

SPECIAL REPORT

FAO/WFP CROP AND FOOD SUPPLY ASSESSMENT MISSION TO ERITREA

18 January 2005

Mission Highlights

- Successive years of drought and inadequate rains have seriously undermined crop and livestock production in Eritrea.
- In 2004, *Azmera* rains (March-May), important for land preparation and replenishment of pastures, in key agricultural areas failed and the main *Kremti* rains (June-September) were late and ended early.
- As a result, cereal production in 2004 is forecast at about 85 000 tonnes, less than half the average of the previous 12 years.
- Pastoralists were seriously affected by the delayed rains, which resulted in early migration of livestock in parts. Serious feed shortages are expected in early 2005 in several parts of the country.
- The cereal import requirement for 2005 is estimated at 422 000 tonnes of which about 80 000 tonnes are anticipated to be imported commercially.
- With 80 000 tonnes of food aid pledged and in the pipeline, the uncovered deficit, for which international assistance is needed, is estimated at 262 000 tonnes.
- In 2005, an estimated 2.3 million people, about two-thirds of the whole population - including in urban and peri-urban areas - will require food assistance to varying levels.
- Timely support to crop and livestock production is urgently needed to revive production capacity in 2005. Short cycle and early maturing cereal seed varieties need to also be made available in case the apparent pattern of late rains in the last several years materialises.

1. OVERVIEW

An FAO/WFP Crop and Food Assessment Mission visited Eritrea from 15 November to 3 December 2004 to estimate the 2004 main season harvest, assess the overall food supply situation and forecast import requirements for 2005, including food assistance needs.

In Asmara, the Mission held meetings with the Eritrean officials of various ministries including the Ministry of Agriculture (MoA) and the Ministry of National Development; members of the National Food Information System (NFIS) and Food Aid Working Group; officials of UN and other international agencies including FAO, WFP, UNFPA and UNICEF and the World Bank; officials of FEWSNet and several other NGOs. The Mission also consulted various reports about the economic situation, poverty levels, food security, and crop production.

The Mission split into two groups and was able to cover five of the six *zobas* (regions) – i.e. Anseba, Gash-Barka, Debub, Maekel and Northern Red Sea – and conducted extensive field visits in most of the sub-*zobas* under them. Only Southern Red Sea *zoba* was not visited due to logistical considerations, but no crops grow there. During field visits the Mission was assisted by senior officials from the MOA, both at central, *zoba* and sub-*zoba* levels, as well as by FAO officials and consultants, and accompanied by observers from FEWSNet and the European Commission (EC). Extensive discussions were held with *zoba*- and sub-*zoba*-level officials of the MOA, and interviews were conducted with farmers, pastoralists, labourers, traders and staff of some of the NGOs. Both crop production and livestock condition were reviewed in intensive discussions and interviews. Field assessments were made regarding household food security, vulnerability and coping strategies.



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME



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The 2004 agricultural season was characterized by erratic rainfall (started late and stopped too early with long dry spells, occasional torrential rains and hailstorms) and the total seasonal *kremti* rainfall was below average in most areas. This apparent pattern of seasonal rainfall characteristics has been observed in the last several years. In many places, including the potentially high-production areas of Goluj subzoba in Gash-Barka region, two or three replantings were made necessary by precipitation problems. Despite adverse weather conditions and shortages of both labour and farm equipment, this year the farmers planted a similar total area compared to last year to various crops. But in certain areas the crops failed, and in other areas yields were poor compared to expected results, mainly from erratic rainfall (including torrential rain and hailstorm damage) but also from outbreaks of chafer beetles and grasshoppers.

Against this adverse backdrop, the Mission forecasts a cereal harvest of about 85 000 tonnes, 20 percent below last year's crop and nearly 47 percent below the average of the last 12 years. This is expected to be sufficient to cover about 15 percent of the annual national cereal requirements instead of the average of about 30 percent in the past 12 years.

The poor rains have also had a serious impact on the country's livestock. Many areas were short of fodder from about March till mid-August, and drinking water was scarce. The situation began to improve with the eventual arrival of the rains, but, by then, drought-related livestock deaths had already been reported in several parts of the country. The poor condition of oxen at the time of land preparation imposed further limitations on the area cropped.

The cereal import requirement for the marketing year 2005 (January/December) is estimated at 422 000 tonnes, setting the domestic availability of 234 000 tonnes against an estimated total utilization requirement of 656 000 tonnes. Reflecting the serious economic difficulties and precarious foreign exchange position of the country, only 80 000 tonnes, 19 percent of the requirement is anticipated to be covered through commercial imports. With another 80 000 tonnes of food aid currently in stock and pipeline, the uncovered deficit, for which international assistance is required, is estimated at 262 000 tonnes.

A shortfall of this proportion is a serious concern, particularly for the most vulnerable populations. The macro-economic environment is under severe pressure from high external and public-sector domestic debts which currently represent some 80 percent and 130 percent, respectively, of GDP. The inflation rate (measured by the Asmara CPI) has been persistently high over the past few years, but is now increasing rapidly. While inflation was 23 percent in 2003, it reached 29 percent in the 12-month period up to September 2004, and the increase was led by food products. In the same period prices were up 37 percent for food, 58 percent for cereals and 83 percent for pulses.

Vulnerable populations in 2005 include rural drought-affected populations, war-affected populations and refugees and urban vulnerable populations. Current estimates indicate that in 2005, 2.33 million people will require food aid either partially or throughout the year. Total food aid requirements in 2005 to meet the needs of these vulnerable groups will be 352 905 tonnes, including 282 425 tonnes of cereals.

Farmers will have access to only limited quantities of seed for planting, since many of them harvested little or nothing, and many others, who have indeed harvested some cereals, may be unable to put adequate quantities of seeds aside for saving. Critical emergency seed distribution support will thus be necessary to enable farmers to plant the maximum possible areas in various crops next year. In the case of livestock, emergency support will be needed to restructure animal health services so as to enable the sector to perform reasonably well next year.

2. SOCIO-ECONOMIC SETTING¹

Eritrea is among the least developed and poorest countries in the world, and experiences a chronic food deficit. Average cereal production since immediately before independence (1992-2003) was about 180 000 tonnes, well

¹ This section is based on data and information obtained from the following documents in addition to interviews with relevant Government of Eritrea (GOE) officials: National Statistics and Evaluation Office (NSEO), GOE and ORC Macro (USA), *Eritrea: Demographic and health survey 2002*; NSEO, GOE, *Dimensions of poverty in Eritrea* (draft), Asmara, May 2003; IMF, *Country report (for Eritrea)*, No. 03/165, Washington, D.C., June 2003 and similar report (draft) August 2004; GOE, *Interim poverty reduction strategy* (first draft), Asmara, July 2003; GOE, *Eritrea: Food security strategy* (draft), Asmara, September 2003; Economist Intelligence Unit (EIU), *Eritrea Country Report September 2004* and *Eritrea Country Profile 2004*.

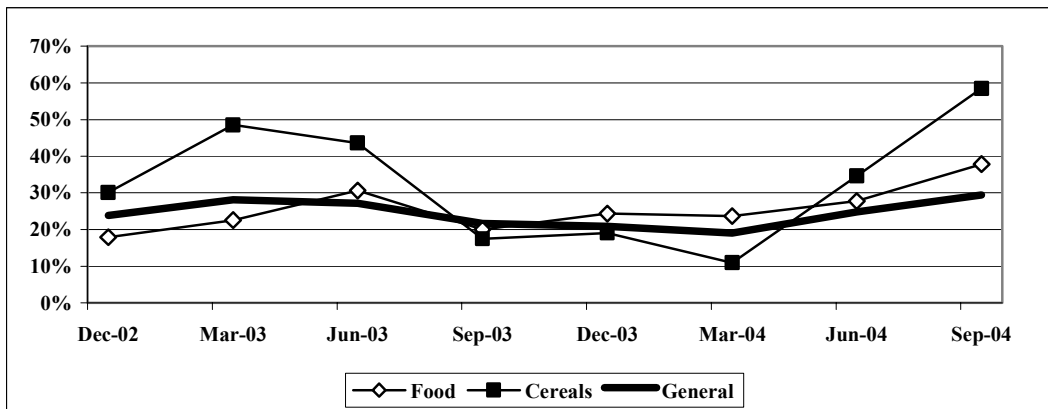
below total requirements estimated at more than half a million tonnes (including food, feed and seed requirements, plus losses and other uses). The per capita GDP (about US\$ 200 in 2001), stagnated or falling since the 1998 border war, declined by an additional 2.8 percent in 2002 after severe drought induced the collapse of agricultural production, and grew but a mere 0.4 percent in 2003 (GDP growth just below 3 percent minus population growth of 2.6 percent). Per capita GDP growth in 2004 is also projected to be negative. Gross National Income per capita is estimated at US\$ 160 for 2001-03, the same figure estimated for 1993-95.

Moreover, income inequality as measured by the Gini coefficient is very high (0.45). The share of income spent on food is high: about 66 percent nationwide and about 71 percent for rural areas (such high figures are to be expected in poverty situations like Eritrea's, but are indications of extreme food insecurity and limited access to food). On average over the past 11 years, domestic food production has met only a fraction of national requirements, and cereal production has met only about 40 percent of the total cereal requirements now estimated by the Government at 150 kg/person/annum. Food vulnerability has thus been increasing as the result of Eritrea's extremely limited and declining commercial food import capacity on the one hand, and because people are facing more and more stressful situations in trying to cope, on the other. The 2002 cereal production of about 54 000 tonnes met less than 10 percent of the country's requirements, and the 2004 output of about 85 000 is expected to cover just about 15 percent.

Household income and consumption is on average very low, a fact compounded by inequality: according to the Living Standard Measurement Survey taken in 2003, about 66 percent of the population had incomes or consumption below the poverty line, with extreme poverty afflicting 37 percent of the population with incomes below the extreme poverty line. The highest rates (81 percent and 42 percent respectively) were observed in secondary urban centres (other than Asmara), while the capital had 55 percent poverty and rural areas 64 percent. Nearly one-half of the adult population is illiterate; over half of all women aged 15-49 have never attended school.

The macro-economic environment is under severe pressure from high external and public-sector domestic debts which currently represent some 80 percent and 130 percent, respectively, of GDP, and the debts are increasing. The inflation rate (measured by the Asmara CPI) has been persistently high over the past few years, but is now increasing rapidly. While inflation was 23 percent in 2003, it reached 29 percent in the 12-month period up to September 2004, and the increase was led by food products: in the same period prices were up 37 percent for food, 58 percent for cereals and 83 percent for pulses. Food inflation seems also to be accelerating: the increase in food prices in the latest six months (March-September 2004) was proceeding at an annualized rate of 78 percent for all foods, 112 percent for cereals and 178 percent for pulses.

Figure 1. Eritrea: Consumer price index in Asmara: Percent change in the 12 months preceding each date



Inflation rates in the latest six months were also quite high for meat (77 percent) and fish (61 percent), much higher than in the 12 months to September (29 percent for meat and 37 percent for fish). At the time of the mission an extreme scarcity of fuel was being felt all across the country, including difficulties for the timely transportation of food between different locations in the country, even if fuel prices (mostly controlled by the authorities) were not increasing at a rapid pace in recent months. The fuel crisis may contribute to further price increases in food, and larger price differentials between different zones. As Figure 1 suggests, food prices have

been ahead of the general CPI since December 2003, and the rise in the price of cereals has been very steep along the latest six months.

The country's official foreign exchange reserve is so low that it would not cover imports for more than one-half of one month. In 2002, the average reserve was about US\$ 30 million (down from US\$ 50 million in 2001), against a monthly average value of imports of about US\$ 46 million, thus representing 0.7 months of imports. Official gross foreign reserves have been around US\$ 16 million on average during 2003 and 2004, and are not expected to increase (rather the opposite) in the short run. At the time of the mission official gross foreign reserves represent 0.44 months of imports (about 13 days).

This extreme tightness of foreign currency reserves in the banking system has not stopped imports altogether. Resorting to various schemes, including soft credit from several countries in the region, Eritrea has managed to import goods for about US\$ 400 million per year from 2000 to 2004; total imports in 2003 actually increased from US\$ 400 to US\$ 456 million in spite of the deteriorating reserve position, and projected imports in 2004 are about US\$ 425 million. About a quarter of all imports are food, but the proportion is increasing since 2001, and is expected to reach 29 percent in 2004. Other important components of the import flow are fuel and defence purchases (about US\$ 50 million each in 2004). The estimated increase in the value of food imports in 2004 is partly attributable to increasing international prices, and is compatible with a stable or slightly decreasing volume.

Table 1. Eritrea: Estimated value of imports, 2000-2004

Year	Imports (million US\$ c.i.f)		
	Food	Total	% food
2000	117.3	421.6	28%
2001	76.4	393.0	19%
2002	94.5	400.2	24%
2003	116.4	456.3	26%
2004*	123.4	425.5	29%

Source: Bank of Eritrea and IMF estimates. "Food" includes live animals. (*) Preliminary forecast (August)

There is little information on the precise physical composition of food imports. However, the bulk of the volume (but not of the value) is probably cereals, with vegetable oils also an important component.

The current account balance of payments is constrained by a hugely negative trade balance. Against more than US\$ 400 million in imports, exports earned a mere US\$12 million in 2003 and are expected to repeat the same amount in 2004; service flows (real or financial) yield a net outflow of US\$ 5 million, US\$ 6 million and US\$ 14 million in 2002, 2003 and 2004 respectively. However, the country receives a steady flow of private transfers (remittances and taxes paid by Eritreans abroad) amounting to nearly US\$ 300 million per year. Estimates of this flow do not show a clear tendency, since the amounts were more or less stable from 2000 to 2004, although a 10 percent decrease is estimated for 2004 (with receipts of US \$276 million) relative to 2003 (US\$ 308 million).²

The current official exchange rate for most transactions is Nakfa (Nkf) 13.55 to the US dollar, but there is a preferential rate of Nkf 19 for Eritreans receiving remittances, and the prevailing parallel market rates are much higher (at Nkf 23 per US dollar at the time of the mission). The main export items include salt, semi-processed leather goods, flowers, livestock and textiles. A wide range of items are imported, including machinery and transport equipment, spare parts, food, manufactured goods, intermediate goods, oil and chemical products. The collapse of Eritrea's regional export trade, given that the borders with Ethiopia and Sudan are closed, is a major constraint on the country's economy and its short-term prospects. Ethiopia used to be Eritrea's major export destination; but the border conflicts with Ethiopia have closed this outlet. An upturn in exports to Sudan in 2002 led to an increase in export earnings to US\$ 52 million for that year, compared with an annual average of US\$ 26 million during 1998–2001; export earnings in 2004 estimated at a mere US\$ 16 million were less than 5 percent of the total value of imports for the same year.

In conclusion, widespread and deep-seated poverty, very low incomes, large food deficits, severely constrained agriculture, extremely limited export earnings, high rates of persisting inflation, heavy and increasing external

² The amounts of private transfers received in previous years have been estimated at US\$ 276 million in 2000, US\$ 290 million in 2001, and \$309 million in 2002, before reaching \$308 million in 2003 and an expected US\$ 276 in 2004 (Bank of Eritrea and IMF estimates).

and internal debts, and social constraints (in terms of lower educational and health status, poverty and inequality), have resulted in grim prospects for Eritrea. The protracted situation of 'no war-no peace' with Ethiopia is a major factor constraining the economy, in several ways (increased defence expenditure, high level of military mobilization, restricted foreign markets, etc.). Moreover, the macroeconomic situation is worsening because of increasing indebtedness, increasing debt-servicing requirements (especially because the grace period for many past loans is now expiring requiring amortization to start), possibly a decreasing amount of revenue from Eritreans abroad (especially the portion paid as taxes, since private remittances are likely to continue albeit more of them through informal channels), an increasing gap between official and black market exchange rates, accelerating inflation and fuel shortages and rationing.

The government is aware of the constraints and the policy directions needed to overcome them, as can be seen from the evolving Food Security document, Poverty Reduction Strategy and other policy documents. These documents recognize that substantial foreign assistance will be needed for Eritrea to address its constraints and promote economic and social development; exactly how to accomplish this will need to be worked out jointly by the government and its external development partners.

The international community has been assisting Eritrea in the following areas already: rehabilitating the war-affected population (particularly returning refugees and internally displaced people) and war-damaged infrastructure and development facilities; promoting agricultural production through measures such as seed distribution, rehabilitation of veterinary services and demonstration of conservation agriculture techniques around the country; meeting emergency needs through food aid, among other measures; and supporting activities in the education and health sectors.

Much more assistance is needed, particularly so that the long-term socio-economic prospects of the country may be developed, but critical emergency needs must not be neglected. The CAP process remains relevant. In addition, to achieve poverty reduction and food security and accelerate economic and social development, longer-term strategic and programme-based financial and technical assistance is needed. Much will depend on constructing a practical environment for the Government of Eritrea and external development partners to work together purposefully. In that context, resolving the border dispute, demobilization, and socio-economic restructuring are crucially important issues.

2.1 Population estimates

According to the 2001 Government's population count (no population census was ever taken), the total population of Eritrea was then estimated at about 3.19 million people. Natural demographic growth per year for 2001 to 2005 is estimated at 2.6 percent, down from 2.9 percent in the late 1990s due to reduced birth rate (average of 32 per thousand population according to the 2002 National Demographic and Health Survey, down from 35 estimated by a similar survey in 1995) and not matched by reductions in mortality. Immigration is mostly equivalent to returning refugees, estimated at a total of 146 000 between mid 2001 and mid 2004, of which 69 000 sponsored by UNHCR, 25 600 spontaneous but registered by UNHCR, and an estimated 51 000 spontaneous and not registered. Emigration outflow was estimated at a yearly 0.4 percent of the population (about 14 000 people per year). The population count in 2001, performed at local administration level, yielded the following totals, complemented here with the mission's 2004 and 2005 estimates.

Table 2. Eritrea: population estimates in 2001 and projections in 2004 and 2005

Zoba	Population ('000)		
	2001*	2004**	2005**
Northern Red Sea	576.2	636.4	653.3
Southern Red Sea	73.7	81.4	83.5
Maekel	595.9	658.2	675.7
Gash Barka	625.1	690.4	708.8
Debub	839.7	927.4	952.1
Anseba	484.2	534.7	549.0
TOTAL	3 194.8	3 528.5	3 622.4

(*) Ministry of Local Government, 2001 population count.

(**) Mission projections.

Natural growth is estimated to be slower in Zoba Maekel due to lower fertility in Asmara, but this is compensated by higher inflows of internal migration towards the capital and higher refugee resettlement there. As a result, in the absence of more precise information, population is assumed here to grow at the same rate in all zobas during the 2001-2005 period.

2.2 The agricultural sector

Agriculture is the most vital sector in Eritrea despite a rather small estimated contribution of only 12–15 percent to national GDP. The crop and livestock sectors together employ the vast majority of the population and provide the basis for food security. However, domestic food production even in good years remains well below the requirements, and the country relies heavily on commercial imports and food aid.

Arable land in Eritrea is estimated at just over 2 million ha. But given the limited and usually erratic rainfall (in terms of quantity as well as in temporal and geographical distribution) and the extremely limited irrigation facilities, the maximum area ever cultivated was only about 500 000 ha. Usually the cultivated cereal area amounts to somewhat less than 400 000 ha. Given that Eritrea's agriculture is mostly rain fed, agricultural production is heavily dependent on weather conditions, particularly rainfall.

There are three distinct rainy seasons in Eritrea: October to February in the eastern lowlands (winter, or *bahri* rains); March to May in the highlands (spring or *azmera* rains); and June to September over the whole country apart from the coastal plain (summer or *kremti* rains). The kremti rains are by far the most important for agricultural production. Normally, rainfall varies between 400 mm and 600 mm per year in the highlands and between 200 mm and 300 mm per year in the western lowlands; coastal rainfall ranges from 0 mm to 300 mm. Rainfall patterns in the western lowlands and central highlands are broadly similar with most of the rainfall concentrated in July and August during the kremti season.

Crop production is predominantly cereal based, with barley, wheat and taff grown in the highlands and sorghum and millet grown at lower altitudes; some maize is also produced at intermediate altitudes. Limited areas of chick peas and beans are grown, mainly in the central highlands, while in the south of Gash Barka sesame is locally important.

The country has no perennial rivers or streams. Irrigation coverage is extremely limited (less than 2 percent of the total cultivated areas). Since irrigation is very largely dependent on surface water, the productive area in any year closely reflects the amount of rainfall received in the highlands. There are some micro-dams in the highlands that also depend on rainfall. Use of groundwater is obviously a possibility, but knowledge of groundwater resources is limited. Appropriate survey studies to determine the availability of groundwater, replenishment prospects and how much could be utilized for irrigation and in which areas would be very useful.

Eritrea's agricultural productivity continues to be very low because of the country's fragile rainfall regime, its often poor and shallow soils, the use of unsophisticated cultivation methods and only limited use of agricultural inputs. The border conflict with Ethiopia has also rendered an estimated 12 000 ha in Debub and most of the sub-region of Lalai Gash in Gash Barka completely unusable because of unexploded landmines. Mobilization of young people for national service has depleted the agricultural workforce in many areas.

Livestock production is an extremely important sector of the rural economy, especially in the more arid areas of the country. Although the largest herds are in the lowlands, the overall herding pattern is characterized by seasonal movement, both within the lowlands and between the lowlands and the highlands, to search for grazing areas. The principal animals are sheep and goats, followed by cattle, camels, donkeys and horses. On average, rural households possess between 3–5 sheep and/or goats. Apart from work oxen, which are often put to graze in areas specially reserved for them, most livestock are raised on an extensive system that relies on natural pasture and crop residues. As a result, there is a marked annual fluctuation in stock condition which reflects the availability of fodder and water. Livestock numbers are said to have increased in the years immediately after independence, then fallen during the two years of conflict with Ethiopia. Since then, the numbers may have risen again but sharply declined in 2002 as a consequence of severe drought, thus bringing down livestock numbers to about the same levels of 1997. Pastoralists tend to over-stock, despite the frequent shortages of fodder and water, as they usually put more store by numbers than by condition; they are often reluctant to sell off stock even when times are hard. The border conflict with Ethiopia has largely halted the movement of livestock both to

traditional grazing lands across the border and to grazing areas within Eritrean territory that are still mined; it has also closed important livestock trade routes.

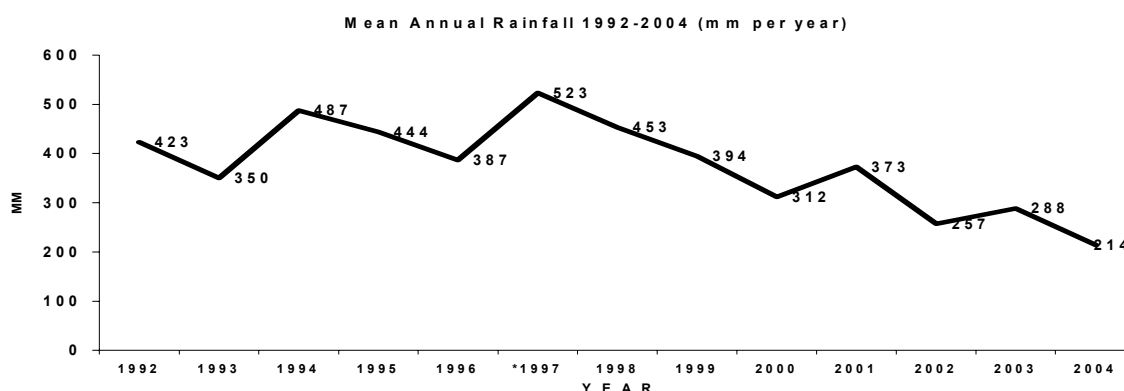
In addition to smallholder agriculture, the government also allocates land concessions to investors to enable crop production over relatively large areas. Concessions vary in size depending on location and water availability (rain fed or irrigated) as well as on crops. Those near seasonal river beds normally measure between 10–30 ha and produce vegetables (onions, okra, carrots, etc.) and fruits (bananas, oranges, etc.), while those in arid or semi-arid areas can be as large as 400 ha and are used primarily for cereals or oilseed crops. The contribution of concession agriculture to the country's food economy, however, is not significant, and yields are often mediocre. Besides, the public sector also holds several state farms in various parts of the country. Many are devoted to dairy and vegetable production, but some are for extensive cereal production. The Mission has not been able to visit public sector cereal farms, though it was able to see some of the dairy and vegetable ones near Keren, Tesseney and Dekemhare. The Mission was also not given any figures for the production of cereals in State farms.

3. FACTORS AFFECTING FOOD PRODUCTION IN 2004

3.1 Rainfall

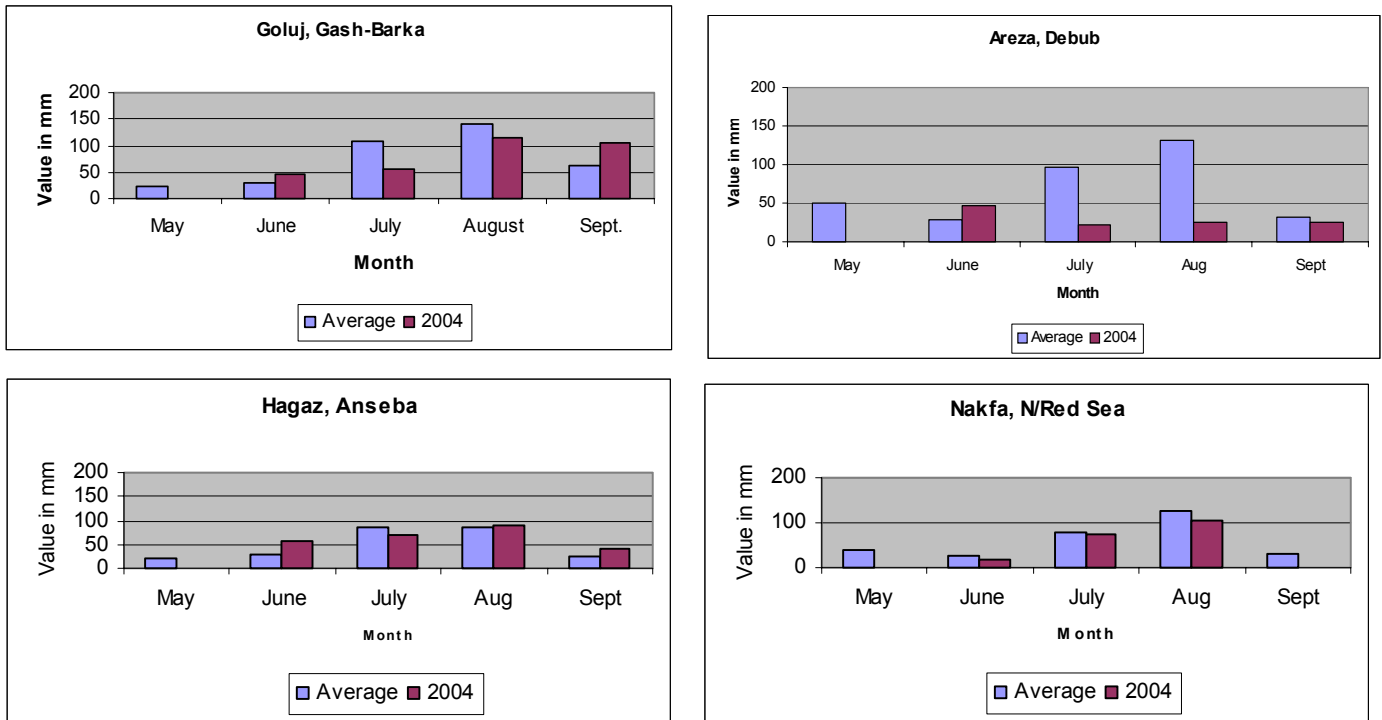
Rainfall in Eritrea has been low and erratic in recent years, and generally has shown a decreasing trend over the last decade or so. Yearly rainfall rates have been decreasing since the late 1990s, falling from about 500 mm to nearly 200 mm for the average of various gauging stations.

Figure 2. Eritrea: Average annual rainfall 1992 to 2004 (mm per year)



The 2004 agricultural season started poorly with widespread failure, for the sixth year in succession, of the *bahri* rains along the north-eastern escarpment. These rains are normally expected between November and March and are especially important for the Northern Red Sea Region. This was followed by generally unsatisfactory *azmera* rains for the sixth time in succession since 1998, the last “good year”; these are light rains that usually fall between March and May, but they are important for land preparation in the highlands. The 2004 *azmera* season was evaluated as below normal to near normal due to the poor distribution of the season's rainfall over time. Most of the rains fell during April while March and May remained literally dry. Only some areas of Debub and Maekel Regions received some amount of precipitation during the month of April, while elsewhere, in Gash Barka, Anseba and most areas of Debub and Maekel, the *azmera* rains were either insignificant or non-existent. As a result, land preparation was widely postponed and in those areas that did receive some *azmera* rains, such as around Adi Keih, Tsorona and Senafe, extensive re-planting was often involved, following the emergence and subsequent desiccation of seedlings since there was very little or no rainfall during the May and until mid-June in these areas. This also resulted in much lower-than-average plantings of long season and high-yielding crops such as sorghum, maize, taff and finger millet. Farmers instead planted barley, wheat and summer taff, which yield less, and legumes such as horse beans and fenugreek, flax and chick peas.

Figure 3. Eritrea: Monthly average rainfall in selected areas in 2004 compared with 12-year long-term average



The *kremti* rains, which are expected to fall from June to September over the highlands and western lowlands, arrived late in June to early July and stopped early in the first dekad of September. The rainfall performance during the Kremti season has been poor in terms of distribution as well as intensity. Farmers prepared their fields after the few showers in April. By early June the long cycle crops planted in March and April seriously suffered from lack of moisture. The continued dry spell in May, the first two dekads of June and the first dekad of July have adversely affected the long cycle crops that started to wilt due to moisture stress and the normal development of the vegetation thus affecting the availability of grazing and browsing possibilities for livestock.

The kremti season which normally receives rainfall over twelve dekads, was limited to only five dekads of rainfall this year. The southward movement of the Inter-tropical Convergence Zone (ITCZ), which is the main synoptic feature of the Kremti rainy season, restricted the rainfall activities to the southern and south-western part of the country during September. For September, the recorded rainfall amounts were generally below normal and uneven in terms of spatial and temporal distribution. Although September is not known to receive heavy rains, it usually gets good showers up to 70 mm that help the plants in their last vegetative and flowering stages. In fact these showers are so crucial especially for the crops that were planted late due to the delayed onset of the rains. Contrary to farmer's expectations the rainfall during the first week of September was only 1-15 mm throughout the Kremti areas. This had really cast off the expectations of many farmers who were expecting for the continuation of the rains well into September hoping to compensate the delayed onset of the rains. During the second dekad of September only Gash Barka and western part of Dehub received 16-40 mm of rains while the rest of the Kremti areas received only 1-15 mm of rainfall which was too little for the crops that were at their flowering and seed setting stage. Rainfall at this stage is crucial for the crops because they are extremely vulnerable to moisture stress. The third dekad of September was much drier than the previous two thus confirming the fear that the harvests for the current season will be far more less than what was expected. Unfortunately the poor performance of the Kremti season adversely affected the expected harvest this year even in the most potential grain growing areas of Gash Barka and Dehub.

The pulse crops such as chick peas and vetch and late planted short cycle crops are also suffering from moisture stress due to the poor rainfall in September. In Dehub Zoba, beneficial showers only began from the second dekad of July. June is the optimum time for planting long-cycle cereal crops in the highlands, so this delay resulted in very serious implications for both planted area and yield expectation. Some areas of Dehub

Zoba received exceptionally high rainfall during July and August. In Adeqala, Debub zoba, rainfall from March to September amounted to 568 mm, with 170 and 283 mm, respectively, in July and August. However, this pattern was not repeated in the more important cropping areas such Goluj in Gash-Barka, where July and August rainfall was only 54 mm and 113 mm against an average for the previous five years of 127 mm and 137 mm, respectively. The overall result of this year's rainfall pattern has been a significant reduction of the area under long-cycle sorghum varieties, which would normally have been planted in June. Late and inadequate rains in the highlands have also led to significant reductions in the area under spate irrigation along the coastal strip as a result of the greatly reduced run-off.

3.2 Area planted

The total area planted to cereals this year in Eritrea was 393 163 ha. which is slightly lower compared to 2003 (405 859 ha,) but still high compared to the average of 360 000 ha for the previous 11 years from 1992 to 2003 and also higher than 2002 (344 000 ha). The area planted to cereals in Gash-Barka and Debub was similar to 2003 at 180 457 ha. and 134 287 ha. respectively, and was assisted by seed distributions from FAO and national and international NGOs. The area planted to cereal crops in Northern Red Sea this year declined to 11 550 ha. compared to 13 990 ha. during 2003 due to lower rainfall in highlands and much lower number of floods. The area planted to cereals in Maekel also declined from an average of about 33 000 ha to 21 909 ha because of the late arrival of the rains which caused farmers to lose hope after so many years of poor rains.

3.3 Means of production and inputs

Farm power

Large numbers of oxen were reported to have died from starvation and the effects of drought during 2002, and many farmers reported having sold oxen to survive, after a succession of bad harvests in 2002 and 2003 and also because they had no feed for them; this has left a large gap in the availability of farm power. Farmers have been cooperating with their neighbours in sharing the oxen available for ploughing and threshing. The Mission saw many instances of four to five oxen, or a combination of oxen, donkeys and even horses being used in the traditional threshing process. Camels are also extensively used for ploughing. Some tractors provided by a bilateral donor to MOA are made available on credit to farmers who become agricultural contractors for their neighbours. For use of these tractors MOA/Contractor charges 150 to 200 Nakfa/hr (one hour is generally considered sufficient to plough 0.5 hectares). Commercial hire is consistently more expensive, ranging from about 250 to more than 350 Nakfa/hr. Such high prices are too high for small farmers and often result in under-utilisation of both arable areas and existing farm power. In Gash Barka and parts of Debub, a certain dependency on tractor services is building up and this often leads to delayed planting. In Debub, tractor-assisted land preparation for taff is not of the necessary quality, resulting in poor establishment of plants. There is an increasing dependency on tractor power which, given the small size of farms (0.75 ha on average in Debub) is uneconomical.

Labour

The shortage of labour was observed everywhere. The main cause of this shortage is the conscription of men into defence forces and national service for long periods of time. The army does provide assistance in crop harvesting and threshing, but the extent of this assistance was difficult to ascertain. Due to continued critical shortage of labour, the wage rates this year have been observed to be very high ranging from 30 to 50 Nakfa/day for digging wells or for house construction activity. Since farmers cannot afford to pay such high wages for different farming activities; critical field operations such as weeding have generally been neglected. Eritrea has a very high incidence of female-headed households, which are often dependent on hired labour to cultivate their land on a share-cropping basis. This is further enforced by the traditional disapproval of a woman operating a plough, especially in the highlands.

Irrigation

The area under horticultural crops production in Eritrea this year (mainly small pumped irrigation schemes in Debub, Anseba and Maekel, where crops of potatoes, tomatoes and other vegetables) has been estimated by MOA at around 6 407 ha (1 315 ha under fruit production and 5 092 ha under vegetable production). Although, in normal rainfall years another 7 000 ha is generally planted, chiefly with cereals, under spate irrigation in the

Northern Red Sea Zoba, it is estimated that this year only about 3 740 ha has been planted under spate irrigation due to low intensity and poorly distributed *kremti* rains in highlands, resulting in fewer and poorer floods. There are about 200 micro-dams in the highlands, but only 30 or so are used for irrigation; the others are used as sources of domestic water use for people and livestock. This year also they started to fill late, causing delayed planting and prolonged water stress among livestock. Water tables are reported to be dropping in many areas after three or more years of reduced rainfall. Water tables seem to have descended by about 6 meters on average in various regions. As noted above, there is considerable scope for water harvesting, primarily for domestic use and watering of livestock and also in suitable areas for small-scale irrigation.

Seed

The successive droughts of 2002 and 2003 caused widespread crop failures and thus a huge seed deficit for the 2004 season. Most farmers use seed saved from the previous season's harvest, with the concomitant low yields expected from this practice, resulting from genetic deterioration and contamination by weed species. Very little improved or cleaned seed is used. The country has two small seed-processing facilities, one at Halhale and the other at Tesseney. This year only a small quantity of seed (2 916 tonnes during 2004 compared to 5 600 tonnes during 2003) were supplied by FAO and other national and international NGOs of the nearly 11 000 tonnes of national seed requirement. A serious shortage of seed is anticipated for next year as a result of this year's expected poor harvest. The prospects for farmer-saved seeds in 2004 are similar to that of last year, but in areas of total crop loss and very low yields substantial seed assistance will still need to be provided. Farmers located in about 30 to 40 percent of the overall crop area will need to be assisted with at least 4 000 to 5 000 tonnes of seeds of sorghum, pearl millet, wheat, barley, taff and chickpea. Furthermore, in medium-potential areas, where the harvest is comparatively better, it will be necessary to undertake "seed protection" campaigns by which targeted food aid will be provided to vulnerable farmers to prevent the consumption of valuable seeds, which they would otherwise have saved for subsequent planting. In view of the crucial role of seed varieties adapted to the geographical area in the often fragile agro-ecological zones of Eritrea, it is also recommended that humanitarian agencies should immediately commence the procurement, cleaning and storage of good quantities of adapted local varieties currently available at the village level and at the farm gate before they enter into trade circles, after which they become mixed with other varieties and are no longer available in sufficient purity for these areas. These recommendations are considered critical so that farming in 2005 may resume for a large number of farmers whose continued seed insecurity will prolong the impact of the current and previous failed seasons. Recognizing that the yield potential of the seed in general use by farmers is a serious constraint to realizing higher production, the MOA introduced a National Seed Policy in May, 2002 with the primary goal of improving the production and distribution of improved seed, as well as suitably adapted seed varieties. In addition to this the mission is of the opinion that serious efforts should be initiated by MOA to organize a systematic seed multiplication programme at least in the important bread basket areas of Gash-Barka and Debub Zobas to multiply the few already identified promising cereal crop varieties by its research institute.

Fertilizers

The recommended fertilizer dressing for most of the country is 100 kg/ha of diammonium phosphate (DAP) and 50 kg/ha of urea. Over some 400 000 Ha this would imply about 400 000 quintals of DAP and 200 000 quintals of urea. The total distribution of fertilizers by the Government of Eritrea since 1992, as provided by the Eritrean MOA, is summarized in the following table.

Table 3. Eritrea: Distribution of Fertilizers 1992 – 2004 (in quintals)*

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004**
DAP	5 919	7 225	7 223	10 247	12 778	8 700	16 881	17 127	49 209	41 005	17 458	19 628	7 500
Urea	1 871	2 453	2 443	3 886	6 531	6 055	10 798	5 240	23 683	20 994	19 162	13 041	4 234
Total	7 790	9 678	9 666	14 133	19 309	14 755	27 679	22 367	72 892	61 999	36 620	32 669	11 734

* A quintal is equivalent to 100 kg.

** First nine months only.

During 2004, the government distributed only 11 734 quintals (1 173 tonnes) of the main fertilizers (compared to 3 267 tonnes distributed during 2003) comprising 750 tonnes of DAP and 423 tonnes of urea. The amount distributed represents about 2 percent of total recommended application. Fertilizer use is higher in the highlands than it is in the western lowlands. The government plays an important role in fertilizer procurement and distribution, while the private sector has not developed a major capability in this area. The low and erratic rainfall

militates against the normal absorption of these nutrients by plants in many parts of the country and their effect on yields is not always guaranteed. Fertilizer is heavily subsidized in Eritrea, but many farmers still cannot afford to buy it, and in drought years most farmers abstain from applying urea.

Other agricultural inputs

The Government of Eritrea also provides inputs such as pesticides and farm implements to farmers. During 2004, a total of 4 596 litres of liquid pesticides were provided, along with 2 982 kg of powdered pesticides to control armyworms and chaffer-beetles mainly in Gash-Barka and Maekal Zobas.

3.4 Pests and diseases

Pests

Army worm and chafer beetles were the major pests, damaging sorghum, finger millet, maize, barley and pearl millet in Anseba, Gash Barka, Northern Red Sea and Maekel. According to MOA, severe incidence of these pests has affected an estimated area of 17 936 ha of various crops this year and in Gash-Barka Zoba alone 14 050 ha. of area was affected by these pests. MOA assisted farmers in aerial spraying of about 11 685 ha. with both liquid and powdered pesticides. Army worm also damaged scarce grazing resources in Northern Red Sea and Anseba.

Diseases

No major crop disease problems were reported.

Weeds

Striga and wild oats are the major weeds in Eritrea. *Striga* is widespread over the country and causes heavy losses in sorghum yields. The MOA is attempting to counteract this weed through introduction of crops such as sesame in rotation with sorghum. Wild oats is regarded by farmers as livestock forage and is not pulled as it should be. This automatically leads to lowered yields in barley and wheat in particular.

Weather damage

Severe hail damage has been reported to have occurred in Maekel, Dehub, Anseba and parts of Gash Barka in July and August. The hail damage often occurred at flowering time and destroyed the cereal crop, usually barley or wheat, although some maize and sorghum crops were also severely damaged. Late rains in October/early November caused the catastrophic shedding of taff crops in Dehub zoba, the main production area for this crop and other crops in parts of Gash Barka.

Table 4. Crop production in Eritrea, 1997-2004 (tonnes)

	1997	1998	1999	2000	2001	2002	2003	2004
CEREALS								
Sorghum	55 316	269 772	207 197	52 370	78 759	28 434	64 061	44 646
Maize	6 406	28 986	15 899	4 054	9 051	3 008	4 456	3 164
Wheat	5 131	22 945	19 010	10 579	25 423	2 637	3 442	5 053
Barley	16 085	56 605	31 835	25 786	44 934	9 736	8 576	11 134
Pearl millet	4 332	44 183	17 829	1 515	18 174	4 931	11 748	7 118
Finger millet	3 156	7 622	5 402	2 716	12 093	865	5 187	4 436
Taff	4 150	18 706	13 147	10 415	19 551	3 191	7 161	7 574
Hanfez	4 504	8 992	8 508	3 197	11 067	1 728	1 313	1 859
Total	99 080	457 811	318 827	110 632	219 052	54 530	105 944	84 984
OTHER FOODCROPS								
Peas	175	398	581	1 670	1 130	2 797	60	91
Chick peas	492	1 783	2 793	2 972	8 284	225	1 600	3 459
Horse beans	176	659	3 301	1 420	4 022	445	600	603
Green peas	364	399	718	722	2 730	3 484	N/A	N/A
Haricot bean	0	36	36	0	36	0	0	31
Lentils	1	0	272	116	211	110	100	86
Total	1 208	3 275	7 701	6 900	16 413	7 061	2 360	4 270

3.5 Crop production, 2004³

Most of crop production is controlled by smallholders. There are few relatively larger commercial farmers. There are also a number of State-owned farms producing mostly dairy and vegetables but also cereals, in various parts of the country.

Table 4 shows annual cereal and pulse crop production, from 1997 to 2003 along with the estimate for 2004. The table clearly illustrates the large variation from year to year in agricultural production. This year the expected cereal production is well below the average of the past twelve years since independence (180 000 tonnes), and about 20 percent lower than 2003 and about 56 percent more than the cereal production of 2002, the most severe drought year since 1992. Production of pulses this year is expected to be lower (4 270 tonnes) than last seven years (1997-2003) average of about 6 420 tonnes, as the rains ended earlier than usual particularly in Debub, the main production area for chickpea, the most important pulse crop.

³ Some state farms are engaged in cereal production but the Mission was not able to verify.

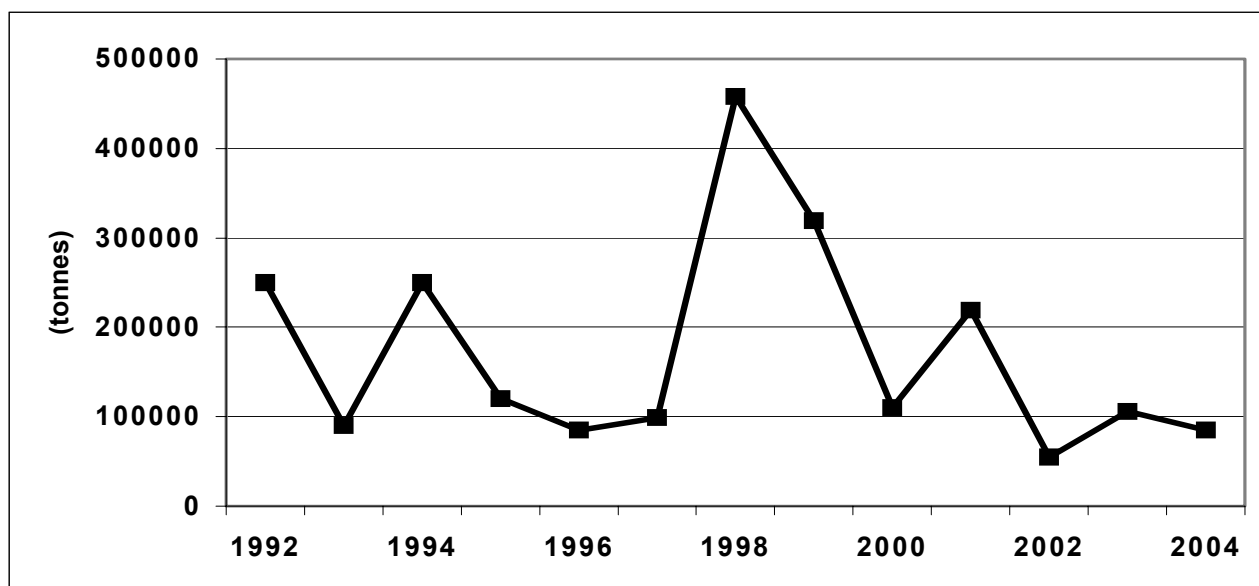
Table 5. Eritrea: Cereal area, yield and production, 2004 by Region (Zoba)

	Gash Barka			Debub			Anseba			Maekel			Northern Red Sea		
	Area (ha)	Yield (t/ha)	Prod. (t)	Area (ha)	Yield (t/ha)	Prod. (t)	Area (ha)	Yield (t/ha)	Prod. (t)	Area (ha)	Yield (t/ha)	Prod. (t)	Area (ha)	Yield (t/ha)	Prod. (t)
Sorghum	156 221	0.23	35 931	27 675	0.15	4 151	17 507	0.05	875	43	0.21	9	7 360	0.50	3 680
Maize	0	0	0	8 503	0.30	2 551	829	0.20	166	137	0.20	27	840	0.50	420
Pearl Millet	17 583	0.20	3 517	0	0	0	20 672	0.15	3 101	0	0	0	1 000	0.50	500
Finger Millet	0	0	0	21 729	0.20	4 346	283	0.20	57	166	0.20	33	0	0	0
Wheat	0	0	0	15 972	0.20	3 194	1 085	0.15	163	6 604	0.25	1 651	150	0.30	45
Barley	6 653	0.15	998	25 837	0.20	5 167	4 584	0.25	1 146	12 652	0.25	3 163	2 200	0.30	660
Taff	0	0	0	30 219	0.25	7 555	0	0	0	97	0.20	19	0	0	0
Hanfez	0	0	0	4 352	0.30	1 306	0	0	0	2 210	0.25	553	0	0	0
Total Cereals	180 457	0.22	40 446	134 287	0.21	28 270	44 960	0.12	5 508	21 909	0.25	5 455	11 550	0.46	5 305

Table 6. Eritrea: cereal area, yield and production in 2004 with production compared to the 12-year average

Crop	Area (ha) 2004	Yield (t/ha)	Production in 2004 (tonnes)	Average production in 1992-2003 (tonnes)	2004 Production as % of average in 1992-2003
Sorghum	208 806	0.21	44 646	96 004	46.5%
Maize	10 309	0.31	3 164	10 428	30.3%
Wheat	23 811	0.21	5 053	11 073	45.6%
Barley	51 926	0.21	11 134	25 376	43.9%
Pearl millet	39 255	0.18	7 118	16 247	43.8%
Finger millet	22 178	0.20	4 436	7 837	56.6%
Taff	30 316	0.25	7 574	10 088	75.1%
Hanfets	6 562	0.28	1 859	3 383	55.0%
Total	393 163	0.21	84 984	180 436	47.1%

Figure 4. Eritrea - Cereal production, 1992-2004



3.6 Other food crops

Potatoes

Potatoes are grown in Maekel, Anseba and Dehub, with total planted area in 2004 estimated at 885 ha. However, this crop requires irrigation for maximum yields. This year potato crops in Maekel exhibited good vegetative growth, but the number and size of tubers were reduced in many fields as a result of the premature ending of the rains in late August; this will significantly reduce yields.

Pulses

The total area planted with pulses this year is estimated at 28 806 ha and the estimated production from these pulse crops is 4 270 tonnes. Chick peas are by far the most important legumes. This drought-resistant crop is grown at the end of the kremti rains in August/September. This year, the rains tailed off in late-August

leaving little residual moisture to support chick pea growth. Most pulse crops in Debub and Maekel, the main growing areas, also had poor growth and overall yield has thus been estimated at less than 0.2 ton per ha.

Table 7. Eritrea: Areas cropped to main pulse crops, 2004 (ha)

ZOBA	Field Pea	Chick Pea	Haricot Bean	Horse Bean	Lentil	Vetch	Total area
Debub	748	17 196	300	2 780	563	6 850	28 437
Gash Barka	-	-	-	-	-	-	-
Maekel	-	97	-	144	-	-	241
Anseba	-	-	36	32	-	-	68
Northern Red Sea	-	-	-	60	-	-	60
Southern Red Sea	-	-	-	-	-	-	-
Total	748	17 293	336	3 016	563	6 850	28 806

Oil seed crops

The main oil crop is sesame; a total of 33 723 ha is grown only in Gash Barka. This crop performed better than the cereal crops and is estimated to produce about 5 533 tonnes. Unlike most other crops grown in Eritrea, sesame has a ready market. The other oil crops are linseed and groundnut, with a total cropped area of 2 700 ha, of which 1633 ha (60 percent) is grown in Anseba and 791 ha (29 percent) is grown in Debub. As a result of the late and short duration of the rains, linseed crops were looking poor and are not expected to yield more than 0.1 ton per ha.

3.7 Livestock

The only livestock population figures available now are those obtained in the livestock survey of 1997, since no new livestock count has been conducted in Eritrea in recent years. Heavy losses of livestock in the current drought may have reduced the numbers, but no precise information is available.

Table 8. Eritrea: Estimated livestock population

Region	Cattle	Sheep	Goats	Camels
Anseba	218 923	124 300	620 023	25 266
Debub	490 093	614 069	706 409	19 382
Gash Barka	917 344	675 268	1 745 784	113 263
Maekel	40 505	149 927	23 556	0
Northern Red Sea	178 532	462 333	994 596	107 032
Southern Red Sea	82 060	103 047	571 417	53 971
Total	1 927 457	2 128 944	4 661 785	318 914

Source: MoA, Livestock census 1997.

Livestock production systems

Livestock production is an integral part of the agricultural activities of the smallholder farmer; it gives a considerable backing to the rural economy and plays an important role in maintaining the livelihoods of the Eritrean farmer.

Livestock rearing is strongly attached with the day to day life/farm/ activities of the farmer and has more or less equal importance to that of crop production in terms of sustaining the well being of the farming household

The main livestock production systems practiced in the country are pastoral and agro-pastoral, with small numbers of stall-fed animals, mainly dairy cows. In the pastoral production system, cattle, sheep and camels

are reared and are kept mainly for the supply of milk, meat and for sale to generate cash. The agro-pastoral livestock production system combines crop farming and livestock rearing and the types of livestock reared are cattle, sheep, goats, camels and equines used for milk, meat, eggs, draft power, as pack animals and for sale as a source of income.

Farming households in the highland parts of Anseba, Maekel and Debub practice a sedentary (intensive cropping) mode farming system, and livestock are kept mainly for the supply of draught power, milk, meat, eggs, animal manure; they also serve as pack animals. Small ruminants are mainly sold and used as a source of cash; they are less often slaughtered for home consumption. Livestock production in the country is characterized by seasonal movements in search of forage and water.

Small-scale dairying

Quite a number of small-scale dairy farms situated within and on the outskirts of major towns supply milk to town dwellers. An estimated total of 30 000 litres of milk is supplied daily to Asmara. A high percentage of the dairy stock is pure Holstein Friesian breed and the rest are either crosses or local zebu breed. Milk is sold at an average price of Nkf 10 per litre. Most of the dairy farmers feed their stock concentrates and conserved hay, crop residues, and cultivated forages.

Poultry production

Indigenous breeds of chickens are usually kept by farmers, but in recent years the dual-purpose Egyptian Fayoumi breed has been introduced and distributed in most parts of the country. About 600 000 chicks have been distributed in Anseba, Gash Barka, Debub and Northern Red Sea from mid-2002 to 2004 to vulnerable women-headed households to satisfy the need for protein requirements and for cash to be used to buy food and other items needed by the family. The recipients we spoke with said that the poultry provided income from egg sales and improved nutrition for their children. However, the cost of poultry feed is very high in relation to the price of poultry products, and under the current dry conditions, it is difficult to grow crops suitable for poultry feed. The exotic Fayoumi breed from Egypt is a very efficient egg producer as long as feed is available; but it proves inferior to local breeds when feed is limited.

Feed Sources

The main sources of feed are common grazing lands; crop residues; crop stubs and hay. Apart from a small area of fodder sorghum grown in Northern Red Sea region, few or no forage crops are planted in Eritrea. This leaves livestock totally dependent on natural-range vegetation and crop residues. The grass species in the rangelands mature rapidly and they quickly deteriorate in quality and become less palatable to the animals. In normal rainy seasons the carrying capacity of a rangeland plus crop aftermath extends from December to February.

Crop aftermath provides forage only until February, after which herd owners are then forced to move their livestock to ever-declining rangelands in search of feed and water. March, April, May and June are the critical feed shortage months when livestock undergo loss of condition and body weight.

Traditional grazing lands across the border in Ethiopia and Sudan are no longer accessible as the borders are closed. Once the locally available feed on the rangelands is depleted, animals migrate to the Eastern Escarpments, some to Kerkebet and others to Mereb, Laellay Gash and Lower Gash. In some situations, as in the case of Halhal and Akordat, migration begins early in October and November. A certain number of milk cows are left behind with the family. All livestock return to their home ground at the beginning of the rainy season when rangelands have enough grass for grazing.

As there is no limitation on stock numbers in the communal grazing system, overgrazing of natural rangelands has resulted in the elimination of palatable grasses and herbs and their replacement by unpalatable forage species. In addition, there is progressive encroachment by crop farmers on to rangelands, which further limits the grazing lands. The closure of the border with Ethiopia has also reduced the grazing available to pastoralists and agro-pastoralists in Northern Red Sea, Southern Red Sea and Gash Barka regions.

Current livestock condition

The body condition of all the livestock at present is from fair to good as observed by the Mission and confirmed by farmers interviewed; this is partly due to the fact that since it is harvest time livestock are grazing on crop aftermath and on the forages available on grazing lands at this moment of time. Some farmers have suggested that the assessment on livestock situation should have been done in March to see clearly the effect of drought on the livestock sector.

The lack or shortage of rainfall experienced in the last rainy season has equally affected negatively the growth and production of grasses and forages on grazing lands used by livestock and the grazing land condition in relation to dry matter production is very poor when compared to last year. The feed situation for livestock is much worse than last year this time and the carrying capacity nearly of all affected natural grazing lands have decreased drastically due to shortage of rainfall which resulted in low dry matter production with the exception of few areas which received moderate rainfall

The areas most affected by lack of rainfall in relation to the availability of livestock feed are Akordat; Dighe; Forto, Mensura; Mulki; Tesseney; and part of Gogne and Logo Anseba sub-zones in Gash Barka Region; Aditekelezan, Hamelmalo and Hagaz in Anseba Region; Berik in Maekel Region and in Debub Region Maini; Tserona; Senafe; Adikeih and part of Adiquala; Seganeiti; Areza; and Debarwa sub-zones. Coping mechanisms practiced in drought situations is migration of livestock to areas where grazing is available, use of crop residues sparingly, acacia pods and leaves and selling of stocks to buy straw and hay to feed the remaining animals; the last three options are feasible only when the number of stock is small.

Livestock in some of the most affected sub-zobas in Debub Region have been forced to migrate early to Laelay Gash and Mereb in search of grazing areas due to the current shortage of feed. Mereb, Laelay, Shambuko, Gash and part of Goluj sub-zobas are the areas which received moderate amount of rainfall and therefore with sufficient dry matter production to support livestock in the area until the months of May or June, 2005. But since these areas will be accommodating huge number of livestock from feed deficit areas of the region the available feed will be finished in a period of two to three months earlier than the expected time. The accumulation of a large number of livestock in a limited area will also have a negative impact on the environment arising from the causes of trampling which will result in destruction of the vegetation cover.

Lower-than-average rainfall levels in some parts of the highlands have also reduced the availability of forage. The poor harvest of 2004 greatly reduced the amount of crop residues available and will have a detrimental effect on livestock during the critical feed shortage months of April, May and June of 2005. As expressed by more than 95 percent of farmers interviewed during the Mission's assessment visit, a serious livestock feed shortage will be expected in the country from the month of March 2005 onwards until the next rainy season is in full swing.

Shortage of drinking water for livestock

The source of drinking water for livestock at this time of the year are dugout wells; water level is decreasing due to lack of replenishment and farmers have expressed their worries that the wells will dry up in 2-3 months and livestock will be in serious drinking water problem until the beginning of the rainy season. During the dry season livestock suffer from shortages of drinking water as watering points at strategic positions within the rangeland are too scarce. Livestock often walk an average of 2.5 hours to reach a watering point and lose energy in the process, which could have been used for body maintenance and growth.

Livestock diseases – animal health

Annual vaccinations programs against major livestock diseases like PPR, LSD, FMD, sheep pox, anthrax and rabies are being provided at present by the veterinary staff of the MOA. Other common diseases and pests of livestock include endo and ecto-parasites, mange mites, anaplasmosis, babesiosis, Newcastle disease and fowl pox and ILT. Treatment against various diseases is also provided in livestock clinics in the zobas.

This year there is no as such a serious problem of livestock diseases in the country at the moment and no deaths of livestock reported except camels in Gash Barka, Debub and Anseba Regions. The infestation of

ticks, mites and internal parasites is also mild but in some sub-zones of Debub like Senafe, Saganeiti Tserona and Adikeih the infestation is severe. Localized incidents of disease outbreak of FMD, is occurring in all the Regions; Gumboro, New Castle, ILT, ASF, Rabbits and Fowl pox diseases appeared in Debub Region; the occurrence of Anthrax in Hadida Sub-zone of this Region is also reported.

Veterinary services

There are 20 veterinary surgeons; 150 veterinary assistants and 230 assistant animal health technicians in the country and each Region has at least 1 veterinarian assigned and between 3 and 4 personnel from each category are assigned. The number of animal health clinics in the country is 57 and in each clinic between 3 to 4 veterinary assistants and animal health technicians are deployed. In recent years, paravets have been trained to provide basic veterinary services to pastoralists and agro-pastoralists.

It is essential that the Veterinary staff be given the necessary means to carry out surveillance and to counteract any outbreak, which could devastate the national herd if left untreated. Contagious caprine pleuro-pneumonia has also been introduced in recent years, as well as lumpy skin disease of cattle.

Marketing of livestock

Livestock markets are available in all the major towns in Eritrea. Most traders and farmers use trekking to take livestock to the market place and in the process animals lose body condition and weight, which results in a decrease of value of the animal. In some parts of Debub, Gash-Barka and Maekel Regions where the effects of drought is being felt the number of livestock coming to the market has increased and prices are less by 15-20 percent than last year this time.

Last year livestock prices have increased by an average of 40–50 percent in Gash Barka and Anseba, Regions due to the improved availability of feed for livestock during this time of the year.

4. SITUATION BY REGION

4.1. Northern Red Sea

Few crops could be produced in Northern Red Sea during the previous three years because of poor highland rains and flash floods, which escaped the embankments and diversion structures of rivers flowing down from the highlands. Although diversion structures have been put in place with assistance from IFAD and some work has been done on main canals, the spate-irrigation system tends to break down in secondary and tertiary canals when faced with sudden floods. The annual average rainfall in Northern Red Sea is 185 mm and this normally falls between October and January. Crop production is supported by spate irrigation derived from rains in the highlands between June and September for the most part. This year, the rains in the highlands largely stopped in August, but there was sufficient water to grow sorghum, cotton and groundnuts on 3 800 ha, in most of the available spate-irrigated land at Sheib. There was no rain in September and October in all the crop growing areas of Northern Red Sea Zoba, therefore the harvest outcome could be much reduced. However, there is good growth of sorghum already, and this should produce a reasonable crop given the high moisture-holding capacity of the soils. In addition, good supplies of forage are already assured for livestock. Should the winter rains materialize, there may be an opportunity to plant maize following the sorghum harvest to take advantage of residual moisture, but this has not been possible for some years. Cereal crop production, from June to September with *kremti* rains, in an area of about 7 750 ha was possible in the northern areas of Nakfa and Afabet. Given better prospects for the high-yielding areas of Sheib, and assuming some winter rainfall, the mission estimates total cereal production in Northern Red Sea zoba at 5 305 tonnes in 2004, which is about 22 percent lower than the previous year. During the time of this mission's visit, most livestock appeared to be in fair to good condition.

4.2. Southern Red Sea

The mission did not visit this zoba. Southern Red Sea zoba is very thinly populated, mainly with pastoralists; agricultural production is confined to a few oases where some irrigation is available. Damage to spate-irrigation infrastructure, which occurred in previous years, could not be repaired because of security

constraints, as this zoba borders on Ethiopia. Therefore, no cereal production is forecast in Southern Red Sea zoba.

4.3. Anseba

The rains started in the middle of June, but in most areas there were long dry spells of 10- to 15-days in July, which worsened the generally poor rainfall distribution. September rainfall was low, eventually curtailing crops well before full maturity in many areas. The overall rainfall situation led to failed crops in Habero, Kerkebet, Asmet, Geleb, Elabered, Halhal, Keren and Hamelmalo sub-zobas of Anseba Zoba. In some of these areas even crop residue amounts will be insignificant. On average, the harvested crop is expected to last for only one to two months and although there are some coping strategies such as selling firewood and livestock, and even though remittances and labour work are available in some locations, in general the most-affected households will be relying on food aid beyond February 2004. Although the slightly better crop this year compared to 2002 drought year will translate into better seed stocks saved by farmers, those who plant in areas with poor crop yields will need to be assisted with seeds if they are to resume farming in 2005. It would appear that pearl millet variety *Kona*, which is fairly drought-tolerant, has performed well in Anseba to the satisfaction of farmers. Attempts in locations such as Hagaz to build adequate community stocks of this variety through seed growers and the operation of village seed banks should be seriously supported by the humanitarian community. Total cereal production this year from Anseba Zoba is estimated at 5 508 tonnes, a reduction of 19 percent on last year's level of 6 795 tonnes.

4.4. Maekel

The season was characterized by the failure of the asmera rains that normally fall from March to May. This prevented the planting of long-season crops such as sorghum, taff, finger millet and maize, and destroyed crops, which were planted in April. The kremti rains were late starting in July and poorly distributed, and they ended prematurely in mid-August, with the result that grain fill was impeded and yields are much lower than they would have been had the rains continued into September. Hail also caused widespread devastation in some areas of Maekel in August, greatly reducing yields in the areas affected. Army worm caused considerable damage at the onset of the rains in July, and chafer beetles damaged sorghum crops at the milk stage. Grasshopper damage was also severe on barley and wheat crops in the early growth stages. Overall, however, crops were better than the disastrous year of 2002, and the estimated production in 2004 is expected to be about 5 455 tonnes compared to last year's total of 3 562 tonnes.

4.5. Debub

The asmera rains, on which the longer-season crops such as sorghum, finger millet, taff and maize depend, did not appear this year over large areas of the district. The kremti rains began in late-June, which was too late for long-season crops. As the long-season crops yield 20-30 percent more than short-term crops such as summer taff, wheat and barley, the lack of asmera rains resulted in an overall crop loss of this order. Rains were good up to the end of August in many areas but then stopped prematurely, producing moisture deficits in crops. Vegetative growth was therefore reasonable but there was insufficient moisture for normal grain fill. Overall, the estimated cereal production in Zoba Debub in 2004 is estimated at 28 270 tonnes which is slightly more than the cereal production in 2003 (27 568 tonnes), but a significant increase of almost 91 percent more than the disastrous harvest of 14 767 tonnes during 2002. The total estimated area planted to pulse crops in Debub Zoba reduced from 31 863 ha during 2003 to 28 437 ha during 2004 crop season mainly due to early cessation of rains at the end of August and also due to little residual moisture left for growing the most predominant chick pea crop.

During the Mission's visit, most livestock appeared to be in fair to good condition but most fodder stocks have been exhausted and overgrazing is evident. Due to shortage of grazing areas and water facilities mass migration of livestock to the Eastern Escarpments, some to Kerkebet and others to Mereb, Laellay Gash and Lower Gash. The collection, local consumption and sale of cactus fruits (*Opuntia*) are important coping activities in Debub at this time of the year.

4.6. Gash-Barka

In Gash-Barka the rains started later than usual and in many areas both the amount and distribution of rainfall were poor. In all areas, rainfall ceased earlier than normal, leading to crop failure of late-planted crops and reducing the yields of those planted on time or slightly later than usual. Nevertheless, the rainfall pattern was significantly better than in 2002 and consequently a better crop output is expected in 2004, although the overall production is lower than the average over the past twelve years. The reduced crop output also reflects the series of pest infestations, which afflicted this region during the growing season. Army worm, grasshoppers and chafer beetles all took their toll on the crops.

Although some areas of Goluj, Tesseneay, Haicota, Shambuko and Upper Gash sub-zobas, have a good crop output potential of up to 10 quintals/ha in good rainfall years, but even in these areas very poor crops were observed by the mission this year in large areas. The sub-zobas Barentu, Tesseneay, Haykota, Forto, Molki, Mogollo, Logo Anseba and Dige present a very dismal picture, with total crop loss being the norm over large areas. Many farmers, about 40–50 percent of the total number, will need to be assisted with seeds in 2005 as they have lost their crop or the harvest is too small to permit saving enough seeds. Extension presence here is spread too thinly considering the region's place as the breadbasket of Eritrea. It is recommended that staff numbers be increased over the current maximum of five extension staff per subzoba to strengthen the support being provided and to assist in mitigating the effect of pests, drought and poor rainfall. Interventions in pest control and plant protection, diversion of rivers and streams, embankment construction and the use of improved varieties need to be intensified. An improved extension service will be an important contributory factor to increased production. Cereal production in Gash-Barka Zoba is estimated at 40 446 tonnes during this year, a substantial increase over the 22 741 tonnes achieved in 2002; but significantly (34 percent) less than last years cereal production in this zoba (61 209 tonnes).

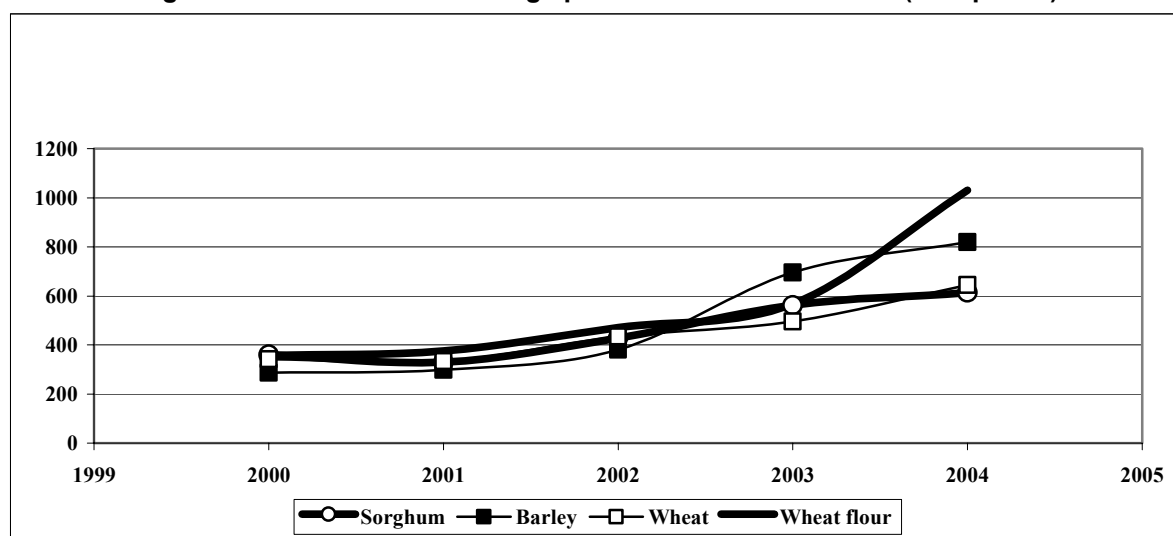
5. CEREAL SUPPLY/DEMAND ANALYSIS, 2005

5.1 Cereal markets and Prices

In an average year, Eritrean farm households harvest their crops in October/November and consume their production for about four months. To cover their food needs for the rest of the year, households rely heavily on the market, from where they meet about 80 percent of their food needs.⁴ The mission found that most farm households have produced cereals to sustain their household food requirements for one month. As a result of consecutive poor harvests, season, these households have been obliged to increase the proportion of food purchases even more to cover the gap of lost production. Urban households are completely market dependent.

⁴ CARE, WFP, ERREC, July 2003, Report of Rural Livelihoods Security Assessment.

Figure 5. Eritrea: Annual average price of cereals in Asmara (Nkf/quintal)



Source: Ministry of Agriculture. "Crop situation analysis for the year 2004", October 2004. The 2004 averages are for the first nine months of the year only.

As has been the case in recent years, households in 2004 were again faced with rising prices for major staples. However, with the exception of taff (whose harvest mostly failed) and wheat flour, prices for other cereals rose less than in the previous year (when sorghum prices increased by 46 percent compared to 2002), and less than the general increase in consumer prices as measured by the Asmara Consumer Price Index.

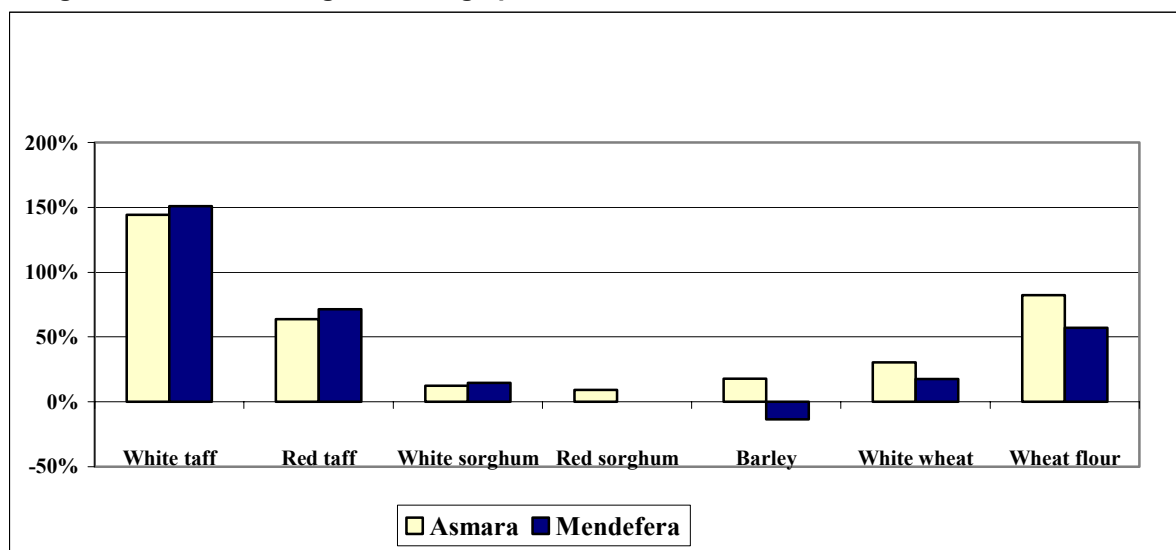
Table 9. Eritrea: Percent change in cereal prices in Asmara and Mendefera, 2003 to 2004

	Asmara	Mendefera
White taff	144.4%	151.0%
Red taff	63.7%	71.3%
White sorghum	12.5%	14.6%
Red sorghum	9.2%	
Barley	17.8%	-13.5%
White wheat	30.4%	17.6%
Wheat flour	82.1%	57.0%
Consumer Price Index*		
General level	23.8%	
Food	28.8%	
Cereals	31.2%	

(*) Figures are for the average December 2003 – September 2004 over same period a year before.

Source: Ministry of Agriculture, "Crop situation analysis for the year 2004", October 2004. Consumer price index in Asmara: National Statistics and Evaluation Office

Figure 6. Percent change in average prices of cereals in Asmara and Medefera, 2003-2004



Source: Ministry of Agriculture, "Crop situation analysis for the year 2004", October 2004.

Rising prices reflect reduced cereal supplies due to poor domestic production, border closures with Ethiopia and Sudan which have significantly reduced informal cross-border flows or made them more expensive, and constrained capacity to import due to foreign exchange constraints. The price of taff has also risen in response to border closures with Ethiopia, the main supplier of this staple grain to the Eritrean market, besides a very poor taff harvest in Eritrea in 2004.

The Eritrean Grain Board has a price-stabilisation role. In 2004, the Board purchased 30 000 tonnes from local markets (including grain from surplus areas and unofficial imports from Sudan) for redistribution to deficit areas. However, in 2004, the stabilization role was less significant than in previous years, due to these low levels of stock. The Board also directed part of a recent donation of 22 700 tonnes of wheat grain for monetization (from USAID) to supply bread in Asmara at a subsidized price of 0.35 Nakfa, approximately half the commercial price. These subsidized sales have partially buffered poor urban households in Asmara from the high grain prices increases. The Board has also monetized smaller quantities of pulses and oil. Food commodity availability has been inconsistent in 2004, with shortages of sugar, oil bread, wheat/wheat flour and milk. Where price controls exist, as in the case of sugar, parallel markets are emerging. Sugar, for example is currently available at up to 25 Nakfa per kg in rural markets, versus the government-determined price of 7.5 Nakfa per kg.

Fuel prices have doubled since September 2003 to 20 Nakfa and 14 Nakfa per litre of petrol and diesel respectively. Since early November these are rationed and not available for private use and the cost in the parallel market goes up to 45 to 65 Nakfa for petrol per litre. These widespread fuel shortages around the country since mid-September 2004 now constrain the transport of food, and other commodities, as well as humanitarian supplies. This is affecting the flow of food between markets, and from producers to small traders who supply most rural markets. Should the fuel crisis continue into the next year, the reduced integration of markets will likely result in greater price differentials around the country, than already exist.

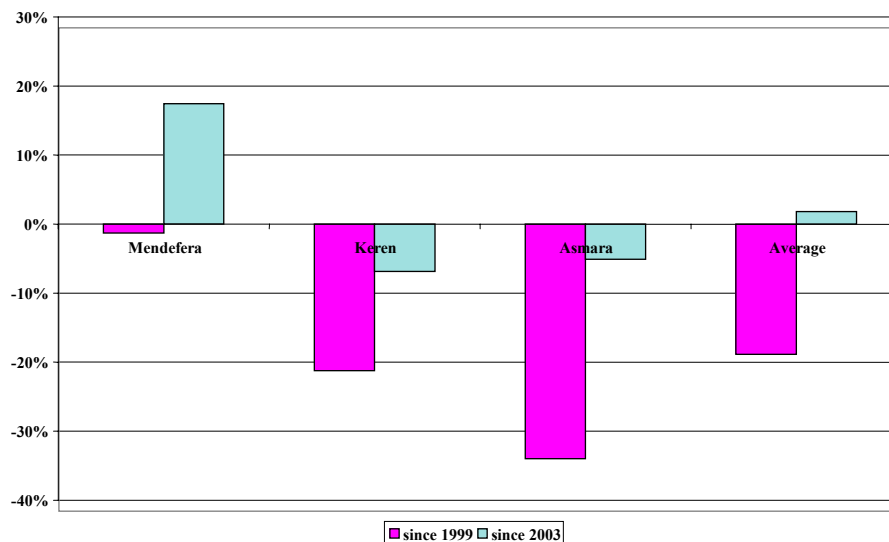
5.2 Terms of Trade between Livestock and Cereal

More than 80 percent of Eritrean households report livestock ownership⁵. Livestock sales constitute a major source of income for food purchases. Terms of Trade discussed here represent the number of sorghum quintals which can be purchased from the sale of one male goat. On average, in 2004, households are able to buy between 100 and 120 kg of sorghum from the sale of one male goat in key markets of Medefera, Keren and Asmara. Compared to 2003, amount of sorghum purchased in Asmara and Keren has reduced by 5 percent and 7 percent respectively, while in Medefera, amount of sorghum purchased has increased by

⁵ CARE, WFP, ERREC, July 2003, Report of Rural Livelihoods Security Assessment.

16 percent. During the last five years, since 1999, the amount of grain purchased from the sale of a goat has reduced, implying that households must now liquidate a higher proportion of livestock assets to purchase grains than was previously the case.

Figure 7. Eritrea: percentage change in sorghum quintals purchased by sale of one male goat



Source: National Food Information System (NFIS)

5.3 Cereal supply/demand balance

The forecast cereal supply-demand situation (Table 10) for the marketing year 2005 (January/December) is based on the following assumptions and Mission observations:

- Opening stocks based on discussion with government officials and WFP indicates that opening stocks of cereals on 1 January 2005 would be larger than last year, mainly because late arriving shipments of food aid will not be distributed before the end of the year. Total stocks at the beginning of 2005 are thus estimated at 149 000 tonnes (91 000 tonnes of food aid stocks and 58 000 tonnes of non-food aid stocks).
- Mid-year 2005 population is estimated at 3.62 million, using a growth rate of 2.6 percent.
- A per caput apparent cereal consumption rate per year is estimated at 150 kg is assumed, similar to the 2003 CFSAM report.⁶
- Seed requirement for next year is estimated at 12 000 tonnes, assuming that the area planted to various crops remains broadly the same as in 2004.
- Post-harvest losses are high in Eritrea due to harvesting systems, poor carriage and storage facilities and rodent and insect damage. It has been reported by officials and farmers that the range of post harvest losses is from 15 percent to well over 20 percent of the production. A figure of 18 percent has been assumed for this exercise, amounting to 15 000 tonnes from a total production estimate of about 85 000 tonnes.
- The Mission estimates that Eritrea is able to import commercially about 80 000 tonnes of cereals. This is mainly based on Government estimates in 2003 and corrected for the deteriorating foreign exchange reserves of the country. According to Government figures, in 2003 commercial imports

⁶ The 2004 Nutrition Survey, carried out in four of the six Zobas by the Nutrition Surveillance System of the Ministry of Health, suggests cereal consumption in the March-July period (not the peak hunger season but not either the relatively plentiful period immediately after harvest) is about 15-17 kg of cereals per person per month, equivalent to 180-200 kg per year, for households with an average total intake of around 2 100 kcal/person/day. These figures include all sources of cereals (own production, purchases and food aid), but they should be taken with extreme caution because (a) they refer only to some specific months in the year and (b) there is wide variability in reported consumption across households, including households reporting "impossible" levels (below 1 000 or above 5 000 kcal/person/day), which suggests the averages might be biased. A proper study of consumption patterns, both on average and seasonally, is yet to be carried out.

amounted to 92 816 tonnes, comprising 50 000 of wheat, 4 300 tonnes of maize 4 700 tonnes of rice, 33 500 tonnes of sorghum and 300 tonnes of millet.

- Closing stocks to be achieved by the end of 2005 should cover the requirement of WFP to provide food aid during the early months of 2006, since in previous years it has been observed that new pledges are likely to arrive not before the end of the first quarter. Therefore for food aid purposes a closing stock of 50 000 tonnes, besides other stocks of about 30 000 in line with the aforementioned opening stocks, are being included in the cereal balance forecast for 2005.
- At the end of 2004 WFP has reported existing food aid pledges not yet fulfilled, for about 80 000 tonnes of cereals, which are expected to be delivered to the country during 2005.

Based on these assumptions, the following is the Mission's forecast of the national cereal balance of Eritrea for 2005.

Table 10. Eritrea: Cereal supply/demand balance for 2005, January/December ('000 tonnes)

Domestic availability	234
Opening stocks	149
Domestic production	85
Total utilization	656
Food use	543
Feed and seed use and losses	33
Closing stock	80
Import requirements	422
Anticipated commercial imports	80
Food aid pledged and in pipeline	80
Uncovered deficit	262

The total cereal import requirement in 2005 is thus estimated at 422 000 tonnes. With anticipated commercial cereal imports of 80 000 tonnes and cereal food aid pledged and in the pipeline estimated at another 80 000 tonnes, the uncovered cereal deficit, for which additional international assistance is needed, amounts to 262 000 tonnes.

6. FOOD AID REQUIREMENTS FOR 2005

The prolonged drought in many parts of the country, the war with Ethiopia, the loss of livestock assets and rising poverty have left most Eritrean households in an increasingly precarious food security situation. Moving into 2005, these households are faced with a situation where many have either severely stretched or completely exhausted their coping strategies for dealing with the situation. The systematic depletion of assets by poor households to meet food needs has increased vulnerability to food insecurity both in terms of scope – numbers of households – and depth, with the result that additional pressures on their household systems of accessing food would result in a more severe situation than was previously the case. Already, the hunger period for the majority of rural households, which traditionally lasted from April to October, now begins several months earlier. Most households' capacity to recover from the current situation without significant external investments is now severely constrained.

Profiles of vulnerability

The profile of most vulnerable households has remained similar to the previous year. Poverty is still rampant. A study undertaken in 2002/03⁷ indicates that 66 percent of the population has incomes below the poverty line (and 37 percent below the extreme poverty line). On average 66 percent of household expenditure is spent on food in urban areas, and 71 percent in rural areas. Therefore, highly market-dependant households faced with higher cereal prices are rapidly depleting their household incomes and assets in an attempt to meet their consumption needs.

⁷ Government of the State of Eritrea, National Statistics and Evaluation Office (NSEO), May 2003, Dimensions of Poverty in Eritrea – Draft Report.

The following types of households continue to be highly vulnerable to food insecurity:

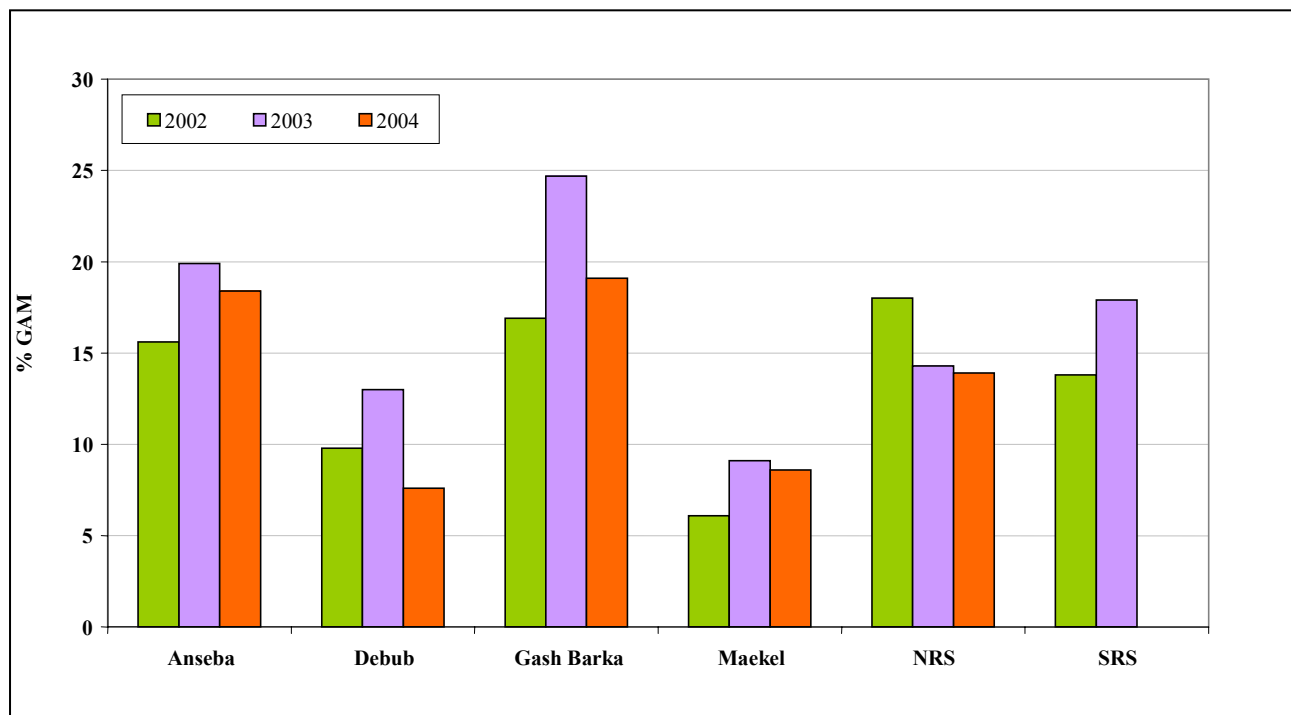
- a) War-affected populations. Internally displaced persons (IDPs) have lost their livelihoods and are resident in camps. Rural returnees lost assets during the border war with Ethiopia.
- b) Female Headed Households. In all areas visited by the mission, female-headed households were identified as the most vulnerable households. About one-third of Eritrean households are female-headed, with significant regional variations. These households are in the poorest strata of society. More than 70 percent of households are considered destitute and rely on food aid or community welfare to survive. They face cultural limitations in practicing traditional agriculture – for example, women cannot plough with oxen and rely on the goodwill of males in their community to plough, or resort to share-cropping, usually receiving less than one-third of harvest proceeds. Lack of male labour may also reduce area planted. During this drought season, as water sources begin to dry up, average time to fetch water has increased. Many women now spend more than 2 hours round-trip to fetch water. In areas where water shortages are more severe, there is additional queuing time. One implication of this is the reduced time available for food preparation and child-care, factors which impact on child nutrition. About 74 percent of rural women have not attended school and often work in the agricultural sector and/or in other low skilled, low status jobs. Female heads of household are constrained in migration to seek casual labour due to their multiple domestic responsibilities. Families with a male member in the national service receive a monthly remittance of 200 Nakfa for each member in the service. This may be compared to the poverty line established at 238 Nakfa per capita per month.⁸
- c) Elderly headed households. – These are generally labour constrained and face similar constraints as female headed households in agricultural production. In all areas, they were cited as being highly vulnerable to food insecurity.
- d) Highly crop-dependant subsistence farmers. – These have lost their crop in successive drought and have lost livestock through increased livestock sales to purchase food - compensating for poor crop production, distress sales when animals lost body condition or livestock mortality. These are generally located in higher potential areas of Gash Barka and Debub regions.
- e) Pastoralists and agro-pastoralists that have lost their livestock through distress sales or mortality.
- f) Extreme urban poor, particularly female- and elderly-headed households. Studies indicate that the poorest households are located in the urban area, with prevalence of poverty estimated at about 80 percent in smaller towns. These households have little or no income and therefore poor purchasing power, include a high number of dependants, and depend on the market to access food. They are particularly impacted by inflation.

Nutrition

Nutrition surveys were undertaken between May and July 2004 in four regions (Anseba, Northern Red Sea, Southern Red Sea, Gash Barka and Debub) by the Ministry of Health National Nutrition Surveillance System (NSS). These surveys indicate that global acute malnutrition (GAM) in children aged 6 – 59 months has reduced compared to surveys undertaken during 2003 at a similar time –the hunger season– in three regions surveyed, and remained similar in other two regions. Increased malnutrition in 2003 was attributed to low levels of food aid availability during the first half of the year, resulting in inadequate food intake. It may, therefore, be assumed that the availability of food aid has served to reduce malnutrition during 2004. However, GAM rates in three regions, namely Anseba (18.4 percent) , Gash Barka (19.1 percent) and Northern Red Sea (13.9 percent) are above the acceptable threshold of 10 percent. Debub had the lowest GAM rate of 7.6 percent of the four regions surveyed in May-July 2004. Maekel region, which was surveyed in October had a rate of 8.6 percent GAM. However, this finding is not strictly comparable to other regions, due to differences in seasonality, as other surveys took place during the hunger period of May – July, while the Maekel survey was undertaken during October, the harvest period. Southern Red Sea survey reports were under finalisation at the time of the mission.

⁸ GSE, Participatory Poverty Assessment (Draft), 2003

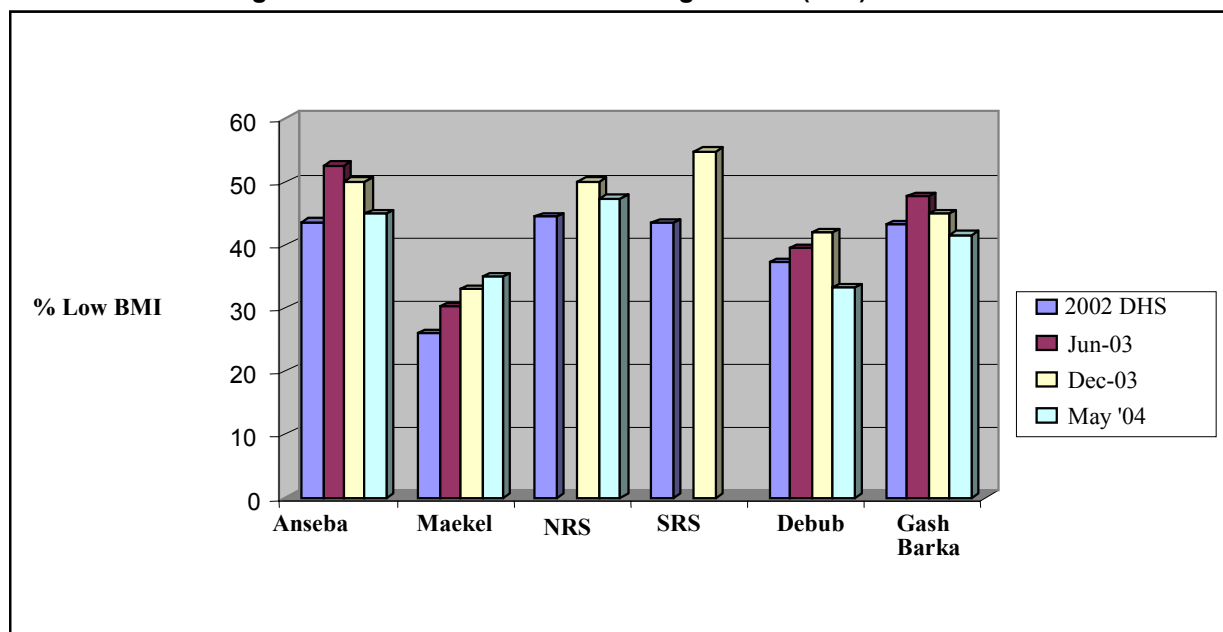
Figure 8. Eritrea: Global acute malnutrition among children 6 – 59 months (2002 – 2004 March-July)



Source: Eritrea Demographic Health Survey 2002, Nutrition surveys carried out by the Ministry of Health in collaboration with WFP, UNICEF, Concern, CRS, DIA and Mercy Corps as part of the National Nutrition Surveillance System.

Malnutrition among women in the four regions surveyed between May to July (Anseba, Northern Red Sea, Southern Red Sea, Gash Barka and Debub) ranged between 33 percent in Debub to 47 percent in Northern Red Sea, based on Body Mass Index less than 18.5. While these represented an improvement from a survey undertaken in December 2003, it is important to note that the levels are still unacceptably higher than the threshold of 30 percent in all four regions. Malnutrition among women of reproductive age may perpetuate the inter-generational cycle of malnutrition. It is often used as a proxy indicator for household food insecurity.

Figure 9. Eritrea: Malnutrition among women (BMI) 2002 - 2004



Source: Eritrea Demographic Health Survey 2002, Nutrition surveys carried out by the Ministry of Health in collaboration with WFP, UNICEF, Concern, CRS, DIA and Mercy Corps as part of the National Nutrition Surveillance System.

Coping Strategies

Eritrean society has traditionally had strong kinship and community ties in which the better-off households have supported more vulnerable members of the community. Years of successive difficulty due to drought and economic turn-down have resulted in the progressive impoverishment of these better-off households, and impacted on the entire coping capacity of communities.

Reliance on food aid

The most widespread means of coping with problems of food access is cited as reliance on food aid. Food aid now plays a critical role in households' attempts to meet kilo-calorie requirements. Findings from the Ministry of Health NSS Study undertaken in mid-2004 indicated that food aid contributed to between 40 – 68 percent of household kilo-calorie consumption. The study also found high levels of redistribution of food aid within the community with most households surveyed indicating food aid receipts.

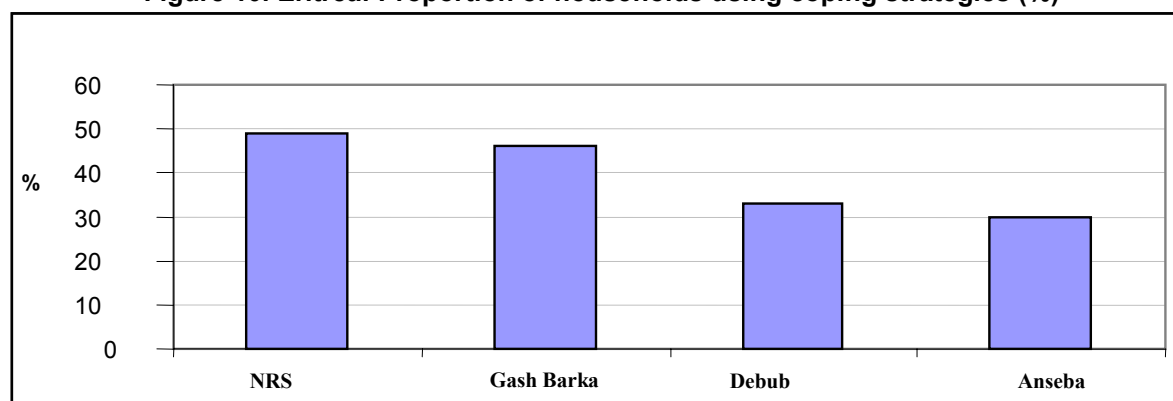
Cultural habits – often reinforced by administrators in a number of locations – contribute to the phenomenon of “sharing or redistribution” of food aid within the recipient communities. As deepening poverty and depletion of assets has resulted in a narrowing of wealth differences within communities, fewer households meet community-defined criteria for exclusion from food aid. Sharing, can, to a certain extent, be seen as a traditional social safety net or social insurance system by recipient households for times when food aid is absent. At the same time this leads to an inclusion of households not – yet – in need of food aid and hence an inefficient use of the available food aid with those in need getting insufficient and those in less need getting “too much” food aid. The food aid agencies have tried to address this targeting problem, but have been met by a certain level of wariness from communities and local officials.

Table 11. Eritrea: Household food consumption, including food aid

May-July					
	%Households receiving food aid	Average Kcal Consumed per person per day	Average Kcal from food aid per person per day	% Kcal Consumed which came from Food Aid	% Needs Met (based on 2 100 kilo calories)
NRS	98%	1 981	1 103	56%	94%
Gash Barka	90%	2 109	845	40%	100%
Debub	88%	2 420	1 037	43%	115%
Anseba	100%	1 642	1 119	68%	78%

The same survey found that between 30 and 50 percent of households reported the use of coping strategies in response to inadequate household food access. The breakdown by region is indicated below:

Figure 10. Eritrea: Proportion of households using coping strategies (%)



Source: Ministry of Health National Nutrition Surveillance System

Strategies which households use to address food insecurity include:

- Eating less preferred foods. Households in taff-growing areas now sell taff for less preferred cheaper sorghum. Households prepare a soup from grain rather than bread (*injera* or *kicha*) to stretch available food stocks.
- Reduction in the number of meals was cited as a strategy used by food insecure households. Skipping of meals for a whole day, which is an indicator of severe food stress, was not found to be widespread. Ability to consume at least one meal per day was partially attributed to the availability of food aid.
- Borrow from friends and relatives to supplement their food consumption. As relative levels of indebtedness increase and as creditors lack the ability to absorb additional debt, this has become less of an option in many communities.
- Sale of labour, especially in the larger towns. Much of this is within the construction industry. Reduced availability of building materials in many areas due to transport constraints arising from the fuel crisis has eliminated this coping strategy for many households.
- Sale of water, firewood, charcoal, doulm palm mats and other artefacts
- Collection of wild foods e.g. the cactus fruits and wild fig
- Begin income-generating activities – especially micro-enterprise, beehives and poultry – many female-headed households have been targeted for such activities by the government.
- Reliance on remittances from relatives inside and outside the country.
- Sale of livestock
- Consumption of seed stocks
- Migration

The Ministry of Health study analysed the relative importance of various strategies, which have been summarized below. Reliance on less preferred and less expensive foods, consumption of seeds stocks, restricting consumption of adults for small children to eat and reducing portion sizes and number of meals in

a day were all cited by at least 20 percent of households surveyed. It is expected that the use of coping strategies, and severity of types of strategies used increased as the hunger season progressed, prior to the harvest expected in October/November.

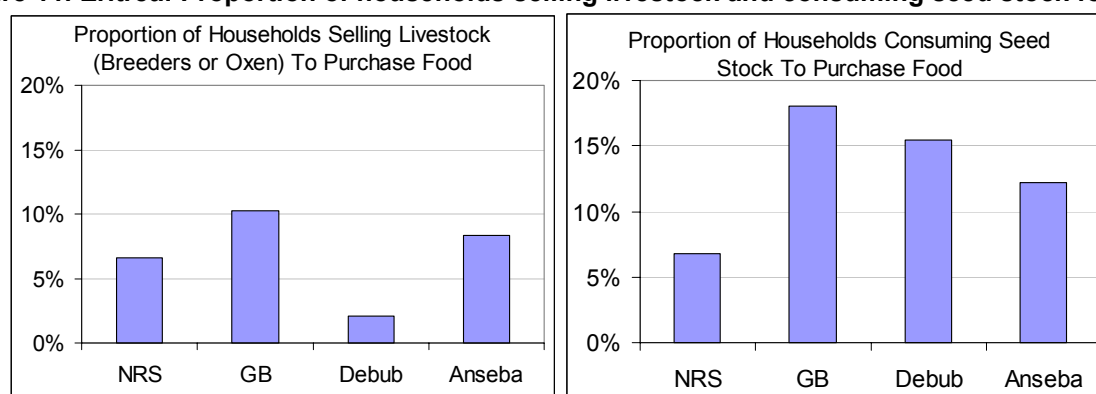
Table 12. Eritrea: Proportion of households reporting use of short-term coping strategies (%)

Coping Strategy	NRS	Gash Barka	Debub	Anseba
Rely on less preferred and less expensive food	3	25	5	3
Borrow food, or rely on help from a friend or relatives	12	13	12	15
Purchase food on credit	6	2	1	7
Gather wild food or harvest immature crops	1	1	1	2
Consume seed stocks held for next planting season	6	24	35	21
Restrict consumption of adults for small children to eat	23	13	8	16
Limit portion sizes at meal times	24	13	20	19
Reduce number of meals eaten in a day	22	8	17	15
Skip entire day without eating	4	1	1	4
Total	100	100	100	100

Source: Ministry of Health National Nutrition Surveillance System

Of particular concern are strategies that deplete productive assets and therefore reduced households' future capacity to produce food: These include the consumption of seed stocks, sale of draught animals and the sale of farm tools. According to the N-NSS surveys, sale of working tools was negligible. The former two strategies were utilized in all four regions surveyed. The proportions of households engaging in seed stock consumption ranged from 7-18 percent by region. For the sale of oxen and breeders, proportions ranged from 2-10 percent of households.

Figure 11. Eritrea: Proportion of households selling livestock and consuming seed stock for food



Source: Ministry of Health National Nutrition Surveillance System

Magnitude and Extent of Food Insecurity

Vulnerable populations in 2005 include rural drought-affected populations, war-affected populations and refugees and urban vulnerable populations. Estimates for these populations are indicated below. It is estimated that in 2005, 2.3 million vulnerable persons will require food aid either partially or throughout the year. Total food aid requirements in 2005 to meet the needs of these vulnerable groups will be 352 905 tonnes, including 282 425 tonnes of cereals.

Table 13. Eritrea: Vulnerable populations requiring food aid in 2005 and food aid requirements

Category	Number of Vulnerable Persons	Cereal Requirement (tonnes)	Total Food Aid Requirement (tonnes)
Rural Vulnerables:			
• Severely Drought-Affected Farmers	926 900	125 133	142 651
• Moderately Drought-Affected Farmers	150 100	14 630	16 678
• Agro-pastoralists / Pastoralists	614 800	69 165	78 848
War-Affected	177 000	31 860	36 320
Urban Vulnerables	462 600	41 637	47 466
Supplementary Feeding Recipients	68 500		30 942
Total Vulnerable Populations**	2 331 400	282 425	352 905

NOTE: **Total vulnerable populations – summation excludes supplementary feeding recipients as these are already counted in other vulnerable categories.

Recommended Phases of Food Assistance

The following rationale has been used in determining the duration of assistance. Depending on vulnerability, various ration scales will be applied to the different categories of populations requiring assistance.⁹

Rural Vulnerable:

- Severely drought-affected will require assistance from January – October, after which it is expected they will consume their harvest.
- Moderately drought-affected rural farmers will require assistance from March – October. It is anticipated that the consumption of grain produced and sale and consumption of pulses produced will enable them meet their needs between January and February. After October, it is expected they will consume their harvest.
- Rural Agro-Pastoral/Pastoral Livelihoods will require assistance between January and October with peak rations during the period between March and June. It is anticipated that from July - October, this category will require partial food aid support until the expected onset of the bahri rains in mid-October.

War-affected populations will require full rations throughout the year, until they are able to re-establish some form of livelihood.

Urban vulnerables: Vulnerability of this group has been established through poverty assessments. In the absence of an urban vulnerability survey, this group is anticipated to require partial food assistance throughout the year

There is a need to determine the appropriate modality for provision of assistance for urban vulnerables through an urban vulnerability and market study. One possibility includes targeted market-oriented support to this group. A similar analysis on the feasibility of providing assistance to agro-pastoral and pastoral populations through similar targeted market-oriented support could also be explored, since it is expected that in the latter part of the year, agro-pastoralists will interact with the market to meet part of their food needs through sale of livestock and purchase of food. The feasibility of introducing other modalities of food distribution e.g. food for work should also be explored.

⁹ The amount of cereal distributed to people in need of food aid may be in excess of the estimate of average required consumption of 150 kg per person per year, because people needing food aid can hardly access many other foods and thus a larger proportion of their energy needs should be met through cereals.

Recommended food aid beneficiaries and tonnages peak during the hunger period of April – September as indicated in the table below:

Table 14. Eritrea: Persons requiring food aid per quarter, and tonnages required (tonnes)

	January - March	April - June	July - September	October - December	Total
Persons Requiring Assistance (Average per Quarter)	2 181 341	2 331 394	2 331 394	1 408 487	
Cereals Required (Average tonnes per month)	21 542	31 126	26 890	14 584	
Total Cereals Required (tonnes)	64 626	93 378	80 670	43 752	282 425
Total Food Aid Required (tonnes)	81 409	114 185	99 700	57 611	352 905

Food Rations

Food aid requirements are calculated on the following basis:

- Cereal: One full monthly ration comprises 15 kg per person per month.
- Total food aid: One full monthly ration comprises 17.1 kg per person per month. This includes 15 kg of cereal, 1.2 kg of pulses and 0.9 kg of oil.
- Supplementary feeding rations:
 - Beneficiaries receive a family ration of 7.5 kgs per month of corn soya blend (CSB), except for the war-affected. These include children under five in drought-affected areas with GAM > 15 percent and malnourished pregnant women in the second trimester and all those in the third trimester and lactating women.
 - Malnourished war-affected beneficiaries (IDPs and Returnees): These receive a monthly ration of 1.5 kgs per person per month of corn soya blend (CSB).

6.1 Total food aid receipts in 2004

In 2004, total food aid arrivals in-country are expected to be 271 000 tonnes of which 22 700 tonnes was received for monetization. This represents a reduction of 22 percent compared to 2003 food aid arrivals of 346 000 tonnes (including 52 000 tonnes for monetization). Small quantities of oil and lentils were also monetized in 2004. WFP arrivals of more than 150 000 tonnes of food aid in 2004 amount to more than half (56 percent) of in-country food aid receipts during 2004 (excluding carry-over stocks).

The Eritrean Relief and Refugee Commission (ERREC) is the government counterpart responsible for transport and distribution of all project food aid to Eritrea received in the country. Monetised food aid is managed by the Eritrean Grain Board (EGB).

6.2 WFP ongoing programmes

WFP is currently implementing an Emergency Operation (EMOP 10261.01) to provide food assistance to victims of crop failure due to drought. The project targets 600 000 beneficiaries for 9 months between 1 June 2004 and 1 March 2005. In addition, WFP is implementing a Protracted Relief and Recovery Operation (PRRO), targeting over 900 000 war and drought-affected persons 1 July 2003 to 30 June 2005. During 2004, resourcing levels of these operations have enabled WFP assist 1.3 million of the planned 1.7 million beneficiaries.

6.3 WFP food aid plans for 2005

In 2005, WFP may provide 262 000 tonnes, depending on resource availability. The main focus will continue to be on the provision of food aid to the most vulnerable layers of the population suffering from the combined impact of consecutive years of drought and economic downturn and the residual effects war. Smaller amounts of food aid will be used towards rehabilitation activities including school feeding and adult education. The two main NGOs involved in food aid, CRS and Mercy Corps, will also continue to have a

significant amount of their resources dedicated towards meeting the food aid needs of the populations in their areas of intervention, respectively some 300 000 and 150 000 beneficiaries. They too are working towards a diversification of their interventions.

6.4 Logistics

The widespread unavailability of fuel country-wide since mid-September has resulted in delays in transportation of food aid. During the month of November, no general food aid distributions have taken place as food aid stocks are stuck in intermediate storage facilities and not forwarded onwards to the distribution points. WFP and ERREC also plan a joint partnership to strengthen ERREC's systems of food aid delivery and management in 2005.

7. MEDIUM- AND LONGER-TERM POLICY DIRECTIONS

a. Adoption of better farming practices, including the following:

- *Improved seed and more suitable crop varieties.* In view of persistent drought conditions and frequent lateness of rains, insufficient supply of short-cycle seed varieties has become one major constraint. A substantial programme of seed multiplication is recommended. The Government of Eritrea adopted a Seed Policy in 2002 but there is room for improvement in the light of experiences elsewhere. Throughout Africa, for example, there are varieties of cereal, pulse and oilseed crops which are adapted to erratic rainfall that may be introduced and tested under Eritrean conditions while local plant breeding efforts continue.
- *Improved water-harvesting techniques.* Water-harvesting techniques are poorly developed in Eritrea. The use of improved planting pits, such as the *zai* of Burkina Faso and microbasins as practiced in Mali and other suitable strategies may be introduced and tested under Eritrean conditions. It is noted that these techniques are highly labour-intensive.
- *Groundwater irrigation.* A survey study is needed to ascertain the groundwater regime in Eritrea and the appropriate use of groundwater for irrigation in different potential parts of the country.
- *Water-saving irrigation system.* Current irrigation systems in Eritrea, besides benefiting only a fraction of cultivated areas, are based on flood or spate techniques that do not economize on scarce water. Better irrigation systems including wider use of drip irrigation and other techniques is highly recommended.
- *Conservation agriculture.* Eritrea has a long-standing experience in soil and water conservation techniques such as extensive terracing. However, many of these production systems are not used properly or abandoned. FAO is already working with the MOA on a number of demonstrations of conservation agriculture. The benefits of these techniques should become clear after 2–3 years, and it is essential that the programme continue for several years and that maximum use be made of farmer field days and other extension techniques to introduce conservation agriculture on the widest possible scale. It is recognized, however, that conservation agriculture requires the recycling of crop residues that would normally be consumed by livestock and some system of livestock control must be introduced in parallel with conservation agriculture.
- *Enclosure areas.* The MOA, in collaboration with local communities, has already begun a series of enclosures of hillsides to enable the natural range to recover from overgrazing. This has resulted in impressive growth of grasses and forage trees which can provide forage in difficult years. This practice should be strengthened.
- *Fertilizer use.* Popularization of fertilizer use in conjunction with improved water availability through irrigation and better water harvesting can be an important element towards improving agricultural yields.
- *Strengthened extension services.* Improved extension services are needed to secure better farming practices, including improved rotation of crops and better livestock management.

b. Land access and land tenure

Appropriate policies and programmes need to be adopted to improve access of the population to land with secure tenure, so as to provide incentives to the farming communities to invest in long-term agricultural improvements, such as soil and water conservation and improved livestock management.

c. Livestock

In the livestock sector, it is recommended to take measures for improvement of rangeland through aerial seeding of appropriate legume species, using experience gained in neighbouring countries.

d. Rural finance and marketing

Rural finance and marketing facilities should be created through appropriate measures such as better communication in terms of movement of goods and people as well as telecommunication services, institutional development and active promotion of private sector involvement.

e. Opening of regional markets

Given that the regional countries had been the traditional trading partners of Eritrea, reopening of these markets by resolving border disputes would enlarge beneficial trade opportunities in various respects, including livestock.

f. Labour, education and health

Proper emphasis needs to be placed on education and health in order to improve human capabilities which are crucial to economic and social development. Demobilization will increase the labour supply, thereby helping to overcome the current labour shortages and reduce labour costs..

g. Macroeconomic management

Stronger efforts are needed to improve the macro-economic fundamentals of the economy, which are increasingly a matter of concern. Inflation is accelerating, foreign debt servicing increasing rapidly, fiscal deficits very wide, and commodity shortages (such as for fuel, sugar and others) may become more severe and more frequent. It is recognized that a crucial factor for developing a more positive macroeconomic scenario is the prospect of change in pending foreign-relations issues, especially progress in the pending border disputes with Ethiopia which would allow for a reopening of trade across that border.

This report has been prepared by H. Maletta, S. Reddy and E. Dianga under the responsibility of the FAO and WFP Secretariats with information from official and other sources. Since conditions may change rapidly, please contact the undersigned for further information if required.

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