

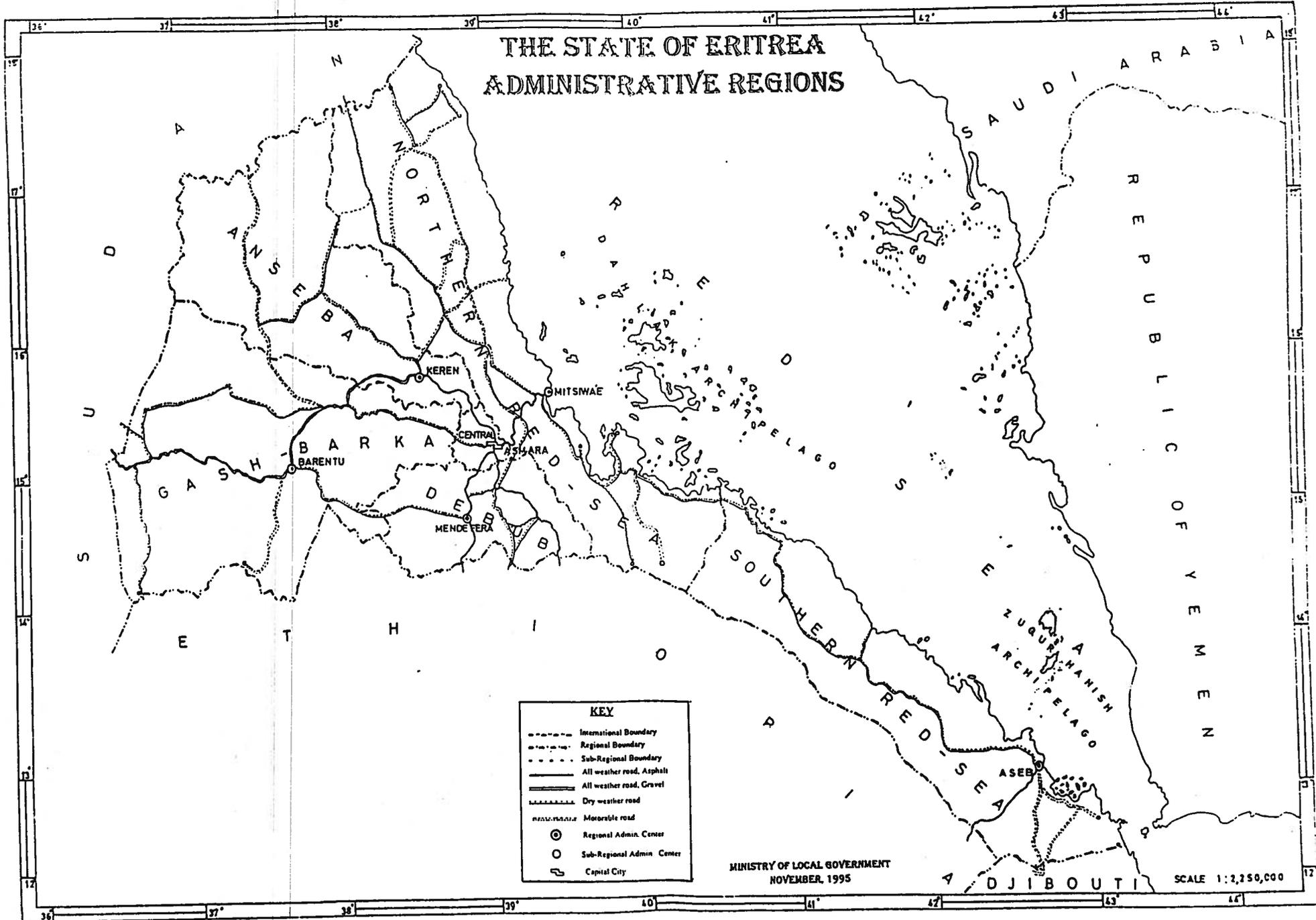
DISASTER PREPAREDNESS IN ERITREA

Report Prepared for USAID/Eritrea

Draft October 1996

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BHR/OFDA/PMPP
October 1996**

THE STATE OF ERITREA ADMINISTRATIVE REGIONS



KEY	
-----	International Boundary
- - - - -	Regional Boundary
- · - · -	Sub-Regional Boundary
—————	All weather road, Asphalt
—————	All weather road, Gravel
—————	Dry weather road
—————	Motorable road
⊙	Regional Admin. Center
○	Sub-Regional Admin. Center
⌚	Capital City

MINISTRY OF LOCAL GOVERNMENT
NOVEMBER, 1995

SCALE 1:2,250,000

I would like to acknowledge and thank the USAID Eritrea staff for their kind assistance in helping me with this task. I would like to give special thanks to Ato Mussie Hadgu and Ammanuel Misghinna for their insights and kind attention to scheduling my TDY.

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DISASTER PREPAREDNESS IN ERITREA

Executive Summary

Food shortage as a result of drought or pestilence is the greatest disaster risk to Eritrea. Displacement as a result of sudden *refoulement* of Eritrean refugees into Eritrea from Sudan or inflow of Sudanese refugees into Eritrea is also a likely possibility.

The Government of the State of Eritrea (GSE) is aware of these potential disasters and has made initial efforts to address disaster preparedness through the establishment of governmental structures as the Early Warning Food Information System (EWFIS), Eritrean Grain Board (EGB) and Eritrean Relief and Refugee Commission (ERRC). The activities of these institutional structures: early warning, disaster assessment and response capacities are still emerging.

The capacity of the GSE to respond to any of the disasters mentioned above would depend upon the scope and severity of the disaster. The government has realized the disaster potential, but has not yet been able to undertake a comprehensive assessment of vulnerability or inventory of response capacity within the governmental institutions. The GSE has initiated the necessary institutional framework for both information coordination and response in the EWFIS, and needs to clearly define criteria for beneficiaries, response time tables, sectoral guidelines and operational procedures.

Historically, the Eritrean People's Liberation Front (EPLF) now the GSE, has met national challenges with sacrifice and mass mobilization. Many of the key figures in the GSE are ex-fighters in the liberation struggle and have a military and logistic background. Therefore it is likely given a disaster beyond their institutional response capacity, the GSE would mobilize line ministries, the national service, and if necessary, the Eritrean Defense Forces (EDF) to meet relief logistic, health, sanitation and shelter needs. The government has recently tested the readiness of the national service, a program in which all able-bodied Eritreans are obligated to do six months military training and twelve months of social service.

The GSE, committed to self-reliance, has taken steps to limit the role of non-governmental organizations (NGOs). The line ministries and specialized government agencies have become the implementational partners for relief activities. Although the governmental line ministries enjoy committed and competent staff, institutional capacity and human resources are 'spread thin.' International Organizations as the United Nations High Commissioner for Refugees (UNHCR), the U.N. Department for Humanitarian Affairs (DHA), and Office of U.S. Foreign Disaster Assistance (OFDA) who normally contract NGOs to be the implementational partners in a disaster, would have to operate differently in Eritrea, or the GSE would have to make an exception. Virtually all NGOs present in Eritrea are non- implementational. The initial responders to a disaster would be from the GSE.

The opportunity cost to this response would put a strain on an already thinly spread civil service in the food security, health, logistics, and water / sanitation sectors. There is a need to increase the human resource capacity in the relief related sectors and institutional capacity to perform a detailed assessment and outline specific operational and sectoral guidelines. Current GSE planning is focused on food aid. This planning needs to go beyond the food aid sector and examine the effect of either of the above disasters on the health, water / sanitation and agricultural sectors. In the event of a disaster declaration by the U.S. Ambassador, OFDA is enabled to render logistical, material and technical assistance. In the specific case of Eritrea, this would be in concert with USAID Eritrea staff efforts.

Effects of USAID Programming

Currently, USAID programming in the three investment objective areas is building local capacity and will have mitigating effects on any potential disasters. In the southwestern lowlands, the rural enterprise program will increase purchasing power and strengthen and diversify the local economy, mitigating the results of crop failure. The health programs in the second investment objective will strengthen the health infrastructure and allow it to be more responsive to meeting emergency health needs. The third investment objective is assisting in the crucial need of capacity building which will enable the GSE to have a greater flexibility to meet their disaster needs. USAID would need to modify its programming in either a food shortage disaster or population displacement. The three bilateral investment objectives of USAID all depend upon governmental implementing partners. The GSE would have to stretch its institutional capacity to meet relief needs in the event of a disaster and would have to borrow staff from non-affected areas.

In the area of primary health care, the effect will be the greatest. Either a severe food crisis, epidemic, or population displacement will require additional health service and staff to be taken from on-going programs to meet immediate relief needs. In the case of a population displacement, the diversion of staff may be longer term and require a restructuring of current USAID assisted programs in affected and non-affected areas..

The rural enterprise program will be targeted in the southwestern lowlands. This area will be the area most impacted by a population displacement. An influx of returnees or refugees with minimal community claims and negligible material goods will put a strain on the economic networks. Displacement or food crisis in this area will exacerbate the already low purchasing power in the event such a crisis would occur. The rural enterprise program would be refocused to shift some of its activities to meet immediate needs.

The democracy and governance objective will be impacted more directly; a large disaster will tax the current capacity of all levels of government involved in a relief effort. In addition, if the GSE meets the material needs for relief (e.g. food purchases) out of operating expenses; all the governing structures will be budgetarily affected.

Disaster Preparedness in Eritrea

I. Introduction

A. Sectoral Profile

1. Disaster History and Patterns

The major disasters in Eritrea are drought, insect infestation and displacement due to civil strife. Table 1. shows declared disasters recorded in the OFDA disaster history database. This list is not comprehensive, but gives a clear picture of the pattern of drought and insect infestation that has affected Eritrea. Disasters occurring from 1965 to March 1993 were taken from events which included Eritrea in the Ethiopian disaster history:

Table 1. Disaster History Affecting Eritrea

Date	Type	Affected	Comments
07/65	Drought	1,500,000	Nationwide (Ethiopia)
09/69	Drought	1,700,000	Hamasien area
10/84	Drought	7,750,000	Eritrea among other Ethiopian provinces
07/86	Insect		Desert locust
09/87	Drought	7,000,000	Eritrea one of most affected.
09/88	Insect		Desert locust
10/89	Drought/civil unrest	2,300,000	Poor rains and civil war
10/90	Drought/civil unrest	6,500,000	Poor rains and civil war
03/93	Insect		Desert locust
04/93	Storm	15,000	Cyclone strikes Massawa
11/93	Drought	1,600,000	FAO reports 80% crop loss due to drought and pest.
08/94	Displaced persons	430,000	Returnees from Sudan strain Western lowlands
09/95	Insects		Desert locusts

Disaster Preparedness in Eritrea

2. Geography and Demographics

The State of Eritrea (GSE), located in the Horn of Africa, is bordered by Sudan to the west, Ethiopia to the southwest, Djibouti to the southeast and the Red Sea to the East. Eritrea is a small country, approximately 125,000 square kilometers in size, with a population estimated between 2.4 and 3.0 million persons¹. Eighty percent of the population live in rural areas (see map 2). Asmara, the capital, is the major urban area with a population of approximately 400,000 - 480,000 persons.

There is a paucity of population and demographic data as a comprehensive census has not taken place in Eritrea since 1962. The percentage of the population less than 18 years of age is estimated at 51 percent. The female literacy rate is ten percent; male literacy rate is 20 percent. The population growth rate is three percent per annum. The life expectancy at birth is 46 years and the contraceptive prevalence rate is less than one percent.

The major religious groups are Christianity (predominantly Orthodox and Roman Catholic) and Islam. Christians and Muslims compose equal proportions of the population. Muslims live predominantly in the Lowlands, Christians in the Highlands.

Figure 2. Map of Population Density in Eritrea
Produced with EpiMap software, the dots represent Provincial distribution, not communities.



This population figure is based on the 1994 FAO estimates and a three percent growth rate for two years.

Disaster Preparedness in Eritrea

Climate

There are distinct types of climatic zones in the country; the Coastal Lowlands zone, Central and Northern Highland zone, Southwestern Lowland zone, and Northwestern Lowland zone;

Costal Zone at sea level has an annual rainfall of less than 200 mm. This arid zone is sparsely populated and can support only irrigated agriculture.

Central and Northern Highland Zone, at an altitude of between 1,800 -2,400 meters, averages 300-700 mm of average rainfall (greater to the south) and supports rain-fed agriculture. Within this zone are the "western and southern escarpment zones" which form a transition between the central highlands and the lowlands.

Southwestern Lowland Zone has a average rainfall in excess of 500 mm and supports rain-fed agriculture; the altitude is between 1,500 to 2,000 meters.

Northwestern Lowland Zone is semi-arid and cannot support agriculture without irrigation. The altitude is between 900-1,500 meters.

The main rainy season is from late June through the beginning of September.

3. Water and Sanitation

Water Resources

Overall, only eight percent of the population has access to safe water. Many rural households have to travel between two to three hours to obtain water. In a preliminary study of 244 villages in nine provinces, the per capita water consumption was found to be 2.5 liters¹. The 1993 GSE/UNICEF report estimated that 21 of the 37 major diseases were water and sanitation related and diarrheal diseases accounted for 23 percent of child sicknesses.

Hydrology

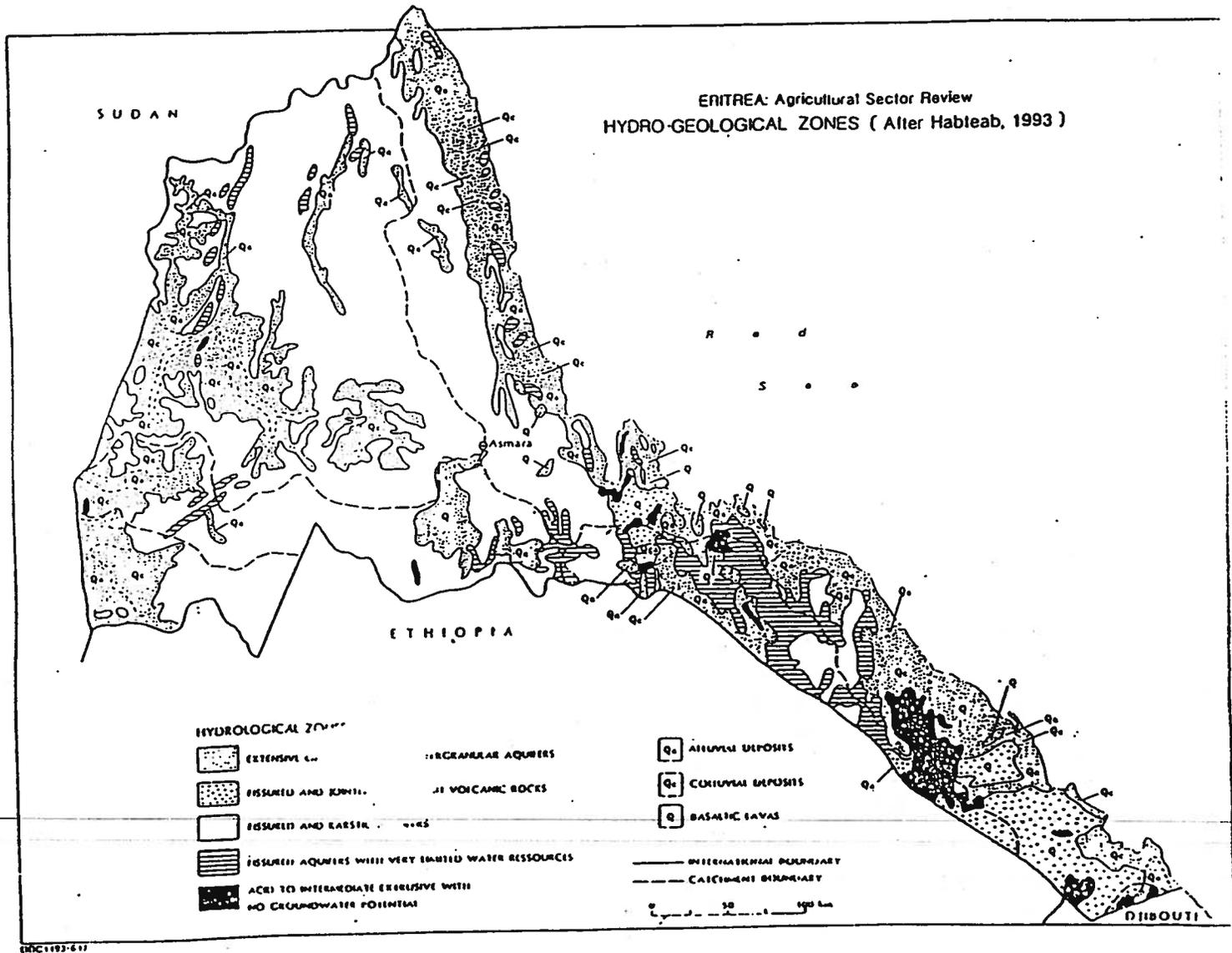
There are three drainage basins. The Mereb-Gash and Tekeze-Setit rivers drain into the Nile Basin. Water run-off from the eastern escarpment and the Barka-Anseba system form part of the Red Sea Basin.

There has been no systematic investigation of the groundwater potential in Eritrea². A large number of boreholes have been drilled for residential water use. The most important aquifers are the alluvial and colluvial/elluvial aquifers (shown on map 3.) at which the average depth to ground water is 40 meters. The water transmission rate ranges from 100-3,000 cubic meters per day. The water quality is generally fair to good, but deteriorates with salinity increasing with depth, distance from river channels and approaching the coast. .

Disaster Preparedness in Eritrea

It takes an average of seven months to dig an suitable and long-lasting hand-dug well in the western lowlands³. Therefore, hand-dug wells are only suitable where the community is large enough to merit the expense of labor costs and where there was adequate time to organize the work.

Figure 3. Map of Hydrogeology of Eritrea



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Sanitation

In rural areas, less than one percent of the population have access to sanitation services. In urban areas, 44 percent of the population have access to sanitation services.

4. Health and Nutrition

Health

The infant mortality rate is 135 deaths per 1,000 live births and the under-five mortality rate is 203 deaths per 1,000 live births. The current immunization rate is about 45 percent. The population per physician ratio is 28,000. The population to hospital bed ratio is 10,000.

Diarrheal Disease

The following diarrheal disease morbidity and mortality data should be read with caution as diagnosis at the field level is difficult,⁴ As mentioned above, 23 percent of child morbidity is due to diarrheal diseases.

Table 2. Diarrheal Disease in Eritrea

Disease	Morbidity Incidence	Mortality (per 1000 patients treated at health institutions in 1994)
Gastro-enteritis	45,600	51
Helminthiasis	27,600	31
Amebiasis	18,7000	21
Shigellosis	4,560	5

Malaria

The leading cause of death in Eritrea is from malaria. In 1995, there were 81,183 reported cases with patients treated⁵. If there is a five percent incidence in a local population, the MOH will declare an epidemic. Its distribution is in the lowlands and its incidence is seasonal following the rainy season (see map 4).

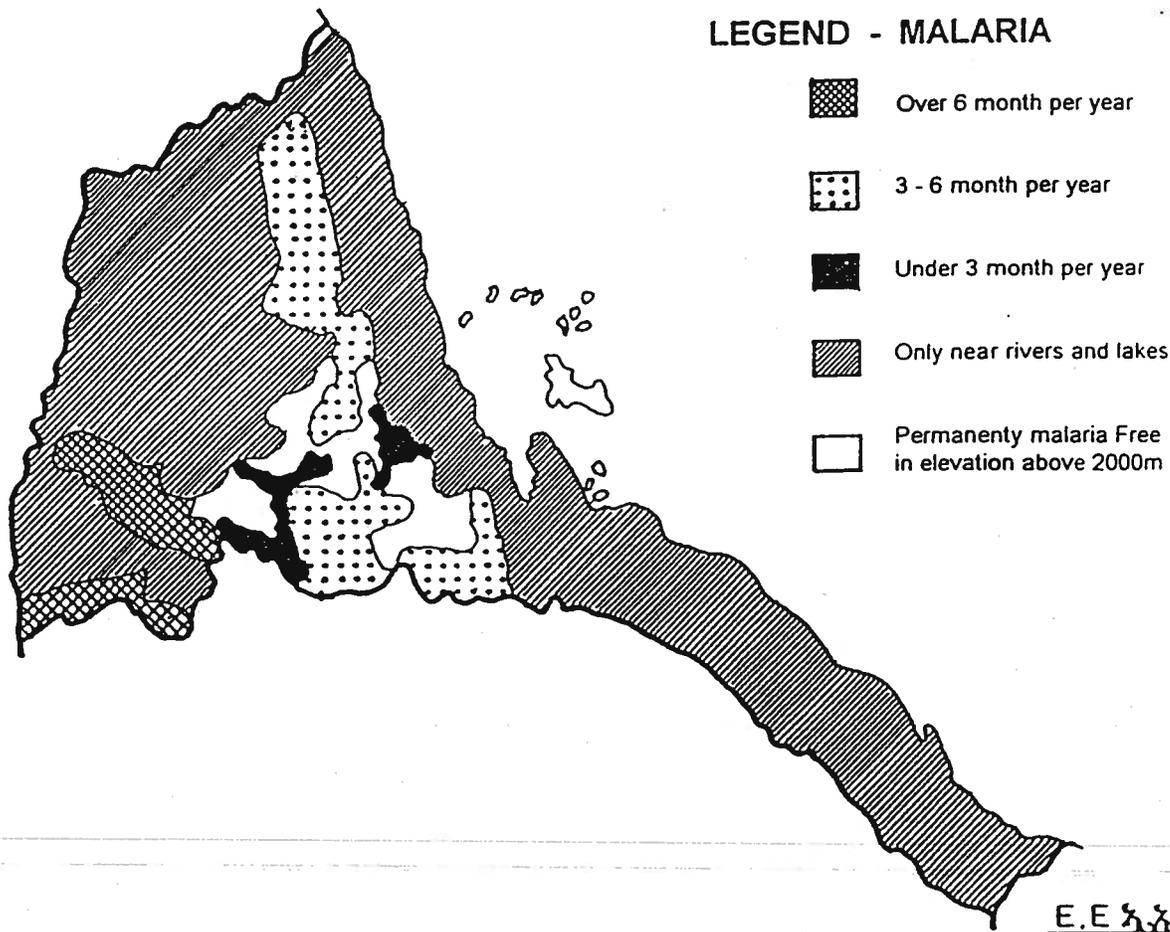
There is a 97 percent prevalence of *p. falciparum* and only a three - five percent of the *p. vivax* form of malaria. Prior to the war, there was a 50 percent prevalence of each, but the displacement of soldiers on both sides caused the *p. falciparum* to increase. As a result, there is a higher incidence of malarial complications and deaths.

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To date, chloroquine resistance is at very low levels in Eritrea. The World Health Organization (WHO) expressed concern that in the event of a population influx from Sudan, where malaria with greater chloroquine resistance exists, there would be an introduction and spreading of chloroquine resistant *P. falciparum*.⁶

The MOH does not give chemical prophylaxis to persons in malaria affected areas as that could inhibit any natural immunity.

Figure 4. Map of Malaria Occurance in Eritrea
Taken from National Environmental Management Plan



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Human Immunodeficiency Virus / Auto Immune Deficiency Syndrome (HIV / AIDS)

There are approximately 2,000 cases testing positive HIV antibodies in Eritrea. Approximately 1,000 are in Asab and the 1,000 in Asmara. This gives a 22.5 / 100,000 prevalence rate for HIV which is considered high, *cp.* 25 / 100,000 for USA and 37.8 / 100,000 for Kenya.

Nutrition

A 1993 national nutritional survey found global malnutrition rate (< -2 SD WHZ) for under-five children at 10.4 percent. Underweight (WAZ) was found to be 41 percent, and the stunting rate (Height for Age) and indicator of long term malnutrition was 66 percent. It is estimated that the average daily caloric intake following a relatively good harvest was 1,750 kilocalories or about 83 percent of the recommended 2,100 kilocalories.

Micronutrient Deficiencies

The most prevalent micronutrient deficiencies are **Iodine Deficiency Disorder (IDD)** which leads to goitre, brain damage and cretinism; **Vitamin A Deficiency (VAD)** which leads to xerophthalmia, blindness and increased mortality; and **Iron Deficiency** which leads to anemia.

IDD

IDD leads not only to goitre in children and adults; but IDD in pregnant women can cause cretinism in developing fetuses and brain damage in infants. (see map 5.)

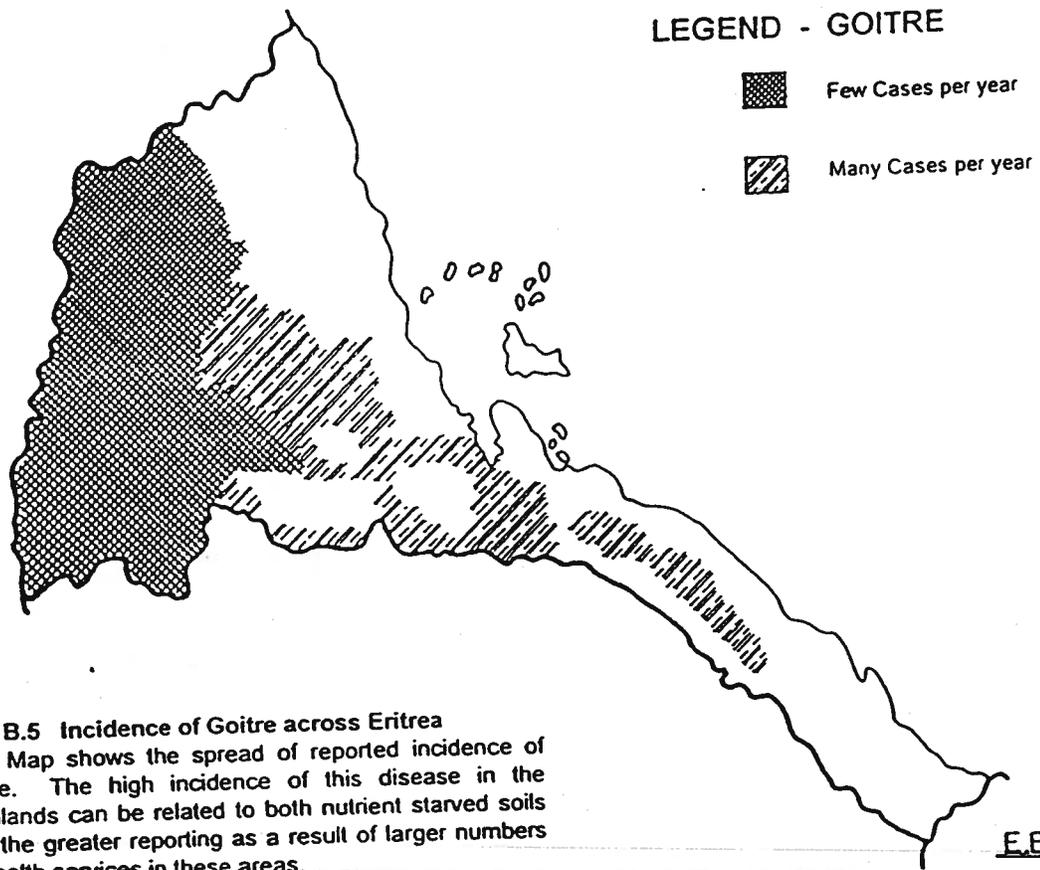
Table 3. Effects of IDD in Eritrea, 1994. This table is an extrapolation based on a sample study performed by MOH, UNICEF and the University of Uppsala, Sweden.

	Newborn %	Ages (% 1-17yrs)	Ages (% >18 yrs)	% Total population
Reported incidence of goitre				45
Goitre (clinically not relevant)			85.5	41
Goitre (clinically relevant)			8.6	4
Brain damage	36.4			19.6
Cretinism	0.4			0.01

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Eritrea has a large salt producing industry; Eritrea produces enough salt to export 90 percent of the production to Ethiopia and still supply the local market in Eritrea. Currently, the GSE is iodizing all salt produced by Eritrea and is in the process of creating a law to prohibit the sale of non-iodized salt within Eritrea.

Figure 5. Map of Goitre Incidence of Across Eritrea
Taken from Environmental Management Plan For Eritrea



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Vitamin A Deficiency

In a Ministry of health (MOH) supported micro-nutrient study performed in 1993 - 1994, 33.4 percent of infants were found to have moderate to severe vitamin A deficiency and 28.3 percent of infants were found to be a risk of developing vitamin A deficiency.⁷ The MOH is currently distributing vitamin A capsules, but the distribution has not yet been systematic.⁸

Iron deficiency (Anemia)

The MOH found anemia to be high in infants, with 55.0 percent of infants with severe anemia and 36.7 with moderate anemia. Iron levels were found to be unacceptably low in children and pregnant women.⁹

5. Food Security and Agriculture

A World Food Programme (WFP) study performed in 1995 identified Eritrea as a structurally food deficit country due to the years of war displacement and marginal agricultural production. In 1992, the World Bank reported that 80 percent of the population depends on subsistence farming for their livelihood the agricultural sector accounted for only 26 percent of the national GDP¹⁰. Agriculture in Eritrea is constrained by low and erratic rainfall, erosion due to deforestation, and low production due to limited crop varieties and agronomic management techniques.

Domestic Food Basket

Grain is the main staple with little variety in the diet. The predominant grains are locally produced sorghum, maize, wheat, and millet. Pulses and milk are the most common protein sources. The pulses commonly consumed are chickpeas, horse beans and field peas.

Lowland pastoralist and agro-pastoralist consume the most milk, (goat's milk) up to a liter per person per day. Milk is either smoked or boiled, or eaten as cheese. Herd-size needs to be large enough to sustain at least this consumption level for the household. In 'hungry periods' when there is a lack of pasture land and grain prices rise, livestock prices fall as farmers sell their livestock to purchase cereal.

Highland households also drink milk and prefer cow's milk and butter. Milk is not always available. The major livestock holding in the highlands is for draft cattle. Meat consumption is insignificant, except for middle and higher income urban families

6. Logistics

Eritrea has 3,000 km of road of which 550 km are asphalt surfaced. The roads between the capital, Asmara, and the Provincial centers are fair to good, secondary roads are quite poor. The corridor between Asmara and Teseney and the road between Asmara and Masawa are

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being upgraded. There are two ports along the 1000 km of coast, Massawa and Asab.

7. Livelihoods and Coping Mechanisms

Eighty percent of the population are subsistence farmers growing only one crop per year dependent on rain-fed agriculture. The average per capita GDP is between US\$130-US\$150.

Lowland areas

The Eritreans living in the lowlands are predominantly agro-pastoralist who depend on their livestock (goats, sheep and camels) for livelihood to a greater extent.

Assets

Livestock play an important role in the lowland areas. Goat's milk is an important source of protein as is *Ghee*, a mixture of yogurt and cottage cheese. Livestock is used as capital to be sold during hard times. Lowland people have also been known to bleed their animals for blood which is consumed as food.

People will sell personal goods such as pots and pans and jewelry during hard times to acquire cash for food purchase. A widely used asset is personal labor. The current average wage (wage initially asked for) in Eritrea is 15 *Birr*/day (about US\$ 2.15). This wage is thought to be skewed high from the distortion effect of remittances from abroad and the FFW practices of last year. Labor would involve work in construction, well-digging, herding, collecting firewood, or agricultural labor.

Food gatherers and pastoralist gather wild foods as berries, leaves and tubers are also consumed, but there is no clear picture of the how often or to what extent this practice impacts the household diets. The prickly pear cactus bears a fruit that is gathered and eaten, both in the lowlands and highlands.

Claims

There are extended family structures, but the displacement of the war has tended to diminish the networks. Remittances from family members abroad has been an important source of income.

Highland Areas

The Eritreans in the highland areas are predominantly farmers. Livestock holdings are not as significant and cattle are of greater value for their draft value. The GSE owns all the land in Eritrea, so land is not an asset. However, land tenure issues are still subject to public and private debate. The GSE is modifying the existing land tenure arrangement, the *diesa* system, in which the land surrounding a village is considered common property of the community. Every seven years (approximately) land is reallocated among male adult residents of the village by casting lots. The lot system is weighed to ensure equality in the

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quality of land. The *diesa* system creates a disincentive for a farmer to improve the land, as tenure is too short. Land cannot be sold, so it cannot be an asset. The system will progressively create smaller holdings as the population increases. The GSE plans state that farmers will receive a lifetime deed to the land.

Assets

Draft oxen are of high value (1,000-1,500 *Birr* per head). In a site survey WVI found that 60 percent of the farmers did not have draft animals. Those who do not have draft animals negotiate plowing and cultivation services with farmers who have animals for a substantial portion of their harvest.

Farmers store grain in large household containers made of cow dung and straw that can hold from 100 to 300 kgs grain.

In addition, farming households will hold household assets as pots and pans, jewelry. Similar to the lowland farmers manual labor is also sold. Women often sell beer, tea or coffee, do domestic chores and gather firewood for sale.

Claims

Claims are more likely established in the highland areas because the population was not as displaced as that of the lowland people. The claims would be extended family and remittances from relatives in the Gulf States, Europe or North America.

II. Vulnerability Assessment

A. Natural Disasters

1. Food Security and Crop Failure

Access to food is the major issue affecting the life and well-being of Eritreans. The civil war which lasted for 30 years displaced large numbers of farmers and herders, disrupted the infrastructure system and diminished a large portion of their assets. Agricultural production is low. Virtually all agriculture in Eritrea is dependent upon rainfall; only six percent of cultivated land is under irrigation. The FAO reported that less than 25 percent of the potential agricultural land under cultivation. In addition to the lack of draft animals, many agricultural practices are inefficient: seed is broadcast, cultivation is minimal and there is need for better seed varieties. These constraints put subsistence farmers and herders at risk.

Food production is highly variable in Eritrea, the 1993 harvest was 87,000 MT of cereal while the 1994 harvest was 258,000 MT. Even in good production years as 1994, the Eritrea produces slightly greater than 60 percent of its food requirements.

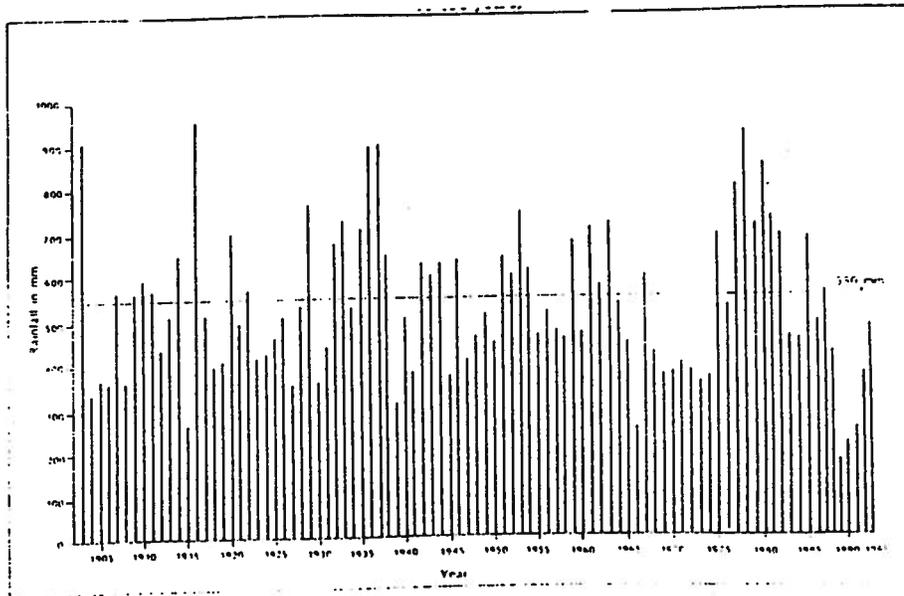
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The most threatening disaster is crop failure. Crop failure can be due to drought and untimely rains, or pests such as Desert Locust (*Shistocerca gregaria*) and Army Worm, the pupae stage of a butterfly. In addition to these pests, there is a growing problem with the parasitic weed, Striga (*Striga helmantica*), which affects sorghum fields. The major crop grown is sorghum (49 percent of cereal production) followed by millet (19 percent), barley (12 percent), maize (eight percent), taff (six percent) and wheat (six percent).

Drought and Untimely Rains

Eritrea has experienced drought (where annual rainfall falls below the 550 mm mean) for approximately 12 of the past 20 years (see figure 6).

Figure 6. Rainfall Pattern for (Asamara) Eritrea
From FAO (1994)



Pestilence

The Desert Locust² is normally a solitary insect that occurs in desert regions. In the solitary phase, Desert Locust pose no threat to agriculture. The Desert Locust becomes gregarious, or swarms during periods usually following a drought when vegetation flushes occur in critical breeding grounds. The rapid locust population build-up and competition for food results in a transformation from solitary to swarming phase. Locust form dense bands of wingless nymphs and winged adults.

Damage Pattern

This section is excerpted from a monograph by Showler, A. The Desert Locust in Africa Western Asia: complexities of War, Politics, perilous Terrain, and Development.

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Locust swarms can become as large as 80 million individuals per square km spread over 1,000 square km. Desert locust can consume up to two grams of vegetation per day. A swarm of the above dimensions would eat 160 MT of vegetation per square km (1.6 MT/Hectare). Locust swarms can inflict 100 percent damage for crops within hours of landing. Usually the damage pattern is patchy because the swarms land on fields based on geography and wind patterns. Swarms can travel great distances, cross national boundaries, the Red Sea, and the Persian Gulf.

Surveillance and Monitoring

Eritrea has an ideal breeding ground in the Northern Red Sea zone. This area is difficult to monitor because of accessibility difficulty from land mines that were laid during the war. Although there are sophisticated remote sensing techniques used to assist forecasting, locust swarms are most reliably located by visual surveillance. USAID African Emergency Locust / Grasshopper Assistance (AELGA) is conducting appropriate locust control training in Eritrea and other affected countries.

The Emergency Centre for Locust Operations at FAO publishes the *Desert Locust Bulletin* on a monthly basis and more frequently during periods of increased Desert Locust activity. This Bulletin summarized the surveillance reports from countries in affected areas.

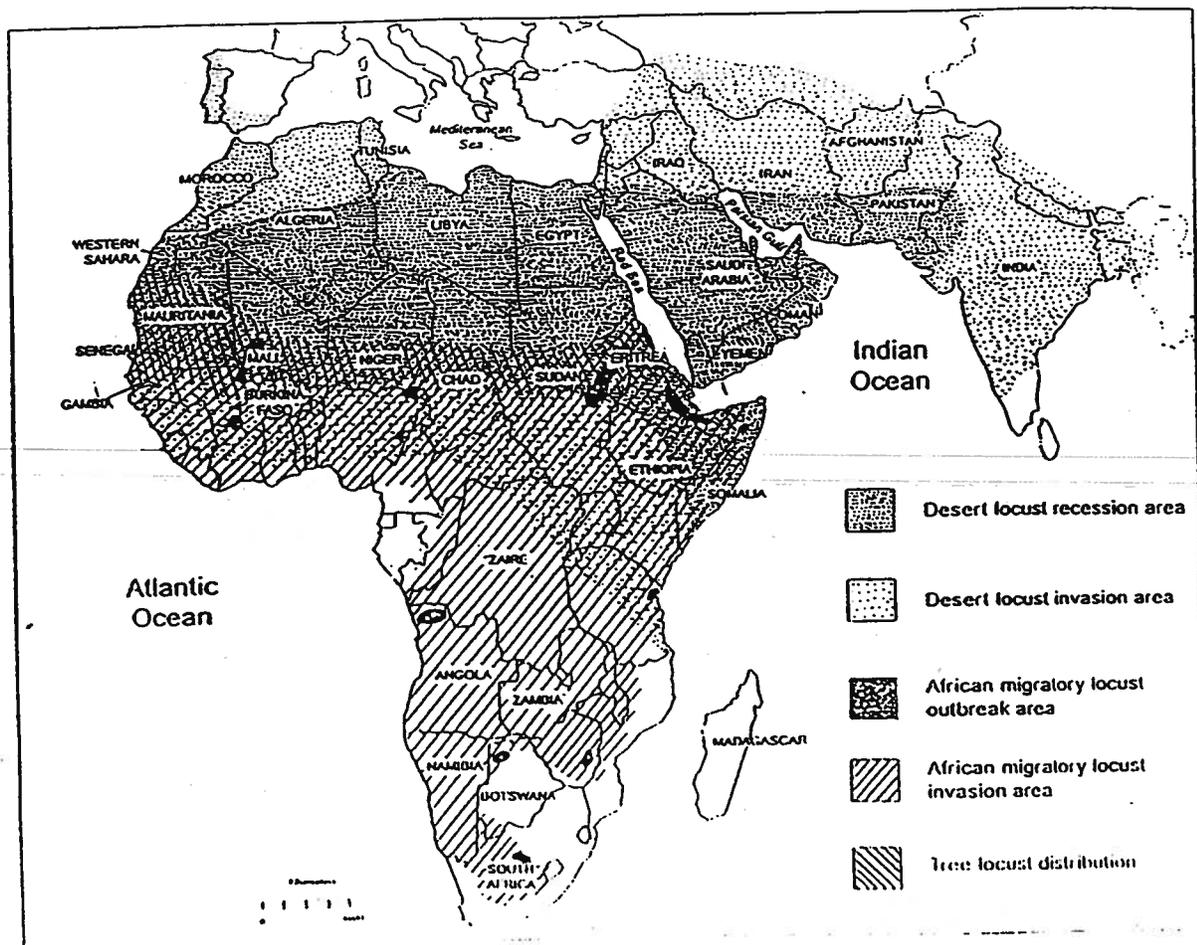
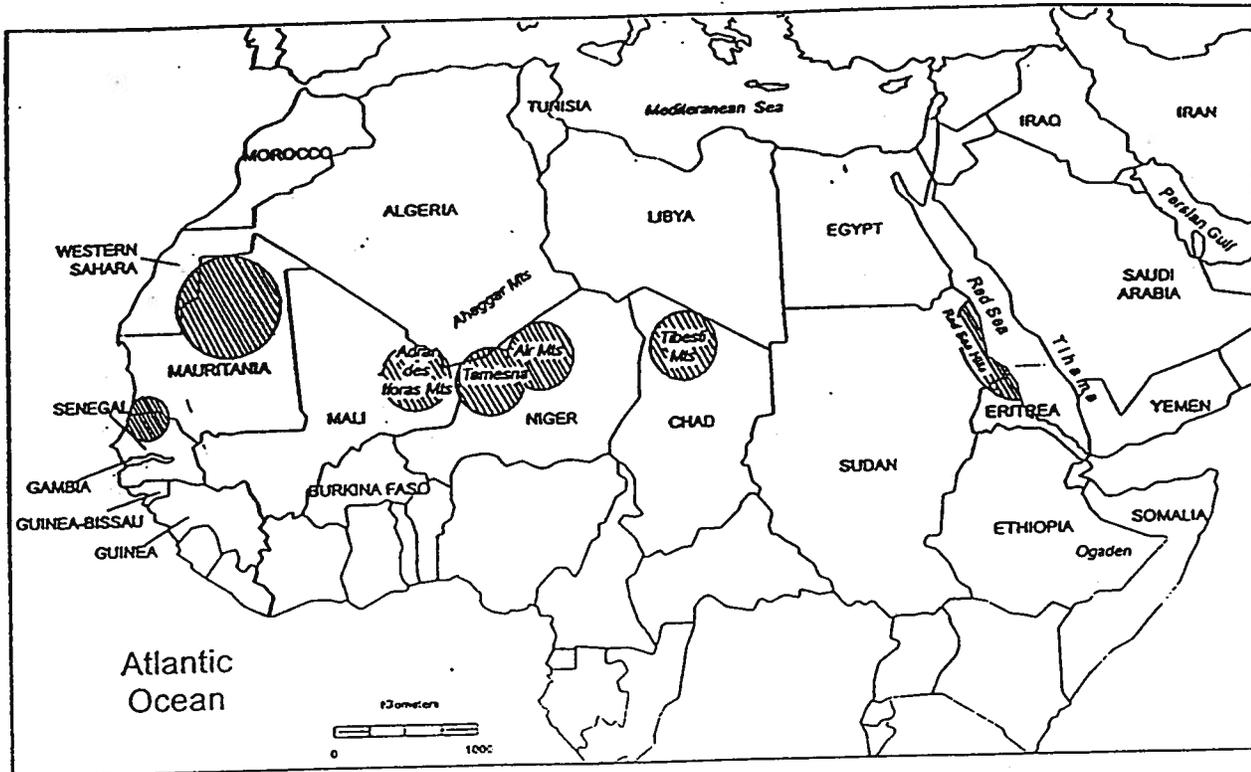
Control

The only effective control is pro-active application of insecticide. Insecticide can be applied by crop dusting from aircraft, from trucks or by backpack sprayers. Infested fields should be sprayed before 9:00 a.m. when swarms begin to fly for the day. The Desert Locust Control Organization (DLCO) is an intergovernmental organization currently based in Ethiopia that maintains a useful fleet of aircraft. Its future is uncertain because it is in financial arrears. It is suggested that FAO will sponsor or partially sponsor DLCO.

The Emergency Prevention System (EMPRES) program is an IGAD program devised for early intervention in the Red Seas Coast regions of East Africa and the Arabian Peninsula. The goal of EMPRES is to minimize the risk of Desert Locust plagues emanating from this region through well-directed surveys and timely, environmentally sound intervention.

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Figure 7. Maps of Desert Locust Breeding Areas and Distribution
Taken from Showler (1995)



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2. Epidemics

Meningitis

Bacterial Meningitis (*B. meningococci*) occurs in the Sahel every year, with epidemic cycles every seven to eight years. The last cycle was in 1989 - 1990. To combat possible epidemics, the MOH has the storage capacity for 50,000 - 70,000 doses of Meningitis vaccine.

One confirmed case of Meningitis or Cholera will define an epidemic. If there is one confirmed case of bacterial meningitis, the MOH from Asmara will send a medical team, including a laboratory technician, to the area to confirm the case. The laboratory technician will take culture samples to Asmara as soon as possible. In addition, MOH also has the capacity to perform field cerebral-spinal fluid taps for gram-negative stain testing.

The Ministry of Health is concerned that given a displacement of people in either a refoulement or refugee inflow there would be a greater risk of Typhoid, Typhus and Cholera.

3. Floods

Because the rain patterns are often torrential, flash floods result in localized areas. This is more frequent in seasonal river valleys and in catchment areas in the Central Highlands that receive run off during rains.

4. Wind

During the rainy season, March - June, thunderstorms cause localized damage, usually in the form of floods or intermittent lightning damage. In 1993, what was characterized as a 'freak' cyclone caused heavy damage to the Red Sea port of Massawa. Generally, Eritrea is not an area which is prone to cyclone damage.

5. Earthquakes

There are earthquake fault lines which run from the Danakil depression in the south in a northwestern direction along the eastern escarpment to Massawa. In addition, there is a fault line running northwest of Keren for approximately 150 km. With the exception of Massawa, this is a sparsely inhabited area with little potential of structural damage.

B. Man-Made Disasters

The potential of a large displacement of people due to political instability in Sudan is a distressing possibility.

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1. Forced Migration

Eritrean Refugees in Sudan

Since 1991, over 140,000 Eritrean refugees have returned spontaneously to Eritrea. Currently, There are 110,000 Eritrean refugees in UNHCR-sponsored camps located in an arc from Kassala to El Gedaref to Wad Medani in eastern Sudan. In addition to these refugees, there are 12,000 Eritrean refugees in Sudan directly across the border from Karora in the northern Eritrea. This latter group of 12,000 are in the process of returning spontaneously as the camps have stopped food distributions since June 1996. At the time of this writing, 2-3,000 have already returned to Mehmimet³.

Operation Hebrat Selam

In July through September of 1996, the 55th U.S. Army Medical Group (Airborne) assisted ERRC in a combined medical humanitarian assistance program to resettle Eritrean returnees in the North Red Sea Zone and Gash Barka area. This program provided water distribution and storage capability to 19 resettlement / village sites (see annex A). The total beneficiaries (including villagers in returnee impacted areas) were 73, 526 persons. In addition, the combined program developed and equipped 14 health stations and four medical centers within the two zones and demined six additional sites scheduled to receive humanitarian assistance.

The *Hebrat Selam* program also identified and recommended development and maintenance of potable water systems in five additional sites¹¹, and medical equipment for selected medical facilities.

PROFERI

The Programme for the Reintegration and Rehabilitation of Resettlement Areas in Eritrea (PROFERI), is a program designed to repatriate, register, and reintegrate returning Eritrean refugees. The PROFERI program includes temporary shelter, health services, and adequate water until the returnees can harvest their first crop. The majority of the refugees currently in Sudan would settle in the southwestern lowlands. Returnees are at great risk because they arrive in Eritrea with minimal material possessions and without the community claims and coping mechanisms that established farmers and herders have.

Pilot Phase

In the pilot phase, 25,000 Eritrean refugees returned from Sudan. The returnees in the pilot phase were allocated two hectares of land and basic provisions and livestock. The returnees returned to nine sites prepared by CERA (now part of ERRC), the line ministries of the GSE, WFP, UNHCR, NGOs and bilateral agencies. Not all of the returnees went back to where they were expected and those who returned spontaneously were not entitled to assistance. Some areas that were noted as weaknesses in the pilot phase were;

Personal communication, UNHCR / Eritrea

Disaster Preparedness in Eritrea

- inadequacy of sanitation facilities,
- low capacity of MOH to provide basic health services,
- pumps at boreholes provide about 20 liter/person/day cost about US\$50-60 per capita and incur higher recurrent costs than hand-pumps and
- guidelines for well-sinking and hand pumps were identified as a need.

Recommendations for the health component were:

- Nutritional surveillance should be set -up,
- Health care capacity be strengthened,
- Malaria control be implemented

Phase One

The "phase one" of the program, scheduled to begin in October 1995, is currently on hold. In 1994, UNHCR negotiated two separate bilateral agreements, one between Sudan and one between Eritrea. Unexpectedly, Sudan demanded tripartite agreements before the initiation of the phase one of repatriation. Eritrea declined, and the initial phase has not yet been implemented. Currently, UNHCR is in negotiation to seek a solution. Nevertheless, the majority of the sites located in the southwestern lowlands have been identified and boreholes have been prepared, and housing has been constructed. OFDA has funded both CRS and WVI / Eritrea through WVRD to assist in water and sanitation, medical, and housing projects as part of the PROFERI program.

Refoulement

Refoulement or forced return of all the Eritrean refugees at one time is unlikely. Because of the distance between the camps, the poor roads and weak logistic system in Sudan, *refoulement* would be an unlikely possibility. In addition, it would be opposed by UNHCR. Nevertheless, the Sudanese government is not predictable. In the event of a *refoulement*, UNHCR would have to create transit camps on the Eritrean side of the border.

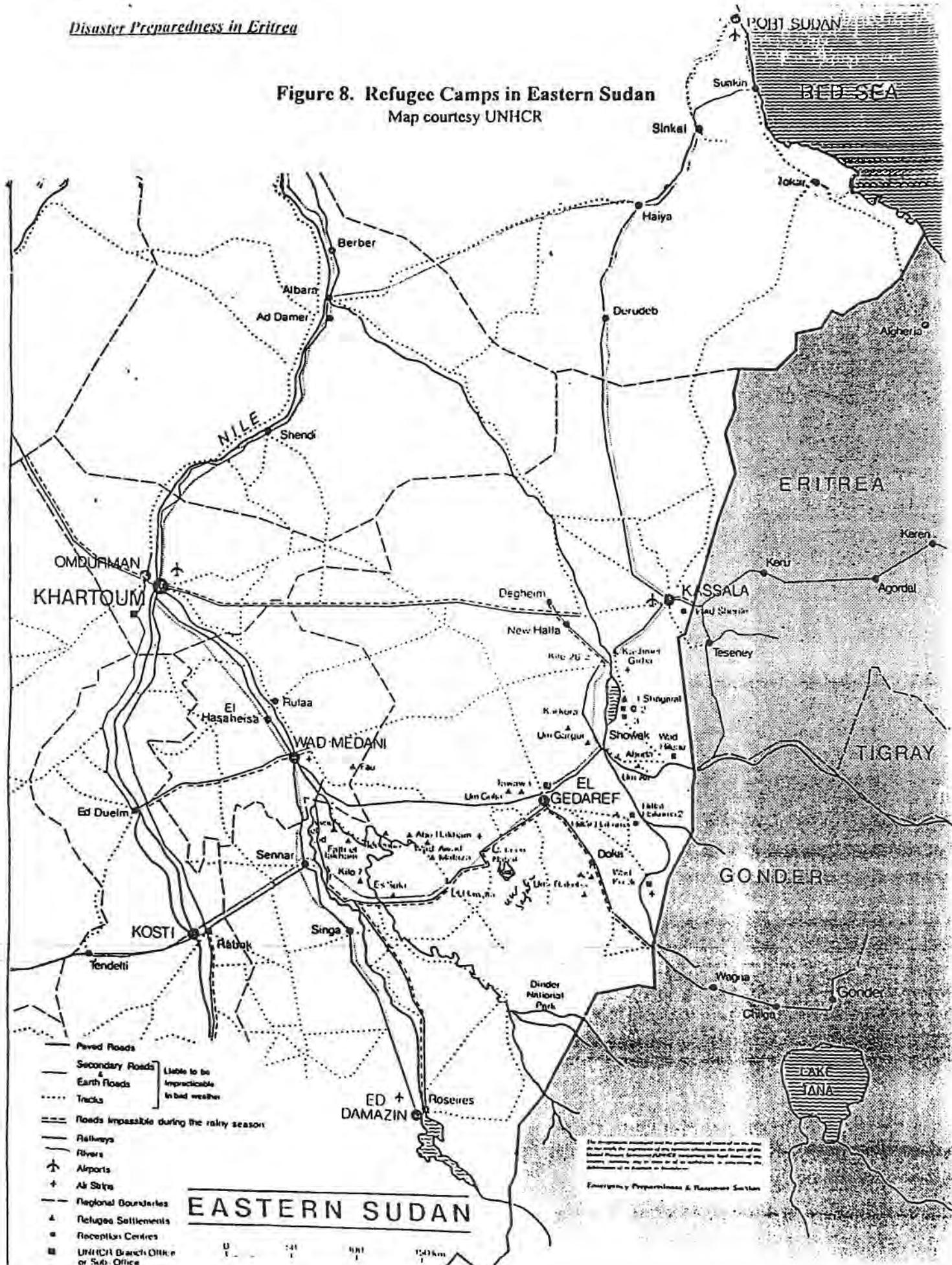
Sudanese refugees

Currently in the *Has-has* area outside of Asmara there are approximately 150 Sudanese refugees who have entered Eritrea and traveled to Asmara to seek out UNHCR. In addition, approximately 30-40,000 Beja people from the Red Sea Hills area of eastern Sudan are in the northwestern area of Eritrea. The Beja are nomadic and not considered refugees. Given internal civil disturbance, Sudanese could and would seek refuge in Eritrea as well as Ethiopia, where the UNHCR-sponsored camps in Gonder are a "pull factor". Currently,

Disaster Preparedness in Eritrea

UNHCR has requested a consultant from the Emergency Unit in Geneva to visit Eritrea in near future to create a preparedness plan with ERRC and the Ministry of Internal Affairs. The Ministry of Internal Affairs (MIA) is responsible for coordination of assistance to external refugees into Eritrea. Because MIA does not have implementation capacity, ERRC would assist in planning and implementation.

Figure 8. Refugee Camps in Eastern Sudan
Map courtesy UNHCR



- Paved Roads
- Secondary Roads & Earth Roads
- Tracks
- Roads impassible during the rainy season
- Railways
- Rivers
- ✈ Airports
- ✈ Air Strips
- Regional Boundaries
- ▲ Refugee Settlements
- Reception Centres
- UNHCR Branch Office or Sub-Office

EASTERN SUDAN

0 50 100 150 km

The distribution of the population of Sudan is shown in the map. The population of the country is estimated to be 20 million. The map shows the distribution of the population of the country. The population of the country is estimated to be 20 million. The map shows the distribution of the population of the country.

Emergency Preparedness & Response Section

2. Technical and Industrial Disasters

Oil Spill

Eritrea is currently rebuilding its industrial capacity in an effort to diversify its economy and increase purchasing power. The Red Sea is one of the busiest sea ways transporting oil from the Gulf, with more than 20,000 ships passing in both directions each year. The greatest risk of technical disaster would be an oil spill in the Red Sea that effects either ports of Massawa or Asab. In addition to its port, Massawa is rebuilding its commercial potential as a tourist area. The extensive coral reefs and more than 350 islands allow excellent diving. The Ministry of Marine Resources is rebuilding the fisheries industry which would be adversely affected by an oil spill.

The port of Massawa has no contingency plan or equipment to address an oil spill¹². The recommendation of the World Bank Environmental Assessment was:

“The Ministry of Energy, Mines and Water Resources should have responsibility for developing an oil spill contingency plan . However, the Port Authority and the oil companies operating in Massawa will have to develop separate oil spill contingency plans to be incorporated in the national planning.”

If there were an oil spill, the facilities in Jeddah, Saudi Arabia would be called upon to help. Eritrea has not ratified the Oil Pollution Preparedness, Response and Cooperation (OPRC) Convention, so in principle can call on unconditional assistance from the outside. The Port Authority has identified equipment for an oil spill but does not have sufficient funds for procurement.

III. Early Warning systems

Early Warning Food Information System (EWFIS)

The Early Warning and Food Information System (EWFIS) is a program within the Ministry of Agriculture (MOA) with responsibility to both compile early warning information concerning food security and to coordinate government and international intervention in the event of a crop failure emergency. The EWFIS was recently mandated by the government and is currently assisted by the Food and Agricultural Organization (FAO) with Italian Government donations.

Information from this EWFIS program will be integrated into the IGAD Regional Early Warning and Food Information System in Djibouti which publishes the IGAD *Food Situation Report* . Compiled information, in turn, will benefit the Global Information and Early Warning System (GIEWS) located at FAO in Rome, Italy.

Disaster Preparedness in Eritrea

Regional IGAD Program

The EWFIS will form part of a regional program to strengthen food information activities in the seven Intergovernmental Authority for Development (IGAD) countries⁴. The regional program, based at the IGAD Secretariat in Djibouti, has been developing methodologies for early warning in the sub-region. The goals are to produce a regular and quick national assessment in map form (GIS) classifying areas within each member country according to food security risk. The regional EWFIS program gathers meteorological, remote sensing, market price, health and nutrition data.

Eritrean EWFIS

The EWFIS has a unit in the MOA composed of a Senior Economist / Head of Unit from the Ministry of Agriculture, an Agrometeorologist from the Meteorological Department, Civil Aviation Authority, Statistician from the Eritrean Grain Board (EGB) and a Technical Advisor in planning supplied by FAO. In addition there is a technical committee of staff from the Eritrean Grain Board (EGB), Ministry of Agriculture (MOA), Civil Aviation Authority Meteorology Department, Eritrean Relief and Refugee Commission (ERRC), Ministry of Industry and Trade (MIT), Ministry of Health (MOH), Water Resources Department (WRD) of the MOA and Ministry of Local Government (MLG). The equipment is comprised of three computers, equipment for nine agrometeorological stations and radio communications equipment.

Current Capacity

The EWFIS office currently does not give early warning analysis, but reports on particular weather, and agricultural indicators in a monthly bulletin. The EWFIS does have plan of action that will allow it to give early warning and analysis of food security indicators.

The most serious needs for food security information are the reliable quantification of the national cereal import requirements and the early analysis of household information for identification of localized food crisis areas. There is a lack of clarity in the identification and criteria of vulnerable groups, how food aid is to be distributed and the modalities of a food relief operation. The decision process that would alert a food crisis, the steps leading to changing a cash for work program into a relief food distribution program, when and for how long a food aid distribution would take place is still unclear.

Information is needed on cross border food importation from Ethiopia and Sudan and the market survey process is currently only able to report from seven of the 14 reference markets. Currently, information on all grain shipments received from Ethiopia are recorded at border crossings by Eritrean Customs officials, but those forms have not been collated to produce an aggregate quantity figure of cereal entering Eritrea. The Canadian Food Grains Bank will work with the EGB to collate these figures. Currently the food entering via Sudan is

The seven IGAD countries are Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan, and Uganda

Disaster Preparedness in Eritrea

negligible⁵

The EWFIS plans to use the indicators shown in Figure 9. Currently, EWFIS receives market information on cereals, livestock, and pulses from seven of 14 proposed reference markets. This information is gathered by the staff of the Eritrean Grain Board. Staff collect prices each week for the monthly report. The five markets outside of Asmara and Massawa have communication problems in the more remote markets; indicators are often delayed or distorted because of poor communication equipment or unqualified staff reporting. The EWFIS also receives rainfall and vegetation assessments in the form of remote sensing "greenness" or Normalized Difference Vegetation Index (NDVI) indicators from the Regional Centre for Services in Surveying, Mapping and Remote Sensing (RCSSMRS) in Nairobi. The other indicators used currently are initial crop assessments performed by the MOA and agricultural inputs. The EWFIS relates and reports assessment information to the IGAD Regional Early Warning Information System.

The EWFIS unit and technical committee is governed by a steering committee comprised of more senior government officials, who meet once or twice a year or as needed to decide on policy issues. This committee is made up of senior government officials from the ministries on the steering committee and the Office of the President.

Crop Assessment

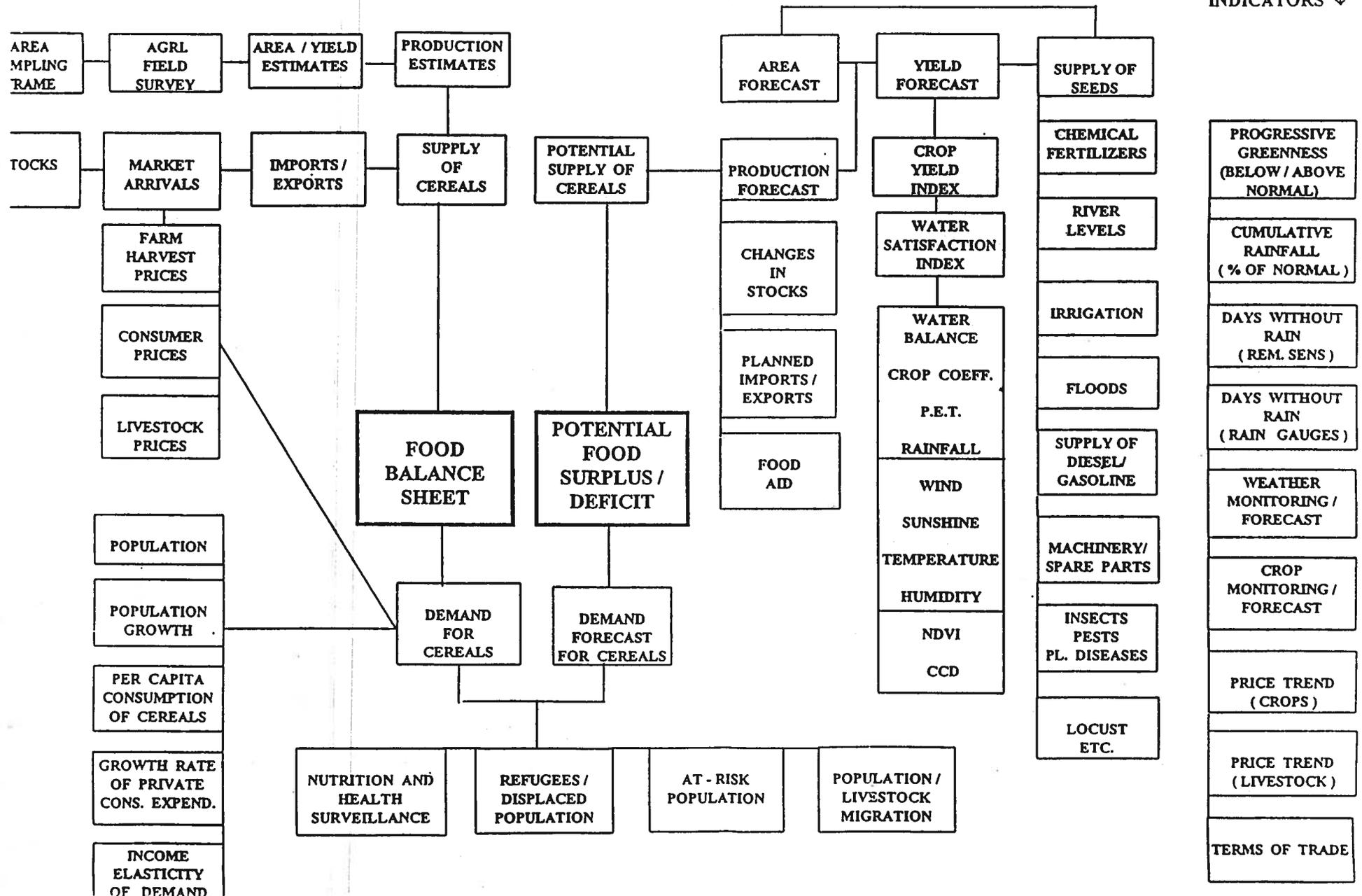
There are two separate crop assessments that take place in Eritrea each year. The Ministry of Agriculture along with ERRC and EGB perform a crop assessment and FAO performs a crop assessment as part of its food needs assessment mission. In their assessment the MOA conducts a pre-harvest survey of farmers in July of each year to estimate the area planted. A harvest survey is conducted in late September or early October. In this survey, the MOA relies on the farmer interviews and estimates.

The FAO and WFP conduct a food needs assessment in November. As part of that survey, a crop survey is performed in November. The FAO representative recommended that this survey should have a greater scientific basis and be conducted not just once in November but in a series of smaller surveys throughout the growing season.

⁵ Personal Communication, CFGB

**MONITORING CHART
EARLY WARNING AND FOOD INFORMATION SYSTEM
(INDICATORS AND VARIABLES)**

OTHER
VARIABLES /
INDICATORS ↓



IV. Response Capacity

A. Governmental Organizations

Institutional constraints are due to the shortage of material and adequately trained and experienced personnel. UNDP sponsored a Disaster Management Training programme (DMTP) in February 1995 in which the GSE ministries participated. This program gave an overview to disasters, disaster management and the transition from relief to development. The program did not have a strong follow-up component; training is still an area that needs support⁶

Eritrean Relief and Refugee Commission (ERRC)

The Eritrean Relief and Refugee Commission (formerly ERRA and CERA) is the government agency responsible for relief, rehabilitation and refugee activities that concern Eritrean refugees. In a recent statements, ERRC indicated it will shed relief functions to specialize in rehabilitation and repatriation. The ERRC's activities include policy formulation on food aid including food monetization, supervision of NGO activities, and coordination of the rehabilitation and the PROFERI program.

In the event of an inflow of Sudanese refugees, the Ministry of Internal Affairs (MIA) would have responsibility within the GSE for coordination with UNHCR. It is beyond the capacity of the MIA to implement any programs concerning a refugee influx. Most likely, ERRC would be request to assist by GSE and UNHCR.

In a food crisis, ERRC is responsible for identifying the vulnerable groups and locations with the assistance of the EWFIS. Recently, mid-October, 1996, ERRC began a large scale vulnerability census in which teams will travel to each village and interview with new criteria on vulnerability. The new criteria is more narrow and is based upon the premise that persons entitled to a vulnerability status will be those who are "not able to work."

In vulnerable areas, ERRC would give cash to the vulnerable beneficiaries through the local government *baito* structure. In the event of a frank emergency, food aid would be delivered without a cash component. The EGB would make grain available and would find commercial transport. The current cost of private transport from Asmara to Nakfa is between 50 -75 Birr / 100 kg (US\$6.9 - 10.4). Currently ERRC is supplying transport, but planning to discontinue the practice. It is difficult to hire private contractors who are willing to travel from Asmara to Nakfa; the road is very rough and increases the wear on trucks and tires. ERRC has 143 trucks (the majority are 20 ton vehicles) Their current delivery capacity is 1,200 MT/day. ERRC also has three water bladders (2,000 - 3,000 liters capacity) from

⁶Myers, Mary. Personal communication. Mary Myers was a facilitator at the DMTP workshop.

Disaster Preparedness in Eritrea

UNHCR which can be loaded on trucks.

Currently, ERRC is in discussion with UNHCR to develop an emergency plan for either a *refoulement* of Eritrean refugees or an influx of Sudanese refugees. UNHCR is sending a consultant from the Emergency Response Department to work with ERRC and UNHCR on this plan. UNHCR expects the consultant to arrive within the next few months.

Baito system

In the past, the local village councils, *baitos*, played an important role in identifying vulnerable groups. The *baito* was particularly effective in managing local food supplies. It is our understanding from the government that the *baito* system would be superseded with a village level government system of an appointed Executive Director and Village Administrator. These posts would be supported by village committees at sectoral levels. This system change does not yet appear to have taken place, it is not clear how this new system will work at the village level. The consensus among the international community is that the *baito* system will continue to play an important role in village life.

B. Eritrean Grain Board (EGB)

The Eritrean Grain Board was set up by the GSE in 1993 with the role to stabilize market pricing and to maintain an emergency grain stock. In late 1996, with assistance of Canadian Food Grain Bank through CIDA funding, it will take on the additional role to help collect and analyze food security information at the household level. This information will be transmitted to the EWFIS unit at the MOA. With the monetization of all food aid, the EGB will have all responsibility for food balance sheet accounting food aid storage and food delivery in the country. Its role in price stabilization in a chronic food deficit country was questioned in the WFP report of 1995¹³.

Storage Capacity

Food aid is delivered not in bulk, but in sacks. There has been some debate within the EGB on this, but the consensus is to continue, as sacks are the most appropriate form for transport and storage.

Currently the EGB has 7,000 MT storage capacity in rented warehouses. Recently with Norwegian assistance, 8 Rubhall 2,500 MT storage facilities have been erected 3 km outside of Asmara with the total storage capacity of 20,000 MT. These are permanent structures not to be confused with the temporary relief tent warehouses made by the same company. The Rubhall structures are under the supervision of ERRC, but ERRC plans to turn the responsibility over to EGB along with the warehouse staff. In addition, there is a 5,000 MT metal warehouse facility in Tesseney. Table 4, prepared by the Canadian Food Grains Bank in November 1995, shows the government warehouse capacity. The government also has temporary (relief models) Rubhalls throughout the country as shown in Table 4. These Rubhalls are three years old and beginning to deteriorate from UV exposure.

Disaster Preparedness in Eritrea

Future Storage

EGB will shortly be signing an agreement with CIDA and the Italian government for joint funding to construct five concrete warehouses each with a 5,000 MT capacity for a total of 25,000 MT storage capacity in Dekemhare, (about 40 km. south of Asmara). Dekemhare is a good location as there is a direct road to Massawa and as it is in the highlands it is an ideal grain storage place for cool temperatures and low humidity.

In addition, British Overseas Development Assistance (ODA) donated a series of prefabricated metal warehouse structures (not yet erected) for a total capacity of 25,000 MT in the port of Massawa. The EGB plans to set up 10,000 MT facilities in Massawa to be used as a transit storage, 10,000 MT facilities to add to the Rubhall storage outside of Asmara and 5,000 MT facilities in Keren. The question of appropriateness of metal structures in the lowlands was addressed by the EGB by minimizing the time in storage in Massawa and minimizing the quantity in Keren, a good logistic site. The heat effect of prefabricated metal structures is diminished in the highlands.

Reserve Stocks

Responsible for emergency reserve stocks, the EGB with assistance from CFGB is outlining a food reserve analysis program based on food balance sheet information. Currently, there is no effective reserve stock. The planned reserve stock will be to ensure at least four months of total food needs. For efficient planning, this amount should be variable as a function of the food balance sheets. For the short term, the reserve stock calculation will be based on the yearly food needs. This amount, 80,000 - 100,000 MT, in beyond the current EGB capacity, so they have targeted 50,000 MT⁷ as an interim reserve amount. Policies on the reserve stock still need to be worked out between the EGB and CIDA who will be investing in the project. Historically, reserve stock without strict release mechanisms have failed. The release mechanism of stock into the market or an aid delivery program will have to be very strict and based upon a commitment for replenishment either through donor or commercial sources.

⁷ Information from CFGB

Table 4.
Courtesy of the Canadian Food Grains Bank

**Government Warehouse Capacity
Available for Food Storage
Excluding Port/Transit Warehousing
(Capacity in Metric Tonnes)**

Region/ Province	Centre	Permanent Good Quality Not at Risk	Temporary Rubhalls	Permanent Poor Quality/ Or At Risk
Central				
Hamassien	Asmara (Gejeret)		10,000	
	Asmara (Crocerossa)			6,000
	Asmara (Ferrovía)			10,000
	Asmara (Medeber)			4,500
	Asmara (Norwegian)*	20,000		
	Asmara (ODA)*	10,000		
	Sub-Total	30,000	10,000	20,500
Southern				
Akele-Guzai	Decamare		10,000	
	Decamare (Italian)*	25,000		
	Adekeyh		1,000	1,000
	Senafe		1,000	1,000
Seraye	Mendefera	500	2,000	
	Sub-Total	25,500	14,000	2,000
North & West				
Senhit	Karen		2,500	2,500
Barka	Akordat	500		
Sahel	Afabet		500	500
	Nacfa		1,000	
Gash-Setit	Tessenei	6,000	500	
	Barentu	500		
	Sub-Total	7,000	4,500	3,000
TOTAL		62,500	28,500	25,500

* Being Built

Disaster Preparedness in Eritrea

Constraints

The EGB saw its greatest current constraints as the lack of storage and institutional capacity to field qualified staff to maintain warehouse stores. This included:

- Absence of guaranteed supplies for an emergency stock.
- Inadequate grain handling and laboratory equipment

In September 1996, John van Loon, a food storage consultant from CIDA assessed the warehousing and food storage, speaking of ERRC staff at the warehouse facilities, he felt that they had excellent skills and any further training should be to transfer knowledge skills from current workers to newly recruited ones.

In addition, to be effective⁸, there needs to be;

- an assessment as to the level of emergency stocks to be maintained. The amount of emergency stocks can be determined each year based on improved EWFIS food balance information, time for a food appeal to be realized, and timing of food aid deliveries;
- A strategy for the stock build-up and management;
- clarification of the distinction between annual carryover stocks and the emergency reserve or 'buffer' stocks;
- an analysis in the role of the private sector in storing and maintaining these emergency stocks, under contract from the government;
- a strengthening of the food gathering information system which will include guidelines for non-standard selling units, wholesale and retail price differences, market intelligence and analysis.

Ministry of Health

In the event of an epidemic or a large displacement of people in Eritrea, the MOH indicated that it would mobilize personnel from hospitals, health centers and health stations in non-affected areas to the affected areas. If the disaster were greater than the MOH capacity, the GSE would mobilize military medical personnel to assist.

In the PROFERI Pilot Project evaluation,¹⁴ evaluators recommended that an increase in the MOH staffing and training. The pilot evaluation recognized that the implementation of the

⁸ These recommendations are from the Riely report.

Disaster Preparedness in Eritrea

health sector component was beyond the financial and material capacity of the MOH. The evaluators recommended involvement and assistance of NGOs and a greater collaboration with other line Ministries. From this recommendation, it is clear that the MOH would not have the material or staff capacity to adequately deal with a large scale emergency.

Table 5. MOH Staff Distribution in Eritrea
Courtesy of the MOH

THE STATE OF ERITREA HEALTH PERSONNEL - MOH/1996/

CATEGORY	REFERRAL HOSPITALS CENTRAL LABORATOR E MOH H.Q.	REGIONS						TOTAL
		CENTRAL	ANSEBA	SOUTHERN	BARKA- GASH	NORTHERN RED SEA	SOUTHERN RED SEA	
PHYSICIANS	47	2	10	15	14	13	6	107
NURSES	227	80	40	81	65	55	31	579
HEALTH ASSISTANTS	229	196	107	236	113	175	78	1134
PHARMACISTS	11	-	-	1	1	1	1	15
TECHNICIANS	62	23	11	28	17	17	5	163
SANITARIANS	4	6	1	2	2	4	3	22
PHYSIOTHERAPY ASSISTANTS	3	-	-	-	-	-	-	3
MASTERS PUBLIC HEALTH	2	1	1	1	1	1	-	7
OPHTHALMIC CLINICIANS	2	-	1	1	1	1	-	6
DENTAL CLINICIANS	6	-	2	3	-	-	-	11
ASSISTANT MIDWIVES	19	8	2	5	-	1	-	35
ASSISTANT DOCTORS	8	-	-	3	-	-	-	11
OTHERS	7	4	3	7	7	7	2	37

- THESE INCLUDE ALL CATEGORIES OF TECHNICIANS, e.g. LABORATORY, X-RAY etc.

-- THIS IS A CATEGORY OF CLINICIANS WHO WERE ORIGINALLY NURSES BUT WHO HAD RECEIVED TRAINING IN SURGERY AND PERFORMED EMERGENCY SURGERY DURING THE WAR

N.B. THIS TABLE DOES NOT INCLUDE HEALTH MANPOWER IN THE PRIVATE SECTOR AND THE MILITARY.

Disaster Preparedness in Eritrea

C. International Organizations (IOs)

Food and Agricultural Organizations (FAO)

The FAO is supporting the EWFIS project with an international Technical Advisor at the EWFIS Unit, in addition to the annual crop assessment, FAO is actively involved in the analysis of market and agricultural information from the field.

United Nations High Commissioner for Refugees (UNHCR)

UNHCR has an office in Asamara with a Representative. UNHCR maintains a sub-office in Tesseney with one expatriate Junior Professional Officer (JPO) and three Eritrean Program Officers, as well as support staff. In addition, UNHCR has field offices in Asab and Mehimet. UNHCR has radio communication with all its offices, and vehicles. UNHCR is operational in support of the GSE line ministries.

United Nations International Childrens Emergency Fund (UNICEF)

UNICEF is assisting the GSE in the areas of primary health care and water / sanitation.

United Nations Development Programme (UNDP)

The UNDP supported the Disaster Management Training Programme in February 1995. In the event of a disaster, the UNDP Residential Representative becomes the coordinator for all UN agencies in country. The UNDP indicated that they have US\$ 200,000 earmarked funds for disaster management from their special resources fund.

World Food Programme (WFP)

although WFP / Eritrea does not have any expatriate staff, it is being run by a local officer-in-charge supervised by the UNDP Representative. Currently, the office is monitoring on-going projects;

- Feeding of vulnerable groups with MOH,
- Construction of 50,000 MT capacity warehousing
- Provision of food for returnees under PROFERI agreement

D. Non - Government Organizations (NGOs)

Africare

Africare is working in the Southern Red Sea Zone in a primary health care and agricultural development program. Africare indicated its institutional capacity to meet a relief need, but it has the implentational constraints the all the NGOs share.

Disaster Preparedness in Eritrea

Canadian Food Grains Bank

The Canadian Food Grains Bank (CFGB) is a NGO that is contracted by the bilateral, Canadian International Development Agency (CIDA), to assist;

- EGB by strengthening the capacity of the EGB to monitor *and* analyze food markets and to assist in the EGB function within the EWFIS,
- EGB in the conceptualization of their price stabilization mandate and the benefit cost analysis of stabilization, and
- ERRC collect and analyze food security information at the household level and determine the food security situation at the household level for the EWFIS project.

World Vision Eritrea

World Vision is working with the MOA, MOH, Local Government, ERRC, and various local churches in Debub area in agricultural development and in primary health care projects and in Southern Anseba; Gash Barka area assisting in housing and water drilling for refugee resettlement sites.

Oxfam - UK

Oxfam funding assists in food security, democracy and in emergency preparedness. Currently, Oxfam is willing to fund GSE initiatives in emergency planning. Oxfam has been involved in the demobilization and reintegration program and the PROFERI project, but has no official program as of now. Oxfam is assisting in support funding in the constitutional commission and the land commission.

International Federation of Red Cross and Red Crescent (IFRC)

The IFRC is represented by one development delegate. Although the Eritrean Red Cross society is not recognized by the IFRC, it is supported by funding through the Nordic Red Cross societies. The role of the IFRC is to develop the local society through management training and disaster preparedness workshops.

Eritrean Red Cross Society

The Eritrean Red Cross Society (ERC) is not officially recognized by the GSE or the International Red Cross Movement. The ERC does enjoy a *de facto* relationship with the GSE and has been asked for assistance in local disasters in the PROFERI program. It is assisted by the IFRC through Nordic Societies with program funds for development of the local society through management and disaster preparedness training. The ERC owns the UN compound in Asmara and funds its operational expenses through office space rental to the UN agencies. The ERC is part of a study group within the IFRC examining preparedness.

Disaster Preparedness in Eritrea

The ERC has 100 employees in five branches. In addition to Asmara, the ERC branch offices are in Massawa, Akurdet, Keren, Dekemhare and Asab. All five offices are connected by telephone communications. In addition to the 100 employees, mostly ambulance drivers, there are 250 active Red Cross Youth volunteers and 6,000 persons trained in first aid.

The ERC maintains a 24 hour ambulance service in Asmara (two in Asmara) and the five branch offices (one each). In addition to ambulance service, the ERC provides water to hospitals without water and to various neighborhoods in Asmara without water for a cost of one *Birr* per 200 L barrel. The ERC maintains seven water tanker trucks (12 cubic meter capacity). In addition, the ERC maintains a vehicle workshop beside its office in the UN compound.

The ERC currently has the capacity and material to provide mass care for 500 households. Disaster preparedness activities include tree planting (10,000 planted as short-impact project) and income generating training projects for women.

In summary, the ERC is a dynamic local NGO with strong international support. As the political issues of recognition become resolved, the ERC becomes a strong candidate for a implementing agency with the IFRC in the event of a Sudanese refugee influx.

Disaster Preparedness in Eritrea

Persons Consulted (in no particular order)

Mr. Glenn Anders, USAID

Mr. Kenneth Randolph, USAID

Ms. Judith Robb-McCord, USAID

Mr. Michael McCord, USAID

Mr. Joe Siegle, Program Director, World Vision Eritrea

Mr. Ibrahim Said, ERRC

Mr. Winston Phillips, Country Representative, FAO

Mr. Mengastaab, Head of Planning, Ministry of Local Government

Lt. Com. Greg Stroh, Military Liaison, U.S. Embassy

Mr. Arnulv Torbjornsen, Chief of Mission, UNHCR

Mr. Yoseph Admekom, National Programme Officer, UNDP

Dr. Isiye Ndombi, Programme Planning Officer, UNICEF

Dr. Albert L. Agard Jr., Country Representative, Africare Eritrea

Ms. Karin de Jonge, Oxfam - UK

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Disaster Preparedness in Eritrea

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Mr. Mengistab, Head of Planning, Ministry of Local Government

Ms. Alganesh, Secretary General, Eritrean Red Cross Society

Mr. Jim Cornelius, Project Advisor, Canadian Food Grains Bank

References

- 1 . *National Environment Management Plan for Eritrea*, GSE (1995)
2. FAO Report TCP/ERI/2353 Eritrea Agricultural Sector Review and project Identification Volume III (1994).
- 3 . Shields, N., *et. al.* Evaluation Report on the Pilot Phase of PROFERI (1995).
- 4 . National Environmental Management plan for Eritrea (1995)
- 5 . *Health Profile, 1995 / 1996*, Planning and Evaluation Bureau, Ministry of Health.
- 6 . Tecklehaimanot, A., Proposed Malaria Control Activities for Implementation during the Pilot Programme for Refugee Reintegration and Rehabilitation of Resettlement Areas - Eritrea (World Health Organization 1994).
- 7 . *Ibid.*
- 8 . Personal communication, OMNI (1996).
- 9 . National Environmental Management Plan for Eritrea (1995).
- 10 . Riely, Frank, Addressing Food Security in Eritrea, WFP, (1995) .
- 11 . DOA, Memorandum for USCINCCENT 4 October 1996, Operation Hebrat Selam Final Report and Recommendations For Future Operations
- 12 . *State of Eritrea Ports Rehabilitation Project Environmental Assessment Summary*, International Bank for Reconstruction and Development, Macrch 1996.
- 13 . Riely, Frank *ibid.*
- 14 . Shields, N., *et al.*, Evaluation Report on the Pilot Phase of PROFERI, April 1995.