



**Mauritania 1997/98
Current Vulnerability Assessment
February 1998**

**Famine Early Warning System Project
U.S. Agency for International Development**

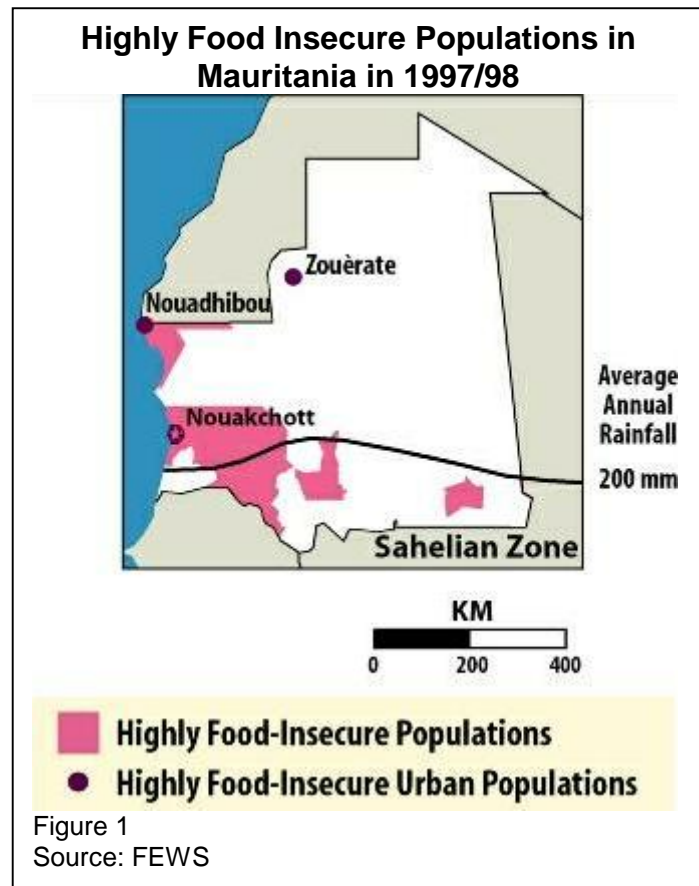
Mauritania 1997/98 Current Vulnerability Assessment

Rainfed cereal production in Mauritania is well below average for the second consecutive year

SUMMARY

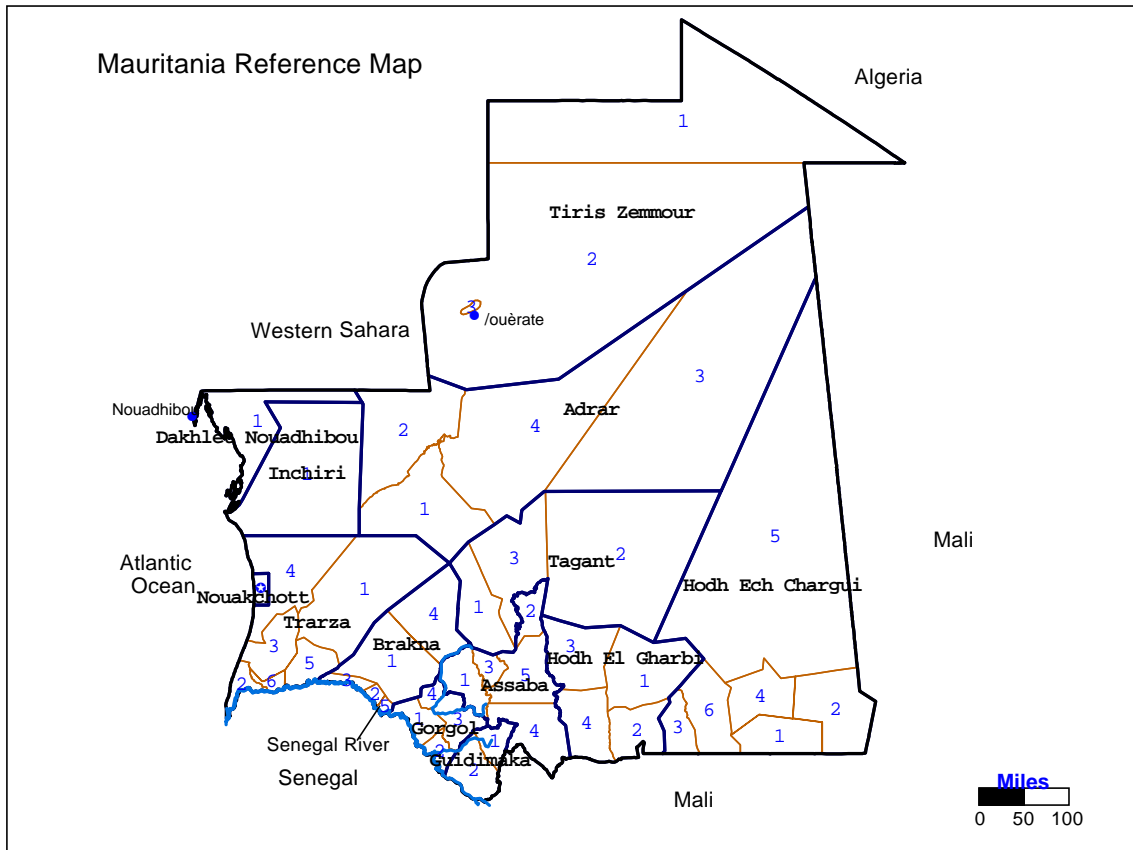
For the second consecutive year, production of millet and sorghum in Mauritania was well below average (1992/93-1996/97) in most of the zones where *dieri* (rainfed), *walo* (river recessional), and *bas-fonds* (lowland) crops are grown. Irrigated rice production, on the other hand, registered an impressive 50 percent increase compared to average and 23 percent over last year. Total cereal production was 12 percent below average. Poor cereal production in neighboring Senegal will limit flows from that important supply area into the Senegal River Valley Wilayas of Mauritania (figure 2). In Assaba, Hodh Ech Chargui, and Hodh El Gharbi Wilayas, cereals from Mali are easing supply shortfalls, but many households lack resources to purchase available cereals. A 27 percent devaluation of the ouguiya between November 1996 and November 1997 may reduce commercial imports of rice and wheat, which are mostly consumed in urban centers.

For farmers relying on *dieri* or *bas-fonds* production or a combination of the two, inadequate rainfall and pest damage reduced production in all Wilayas except Hodh El Gharbi. Following a disastrous harvest last year, farmers are ill-equipped to deal with this year's loss, and consequently 65,000 are highly food insecure (see Terminology Box). For farmers in the Senegal River Valley who produce *dieri*, *bas-fonds*, *walo*, and irrigated crops, only irrigated crops produced well. *Dieri* and *bas-fonds* production suffered from inadequate rainfall, and *walo* yields suffered because fields were not flooded long enough to ensure adequate residual moisture. With reserves depleted after last year's poor harvest, 148,000 farmers in the Senegal River Valley are highly food insecure.



For pastoralists, late-season rains in September and October improved pasture and water conditions in most of Mauritania. Herds are in good condition and livestock productivity is high. Despite poor livestock-to-cereal terms of trade, most pastoralists and agropastoralists are food secure. In Brakna and Trarza Wilayas, however, where pasture conditions are poor and traditional cereal production below average for the second consecutive year, 45,000 sedentary pastoralists and agropastoralists are highly food insecure and another 111,000 are moderately food insecure.

High costs of basic foods, exacerbated by the devaluation of the ouguiya (which lost 27 percent of its value with respect to the US dollar), continues to erode the purchasing power of urban consumers. For the urban poor of Nouakchott, Nouadhibou, and Zouérate, these higher food costs are causing increased hardship. These populations are considered moderately to highly food insecure.



Map Reference Numbers

Adrar Wilaya	Map Number	Assaba Wilaya	Map Number	Brakna Wilaya	Map Number	Trarza Wilaya	Map Number
Aoujeft		1 Barkèol		1 Aleg		1 Boutilimit	
Atar		2 Boumeïd		2 Bababé		2 Keur Massene	
Chinguetti		3 Guérou		3 Boghé		3 Mederdra	
Ouadane		4 Kankossa		4 Magta-Lahjar		4 Ouad Naga	
		Kiffa		5 M'Bagne		5 R'Kiz	
						6 Rosso	
Gorgol Wilaya	Map Number	Guidimaka Wilaya	Map Number	Hodh Ech Chargui Wilaya	Map Number	Inchiri Wilaya	Map Number
Kaédi		1 Ould Yenge		1 Amourj		1 Akjoujt	
Maghama		2 Selibaby		2 Bassikounou			
M'Bout				3 Djiguéni			
Monguel				4 Nema		4 Nouadhibou Wilaya	Map Number
				5 Oualata		5 Nouadhibou	
				6 Timbedra			
Hodh El Gharbi Wilaya	Map Number	Tagant Wilaya	Map Number	Tiris Zemmour Wilaya	Map Number	Nouakchott Wilaya	Map Number
Aïoun		1 Moudjeria		1 Bir Moghein		1 Nouakchott	
Kobenni		2 Tichit		2 F'Derik			
Tamcheppet		3 Tidjikja		3 Zouérate			
Tintane		4					

Figure 2

I. INTRODUCTION

This Current Vulnerability Assessment (CVA) presents an analysis of the impact of recent events on populations' current food security status. Food security is a measure of whether an individual, household, community, or any population group has access to sufficient safe and nutritious foods that meet dietary needs and food preferences for an active life. There are two important aspects of food security: food availability and food access.

1. **Food availability** is defined as the amount of food which is, and will be, physically present in the country during the current consumption year.¹
2. **Food access** refers to a household's ability to acquire that "available" food, either through its own (on-farm) production and stocks, market transactions (cash or in-kind) or transfers (private or government) for the current consumption year.

This CVA categorizes populations as food secure or food insecure. **Food-secure** populations can meet their food needs in the current year without altering normal income activities or depleting savings. For the purpose of response planning, food insecure populations are distinguished according to their degree of food insecurity:

- **Extremely food-insecure** populations have depleted their asset base to such a degree that without immediate outside assistance, they will face famine. Appropriate interventions include emergency food distributions and long-term rehabilitation programs.
- **Highly food-insecure** populations cannot meet their food needs during the current year without reducing consumption or drawing down assets to such a degree that they compromise their future food security. Appropriate interventions include nutritional support for vulnerable groups, food for work, income and asset support, and market interventions.
- **Moderately food-insecure** populations can meet their food needs in the current year, but only by drawing down savings or relying heavily on secondary income activities. Should market access or income from secondary activities be compromised, these populations might become highly food insecure in the current year. No interventions are necessary, but positioning of cereals would facilitate market interventions if conditions deteriorate.

This report is organized to first address food availability and then food access. Section II presents an analysis of food availability at the national and subnational levels. At the national level, the focus is on evaluating current levels of production, stocks, and net imports, comparing them to average levels and

¹ For most agricultural populations, the current consumption period refers to the period between the current harvest and the next harvest, which is usually, but not necessarily, a full year.

calculating the national food balance. This is the first step in understanding whether there will be enough food available to meet the consumption needs of the entire population in the current year. This is followed by an evaluation of changes in production at the subnational level and the possible implications these changes will have on food flows and local availability.

Section III presents an analysis of food access at the socioeconomic group level, going beyond the issue of food availability to a determination of how the current harvest and other factors have affected the various socioeconomic groups' ability to acquire sufficient food to meet their current food needs.

FEWS considers the following factors in making this determination:

- Harvest outcomes over the past 3 seasons
- Degree of dependence of each group on agricultural production for meeting food needs
- Levels and diversity of other income sources
- Market availability and prices of cereals²
- Coping strategies

Section IV summarizes the actions that are being taken or need to be taken to respond to any food emergencies.

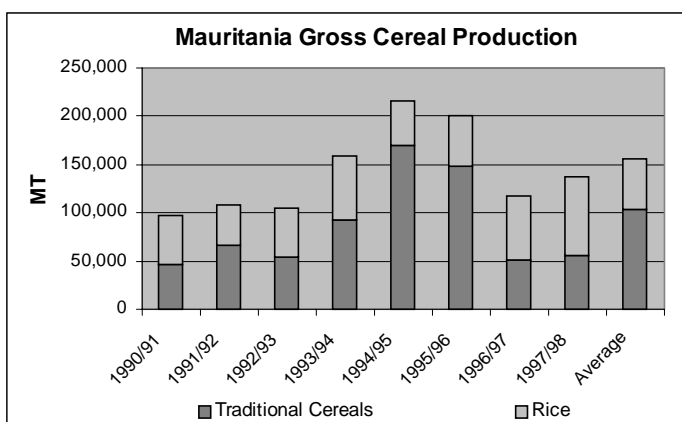
² This takes into account the degree of integration of specific areas into the national market. Geographic isolation and status of transport infrastructure are key factors considered.

II. FOOD AVAILABILITY

A. National Availability

1. Production

National agricultural production is 12 percent below average³ (table 1). This is up 17 percent compared to the previous season,⁴ but still represents a second consecutive year of below-average production at the national level (figure 3). The poor performance of the traditional cereals (millet, sorghum, and maize) is even more extreme: this year's production is more than 40 percent below average, and last year it was 50 percent below average. In contrast, irrigated rice production registered an impressive 50 percent increase compared to average and 23 percent over last year.



Source: Ministry of Rural Development and Environment
Figure 3

Late-season rains in September and October replenished water sources and regenerated pastures, improving pastoral conditions over last year across much of the pastoral zone.

Table 1: Comparison of 1997/98 provisional gross production estimates with final estimates for 1996/97 and average

Production Year	Traditional Cereals	Rice	Total
1997/98 (MT)	55,130	82,446	137,576
1996/97 (MT)	50,604	66,748	117,352
Average (MT)	103,102	53,423	156,524
Difference 1997/98 vs 1996/97 (%)	9	24	17
Difference 1997/98 vs Avg (%)	-47	54	-12

Source: FEWS; Ministry of Rural Development and Environment

³ Averages for all production comparisons refer to the average for 1992/93 through 1996/97, unless otherwise noted.

⁴ The rainy season typically runs from May to September; the rainfed harvest usually occurs from August to December; the recession harvest usually occurs from February to April. For the purposes of this analysis, the 1997/98 agricultural season is referred to as this season, or this year. The 1996/97 agricultural season is referred to as last season or last year.

2. Stocks⁵

Commercial and food aid stocks include the following: 10,262 MT of Food Security Commission (CSA) stocks, comprised of 4,986 MT of wheat and 5,276 MT of rice (essentially from food aid); 7,000 MT of SONIMEX⁶ stocks; and 33,482 MT of imported private sector stocks, consisting of 24,785 MT of wheat and 8,697 MT of rice.

FEWS and the GIRM (Government of the Islamic Republic of Mauritania) differ on their estimates of farmer stocks. The GIRM estimates farmer stocks at 9,600 MT: 3,600 MT of rice and 6,000 MT of traditional cereals. FEWS considers farmers' traditional cereal (millet, sorghum, and maize) stocks to be zero because of the very poor cereal harvests during the 1996/97 season and estimates farmers' rice stocks to be 2,680 MT, based on Ministry of Rural Development and Environment estimates.

3. Projected imports and exports

Various sources (customs at the port, Ministry of Commerce, and Transporters' Federation) estimate official imports for 1996/97 at 315,591 MT, comprised of 104,366 MT of rice, 100,663 MT of wheat, and 110,562 MT of wheat flour. According to SISAR/MRDE⁷ statistics, food imports during the 1996/97 consumption year made up 26.1 percent of the estimated 52 billion ouguiyas of total imports.

Using last year as a bench mark, total commercial and humanitarian imports in 1997/98 should be about 320,000 MT. However, the 27 percent fall in the value of the ouguiya vis-a-vis the US dollar between November 1996 and November 1997 could weaken the private sector's capacity to import. The volume and pace of commercial imports will need to be monitored during the year to determine if actual levels conform to projected levels. By the end of October, 4,485 MT of food aid had been pledged for 1997/98.

In addition to official imports, large quantities of informal food imports (mostly cereals, milk products, and vegetables) come from Mali, Senegal, and from the countries of the Maghreb via Nouadhibou and Tiris Zemmour. In southern Mauritania, private traders transport cereals in tractor trailers which carry 30 MT and small trucks which carry 10 MT. In addition, individual residents purchase cereals for household consumption at weekly markets in Mali. There are no statistics regarding these imports, and they are therefore not included in the national cereal balance. These informal exchanges contribute significantly to food security in border areas.

⁵ All estimates of stocks are as of October 30, 1997, when the preliminary cereal balance was established.

⁶ Societe National d'Importation et Exportation (SONIMEX) is a state-owned enterprise that imports rice, wheat, and tea.

⁷ Systeme D'Information sur la Securite Alimentaire et l'Alerte Rapide (SISAR) is an FAO-financed early warning project within the Ministry of Rural Development and Environment (MRDE).

Informal flows from Mali, which had a good cereal harvest at the national level, are easing cereal supply constraints in Assaba, Hodh Ech Chargui, and Hodh El Gharbi Wilayas. However, because cereal production was poor in border areas of Mali (in Nara, Goundam, Niafounke, and northern Kayes Cercles), the Malian Government is attempting to reduce informal cereal exchanges.

Informal cereal flows from Senegal to the Senegal River Valley Wilayas of Mauritania will be greatly reduced because of the poor rainfed and *walo* harvest in the Senegal River Valley and peanut basin areas of Senegal. In addition, since the conflict between Mauritania and Senegal in 1989, restrictions on cross-border cereal and other food flows between Mauritania and Senegal have further reduced flows.

4. Cereal Balance

The national cereal balance, after taking into account domestic production, opening and closing stocks, and projected net imports, results in a 41,322 MT cereal deficit (FEWS estimate). In contrast, the deficit according to GIRM is 49,780 MT. In addition, considering the relatively good pasture conditions, FEWS assumes that animal feed needs will be largely covered, while the GIRM projected animal cereal needs at 30,000 MT. Finally, FEWS, on the basis of information collected from the Wilaya-level MRDE offices and the rice parastatal SONADER, has revised original production estimates (down for traditional cereals and up for rice); the MRDE has yet to release revised harvest estimates.

Table 2: Mauritania - Preliminary cereal balance 1997/98⁸

	FEWS	GIRM
Population thru 04/30/98	2,489,368	2,489,368
I. DOMESTIC AVAILABILITY	149,752	171,294
<u>Production</u>		
-Gross Production	137,576	153,366
-Net Production ⁹	96,328	110,950
<u>Opening Stocks as of 11/1/97</u>	53,424	60,344
-Farmer	2,680	9,600
-Other	50,744	50,744
II. NEEDS	511,150	541,150
<u>Human Consumption</u> ¹⁰	438,129	438,129
<u>Final Stocks</u>	73,021	73,021
-Farmer	9,000	9,000
-Other	64,021	64,021
<u>Animal Feed</u>	0	30,000
III. GROSS SURPLUS(+) or DEFICIT (-)	-361,398	-369,856
IV. IMPORTS/EXPORTS	320,076	320,076
-Projected commercial imports	315,591	315,591
-Confirmed food aid	4,485	4,485
-Projected exports	0	0
V. NET SURPLUS(+) or DEFICIT (-)	-41,322	-49,780
VI. PER CAPITA CEREAL AVAILABILITY¹¹ (kg)	189	197

Source: FEWS; Ministry of Rural Development and Environment

B. Subnational Cereal Production

For the second year in a row, *dieri* cereal production was severely affected by poor rainfall distribution. After an unusually early start to rains in May and early June in the south and eastern parts of the country, long dry periods in July caused the loss of early-planted millet and sorghum. Many of the plantings and re-plantings that took place in early August did not have sufficient time to mature. Estimated *dieri* cereal production is 20,069 MT compared to the average of 53,869 MT and was even lower than the very poor 1996/97 results when only 34,715 MT were produced. In fact, this year's *dieri* production was the lowest since 1990/91 (figure 4).

⁸ Note: All units are MT unless otherwise noted.

⁹ Net production is obtained by multiplying gross production by the following coefficients: 0.6 for rice and 0.85 for other cereals.

¹⁰ Consumption standard (kg/person): total cereals – 176.

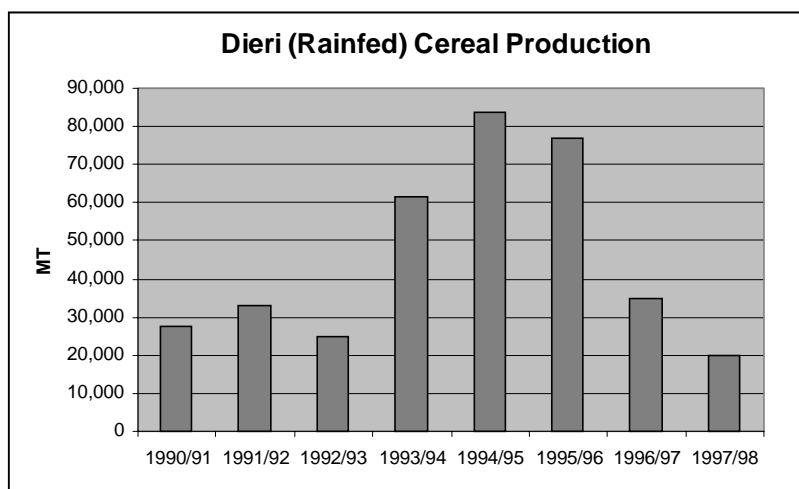
¹¹ Per capita availability includes net production, initial stocks, and net imports.

Table 3: Cereal Production by Production System

Production System	Traditional Cereals				Rice		
	<i>Dieri</i>	<i>Bas-Fonds</i>	<i>Walo</i>	Controlled Recessional	Private Irrigated	Sonader Irrigated	M'Pourie
1997/98	20,069	19,444	10,751	4,866	41,669	40,777	0
1996/97	34,715	4,100	5,408	6,381	22,615	44,133	0
Average (1992/93-1996/97)	53,869	18,684	26,821	6,557	25,0466	29,778	525
%dif 1997/98 vs 1996/97	-42	374	99	-24	84	-18	0
%dif 1997/98 vs Avg	-63	4	-60	-26	66	37	-100

Source: Ministry of Rural Development and Environment

The only expected improvements in traditional cereal production will come in the *bas-fonds* and behind-dam recessional sorghum sectors. Although superior to average levels, recessional sorghum production, is less than originally estimated because the collapse of many dams reduced the area sown, and caterpillars and birds damaged plants. *Walo* sorghum production was 60 percent below average because the *walo*



Source: Ministry of Rural Development and Environment
Figure 4

lands were submersed a very short length of time—less than a week in some areas—compared to the optimal period of 35 to 45 days. Irrigated rice production increased impressively compared to average: up 39 percent in the parastatal (SONADER) sector and 66 percent for private irrigated production.

Since the Agricultural Statistics Department no longer estimates non-cereal production (melon seeds, *niebé* or cowpeas, and peanuts), comparisons with previous years' production for these crops is not possible. However, there is evidence that farmers in the Brakna, Gorgol, and Trarza Wilayas, who gave up on *dieri* cereal crops after the long drought in July, turned their energies to melon and *niebé* production, which are sold and consumed as cash crops. As a result, the production of *niebé* this year was very good in Brakna and Gorgol, and prices have fallen in these areas. The sale and consumption of *niebé* and watermelon seeds may allow households in certain areas to compensate for the poor cereal harvests.

Many other farmers who experienced very poor rain-fed results (in the Gorgol, Trarza, and Brakna Wilayas) turned to irrigated rice to fill the cereal production deficit. As a result, for the second consecutive year, rice production in the

parastatal (SONADER) sector—made up mainly of small and medium-sized rice perimeters—was very good. According to FAO/CILSS and GIRM sources, private rice production has also increased.

Food prices reflect the poor harvest and the high cost of imports, stemming from the continuing decline in value of the ouguiya against major currencies. Sorghum prices in all markets are equal to or higher than prices during the previous two years. In Brakna and Gorgol Wilayas, where niebé production was very good but sorghum production failed, niebé prices fell substantially at harvest while sorghum prices remained high. At harvest, farmers selling niebé to purchase sorghum received only one measure of sorghum (compared to 2 measures after the harvest in 1996) for each measure of niebé. Relatively low rice prices in 1997 reflect the good rice harvest, especially in Rosso, a major supply area. Relatively low wheat prices in many markets probably reflect the large quantities of food aid, consisting mainly of wheat, that were distributed in the latter half of 1997.

Livestock prices are higher than last year, reflecting the good late season pasture and water conditions, but with high sorghum prices, livestock-to-sorghum terms of trade are low, eroding pastoralists' purchasing power. The high price of sorghum has also eroded the relative price of dairy products. In 1997, a herder needed three measures of milk to acquire one measure of sorghum, whereas in 1995, following a good harvest, just one measure of milk procured 2 measures of sorghum.

III. FOOD ACCESS

FEWS analysis of current vulnerability in Mauritania has identified approximately 422,000 farmers, agropastoralists, pastoralists, fishing households, and urban residents who are highly food insecure and approximately 178,000 who are moderately food insecure (table 4). The factors that led to this outcome are described below for each group.

Table 4: Food Insecure Populations in Mauritania in 1997/98¹²

WILAYA	Moughataa	Socioeconomic Group	Highly Food Insecure	Moderately Food Insecure
Rural Population			286,000	161,000
H. Chargui	Nema	Farmers	23,000	
	Bassikounou	Farmers		5,000
H. Gharbi	Aioun, Tintane	Farmers		45,000
	Kobenni	Agro-Pastoralists		63,000
Assaba	Barkeol, Boumdeid, Guerou, Kiffa	Farmers	63,000	
	Kankossa	Agro-Pastoralists		48,000
Gorgol	Kaedi, Monguel, Maghama, M'Bout	Farmers	62,000	
Brakna	Bababe, Boghe, M'Bagne	Farmers	92,000	
	Aleg, Magta Lahjar	Agro-Pastoralists	43,000	
Trarza	Boutilimit/ Ouad Naga	Pastoralists	3,000	
Urban Population			136,000	17,000
Nouakchott	Nouakchott	Trad. Fishermen		1,000
		Urban Poor	124,000	
Dakhlet Nouadhibou	Nouadhibou	Trad. Fishermen	2,000	2,000
		Urban Poor	9,000	14,000
Tiris-Zemmour	Zouèrate	Urban Poor	1,000	
Total			422,000	178,000

Source: FEWS/Mauritania

A. Rural Populations

1. Farmers

Farmers in Mauritania exploit one or more of five agricultural production systems: (1) *dieri* (mainly rainfed millet and sorghum); (2) *bas-fonds* (mainly lowland sorghum and maize); (3) *walo* (mainly river recessional sorghum and maize); (4) controlled recessional sorghum; and (5) irrigated rice, maize, and sorghum.

Dieri production depends fundamentally on two factors: the start of season (when the rains begin) and the distribution of rainfall during the season. *Bas-fonds* production is practiced in naturally occurring or man-made (behind-dam)

¹² In rural areas, the number of food insecure at the moughataa level is based on the percentage of the population practicing a particular production system. In urban areas, the numbers are based on estimates of the number of people in the fishing sector and the number of urban poor.

depressions or low-lying areas which receive either local rainfall or water flowing from neighboring regions via *wadis* or streams. Controlled recessional production is a form of behind-dam *bas-fonds* production that benefits from SONADER, a government parastatal, technical assistance. Most important for *bas-fonds* production is the total quantity of water accumulated and the length of time soils are submersed, rather than the timing of rainfall. This agricultural system is less dependent on an even distribution of rains than the *dieri* sector. Area sown to *walo* depends on the flooding of the Senegal River, which is determined by quantities of rainfall in Guinea and Mali as well as by the management of water releases from the Manantali Dam located in the Kayes Region of Mali. The *walo* yields are determined by how long *walo* lands are submersed by the silt-laden river waters. Irrigated production depends on mostly non-climatic factors.

Farmers' opportunities to combine production systems—and thereby to reduce the risk associated with any one system—are determined by proximity to suitable land and water sources. The failure of two or more production systems in any one year can be disastrous for farmers who lack significant alternative income sources. The impact of this year's harvest on each farmer group is discussed below.

1a. Farmers practicing *dieri* and *bas-fonds* production

Farmers in this group live in zones where rainfall varies between 100 and 500 mm. This zone is comprised of the area south of the line between Aleg (Brakna) in the west and Nema (Hodh Ech Chargui) in the east. The very poor area known as the Aftout is in this zone. Because of labor constraints in rural areas, farmers exploit *bas-fonds* areas only during years when agro-climatic conditions reduce possibilities for *dieri* cultivation. This year, farmers in the center and southern parts of Assaba and the two Hodhs, in northwest Gorgol, and in northern Brakna turned to *bas-fonds* cultivation after the failure of rains. Unfortunately, *bas-fonds* production was significantly reduced in all areas except Hodh El Gharbi as a result of attacks by caterpillars and birds and because numerous dams collapsed, reducing cultivable area. This year, farmers in areas of below-average *bas-fonds* and *dieri* production are highly food insecure.

1b. Farmers practicing *bas-fonds* production

Farmers whose primary source of revenue comes from *bas-fonds* cereal and *niebé* production are found mainly in Tagant Wilaya, in the Affolé area of Hodh El Gharbi (southwestern part of Tamchekett Moughataa), and in Boumdeid Moughataa (Assaba).

This year *bas-fonds* harvests were good, except in Boumdeid Moughataa (Assaba Wilaya), Oualata, Nema, and Timbédra Moughataas (northern Hodh Ech Chargui Wilaya), and Brakna Wilaya, where area sown was reduced by the collapse of numerous water-retention dams. *Bas-fonds* farmers in these areas are highly food insecure.

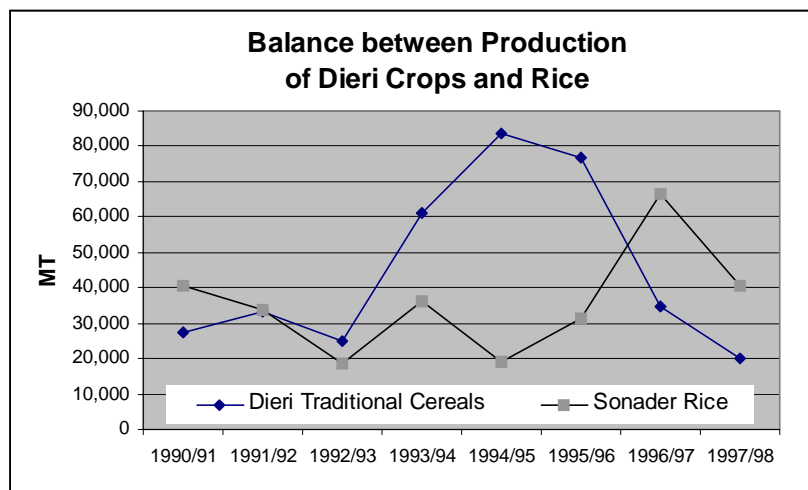
1c. Farmers practicing *dieri* and irrigated production

Farmers in southern Selibaby Moughataa (Guidimakha Wilaya) and in Foug Gleita in M'Bout Moughataa (Gorgol Wilaya) practice both *dieri* and irrigated agriculture. In these areas, where *dieri* agriculture is the predominant activity, SONADER (the national rice parastatal) has set up irrigated systems that allow farmers an alternative source of cereal production, rendering them less vulnerable to *dieri* production shortfalls. These irrigated systems allow two agricultural campaigns per year. In Guidimakha, where farmers pay for inputs and user fees primarily with remittances from family members working abroad, the system has succeeded. In Foug Gleita, in contrast, because of cash constraints and the small size of plots, farmers struggle to grow enough rice to repay agricultural credits and to fill any *dieri* production shortfalls. As a result, many farmers in Foug Gleita, unable to repay agricultural loans, have lost their right to exploit SONADER perimeters. Some farmers have become laborers earning a daily wage.

This year, *dieri* harvests were poor. The water that remains in the Foug Gleita dam will be released to irrigate market gardens in Lexeiba and eastern Kaedi (Gorgol Wilaya) and will not be available for a second rice campaign. The poor *dieri* harvest has left these farmers and laborers highly food insecure.

1d. Farmers practicing a combination of *dieri*, *bas-fonds*, *walo*, and irrigated production

Farmers across the Senegal River Valley—from southern Trarza Wilaya (R'Kiz Moughataa) to southeastern Gorgol Wilaya (Maghama Moughataa) have the opportunity during good years to exploit *dieri*, *bas-fonds*, *walo*, and irrigated agricultural systems and are generally least vulnerable among Mauritania's farmers.



Source: Ministry of Rural Development and Environment; SONADER
Figure 5

Those with access to water sources for irrigation are the most privileged. However, in recent years, the success of farmers practicing irrigated production has been limited by numerous constraints: village cooperatives have struggled because of broken motor pumps, poorly constructed infrastructure, financial constraints (such as increases in fuel and fertilizer prices and failure to pay back agricultural credits), and social conflicts between different collectivities or between collectivities and large private interests.

Because of the high costs associated with irrigated production, many small-scale farmers prefer to exploit other production systems. But, in years where less resource-intensive systems fail from poor growing conditions, these farmers will turn to irrigated production. Thus in years of poor *dieri* production, for example, rice production often increases (figure 5).

This year, despite an early start to the rainy season, long periods of mid-season drought compromised *dieri* sorghum, millet, and maize production across the country. *Bas-fonds* crops—to which many farmers turned after the failure of their *dieri* crops—were seriously damaged by caterpillar attacks and the collapse of dams. Production in this sector, consequently, was 30 to 60 percent lower than preliminary estimates, depending on the zone. The quick recession of flood waters from the Senegal River prevented *walo* lands from absorbing sufficient moisture to sustain the sorghum crop. Grasshopper attacks also forced many farmers to replant numerous times. *Walo* harvests will be 40 percent lower than preliminary estimates. Small irrigated schemes suffered this year because agricultural credit was denied to those with outstanding debts. In contrast, medium-sized irrigated systems which benefit from technical assistance from SONADER, had very good results, especially in the Boghe and Kaedi areas.

Crop production was poor in all but the irrigated sector. In addition, because 1996/97 production was also very poor, farmers' cereal stocks are exhausted. Possibilities for cereal transfers from Senegal are also much diminished as most of the northern part of that country has experienced very poor cereal harvests. Transfers from Mali may also be more difficult than in the past as a result of new restrictive measures taken by Malian customs. Therefore, inhabitants of the river valley will likely find cereal access this year to be as difficult as it was the previous year. Farmers there are highly food insecure.

1e. Laborers in Large Irrigated Rice Perimeters

Laborers in the large irrigated rice perimeters found in Trarza, Brakna, and Gorgol Wilayas are paid on a daily or monthly basis. Since the irrigated season lasts only four months out of the year, these workers benefit from a regular salary only during this period. For the rest of the year, many of these workers move into urban areas such as Rosso, Nouakchott, or Nouadhibou in search of work. The private irrigated rice season this year was very successful, and this group should be food secure.

2. Agropastoralists

This group is comprised of former pastoralists who now practice agriculture because they have lost an important part of their animals and of agriculturists who have acquired a number of animals (generally goats and sheep). They are dependent on cereal production from their own fields and on purchased cereals. They sell their animals to purchase cereals and other necessities because their own cereal production rarely meets their consumption needs. Agropastoralists are found in all of the agricultural Wilayas and are vulnerable to declining cereal production and poor pastoral conditions. In Hodh El Gharbi (Kobenni Moughataa), there are agro-pastoralists (cattle raisers) who practice only *dieri* cereal production: when the season is over, they begin their transhumant migration with their animals. This year, pastures are still in good condition across most of the two Hodh regions, Assaba, Guidimakha, and Tagant. The agropastoralists from these areas should be food secure. In Gorgol and Brakna, in central Trarza, and in northern and southeastern Hodh Ech Chargui, the combination of poor cereal and forage production has caused agropastoralists to be moderately food insecure.

3. Pastoralists

3a. Nomadic pastoralists

Nomadic pastoralists consist mainly of camel herders in the north (Tichit, Oualata, Chinguitti, Ouadane, and Akjoujt Moughataas) and cattle herders in northern Gorgol (Monguel), Guidimakha (Ould Yenge), and Hodh El Gharbi (southern Kankossa and central Kobenni). In 1988, when the national census was conducted, nomads were estimated to make up 12 percent of the total population; today they are estimated to comprise only 6 percent. This decline is due to the degradation of pastoral conditions and changes in animal raising practices (towards smaller herds and more limited movement). Always moving, true nomads are not integrated into activities related to cereal production, and they live essentially from the products of their animals (milk, meat, and butter) rather than from the sale of their animals, except in the most unusual cases. The entire household moves with the herd. Traditional transhumant movements for camel herds are from north to south and for cattle southeastward towards Senegal and Mali. Over the past ten years, camel herds have also increasingly extended their transhumance into Senegal and Mali.

This year, pastoral conditions are generally good, and with no impediments to animal movements; thus nomadic pastoralists are food secure.

3b. Sedentary pastoralists

Sedentary pastoralists are found in all regions of Mauritania. They sell animals to purchase local and imported cereals and other food and non-food items. While they do not usually grow crops, sedentary pastoralists are indirectly affected by poor cereal production when the resulting high cereal prices erode the livestock-to-cereal terms of trade (e.g., the quantity of grain obtained from the sale of an

animal). They are at a double disadvantage if, at the same time, pasture conditions are poor, causing animal prices to fall. When local pastoral conditions are very poor, they send their herds away with a shepherd in search of pastures and thus lose the milk, meat, and butter normally available when the herds are grazed near home.

This year, in the southwest of Hodh Ech Chargui, in southern Hodh El Gharbi, and in Assaba, Guidimakha, and Tagant Wilayas, sedentary pastoralists are food secure; although cereal prices are rising because of poor local production, pastoral conditions are, at this stage of the year, still favorable. Their situation, however, could worsen, depending on the availability of water. In Brakna, Trarza, and Gorgol, terms of trade are unfavorable and poor pastoral conditions for a second consecutive year will make it more difficult for this group to meet its food requirements. Sedentary pastoralists in these areas are highly food insecure.

B. Urban Populations

1. Fishermen

In Nouadhibou, around 4,000 fishermen use traditional boats or pirogues to fish the coastal waters. This is only half the number of fishermen who practiced this trade in 1996. People have left the trade because access to traditional fishing waters has been reduced since the Moroccan Coast Guard increased its surveillance of the parts of the coast that Morocco claims. In addition, many small-scale fishermen have lost their means of production – nets, engines, and boats – because large commercial fishing boats often carry off the nets of the smaller traditional boats or capsize the boats, damaging or destroying them. People who formerly made their living from the traditional fishing sector are now unable to pursue this activity. As a result, these former fishermen are highly food insecure. In Nouakchott, those affected are principally workers in the informal sector (fish cleaners, small traders, and the laborers on traditional fishing boats) whose income is normally irregular and unpredictable. They are moderately food insecure and total approximately 1,000 persons.

2. Poor Urban residents

If in the Sahel, urban residents are generally privileged residents, having better access to health infrastructure, potable water and markets than their rural counterparts, there is evidence that urban poor in Mauritania are an exception. Poor residents of Nouakchott, Nouadhibou, and Zouérate live in makeshift neighborhoods, shanty towns constructed on the periphery of these major urban centers. They live in chronic state of food insecurity. Most families depend on one or more workers who toil as day laborers in the informal sector. Their income is low and irregular, and many of these families—and most tragically, the children of these families—are chronically undernourished. For example, a recent nutritional survey undertaken by UNICEF in several poor neighborhoods of Nouadhibou showed significant levels of malnutrition: of 287 children examined, 48 percent were moderately malnourished and 7 percent were severely malnourished.

In Nouakchott, the already tenuous situation of the urban poor has been exacerbated by an influx of people from rural areas who are fleeing their villages because of the poor harvest. The new arrivals often stay with family members in Nouakchott whose food security situation was already precarious. The poor residents of Nouakchott, Nouadhibou, and Zouérate are therefore moderately to highly food insecure.

IV. CONCLUSION

For the second consecutive year, production of millet and sorghum is well below average in most of the zones where *dieri* and *walo* crops are grown. National production of all cereals is 14 percent below average. FEWS analysis of vulnerability has identified approximately 422,000 farmers, agropastoralists, pastoralists, fishing households, and urban residents who are highly food insecure and 178,000 who are moderately food insecure. The highly food insecure groups will require outside assistance to meet their food needs before the next harvest (October-December 1998). No steps have yet been taken to address these needs.