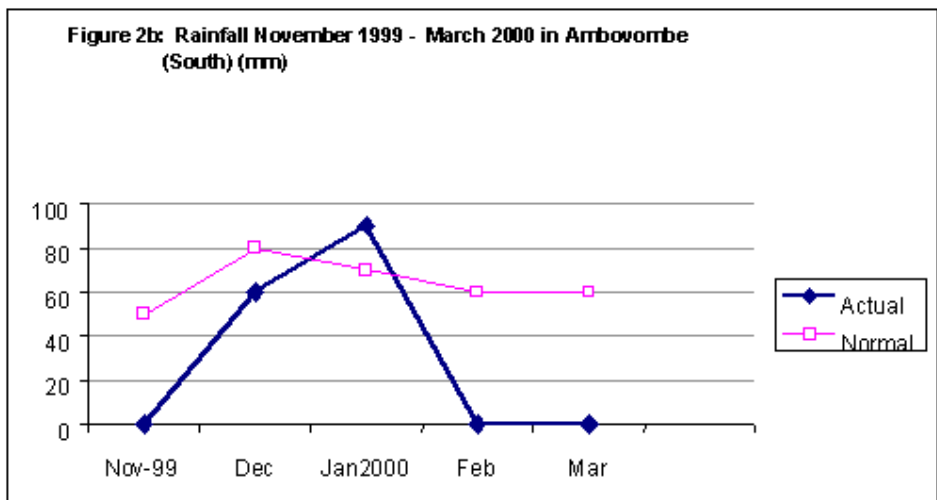
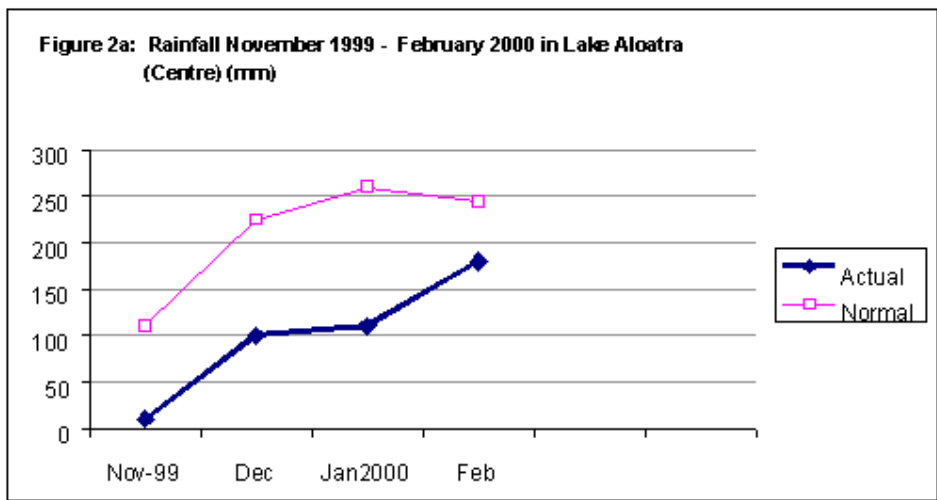
**Flooding in the West:** Following a prolonged dry spell, towards the end of January, a climatic depression caused a severe wind storm followed by heavy rains in the Central-West and Southern parts of the country covering the plains of Morombe and of Morondava. At Morombe, a quantity of rain equal to the yearly total was recorded in a span of 36 hours causing flooding and damage to irrigation facilities and to crops.

**Cyclone Eline:** Cyclone "Eline" came over the Indian Ocean from the east and touched the island to the south of the city of Vatomandry on 17 February 2000. With a diameter of 450 km, Eline crossed the island and exited from the west on 18 February near the town of Morondava. Within the 24-hour period rains of 131 mm in Ivato, 128 mm in

Antananarivo and 99 mm in Toamasina were recorded. High force winds reaching up to 200 km/hour caused loss of life, severe damage to infrastructure leaving 10 000 people homeless mostly in the Mahanoro and Vatomaniry areas. About 560 000 people of whom more than 70 percent were rural inhabitants, were affected to varying degrees by Eline. About one hundred villages were flooded and isolated.

**Tropical Storm Gloria:** Tropical storm "Gloria", with wind speeds of 60 to 100 km/hour entered the island in the Northeast close to the city of Sambava on 2 March 2000. It crossed the country from the North to the South while following an S shaped trajectory. During its passage, the storm brought rains of 263 mm in Mananjary, 165 mm in Nosy-Be and 134 mm in Morondava within a 24-hour period. The storm finally dissipated on 5 March in the region of Sakaraha. The rains and the river flooding caused extensive crop, property and road damage as well as loss of human and animal lives.

**Cyclone Hudah:** Cyclone "Hudah", one of the most powerful in years, struck Northern Madagascar with violent winds of up to 300 km/hour near the city of Antalaha in the north-east coast on 2 April 2000. The cyclone left the country on 3 April in the west, near the city of Analalava. The floods and the winds caused further damage to infrastructure and to field crops especially export crop plantations of vanilla, coffee and cloves. About 308 000 people were considered disaster victims after the destruction of their dwellings and farms.



### 3.2 Impact of the cyclones and drought on the main crops

## Rice

Dry weather from November to January in most growing areas delayed planting by two months and resulted in reductions in the area cultivated, particularly in the irrigated Lac Aloatra central area. Following the dry weather, strong rains due to the cyclones caused severe flooding in Sambava, Andapa, Maroansetra, Vaomandry, and Marolambo areas on the East Coast. Paddy plants, at their critical stage of tillering, were submerged by water and sand for nearly 20 days in the most affected areas. The Ministry of Agriculture estimates the nation-wide loss of rice due to the three cyclones at a total of 149 441 hectares. (See Table 1). This represents 20 percent of the total area under rice cultivation in the affected zones. In addition, agricultural irrigation systems were severely damaged. The rice fields on the slopes were mostly washed away by the rainwater. The yields in the mildly affected areas are expected to be much lower. At national level, the expected production of rice paddy lost in the flooded areas is estimated to be 152 000 tonnes, or 7 percent of this year's production.

## Maize

Maize is mainly grown in the South and Central-East regions. Dry weather in these parts since the beginning of the season sharply reduced the area cultivated and adversely affected yields. Crop failure is reported from several districts. In the Northeast, where the cyclones hit the hardest, maize is intercropped with rice. The crop was damaged by the floods caused by cyclones Eline and Gloria. Maize on the hillsides was more affected by the wind. The Mission estimates that plantings on 5 000 hectares (or 10 percent of the area under maize cultivation in the cyclone affected zones) were completely destroyed. This amounts to a loss of 4 000 tonnes, representing about 11 percent of the production in the affected area.

## Cassava

Cassava grown on the hillsides and in the plains was seriously damaged by winds and the flooding that accompanied the cyclones especially after the passage of Hudah. The area lost is estimated at 2 400 hectares with an expected production of 13 000 tonnes, or 6 percent of the total production in the affected area.

**Table 1: Evaluation of the area losses due to cyclones in the affected areas**

Crops	Area cultivated (hectares)	Area loss (hectares)
Rice	762 901	149 441
Maize	51 065	5 100
Cassava	20 370	2 400
Vanilla	25 500	4 355
Coffee	193 000	7 800
Cloves	90 300	20 600
<b>Total</b>	<b>1 143 136</b>	<b>189 696</b>

## Vanilla

Vanilla is one of the major export crops and is primarily grown in the northern Sava region. On average, about 1 000 tonnes of vanilla are exported annually, representing a major source of income to the population of this region. Considering the good flowering

observed in November/December, prospects before the arrival of the cyclones were for an almost record harvest. The flooding that followed the tropical storm Gloria, as well as winds caused by cyclone Hudah, seriously damaged the vanilla plantations. In the flooded plantations, rot has irreversibly damaged the vines and the vanilla pods. The area lost to floods is estimated at 4 355 hectares with an expected production of 870 tonnes. This will seriously affect exports next year and possibly for an additional two years. Since the processed vanilla that will be exported this year is from last year's production, the exports of year 2000 are not expected to be significantly reduced. Processed vanilla exports are estimated to be about 800 tonnes, the same level as the previous year.

## **Coffee**

Coffee is the most important export crop and is mainly grown on the East Coast. The crop has been damaged mostly by the winds, which caused defoliation, breaking of branches and falling of the beans. Coffee plantations in the valleys were flooded for several hours affecting the quality of coffee beans. The area lost is estimated at 7 800 hectares with an expected production of 2 500 tonnes of green coffee (or about 4 percent of the national production). Full recovery is expected to take three to four years.

## **Cloves**

Cloves are produced in the Centre-east and North-east, essentially in the zones that have been hit by the cyclones. Clove plantations are generally situated on the hill slopes and therefore exposed to the wind and erosion damage. In Antalaha, the damage due to the violent winds of cyclone Hudah caused total defoliation and consequently complete drying of the trees. The destroyed area is estimated at 20 000 hectares and corresponding losses of about 3400 tonnes (or about 22 percent of national production). Replants will take about seven years to come into production, and production losses are expected to be much more lasting than other crops.

## **3.3 Cyclone Damages to Other Sectors**

### **Livestock**

Damage to the livestock sector by the cyclones was considerable. In addition to the destruction of the basic infrastructure, such as farm structures and buildings, loss of animals was also reported. A complete assessment of the losses is not available; however, this situation has resulted in increased meat prices in the local markets of the affected areas, particularly in the town of Andapa in the Northeast. During the aftermath of the floods, increased incidence of animal diseases in the area is also reported.

### **Environment**

The violent winds and the strong rains that came with the cyclones had particularly destructive effect on the forests on the eastern coast. The trees were uprooted by winds and the heavy rains created landslides and massive erosion of the hillsides. About 70 000 hectares (or almost one-third of the Grand Massif Forestier) have been damaged by the cyclones in the area north of Antalaha. The forest station of Andrakeraka was destroyed. About 1200 hectares or 20 percent of the communal forests in the Sub-Prefectures of Andapa and Maroansetra were reported to have suffered severe damages. This deforestation is likely to worsen the problem of soil erosion and expose these areas to other ecological disasters.

## **3.4 Production forecast**



As described above the 1999/2000 agricultural production year witnessed major weather related disruptions (drought and cyclones) that adversely affected most of the crops. Considering the combined effects of torrential rains, floods, winds and drought on this year's foodcrops, the Mission estimated the 2000 production of rice (paddy), maize and cassava at 2.19 million, 0.14 million and 2.08 million tonnes, respectively. These represent reductions in production from the good levels of last year (estimates revised by the Mission) of 15 percent, 22 percent and 18 percent respectively. At national level, there is a reduction of 250 000 tonnes of rice in milled terms. Rice is widely planted, and output declines have been experienced in all provinces. However, for the three major foodcrops the greatest reductions are in the traditionally food deficit southern Toliara Prefecture, where production of staple maize is 46 percent below last year's level and that of cassava 39 percent.

**Table 2: Madagascar - Estimated food production by province, year 2000**

Provinces	Rice (Paddy)			Maize			Cassava		
	1999 <sup>1</sup> /	2000	Change	1999 <sup>1</sup> /	2000	Change	1999 <sup>1</sup> /	2000	Change
	(000 tonnes)	(000 tonnes)	( % )	(000 tonnes)	(000 tonnes)	( % )	(000 tonnes)	(000 tonnes)	( % )
Antananarivo	513	436	-15	76	64	-16	379	322	-15
Fianarantsoa	394	327	-17	23	19	-15	1178	1041	-12
Mahajunga	570	513	-10	22	19	-14	129	118	-9
Toamasina	663	564	-15	15	12	-20	275	237	-14
Antsiranana	251	211	-16	8	6	-21	58	46	-21
Toliara	177	143	-19	37	20	-46	519	317	-39
Total	2 568	2 194	-15	180	140	-22	2 539	2 080	-18

1/ 1999 is revised estimate by the FAO/WFP Mission.

### **3.5 Agriculture Rehabilitation Needs**

The cyclones destroyed important agricultural production infrastructure in the Northeast and the central zones of the island. The preliminary measures of rehabilitation have been identified by a previous FAO mission in March 2000. The distribution of seeds (especially rice and vegetables), small farm tools, pesticides and fertilizer would be needed urgently for the secondary season from June to December.

A joint team of the World Bank and the Government of Madagascar assessed the cyclone damage to the irrigation infrastructure. The cost of the repairs and rehabilitation of the major infrastructure is estimated at Fmg 605 billion (US\$85.6 million) of which Fmg 114 billion (US\$16.2 million) constitute the urgent need to help the second season crops. This assistance should ideally be carried out under the food for work type of programmes helping to build small water tanks, irrigation channels, and local track roads among other community projects.

## **4. REGIONAL ANALYSIS**

### **4.1 The Northeast Region**

The Northeast covers the area of Sava and the Sub-Prefecture of Maroantsetra. The important food crop is rice but the region is particularly specialised in growing export crops such as vanilla, coffee, cloves and peppers. The beginning of the agricultural production season was characterised by lack of sufficient rainfall thus affecting rice plantings adversely. With normal rains towards the end of January, rice transplanting and other fieldwork was resumed.

In all, 33 towns out of the 68 in the region were severely affected by tropical storm Gloria and cyclone Hudah. The Mission estimates sharp production decreases for rice, for vanilla, for coffee and for cloves, compared to 1999 production. Prices of food commodities in the region have increased in isolated areas, where a kapoaka<sup>3</sup> of rice sells for 750-900 Fmg<sup>4</sup> this year as opposed to 500-600 Fmg last year.

Because of the expected reduction in farm incomes following losses of export crops, access to food will be limited for a large proportion of the population.

## **4.2 Central East Coast Region**

This region covers the Sub-Prefectures of Vatomandry, Mahanoro, Marolambo, Antanambao and Manampotsy. The growing season especially for rice was delayed due to the late arrival of rains. Transplanting of rice was undertaken only in January. Then Cyclone Eline hit the region in February. The fields of young paddy were submerged, in some areas for about 20 days, causing almost total crop failure. The production of rice this year is expected to be sharply reduced. Food prices at present are relatively stable. Coffee plantations in the region are expected to sustain losses for the next three to four years.

## **4.3 The Lake Aloatra Region**

This region covers Sub-Prefectures of Ambatondrazaka, Amparafaravola and Andilamena. The 1999/2000 agricultural season was marked by drought during the period October 1999 to January 2000. The rains were normal after January, allowing the rice crop to be transplanted and established. Cyclones Eline and Gloria brought heavy rainfall to this region but for a relatively short period (from mid-February to early March). The drought resumed in March. Therefore, the production of rice in this region is expected to be significantly reduced. To counteract the losses of rice, farmers in the area have shifted to vegetable production. About 569 hectares of tomatoes, onions and potatoes have been cultivated in the region.

## **4.4 Vakinankaratra Region**

This region of Antsirabe, Faratsiho, Antanifotsy and Betafo, experienced drought at the beginning of the season, and were then hit by cyclone Eline in mid-February and hailstorms in April, thus affecting rice production adversely. Other crops such as maize and cassava, which are important in the local diet, were also affected by these natural calamities.

## **4.5 The South Region**

This region, which include the Sub-Prefectures of Ambovombe, Amboasary, Bekily, Ampanihy, Beloha, and Tsihombe is prone to drought and food insecurity. Drought experienced this year has resulted in sharp declines in yields of the main crops of the region, maize, cassava and sweet potatoes.

At present there are not shortages of food grains in the markets as grains from the northern part of Toliara as well as rice imports are supplying the local markets. However, prices have begun to rise since January 2000. Prices of maize during the month of March

in seven principal markets surveyed by the EU-Early Warning System (SAP), were about 375 Fmg/kap this year compared to about 110 Fmg/kap at the same time last year. The increase in rice prices is much less dramatic, roughly about 10 to 20 percent, because rice is not the dominant crop in this region. As prospects for this year's harvest are poor, price movement will depend mostly on imports and food-aid.

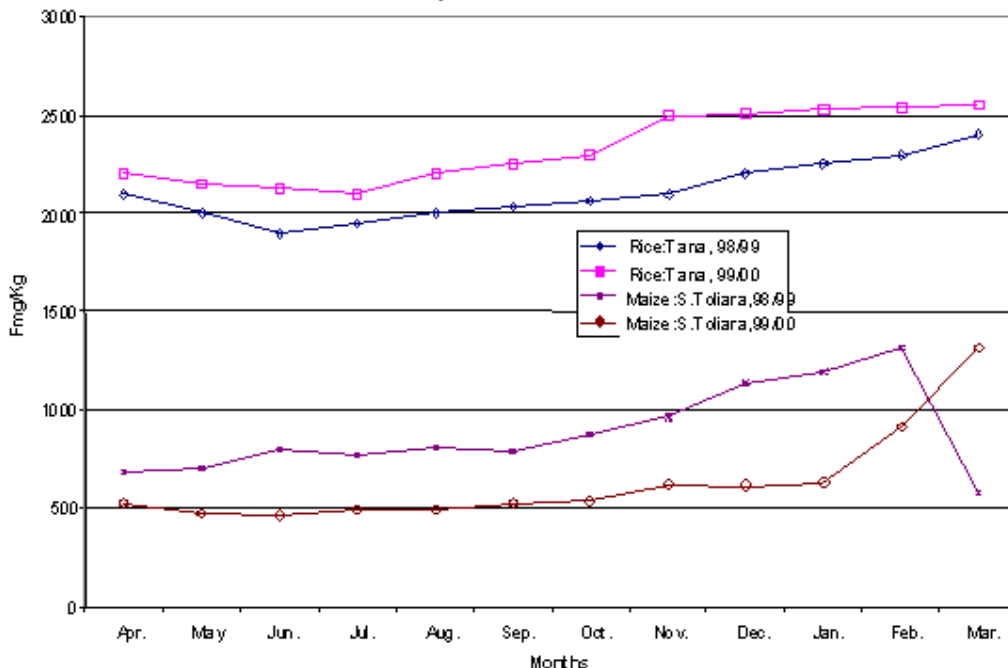
In some markets cattle prices have declined by half within one month reflecting distress sale. Beef cattle prices in Tsihombe dropped from 950 000 Fmg during the first week of March to 600 000 Fmg during the fourth week (a decline of about 63 percent), and tillage cattle prices dropped from 900 000 Fmg to 500 000 Fmg (a decline of 56 percent). However, this is not very widespread. A less severe pattern was observed in Ambovombe, Bekily and Ampanihy, while in Amboasary, Betioky, and Beloha there were no clear indications of distress selling of cattle as yet.

The SAP has identified 14 districts in the Sub-Prefectures of Ampanihy, Tsihombe and Ambovombe where the population is facing severe food difficulties. While the overall food situation at present is not serious, it is set to deteriorate rapidly. The Mission heard reports that part of the population is consuming cactus fruit and have reduced the number of meals per day.

## 5. FOOD PRICES AND ACCESS TO FOOD

Rice prices during 1999/2000 marketing year (April/March), in the capital city market of Antananarivo, remained higher than the previous year (see top part of Figure 3) as the rice production in 1999 was less than anticipated (the Mission's revised estimate of rice production is slightly lower than the provisional estimate for the prefecture of Antananarivo and the country as a whole). Prices in April 2000 observed by the Mission were beginning to rise due to the expected worsening of production and total reduced availability caused by the adverse weather conditions this year.

**Fig. 3: Sample Market Prices of Rice in Antananarivo and Maize in South Toliara, Apr. - Mar. 98/99 and 99/00**



By contrast, cereal prices in the South (see figure 3 lower part for maize prices in South Toliara) remained lower almost through out the marketing year as the harvest in year 1999 was above average. Prices have taken a sharp upward turn since January 2000 as the prospect of a good harvest disappear due to the drought. Speculations about the looming food shortages are driving prices higher in the local markets for most food items.

Prices are usually low during the post-harvest months of May, June and July and high during October to February rice planting months. Typically what was observed currently was that the prices of maize, cassava, rice and beans, have been rising since January 2000 rather than declining as they would in a normal or a good rainfall year.

## 6. CEREAL SUPPLY AND DEMAND BALANCE FOR 2000-2001

The cereal supply/demand balance sheet for Madagascar for the 2000/01 marketing year (April/March) is presented in Table 3. The balance sheet is based on the following assumptions and findings:

- o Production of paddy, representing over 90 percent of total cereal production in 2000-2001, is estimated at 2.2 million tonnes or about 1.5 million tonnes in milled terms. This is about 15 percent lower than last year's production due to damage caused by three cyclones in the Northeast and in the Central-East, as well as the drought in the South.
- o As a result of last year's good harvest and sustained levels of rice imports in 1999/00, it is assumed that significant rice stocks were in the hands of traders at the beginning of April 2000. Therefore, a draw-down of 30 000 tonnes of rice stocks is assumed in marketing year 2000/2000. No change in wheat stocks is anticipated, while stocks of maize in the hands of farmers are assumed to be negligible.
- o A mid-2000/01 population, estimated at 15.2 million, is used.
- o Per capita cereal requirements are calculated on the basis of annual per caput consumption of 120 kg of rice, 10 kg of maize and 5 kg of wheat. It is assumed that cassava, sweet potatoes and other crops makeup the remainder of the food requirements. Seed, feed and other uses and losses are assumed at 8 percent for rice, 13 percent for maize and 5 percent for wheat.

**Table 3: Madagascar: Cereal Supply and Demand Balance Sheet, 2000-2001 (000 tonnes) Marketing year: April/March**

	Rice (Milled)	Maize	Wheat	Total Cereals
<b>A. Domestic Availability</b>	<b>1 522</b>	<b>140</b>	<b>9</b>	<b>1 671</b>
Stock drawdown	30	0	0	30
Production 2000	1 492	140	9	1 641
<b>B. Total Utilization</b>	<b>1 942</b>	<b>170</b>	<b>77</b>	<b>2 189</b>
Food Use	1 823	152	76	2 051
Seed, Feed and Other Uses	119	18	1	138
<b>C. Import Requirements</b>	<b>420</b>	<b>30</b>	<b>68</b>	<b>518</b>
Anticipated Commercial Imports	350	10	66	426
Emergency Food Aid	23	5	2	30

Uncovered Deficit	47	15	0	62
-------------------	----	----	---	----

The balance sheet shows total cereal utilization requirements of 2.19 million tonnes, leaving a demand-supply gap of 518 000 tonnes.

Importation of food and many other items is liberalised under the current economic reform programme. Thus, private traders are expected to play an active role in the importation of major cereals. With the unusually high food deficit situation in the country, and low international rice prices, the Mission estimates commercial imports of cereals by private traders in the order of 426 000 tonnes during 2000/01. The bulk of this amount, 350 000 tonnes, is expected to be rice, given its importance in the national diet. Although this level is high when compared with previous years' imports, it should be noted that Madagascar imported 351 000 tonnes of rice in 1982.

Emergency food aid of 30 000 tonnes is anticipated for the most affected population. Despite the high level of estimated commercial imports, there is an uncovered cereal shortfall of 62 000 tonnes. In order to prevent deterioration in the food supply situation, this deficit should be covered by programme food aid from bilateral donors.

## Food Assistance requirements

Crop damage caused by weather anomalies in the South-west, by the drought in the South and Lac Alaotra Regions, and by floods and high winds due to cyclones in the North-East, Central-East, Lac Alaotra and South-East, have resulted in serious foodcrops losses, in particular of food staples rice and maize. Losses of food and seeds stocks have been also significantly.

As a result, it is expected a deterioration of the nutritional status of the most vulnerable population, including children under 5 years, pregnant women and the elderly. Recent nutritional surveys, although localized, indicate an evolution of the nutritional status that gives serious cause for concern.

Following the three cyclones, the number of people requiring urgent humanitarian assistance is estimated at 156 500, of which 20 000 have been affected by cyclones Eline and Gloria in the Vatomandry, Mahanoro, Antanambao-Manampotsy, Marolambo, Sambava, Antalaha, and Andapa areas; and 74 000 persons by cyclone Hudah in the Andapa, Antalaha and Maroantsetra regions. At Government request, WFP is providing food aid assistance to the most affected population as free distribution and through food-for-work programmes (FFW). Free distribution granted has allowed the survival and recovery of the beneficiaries during 30 days. The daily ration is 500 gr. of rice and 100 gr. of pulses per person for free distribution and 2 kg of rice and 300 gr. of pulses in the FFW programmes. Overall, 156 500 persons will benefit of food aid of which 74 000 as free distribution and 82 500 in the form of FFW. Total food distribution amount to 4 133 tonnes of rice and 656 tonnes of pulses.

Table 4 below presents the breakdown of food aid by affected zones.

**Table 4: Madagascar - Food aid beneficiaries by zone**

Zone	Beneficiaries		Commodities required (tonnes)			
	Free distribution	FFW	Free distribution		Food for Work	
			Rice	Pulses	Rice	Pulses
<b>North-East</b>	<b>65 000</b>	<b>20 000</b>	<b>975</b>	<b>195</b>	<b>645</b>	<b>60</b>
Andapa	10 200	4 000	153	30.5	129	12
Antalaha	32 500	9 000	487.5	97.5	290	27

Maroantsetra	22 300	7 000	334.5	67	226	21
<b>East</b>	-	<b>18 750</b>	-	-	<b>600</b>	<b>90</b>
Vatomandry						
Marolambo						
Anosibe An'Ala						
<b>South-East</b>		<b>31 250</b>			<b>1 000</b>	<b>150</b>
Manakara						
Nosy Varika						
Farafangana						
<b>West- South-West</b>		<b>12 500</b>			<b>400</b>	<b>60</b>
Belo- Tsiribihina						
Morombe						
Morondava						
Manja						
Other Zones	<b>9 000</b>		<b>243</b>	<b>40.5</b>		
<b>TOTAL</b>	<b>74 000</b>	<b>82 500</b>	<b>1 218</b>	<b>235.5</b>	<b>2 645</b>	<b>360</b>

Considering access difficulties and isolation of the areas affected by the cyclones and floods, WFP has launched an Special Operation amounting to US\$1 200 000 for hiring helicopters, boats and other logistic means so to assure the distribution of food and non food aid in these areas.

Regarding the drought-affected populations in the South, the Mission observed that their food situation is extremely serious. Food stocks for the lean season and family's assets have begun to be depleted. The EU- Early Warning Systems has provisionally estimated that 17 districts will be experiencing food difficulties and has recommend the distribution of 10 000 tonnes of food aid under FFW programmes. While WFP will support the affected populations in these districts, the amount of food aid to be distributed will be subject to further assessments.

Additionally, donors and ONGs, such as CARE International and CRS, are also distributing food aid under FFW programmes in the region of Vatomandry and Mahanoro. UNICEF and Médecins sans Frontières (MSF) have distributed fortified biscuits (FB5).

*This report is prepared on the responsibility of the FAO and WFP Secretariats with information from official and unofficial sources. Since conditions may change rapidly, please contact the undersigned for further information if required.*

**Abdur Rashid**  
Chief, GIEWS, FAO  
Fax: 0039-06-5705-4495  
E-mail: [GIEWS1@fao.org](mailto:GIEWS1@fao.org)

**Mohamed Zejjari**  
Regional Director, Africa Bureau  
(OSA), WFP  
Fax: 0039-06-6513-2839  
E-Mail: [Mohamed.Zejjari@wfp.org](mailto:Mohamed.Zejjari@wfp.org)

*The Special Alerts/Reports can also be received automatically by E-mail as soon as these are published, subscribing to the GIEWS/Alerts report ListServ. To do so, please send an E-mail to the FAO-Mail-Server at the following address: [mailserv@mailserv.fao.org](mailto:mailserv@mailserv.fao.org) , leaving the subject blank, with the*

*following message:*

***subscribe GIEWSAlerts-L***

*To be deleted from the list, send the message:*

***unsubscribe GIEWSAlerts-L***

---

**1** As per the "dollar-a-day" criteria poverty line applied to 1989-94 period.

**2** The UN on the other hand estimates population at 16.3 million growing at 3.1 percent per annum.

**3** 3.5 kapoakas = 1 kg

**4** 7 066.6 FMG = US\$1