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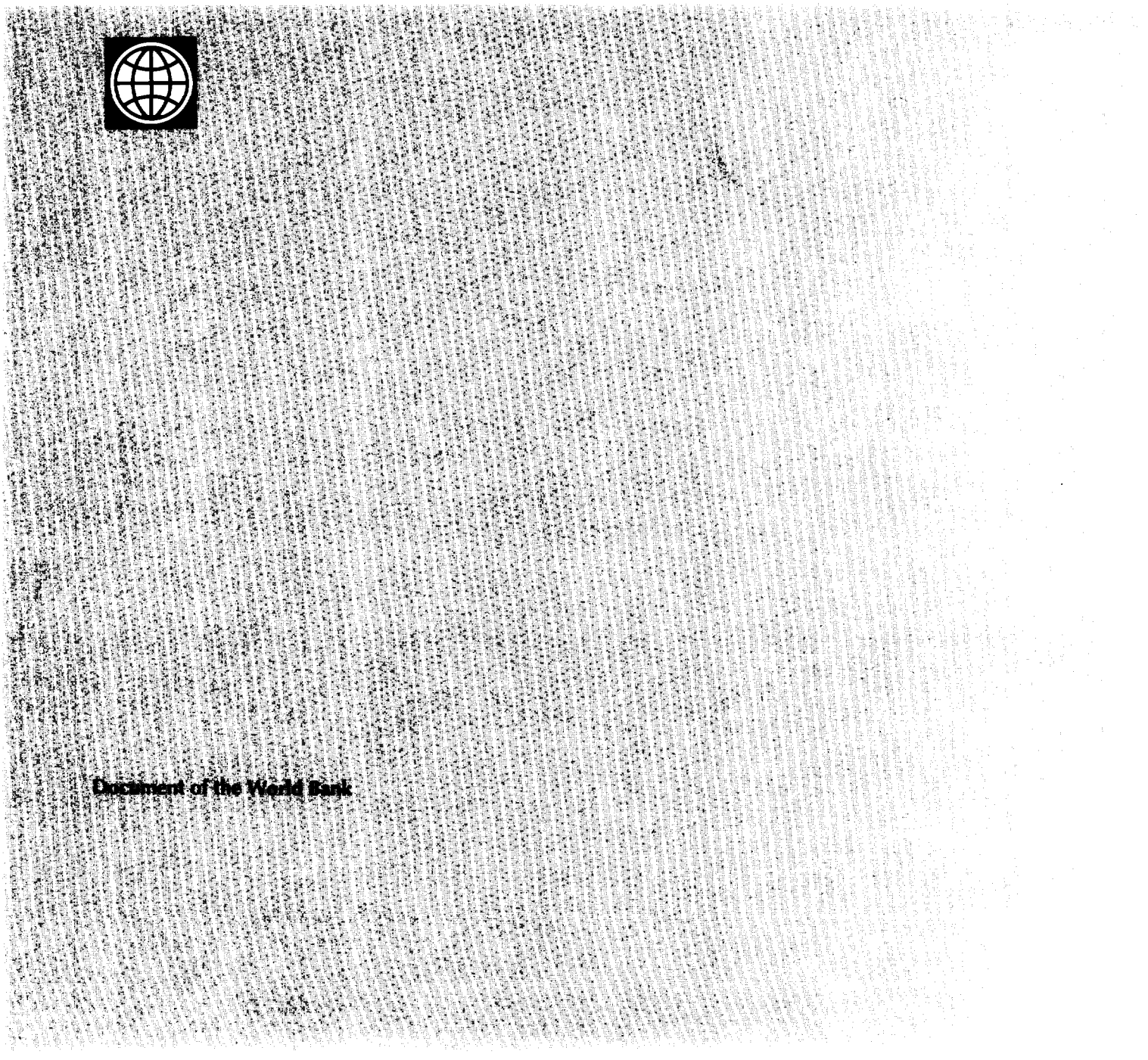
Report No. 15595-ER

Eritrea
Poverty Assessment

June 13, 1996

Population and Human Resources Division
Eastern Africa Department
Africa Region



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Currency Equivalents

Currency Unit	Ethiopian Birr
US$ 1.00	Birr 6.28
1 Ethiopian Birr	US$ 0.159
US$ 1.00	SDR 1.43885

Government Fiscal Year
January 1 - December 31

Weights and Measures
Metric System

Abbreviations and Acronyms

BOD	Burden of Disease
CBN	Cost of Basic Needs
ECDF	Eritrea Community Development Fund
ECRF	Eritrean Community Rehabilitation Fund
EFMP	Economic and Financial Management Program
EGB	Eritrean Grain Board
EPLF	Eritrean People's Liberation Front
ERRAC	Eritrean Refugees and Rehabilitation Association Commision
ERIWESP	Rural Water Supply & Environmental Sanitation Program
FAO	Food Agriculture Organization
IMT	Intermediate Means of Transportation
MCH	Maternal/Child Health
MOE	Ministry of Education
MOH	Ministry of Health
MOLG	Ministry of Local Government
NEMP-E	National Environmental Management Plan for Eritrea
NGO	Non-governmental Organization
NSO	National Statistical Office
NUEW	National Union of Eritrean Women
PHC	Primary Health Care
RAS	Rapid Appraisal Survey
RRPE	Recovery and Rehabilitation Program for Eritrea
RRT	Rural Road Transportation
SSA	Sub-Saharan Africa

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PREFACE

Eritrea gained independence in 1991. Since then the Government has demonstrated a strong dedication to the goal of development. It views development with equity and social justice as the primary vehicle for poverty reduction. This report on poverty in Eritrea is an initial assessment of the situation today. The numerical data on incidence of poverty as well as the qualitative information describing the nature of poverty was obtained from a Rapid Appraisal Survey conducted in 1993-94 in the villages and towns of Eritrea. The survey was coordinated by the National Statistics Office of the Government of Eritrea, with the assistance of a donor-financed consultant, and conducted by teams of senior students from the University of Asmara. The survey was financed by the Netherlands Trust Fund.

This report has been written by Gurushri Swamy (Task Manager, World Bank) with the help of Rolf Güsten (Consultant). It is based on the results of the Rapid Appraisal Survey as documented by Rudo Niemeijer (Consultant) and Lee Roberts (World Bank). The report also makes extensive use of other data; in particular, data on social sector indicators from the Ministries of Health and Education. The FAO's (Food and Agriculture Organization) report, Agricultural Sector Review and Project Identification, 1994, provided much of the data and information on agriculture and land use; this information was updated with more recent data from the Ministry of Agriculture and the Land and Housing Commission.

A draft of the report was discussed with the Government of Eritrea in March 1996. Discussions were held with H.E. HaileWoldensae, Minister of Finance, and with Messrs. Kidane Tsegai (Ministry of Finance), Simon Berhane (Director of Statistics), Teklemichael Gebregeorgis (ERRAC), Ogbe Beyene (ECDF), Woldemicael G. Mariam (Commissioner, Land and Housing Commission), Dr. Kifle Gebru and Zerabruk Tesfamariam (also of Land and Housing Commission), Haile Awalom and Rafael Tesfazion (Ministry of Agriculture), and Hagos Teklehaimanst (Eritrean Grain Board). The helpful comments received have been incorporated into this draft.

The report also benefited from discussions with and comments from the following persons in the Bank: Peter Dewees, David Dunlop, Laura Frigenti, Eduardo Velez, Jack van Holst Pellekaan and Shahid Yusuf. Vanessa Saldhanda and Yordi Seium provided production support.

EXECUTIVE SUMMARY: FINDINGS AND RECOMMENDATIONS

Eritrea is located in the northeastern part of Africa, with the Red Sea on its east coast, Sudan to the west and north, Ethiopia to the south and Djibouti at the extreme southeastern tip. The overall size of the country is 125,000 square kilometers (roughly the size of Greece). The population is estimated to be between 3 and 3.5 million, including nearly half a million refugees in Sudan. Eritrea was relatively well advanced economically compared to other Sub-Saharan African countries in the 1950s. Thirty years of war prior to liberation in 1991, and neglect and deprivation by the Derg regime devastated the country's economic and social infrastructure. Decades of lost opportunities for growth have made Eritrea one of the poorest countries in the world, with a per capita income of about $ 160-190.

About 50% of the population in Eritrea is estimated to be poor. In the year for which this calculation is made, 1993-94, there was a serious drought in the country and more than two-third of households received free food aid which reduced the need to buy food in the market. Without food aid, 69% of the population would have been unable to consume the minimum basket of food and other essential commodities. About sixty percent of the poor live in the rural areas of the highlands, the rest in the rural low lands (about 25%) and in the urban areas. Crop cultivation and animal husbandry account for 60% of rural incomes, although in the lowlands, livestock income is more important. The rest of the income is obtained from wage and self employment and trade. The non-poor have 3-4 times higher income from crops and livestock. The difference is partly explained by availability of water and partly by ownership of cattle which provide both animal traction on farms and income from livestock products. On average, a non-poor rural household owns 7 livestock units compared to 2 units by a poor household. The really significant difference between the poor and nonpoor, however, is in income from trade and self employment. On average, the non-poor rural household gets 8 times as much income from these activities as the poor household does. In this predominantly rural country therefore, opportunities for and ability to participate in trading and service activities appear to make a critical difference. In urban areas, the poor are likely to be concentrated in low-skill occupations that require little capital, mainly in the nonformal sector.

Eritrean communities have a higher than usual share of households headed by women -- about 45% -- as a result of the war which killed able-bodied men. The proportion of female headed households, that is poor, is not different from that of male headed households partly because women in Eritrea have had more secure access to land and other productive assets than is common elsewhere in developing countries. Communities and extended families have also provided support. The war of liberation involved many women actively, increasing their independence and participation in public and community affairs.

These are the results of a Rapid Appraisal Survey conducted in Eritrea in 1993-94 covering 92 communities and 664 households in all provinces except Denkalia. The survey collected numerical and qualitative data on household characteristics, incomes,

expenditures and living conditions. Because it was conducted soon after the war ended, the results must be considered preliminary, to be substantiated and refined by ongoing and planned statistical surveys (including a Population Census) by the Government of Eritrea.

Social Indicators

Income poverty as described above is only one aspect of poverty. Social indicators tell the other part of the story. Eritrea's social indicators are low: a life expectancy of about 46 years (compared to a sub-Saharan Africa average of 52 years), and infant mortality of 135 per thousand live births (average for sub-Saharan Africa equals 93). Further, there are significant regional variations in all social indicators. There is an urban bias. In Asmara and Hamasien, the net primary school enrollment rate is over 40%, but in most rural areas, it is between 15% and 25%. In some parts of the lowlands, it is less than 10%. Child mortality is about 100 per thousand births in Asmara but about 300 in Sahel and Denkalia.

Distance to and lack of facilities are the major determinants of these regional differences. Even in the few years since independence, access to facilities has improved after years of neglect (not a single school or health clinic was built during 1976-91). Gross primary school enrollment increased from 36% in 1991 to nearly 50% in 1995. The share of children being covered by growth monitoring and nutrition programs increased from 7% in 1993 to 24% in 1994, and the child immunization rate has increased from practically zero at independence to 25% of children under one year of age. It will take a few years of sustained effort for commonly monitored indicators, such as infant and child mortality and life expectancy, to reflect improved health status. But a beginning has been made.

Discrimination in schooling on the basis of gender is generally absent in the cities and the highlands; overall, the share of girls in primary school in total is 44%. In most parts of the lowlands, overall enrollment rates are too low to indicate whether there is a gender bias or not. However, the rate of repetition is much higher for girls and the continuation rate lower. Because of this, it takes 2 years longer for girls to graduate from primary school. Girls also perform less well on achievement tests: while 80% of the boys who appeared for the Grade 7 national examination in 1995 passed, only 56% of the girls did.

The unsettled conditions created by the war resulted in a large number of refugees, who lived mainly in refugee camps in Sudan. It is estimated that even after spontaneous return of about 70,000 refugees and the formal repatriation and rehabilitation of 25,000 people, there are still about 400,000 refugees left in Sudan. As much as 25%-40% of refugee households are female headed and all are quite poor.

Development Strategy and Poverty Reduction

With the return of peace in 1991 following three decades of war to gain independence, Eritrea has embarked upon the road to development and poverty reduction. Given the widespread nature of poverty in the country and the low economic base that it is starting from, a development strategy aimed at generating economic growth with equity and social justice is seen, rightly, as the primary vehicle for poverty reduction. In a short period of time, Eritrea has made significant progress in restructuring institutions, establishing key elements of a functioning government, eliminating a number of restrictive policies of the colonial period, and expanding investment in human resources. As a result, economic growth averaged 8% in the last two years after contracting by more than 1% p.a. during 1985-93. Although in some ways Eritrea is still operating in a post-conflict reconstruction phase, it is eager to move ahead to the next phase of development.

Because of the small size of the Eritrean economy, significant economic growth and transformation can only take place if Eritrea exploits all opportunities for export of goods and services and is open to foreign investment. In this effort, Eritrea can take advantage of its strategic location in the northeastern part of Africa with its long history of sea-trade through the two ports of Massawa and Assab, a past industrial tradition, and the skill, knowledge and wealth of its expatriate community. It should continue to implement and deepen its policies towards a liberal trade regime, promotion of foreign and domestic investment and maintenance of a pragmatic exchange rate policy, thus providing an enabling environment for export-oriented enterprises to develop in mining, manufacturing and services. It should rehabilitate critical port and road infrastructure.

Agricultural development has a role to play in Eritrea's development even though its natural resource endowments are modest and climatic conditions highly variable. Some of Eritrea's new exports (fruits, livestock products) could derive from agriculture. Moreover, the fact that 80% of the poor in Eritrea live in rural areas and depend on agriculture suggests that increasing agricultural production and productivity will have a widespread impact on poverty. A chronic dependence on food aid is risky. Even in a good agricultural year, about half of Eritrea's food consumption is from food aid. While food self-sufficiency at any cost is not the right objective for Eritrea, to the extent that agricultural production can be efficiently increased, it will make an important contribution to the income and food security of the poor.

The data base of Eritrean agriculture is at this time limited. It is estimated however that there are significantly large tracts of sparsely populated land available for rainfed development in the southwest lowlands. Private development of these lands through granting of leases is probably the best option for increasing agricultural production in the short to medium term. This is also the Government's strategy. It is necessary, however, to plan this expansion carefully since these lands are grazing grounds for animals owned by pastoralists and agro-pastoralists and the rivers provide water for their animals. Further, valuable tree cover has to be protected . In fact, the rate of expansion i.e. the renewal of old leases and the granting of new ones, has been modest.

And regulations are in place to prevent widespread felling of trees. But the location of concessions near rivers may prevent access to water by pastoralists. A comprehensive land capability and land use plan is also necessary and should be completed.

Water is not plentiful in Eritrea although a full assessment can only be made after the Water Resources Study, currently ongoing, is completed. Expansion of small irrigation microdams and wells (the Government has already embarked on this), testing of improved crop varieties, and selective introduction of fertilizer where rainfall patterns justify its application, are the other elements of an agricultural strategy. Since livestock generate considerable income, and serve to cushion the impact of a drought, the foremost objective of a livestock policy should be to protect the national herd from major epidemics. The Government has made a start by increasing the vaccination coverage of herds, and this progress should be maintained. Beyond this, developmental strategy has to be differentiated according to agro-ecological zones: provision of water points and market information, introduction of forage in farming systems, and, development of dairying around market towns are some options that deserve careful study and experimentation.

Social Sector Strategies

The average attendance at health facilities -- less than one visit per person per year-- is low compared to even the sub-Saharan African average of 1.5-2 visits per person per year. Public spending on health is less than two dollars per person, compared to nearly five dollars on average in sub-Saharan Africa. The main health problems faced by Eritreans are amenable to primary health care interventions -- the top five diseases in terms of life-years lost being Perinatal and Maternal diseases, Diarrhea, Respiratory Infections, TB and Malaria. In addition, the prevalence of HIV infection is higher than thought earlier, presently occurring mainly in the urban centers.

The strategy for improving the health status of Eritreans must, therefore, concentrate heavily on improving access, particularly in the rural areas and the lowlands, and on increasing public spending to provide quality care that people will demand. The Government has rightly adopted primary health care as the main objective and the number of facilities and coverage of programs have increased rapidly. It has also instituted a schedule of user charges (with exemptions for those in need of them), collections from which should complement the health ministry's resources. But analysis indicates that many important primary health programs, such as Malaria and HIV prevention, are inadequately funded. At the same time, public spending on hospitals is higher than justified by the rate of utilization of these facilities for inpatient care. Adequate funding of primary health programs should be assured, and any expansion of hospitals should be minimal, and based on cost-benefit analysis. It should be designed to sustain basic health services.

As in the case of basic health, the problem facing basic education is primarily a lack of access, particularly in the rural and lowland areas. Rehabilitation and building of new schools (which the Government has already started on), flexibility regarding the size,

location and capacity of schools, and provision of adequate recurrent expenditures for teachers, books and teaching materials are all important for ensuring a good quality basic education for all children. A second priority is the provision of secondary and technical education. Because of high private benefits, there is more scope for cost recovery at these higher levels of education, a principle that the Government has accepted.

The shortage of technical skills is evident in both the public and private sectors. The experience worldwide is that vocational training institutions in the public sector are generally ineffective in gauging labor market needs and responding to changes quickly. But Eritrea's special conditions after three decades of war during which little skill could be accumulated, and where the private sector is in a nascent stage, may require a somewhat different approach. The Government therefore plans to, in the first instance, invest in a few new vocational centers, and at the same time test other approaches that involve the private sector so that a more appropriate strategy can be developed in the medium term.

Some Special Issues

The Government's strategy for the distribution of food aid has recently undergone a change in the right direction. Recognizing the disincentive effects that free food aid was having on incentives to produce and to work, the Government has decided to monetize food aid and to use the proceeds to provide cash assistance to those truly in need and unable to work. Many implementational details of the monetization program are still evolving, but it is important to focus attention on a few critical parameters. First, the price at which the food is monetized and sold to consumers should cover the (notional) cost of imports as well as the costs of transportation and handling i.e. on average, it should be close to the import parity price. Otherwise, monetized food will have a similar disincentive effect to that of free food aid. Second, large scale trading activities (except in remote areas) by a parastatal should be avoided; it has been the experience of other countries in the region that such activities are financially costly and that costs are rarely fully recovered, resulting in large subsidies from the budget.

The reintegration of nearly half a million refugees will be a challenging task. Many have returned spontaneously but for the most part, are waiting to be repatriated. In a pilot phase, the Government rehabilitated 25,000 refugees on nine sites in the southwest lowlands. Building on the lessons learned and experience elsewhere in the world, the Government expects to repatriate and settle the rest of the refugees in the next few years. Moreover, it has accepted such principles as minimizing the costs of settlement, including the communities which receive the refugees in the provision of some benefits and providing alternative settlement options to the returning refugees, principles which have proved to be conducive to successful rehabilitation elsewhere in the world..

A Land Reform Act was enacted with the purpose of ensuring all Eritreans equal access to land. The new law makes the state the owner of all land and provides life-time (and inheritable) usufruct rights to all Eritreans over the age of 18. It replaces a variety of complex local systems of land tenure, some of which may have reduced incentives for

improvements to increase productivity. The implementation of the new law on a nationwide basis is yet to begin and at present, the allocation of land for housing in peri-urban areas is the main concern. Because traditional land holding and tenure systems in Eritrea have been relatively equitable, the preoccupation with urban issues may not adversely affect poverty. However, uncertainty regarding the pace of reform may continue to discourage on-farm investment, and the Government needs to be aware of this possibility.

1. ERITREA'S POOR: NATURE AND EXTENT OF POVERTY

1.1 Eritrea is located in the northeastern part of Africa, with the Red Sea on its east coast, Sudan to the west and north, Ethiopia to the south and Djibouti at the extreme southeastern tip. The overall size of the country is 125,000 square kms (roughly the size of Greece). The population is estimated to be between 3 and 3.5 million including nearly a half million refugees in Sudan. Eritrea was relatively well advanced economically compared to other Sub-Saharan African countries in the 1950's. Thirty years of war prior to liberation in 1991, and neglect and deprivation by the Derg regime devastated the economy and disrupted the country's economic and social infrastructure. Decades of lost opportunities for growth have made Eritrea one of the poorest countries in the world, with a per capita income of about $ 160-190. At the same time however, years of hardship have created a strong sense of national identity and self-reliance. A process of social transformation has started; and people of diverse backgrounds mobilized for rebuilding the economy, including women who fought in the war and Eritreans living abroad.

1.2 Eritrea is a rural country with 80% of its population living in rural areas. Crop cultivation, animal husbandry and related trade activities are the main income sources. Less than 5% of the total land area or about 440,000 hectares is presently cultivated and approximately one third is desert or semi-desert and is unsuited for farming or livestock rearing. About half of the presently cultivated area is found in the highlands where population density per acre of cultivated area is high and localized scarcity of arable land occurs. Meanwhile a substantial area of rainfed land in the southwest lowlands is sparsely populated and is used primarily for grazing but is also suitable for crop cultivation. This relatively fertile land has stayed underpopulated because migratory movements, which had started in the sixties, were slowed to a trickle during the war. Eritrea is a drought prone country. In normal years, rainfall varies from 400-600 mm in the highlands and southwestern lowlands to 200-300 mm in the coastal areas. During drought, rainfall may be only 200m mm in the highlands and less than 100 mm in the lowlands.

1.3 A Country Economic Memorandum was written in 1994. At that time only limited information was available on poverty. The purpose of this chapter is to update the information and provide a limited poverty profile based essentially on data gathered from a Rapid Appraisal Survey (RAS) that was conducted in 1993-94, and analyzed subsequently. The RAS covered 92 communities and 664 households in all provinces except Denkalia, and collected both numerical and qualitative data on household characteristics, incomes and expenditures. These data were used to construct estimates of the incidence of poverty i.e. the proportion of the population that is poor, as well as to describe the income sources and living conditions. (For the details of methodology and

calculations, see Annex 1). The RAS provides a first and preliminary estimate of the poverty situation which will need to be substantiated and refined by ongoing and planned statistical surveys of the Government of Eritrea. In particular, the Household Income and Expenditure Survey in Urban Areas currently being fielded (covering 6000 households in 12 cities), the Survey of Labor Force and Housing Conditions (Urban) also in the field, the Demographic and Health Survey for which fieldwork has been concluded, and the Population Census planned for the second half of 1997 will provide a more solid basis for quantitative analysis of the poverty profile and related issues.

Who are the poor ?

1.4 Before proceeding to quantitative data on poverty, it would be useful to picture a typical Eritrean rural setting to understand who the poor are (Box 1.1). A typical village in the highlands in the year of the survey contained not only the usual residents but demobilized soldiers and returning refugees. It also contained a large number of female headed households, usually widows of soldiers who died in the war of liberation. It had a primary school but enrollment was low :only 1.5 children per household were enrolled although the typical family size was six. Attendance was irregular, for both boys and girls. Although some health care had become available recently, it was minimal. Access to an improved road could take an hour of walking along a feeder road, and the water source was also an hour away. Crop cultivation was rainfed, and in the year of the survey, a drought had reduced production so much that the residents had to rely on food-aid and food-for work for 8 months. Land was quite equitably distributed, but the holding sizes were quite small : less than one hectare. Yet there was a strong tradition of self help and sharing: for example, a tradition of giving the communal harvest to those who were needy and ploughing the land of a widow with community labor.

Box 1.1 Profiles of Eritrean Villages

Adi Birkito and Adi Nebri are, like many rural settlements in the highlands, part of clusters of villages, 6-8 in this case. The clusters together contain a population of 7400 people. Adi Birkito itself has 360 households and Adi Nebri has 89. Another 40 households which were originally part of the village have moved to Decamhare or Asmara , but in a way characteristic of community life in Eritrea, these households are still regarded as belonging to the village. Most villagers are Orthodox Christian Tigrignya, but there are four Moslem households. Nearly 40% of the households are female headed, two thirds of them are widows of fighters killed during the liberation struggle. The villages also have 6 demobilized soldiers and some returned refugees from Sudan.

The villages have primary schools covering the first 4-5 grades run on community resources and charging school fees of 5-10 birr per month. Last year the Government took financial responsibility for one of the schools up to the third grade, households continue to pay for fourth grade classes. About 300-400 students are in each school and the proportion of girls varies , but tends to fall off from half to a third in the lower grades to 25% in the upper grades. For boys and girls alike, attendance is irregular, boys because they have to provide help during the harvest period, and girls because they have to help their mothers with household chores.

The only health service available in the villages are bare-foot doctors and traditional birth attendants, both appointed recently, the nearest health center is three hours walking distance.

Neither of the villages has piped water. One relies on river water. Women and their daughters from the age of nine or ten walk for an hour each day carrying 20 litre jerry-cans on their backs. If the family owns a donkey, only one trip is needed because 40 litres can be transported at one time. The other village has a well (constructed by the Italians in 1935) which is 20 minutes walk from the village and is shared with another village. Clean drinking water in the second village is also provided by the village pond (hautsi), which is regarded as a valuable asset which enables the village to "get the best women from neighboring villages". One village is linked to an improved road by a feeder road which is only a five minute walk, the other however is at least an hour's walk away from an improved road.

Land is allocated, as elsewhere in the central highlands, on the basis of the DEISA system, which provides each family with the same share of land, divided into plots of differing land quality to spread resources as fairly as possible. Land is classified into 4-5 different grades, the most fertile used exclusively for cultivation and the rest for cultivation and grazing alternatively. In Adi Birkito, each household thus gets 0.5 hectares of land, while in Adi Nebra which has more land, each household gets 1.5 hectares. The rest is used for communal harvesting and the harvest given to those most in need. Female headed households, widows, widowers, divorced persons and returning refugees are given the same amount of land if they support unmarried children in their home; otherwise they receive half the allocation. Land is traditionally redistributed every seven years. However in one of the villages, the most recent rotation was delayed because of the (then) pending revised land tenure law. As a result, returning refugees and ex-combatants have yet to receive their land allocation.

Irrigation is a minor activity in the villages: an irrigation canal constructed in 1984 and upgraded and cemented in 1989 became totally silted with the floods in 1994. With the exception of two farmers in Adi Birkito using motor-pumped irrigation to grow produce for sale (tomatoes, peppers, salad vegetables) farming is rain-fed. In 1993-94, households were unable to survive through their own production which was badly affected by drought and had to rely on food aid and food-for-work for 6-8 months of the year. In the following year, the rain was good, and production increased to about 8 months of need.

Ownership of oxen and donkeys determines the extent and quality of cultivation. Not all households own them, the average number of cattle being about 0.6 per household in Adi Birkito and 1.3 in Adi Nebri. Ownership of oxen determines for example, how well and how much land is ploughed for sowing, and how quickly and widely manure is spread. How well the land was sowed in turn determines the need for weeding usually done by hand. Ownership of donkeys determines how quickly the grain can be transported for threshing. Camels were rare till recently but are increasing in number because of their value in transportation. But the villages are encountering some problems accommodating them because "One camel can eat up one hectare in one night".

The villages rely heavily on seasonal migration of young male household members who work in nearby towns during the slack seasons. Some have been working in Saudi Arabia for a number of years and send remittances home. Sometimes entire families migrate with their livestock during years of poor rainfall.
Source : Rapid Appraisal Survey, 1993-94

1.5 In this picture of rather widespread poverty, the differences between the poor and nonpoor are not striking. The poor household may have a yearly income of about 1000 birr per year for a family of 6, while the non-poor household may have a yearly income of 2800 birr for a family of 5. It seems likely that ownership of cattle makes a difference; those who have them are able to increase yields, save time and market their produce better. The few farmers who have pump irrigation to obtain water from wells and small dams and can produce cash crops are probably richer. For the village as a whole, regular

maintenance of the irrigation canal would make a difference. Families whose members find seasonal or permanent jobs in towns or other countries are better off because non-farm incomes are usually higher and because they can send remittances home. Clearly access to food aid can make the critical difference for survival. A clean water source nearby is highly valued not only because of the health benefits but because it saves women's time and energy. Female headed households are a greater proportion of the population than in most African countries, but appear to have security of access to land.

1.6 What does a poor urban household look like ? There is a good chance that it is a migrant household or a refugee household recently returned from Sudan. As in the rural areas, there are many female headed households with dependent children (see Box 1.2) who are supported by remittances from abroad. The main source of income is likely to be from such occupations as petty trading (hawking cigarettes, vegetables etc.), providing domestic services to the better-off (house servant, garbage collection, knife sharpening) or other casual labor including work in the harbor of Massawa. These occupations may pay between 1200 birr to 2000 birr a year, if work can be found all the year around.

1.7 As in rural areas, food aid (and food for work) is an important component of food security. As in other cities of the world, the poor household is likely to live in a crowded tenement or hut made of wood, mats, sacks and straw with an iron sheet for a roof, if lucky. In Asmara, the household may live in "Geza Tanika" or "tin houses" so named because it is built on a garbage disposal facility with materials found in the facility. It would be common to share a kitchen and buy drinking water from private vendors or government tanker trucks. For such accommodation , rents may reach 50 birr per month. The household would use the fields for sanitation and sometimes even the open spaces between houses. At the same time however, the household would have better access to schooling and health facilities than the rural poor. The school would most likely be run by the government, while the health clinic or maternity facility in the sub-zone would be run by the Government or a Catholic mission or the Red Cross. For the very poor however, access to a health facility would not be enough to ensure health as they would not be able to afford the drugs.

Box 1.2 Migrants and Refugees in Urban Areas

Many urban households have a long history of migration, often moving many times between their village of origin and the city in search of employment, food and safety. Many have also been refugees in Sudan.

A household of a woman with two daughters in Massawa :

"We came from Sudan one year ago. Because we were afraid of the Derg, who killed my husband, I left for Sudan with two sons and two daughters where we lived for many years. When the country was liberated, we returned. We now live in the house of my brother. When I first returned from Sudan, I rented a house which was destroyed by wind, so my brother gave me his old house. When he comes back (from Dankalia) I will have no house. Life was better in Sudan for me, because I had my sons in Sudan who helped me with my work. Here there is peace, but the prices are too high in Eritrea. I sell local mats, and my sons send me money. Previously I received food aid from the government, but not recently. I also have relatives in Saudi Arabia, but they do not send me anything. Sometimes, I have to borrow from neighbors".

A Keren household (husband, wife and seven children)

We have lived here now for five years. First, we were in Mensae when we got married. Then we came to Keren, where we lived for a long time. But because there was a food shortage we went back to Mensae and stayed there for ten years. Five years ago, we moved back to Keren. Before my husband became paralyzed we got our living from farming. Now we survive on food aid, but this does also not come very frequently.

A family in Keren

"My husband is employed by the municipality. We have no other income, but we receive some food aid. We were born in Senhit province, I married at the age of 16 and we lived there for 11 years. We fled to Sudan, where we lived outside the refugee camp because when we arrived there were so many refugees that we could not be registered. After the liberation in 1991 we came back once again to Keren. In Sudan, my husband worked in a restaurant to support our six children, but the income was not enough. In 1989, there were heavy rains, people died from malaria, and my husband fell sick too. We registered on the refugee list and were transported back to Eritrea by the Government. Eritrea is very expensive and our income is very low, so our life is still very hard. We did get food aid but this has now stopped. My husband is searching for a better job, also I am making handicrafts to sell.
Source : Rapid Appraisal Survey 1993-94

Poverty Incidence

1.8 The Rapid Appraisal Survey (RAS '94), was conducted to collect information from 92 communities and 664 households representing all provinces (except Dankalia) and including communities such as portrayed in Box 1.1 and Box 1.2. Three survey teams were deployed; the interviewers being third year and fourth year economics students from the University of Asmara. The number of communities selected and the number of household interviews conducted in each community were broadly related to the estimated population numbers to make the conclusions drawn from the appraisal representative for the country as a whole. The data collected was used to estimate the proportion of the population that is poor. The estimation procedure used the widely accepted methodology of constructing a "poverty line" defined as the minimum cash and non-cash expenditure needed to be made by a person or household in order to be able to consume a minimum number of calories (food), plus a small number of essential non-food items such as housing and clothing. Further, because a large number of Eritrean households received food aid, the question was asked : what would the poverty line have been if free food aid had not been available. To answer this question, a second poverty line was calculated by deducting from the original poverty line the amount of food aid typically received by a household. This adjustment had the impact of lowering the poverty line; since the household had some free food, its need to buy food from the market was reduced. Data from the same survey were used to calculate the income earned by different households. A household was classified as poor if income fell below the minimum needed expenditure i.e. the poverty line or the poverty line adjusted for the receipt of food aid. (For details of sampling and methodology see Annex 1.)

Table 1.1 Poverty in Eritrea 1993-94

	Percentage of Population below Poverty Line
Poverty Line	
With Food Aid	53
Without Food Aid	69

Source: Rapid Appraisal Survey, 1993-94

1.9 According to the data collected, even with food aid, 53% of the population was below the poverty line in 1993-94 (Table 1.1). Without food aid which lowered the expenditure needed to satisfy the remaining minimum consumption needs, 69% of the population would have been poor. It was further calculated from RAS data that had the harvest in 1993-94 (a drought year) been as good as the one in 1992-93 (a normal year), poor households would have had 30% higher income. Estimates by ERRA (now renamed ERRAC) of the percentage of population in need of food aid also shows how vulnerable the population is: 48% of households need food aid even in a good agricultural year; this proportion rises to 80% in a bad agricultural year.

Geographical Distribution

1.10 The estimated distribution of the population of Eritrea is give in Table 1.2, along with the geographical distribution of the poor population. (It should be noted that in the absence of a census, there is no reliable source of population data and therefore the geographical distribution is only indicative.) The highlands in the heart of the country, account for 20% of land area but 50% of the cultivated area. These highland rural areas contain about 50% of the total population and 60% of the poor population of Eritrea. This is not surprising, the highlands have experienced settlement of people in farming, and other farm and off-farm activities for hundreds of years. As land become scarce relative to the population, and migration to the lowlands constrained because of war, the capacity of the land to support larger populations is likely to have declined. Soil erosion is likely to have further reduced land productivity.

1.11 The lowlands and the coastal areas to the east cover about 80% of Eritrea but contain only 50% of cultivated area. Only about a third of the population of the country lives in the lowlands and coastal areas, but 25% of the poor do. The lowlands are the more poorly endowed areas in terms of rainfall, and have a basically pastoralist population, part of which is nomadic. But there are pockets of considerable prosperity. Small and medium scale commercial farms, both public and private, using water from aquifers along river banks, produce cotton, fruits and vegetables in the provinces of Gash-Setit, Barka and Senhit. Seasonal streams and rivers, and spate irrigation permit irrigated cultivation in parts of the eastern lowlands. Further, in this small country, there are very strong economic links between the highlands and lowlands. For example, highland cereal farmers keep their cattle in more sparsely inhabited lowland areas where more forage can be found. Some of the spate irrigated land at the foot of the escarpment is owned and operated by farmers from the highlands who come down only for the short

cultivation season. The main cities of the country contain 16% of the population, and 14% of the country's poor.

1.12 The last column of Table 1.2 gives us the "head count " i.e. proportion of the population in different areas that is poor. Nationally, 69% of the population is poor, as discussed earlier. There is a significant difference between the rural highlands and rural lowlands, with the highlands estimated to have a substantially higher incidence. In the year for which these measurements are made, the drought affected two of the three highland provinces badly, while the other areas of the country were less affected either because of irrigation or a lower reliance on crop cultivation. About 80% of the rural residents of the highlands therefore fell below the poverty line, compared to only 52% in the lowlands.

Table 1.2 Geographical Distribution of the Population and the Poor

Province	Distribution of Population	Distribution of Poor	Incidence of Poverty (% of Population) [2/]
Urban Areas (Asmara, Keren, Massawa)	16	14	62
Rural & Semi-Urban Areas			
Highlands [1/]	51	61	83
Lowlands	33	25	52
Total	100	100	69

[1/] Defined to include the rural populations Akele Guzai, Hamasien, Senhit and Seraye.
[2/] Without food aid
Source : Rapid Appraisal Survey, 1993-94 and Population Estimates of GSE.

Sources of Income

1.13 Crop cultivation and animal husbandry are important sources of income for all rural Eritreans accounting for about 60% of income on average. In the lowland rural areas, the income from livestock is significantly higher than in the rural highlands -- nearly 50% of total income is derived from livestock i.e. the sale of livestock and its products as compared to about than 30% in the highlands. But in both the highlands and the lowlands, the rural population also obtains about a third of its income from non-agricultural activities i.e. casual employment, self employment and trade (including use of livestock for transport and hiring out), as can be seen from the first three columns of Table 1.3.

Table 1.3 Sources of Income and Income Differentials

	Sources of Income %				Ratio of Income of Nonpoor/Poor	
	Rural			Urban	Rural	Urban
	Highlands	Lowlands	All Rural			
Crop Cultivation	**24.8**	**16.2**	**20.1**	**1.4**	**2.9**	
Animal Husbandry	34.4	46.1	39.4	5.8	3.7	
Agr. Day Labor	1.7	5.8	2	0.5	1.0	
Other Casual Emp	16.2	6.6	11.1	3.1	3.3	1.7
Self Emp. + Trade	8.9	16.8	15.9	28.8	8.4	7.1
Formal Sector Emp.				47.5		5.2
Pensions	1.1		0.4	3.8		1.3
Remittances	7.6	2.1	6	7.5	7.7	3.1
Other	5.3	5.5	5.1	1.6		
Total	**100**	**100**	**100**	**100**	**4.0**	**5.3**

Source: Rapid Appraisal Survey, 1993-94

1.14 What are the major differences between the poor and non-poor in rural areas in terms of income sources? The rich have higher income from every source, as can be expected. But the differences are much larger for some sources than others. In the fifth and sixth column of Table 1.3 is given the ratio of the income of the non-poor from a particular source to the income of the poor from the same source. Several interesting features emerge. Even though the distribution of land is relatively equitable as discussed in Box 1.1, the nonpoor get three times the income from crop cultivation as the poor do suggesting that harnessing non-land inputs such as irrigation and animal power can make a critical difference. But the difference is larger for income from animal husbandry and seems directly related to the ownership of cattle. The nonpoor in rural Eritrea on average own 7.4 units of livestock compared to 2 owned by the poor. On average, only 60% to 65% of the poor own livestock, while among the non-poor, ownership rises to 75%.

1.15 But the really significant difference is in income from trade and self-employment. The rich obtain about 8 times the income from this source as the poor do. The share of income from trade and self-employment in the income of the poor (not shown in table) is only 9% compared to 21% for the nonpoor. In this predominantly rural country therefore, opportunities for and the ability to take advantage of trading and self-employment appear critical for growing out of poverty. Remittances are also about eight times higher for the rich suggesting either that it is the better off (and perhaps better educated) households that are able to send their family members outside or that remittances have helped the households to become rich by engaging in non-farm business activities[1].

[1] The share of remittances in household income as estimated in the rapid household survey may be considered low compared to the estimated share in gross national income i.e. 25% in 1994. This

1.16 In urban areas , as may be expected, non-agricultural activities, i.e. employment and trade are the predominant sources of income. Regular employment i.e. employment in the formal sectors is not a major source of income for the poor who derive only a third of their income from such employment; in absolute terms, the non-poor obtain 5 times the income that the poor do from formal sector employment. The primary sources of income for the poor include casual employment, self-employment and trade (see Box on Self-employment and Trade for some examples). There is significant variation of income from different occupations : from over $ 50 to $ 125 a month for the more skilled occupations , for example, plumbers, horse driven cart transporters, mechanics and bicycle repairers to only $ 10-20 for low-skill occupations, for example, sellers of animal dung and washer women and household servants. The poor are likely to be concentrated in the lower-skilled occupations that need little capital and this is reflected in the fact that the non-poor earn 7 times the income from the self employment and trade as the poor do. On the other hand, pensions and remittances form a high share of income of the very poor, amounting to 25% of income compared to the rural poor who get only about 5% of their income from these sources. It appears therefore that remittances from Eritreans abroad reach the urban areas more frequently, and are a major source of support for the urban poor, as are pensions.

1.17 Overall, there is not a glaring income inequality; in the rural areas, the nonpoor have 4 times the income of the poor, while in urban areas, the income inequality is only slightly higher.

Box 1.3 Some Examples of Self Employment and Trade

Knife sharpeners are mostly metal workers or day laborers, who when holidays approach, hire a hand-driven machine from a metal shop for 10 to 15 Birr a day. When people in the town are preparing for the holidays, the knife sharpeners move from door to door to offer their services. In itself, the work does not require special skills, but it is crucial for them to know somebody who owns the necessary equipment. The sharpeners usually start their activities about a week before each of the five main holidays. They earn about 15 Birr per day in Asmara after covering all expenses.

Informal sector plumbers in Asmara are generally retired plumbers who once worked for the municipality or a government department, and wish to supplement their pensions. People in need of plumbers look for them at their usual meeting point, near Saint Mary's church. They usually charge about 50 Birr, and on the average get about seven jobs per month.

Water sellers operate in the slums of Asmara that have no tap water. They provide residents and local beer houses (*tella*) with water, which they buy at about 0.50 Birr per donkey load and sell at 2-3 Birr, depending on the distance between their supplier and their point of sales. They work six days per week and have a turnover of about 260 to 320 Birr per month. After subtracting the costs of maintaining the donkey, this earns them between 150 and 200 Birr per month in Asmara. Some water sellers in Massawa report that their income is declining because people are often collecting water themselves. When they have little work selling water, they use their donkeys to collect fire wood.

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discrepancy may be due to either underreporting of remittances in the survey or underestimation of national income. It is also true that not all the remittances recorded in the external accounts become household income for resident households; instead, the Eritrean abroad may invest in a business interest, or contribute to community projects or build a house for eventual occupancy.

Sellers of animal dung in Asmara operate mainly in the slum areas, where people use dung as cooking fuel. The price of a well-shaped cake is about 0.10 Birr, but in the wet season, when drying is more difficult, the price goes up to 0.20 Birr. Usually, the sellers buy a hand cart of bulky dung from cattle owners at 1 Birr. Their net profit ranges from 60 to 120 Birr per month.

Washing women charge according to the area in which they operate. In parts of Asmara where there are many poor households (and therefore a lot of competition), they charge about 5 to 7 Birr; in more prosperous areas they charge between 10 and 15 Birr a day. The nature of the work requires a personal relationship between both parties, and because of this most women engaged in this job operate only in their own areas. Each day, these women can serve two households.

Hair dressers are usually women in desperate circumstances, because this activity is considered unclean. The income of hairdressers in Asmara differs from area to area. In most of the slum areas, a hairdresser would earn 2 or 3 Birr per person, and may work with about three persons a day. Average incomes would therefore be between 90 Birr and 135 Birr a month, as hairdressers usually work only 15 days a month. Outside the slum areas, hairdressers will charge about 5 Birr a person.

Horse driven cart transporters can earn up to 20 Birr a day if they own their own horse and cart. This amounts to about 520 Birr a month, since they usually work 6 days a week. Those who are less well-off and have to rent the horse, will pay 5 Birr a day for the rental, and about 9 Birr a day for animal feed (15 kg at 0.6 Birr a kg), yielding an income of about 15 Birr a day, and 390 Birr a month.

Handcart transporters are numerous near the market, where they find employment carrying cereals (r other bulky products, such as sugar) for shop-owners who need to move their purchases from the market to their shops in other parts of the town. The minimum rate charged is about 2 Birr, but as they may be without work for much of the day, they tend to earn only 10 to 15 Birr a day, from which they have to pay the cart owner 2 to 2.5 Birr a day for the rental of the cart. They work six days a week, and therefore their net earnings are between 200 and 330 Birr a month. This job is very heavy, and few people will do it the whole year round.

Fig sellers. During the months that there are fresh cactus figs, a number of handcart transporters will join others, and switch to selling the figs bought at wholesale prices from collectors. The profit made from selling figs is about 8 to 10 Birr a day, or about 300 Birr a month. However, there is a risk of spoilage if demand is low, or the market over-supplied. the market depends on the number of young people in town at the time, because they are the main customers for figs.

Charcoal collectors at the garbage dumps are mainly children who sort through the garbage looking for charcoal leftovers. It takes them a week to collect a small bag of charcoal which they can sell at about 20 Birr. While gathering charcoal, they may also find items like metal scraps and cans which they can sell too. However, the amount of salvageable items is limited, since there are others collecting such items directly from people's homes to sell at the Medeber, where most of the informal sector in Asmara is located.

Shoe polishing was very common before independence. Now it is a licensed activity, and many license owners are the elderly, the disabled, and ex-combatants. They pay an annual lump sum of 120 Birr as tax (the rate in 1994). The license owner rents the location to the actual shoe polisher for a half share in the proceeds. Since this requires a trust relationship between the license owner and the shoe polisher, they are usually close family relatives. Earnings vary according to the location, ranging from 20 to 40 Birr a day. The net income of the shoe polisher (ranging from 450 to 600 Birr a month) is half the total from shoe polishing together with anything earned from shoe repairs carried out for customers.

Mixed jobs. It is common for people who survive through small informal sector work to engage in several different activities, each on a part-time basis. For example a woman may work as a cleaner, bake injera for sale, and make mats.

Source: Rapid Appraisal Survey 1993-94

The Gender Dimension

1.18 Gender is an important but complex factor in determining poverty. The liberation struggle involved many women actively (see *Box 1.4*) creating a strong momentum to

increase the participation of women in public and community affairs. As a result of the mobilization efforts of the EPLF, women make up 21 percent of the national assembly, 13% of ministers and almost 50% of the Constitutional Commission.

Box 1.4 The Role of Women in the Liberation Struggle

One of the most distinctive features of the Eritrean revolution was the change that it brought about in the lives of many women. During the 1950s-60s women participated in the anti-colonial struggle in a largely supportive role, serving as couriers, providing male fighters with food and shelter, and joining in street demonstrations . In 1974 women began to be inducted into the EPLF as fighters: by the mid-1980s they made up nearly 40 percent of EPLF membership and 25 percent of its front-line fighters . Women worked as commandos, assault troops, and tank drivers as well as mechanics, truck drivers, doctors, and teachers .

By the mid-1970s the EPLF was firmly committed to women's emancipation and supported women's rights to participate as free individuals in the struggle and the construction of a new Eritrea on an equal footing with men. The entry of a large number of women into the liberation movement helped fuel the "revolution within the revolution."

During the late 1970s and early 1980s, the EPLF pressured its members to re-examine traditional gender roles and encouraged changes in sexual mores and male-female relations, particularly with regard to marriage . The Front also took initiatives to promote greater participation by women in communal affairs. For example, the EPLF launched a nation-wide literacy campaign in 1983 in which twice as many women as men completed the course of study. In the liberated areas, women were encouraged to participate in political life: even in Muslim areas, they serve on the executive boards of the people's assembly .

Rather than trying to promote gender equality by administrative fiat, the EPLF generally took a gradualist approach that relied heavily on persuasion. As a former National Union of Eritrean Women (NUEW) chairperson put it: "we work with women on differing levels, according to their level of consciousness. We raise issues very slowly. As time goes by the women from the villages take up the concepts themselves, and then they become those who are working for change" . According to President Isaias, the EPLF attempted to use persuasion and build on the practices and "models" of those indigenous groups where women have "strong roles" (as among the Kunamas and the Afar) rather than importing abstract concepts from the outside .

In 1976-77, the first women's associations formed at the village, district and regional level, and in 1979 the National Union of Eritrean Women (affiliated to the EPLF) came into being. NUEW's objective was to "foster breaking with the restrictive and oppressive character of traditional Eritrean society vis-à-vis women, by enabling them to participate equally with men in the struggle for the liberation of their country and for its socio-economic transformation towards a more democratic and economically developed society" (NUEW, 1993). In post-liberation Eritrea, NUEW has sought to protect and extend the rights that women acquired during the liberation period: no small task given the entrenchment of male-centered, patriarchal structures, the resilience of traditional gender roles and male pre-eminence in the new government. Moreover, the priority given to economic reconstruction and national consolidation may tend to overshadow "social issues." In order to support women's participation and rights in the new Eritrea, NUEW has prioritized the promotion of income-generating activities and skill development for women. Reintegration of and special support for women ex-fighters and female-headed households are also pressing issues currently being addressed.
Sources : NUEW and Wilson (1991), Pateman (1990), Connel (1993), Silkin (1989), Papstein (1991).

1.19 There do not appear to be sharp gender differences in the incidence of poverty. About 46% of households overall are estimated to be headed by females ; there is no

significant difference in the incidence of poverty as compared to male headed households. This is an unusual finding for several reasons. The war killed many able-bodied men and disabled others. Their wives and other widows and single women may be expected to experience particularly difficult circumstances, as is the experience in many African countries. There are cultural taboos as well in some areas on women ploughing land and participating in public affairs.

1.20 One explanation is that as discussed in Box 1.1, widows retain access to land in many communities, particularly in the highlands governed by the Deisa system of land tenure. These women often receive support from families and communities for ploughing land and other agricultural activities. Further, some women enter into sharecropping arrangements with other households in order to overcome the lack of manpower in the household. As the following table shows (*Table 1.4*) nearly 40% of non-poor female headed households mainly in the highlands report receiving income from sharecropping i.e. from renting out their land in a sharecropping arrangement, compared to only 7% of male headed households in the non-poor category. Sharecropping receipts allow these female-headed households to enjoy a relatively comfortable level of living above the poverty line. At the same time however, such arrangements do not lift all female headed households above the poverty line.-- about 30% of the households in the core poor category also reported receiving income from sharecroppers, but continued to be in the core poor category.

Table 1.4 Female Headed Households and Sharecropping in Highlands

Type of Household	% of Households in the Highlands	Core Poor	Poor	Non-Poor
Female Head	Cultivating own fields	70%	91%	61%
	Working as sharecroppers	4%	0%	5%
	Receiving payment from sharecropper	30%	9%	39%
Male Head	Cultivating own fields	93%	100%	93%
	Working as sharecroppers	2%	0%	0%
	Receiving payment from sharecropper	9%	0%	7%
Total Group	Cultivating own fields	82%	96%	75%
	Working as sharecroppers	3%	0%	3%
	Receiving payment from sharecropper	19%	4%	25%

Notes: The percentages in these tables do not to add to 100% because some households may cultivate part of their fields while engaging a sharecropper for another part. Sharecroppers may also hold several sharecropping contracts, while cultivating their own land as well.

Source: Rapid Appraisal Survey, 1993/4

1.21 The frequent use of sharecropping by female headed households in the highlands suggests that both poor and non-poor women's access to land was relatively secure under the Deisa system of land tenure. In practice a woman's access to land in the case of widowhood or divorce, differs according to the ethnic group she belongs to and the land tenure system practiced. Among the Tigrinya, the largest ethnic group comprising half of the population and inhabiting the highlands, a widow may, and typically does, remain in the community, taking over her late husband's farm land as well as other assets. In case of divorce too, if the woman remains resident in her ex-husband's village, she can usually

obtain a share in his assets. Only if she returns to her natal village does she lose her rights. Among the Tigre, constituting about a third of the population, the status of the widowed or divorced woman may be more difficult. The majority of the Tigre are under the *RESTI* and *TSILMI* systems of family ownership of land. If a woman is widowed, she stays on with the extended family but, legally, only half her husband's property will go to her, and the other half to his children. In the case of divorce, the woman typically returns to her natal family.

1.22 In urban and semi-urban areas as well, there are two kinds of female-headed households. A small number have a per capita income higher than the average male headed household because their husbands left them with assets and activities they could manage and because many of them receive remittances from relatives abroad. A second group, more typical, are divorced or widowed women cut loose from their rural background, with life histories of early marriage, battering or abandonment.

Special Groups: Refugees

1.23 The many long years of war and unsettled conditions has created a large number of refugees (mainly in Sudan) and migrants. It is estimated that in 1991, more than 20% of its population was either outside the country as refugees or were displaced internally. The total number of displaced persons is difficult to determine accurately, One estimate is that even after some spontaneous repatriation after the end of hostilities, (about 70,000 returning mainly to the Western lowlands) there were 420,000 Eritreans in Sudan at the end of 1993. It is estimated that about 25%-40% of them are female headed households and all are quite poor. The Government's policy has been to provide organized resettlement under the Program for Refugee Return and Reintegration (PROFERI) for the returning refugees. Returnees are being settled on state-owned lands in the western lowlands. Other activities include food aid and shelter and a number of quick-impact projects including repair of infrastructure, brick-making and other similar activities. Under the pilot rehabilitation scheme 25000 people have been repatriated and settled.

Peoples' Perceptions

1.24 What do Eritreans think about the characteristics of the poor ? An advantage of the participatory survey method used in this exercise is that it can elicit responses from the surveyed population without imposing a predetermined format. Box 1.5 puts together some of the responses so obtained. It can be seen that the characteristics identified corroborate the analysis above -- the poor are those with little livestock, widows and divorcees without support, the disabled, those that do not get food aid. Villages that do not have irrigation are poor; on the other hand, someone who has livestock and a small business is rich.

Box 1.5 People's Perceptions of Factors Contributing to Poverty

"Poor households are households with no livestock, not even chicken, and, therefore without protection against any mishap. Poor people are those disabled and without somebody that supports them and who have to move from house to house to beg for cereals when they do not receive food aid."
Community interview in Adi Nsur, Senhit Province

"A person without any camels is poor, the very rich may own even 20 camels. One is poor when one does not own cattle, when one has no husband or wife, or when one is old and handicapped. Such people may earn a living by giving their land to a sharecropper for half of the yield." *Community interview in Adi Kuku, Barka Province*

"A poor person is somebody without a son or a daughter to help you, a disabled person, an old person, somebody who has nothing, nothing to eat and nothing to do."
Household interview of an elderly woman, Dekemhare, Akele Guzai Province

"The poor are the disabled and the widows without support, or those without possessions, but if a man is strong enough, he will not be considered poor, as he can earn a living for example by collecting fire-wood."

Household interview, Arbe Robue, Hamasien Province

"Someone who lives on her own, without a husband or a wife. So, as I am a divorced woman, I always have to wait for money from my son. If he is with me, I will get what I need, but if he is away, there is nothing in the house and I will become ill. So I see loneliness as meaning poverty."

Questioned on why she did not re-marry, if loneliness means poverty: "I married at the age of 13, at that time I did not know anything about marriage, and when I gave birth to my son, my husband went to another woman. From that time I hated his doings and I divorced him. Ever since, I have hated men."
Household interview of an old woman, Keren, Senhit Province

"Poor people are old and sick and without support, hence they cannot withstand the challenges of life. But on the other hand, all villagers are poor, as they lack oxen to cultivate the land and lack a dam for irrigation."
Community interview, Semhar Province

"One who has no work, who has no means to procure a living, and therefore lacks his daily food, is poor. Someone who has camels, goats, and a small business is rich." *Community interview, Semhar Province*

Source: Rapid Appraisal Survey 1993-94

Social Indicators

1.25 At the end of the war, Eritrea was left with very unfavorable social indicators. Life expectancy is around 46 years, about 6 years lower than for SSA. Gross primary school enrollment is 47%, child mortality over 200 and infant mortality about 135. This was the result not only of destruction wrought by the war but also of decades of neglect : not a single school or health clinic was built during 1976 and 1991.

1.26 But even in the last few years since cessation of hostilities, access and therefore use of education and health facilities has improved. Gross enrollment increased from 36% in 1991 to 47% in 1993-94, indicating a high demand for education . The high demand for education is also reflected in the interviews made in the RAS; *Box 1.6* indicates the lengths to which some rural residents of Eritrea are prepared to go to send

their children to school. There are a large number of over-age children, (the net enrollment rate is 27%). In the context of Eritrea, the presence of a large number of over-age children may be seen not as a sign of inefficiency but of pent-up demand; over-age children who did not have chance to attend school before are now starting school.

Box 1.6 Financing and Access to Education by Families: Some Examples

In a female headed household in Senhit province, the husband died 4 years ago. The husband was a soldier. The female head owns a sewing machine with which she used to do tailoring services for others. She received the sewing machine from her father at her marriage. Nowadays however, there are hardly any sewing services asked for.
Therefore, the head earns a living with casual wage labor provided within a food for work program on dam construction. Despite the difficult economic situation of the household the children are sent to school. The head explains how she manages to pay for the costs:

"we sell the grains obtained from the dam work or we sell for example the assets we own. One of my children is attending the 8th grade in Keren, staying at my brother's place, as there is no secondary school here. We are determined to educate our children in order to get a better living. That is also why we sold our jewelry 5 years ago."

In Mai-Mine, a small outlying market town in Seraye Province, close to the border with Ethiopia, two households interviewed value education for their children highly. One household contains 6 members, with 4 children in the age of 2 to 13 years. The male head of the household is employed as a baker. Although the mother insists on education for her children and wants to "instill the moral of learning" both parents expect their children to go to primary school only. A secondary school is not available in Mai Mine, pupils have to go to Adi-Kuala town.

The second household also consists of six members with 4 children in the age of 6 to 17 years. The mother of the children is engaged in agriculture, growing sorghum and dagusha. A yield of about 2 quintals is obtained yearly, used for home consumption. The male head of the household is working in Asmara as a trainer of soldiers. The parents value education highly and stimulate their children to study. Two of their daughters are in 2nd and 3rd grade of primary school, while their eldest daughter attends secondary school in Asmara. In this second household, education in Asmara becomes possible as the husband works in Asmara.

Education considered "modern".

In a household in Adi Agua in Seraye province, the husband is living in Asmara where he is working as a taxi driver. His wife resides in Adi Agua where she cultivates a plot. She has given it for sharecropping but provides part of the labor herself, so she receives 50% of the yield obtained. In addition, she has a donkey and four goats and receives monthly remittances from her husband of about 50 birr. In the agricultural off-season she makes traditional handicrafts, which she sells. The youngest children stay with their mother in the countryside, two daughters and a son.
The elder children stay with their father in Asmara, where they are schooling in the 3rd to 9th grade respectively. During summer holidays these children to stay with their mother in the countryside. The father of the children is insisting on educating his children and regards it as a way to modernize them.
Source : Rapid Appraisal Survey, 1993-94

1.27 Primary health services providing immunization have expanded; as a result the proportion of children immunized has increased. The share of children monitored for growth and nutrition as part of primary health care delivery has increased from 7% in 1993 to 24% in 1994. There has been a doubling of the proportion of pregnant women

who have had at least one antenatal clinic visit, to 28%. The percentage of births delivered at a health center or attended by a "trained" health worker has increased. Clearly, although the country has a long way to go in terms of attaining minimal health and educational standards, a beginning has been made.

1.28 There are however significant regional variations in all social indicators. There is a clear urban bias. In Asmara and Hamasien, the net enrollment rate is over 40%, but is between 15% and 25% in most rural areas. In Barka and Sahel in the lowlands, it is less than 10%. Child mortality is about 100 per thousand births in Asmara and Hamasien but about 300 in Sahel and Dankalia.(See *Table 1.5*).

Table 1.5 Social Indicators: Regional Differences

Province	Child Mortality (age < 5)	Child Underweight '94 (age < 5)	Net Primary School Enrollment	% of Girls Enrolled
Asmara	107	25.5	43.6	51.4
Hamasien	97	59.7	40.2	45.4
Akel-Guzay	152	45.0	33.8	40.7
Seraya	188	44.4	23.9	42.7
Senhit	139	23.7	21.5	43.3
Semher	254	20.5	24.4	39.4
Barka	216	18.0	9.3	29.0
Dankalia	318	33.7	13.0	41.0
Gash-setit	194	54.2	14.7	43.8
Sahel	287	33.2	4.8	26.5
Eritrea	**203**	**36.6**	**25.9**	**44.4**

Source: Ministry of Health and Ministry of Education, Government of Eritrea

1.29 Distance to and lack of facilities are important determinants of regional differences. In a study of communities in the sparsely populated provinces of Barka, Sahel and Denkalia, (GSE: Ministry of Education and Swedish Save the Children, October 1995) teachers interviewed cited distance to school as the most important problem. In the same study, 63% of students at a school in Keru in Barka province were found to be spending 2 to 4 hours daily traveling to and from school, and about 10% of students were staying with relatives. With regard to health facilities, as the following table shows, urban areas and the highlands have more health facilities and higher utilization rates than the lowlands. Asmara has the highest number of facilities and the highest number of visits per capita, the highest share of pregnant women who visit a clinic and the highest share of children monitored for growth. Most indicators are considerably lower in the rural areas, with Sahil, Denkalia Barka and Gash Setit usually at the lower end. Thus, although the incidence of income poverty is high in the highlands, residents there have better access to social services; in the lowlands, income poverty is less widespread but the population's access to social services is considerably lower.

Table 1.6 Distribution of Health Facilities and Utilization

	Number	Outpatient visits per capita	Share of Pregnant Women with one antenatal visit	Share of 0-5 children monitored for growth
Asmara	42	1.54	52.5	74.1
Akeleguzai	19	0.48	39.4	17.8
Barka	8	0.64	21.9	15.1
Denkalia	13	0.44	17.3	5.3
Gash Setit	10	0.46	31	7.8
Hamasien	25	0.53	16.1	30.1
Sahel	6	0.15	14.2	1.5
Semhar	15	0.5	19.7	3.7
Senhit	20	0.53	35.3	12.5
Seraye	20	0.71	24.6	21.4
Total	183	0.69	28.2	22.4

Source : Ministry of Health, Government of Eritrea

1.30 A second point of concern is the high rate of child wasting overall i.e. the proportion of children below 80% of the normal weight for height. (*col. 2 in Table 1.5*). Despite progress in immunization and better growth monitoring, the rate of child wasting has decreased only slightly from 40% in 1991 (not shown in table) to about 37% in 1994.

1.31 As discussed earlier, inadequate caloric intake is one possible cause, particularly in drought years and in the dry seasons. A second determinant is likely to be the widespread prevalence of diarrhea and other water-borne diseases. In both rural and urban areas, access to safe water is limited as are sanitation facilities. It is estimated that 13.3% of deaths of children under five in Eritrea is due to diarrheal disease, compared for example to about 7% in Tanzania and Uganda, and it is the leading cause of death for the age-group. Available data also shows fairly significant iodine deficiency and anemia among Eritrea's children.

1.32 Gross discrimination in schooling on the basis of gender is generally absent in the cities and the highland areas where overall enrollment is relatively high. The picture is more varied in the lowlands. In parts of the lowlands , for example, in the provinces of Barka and Sahel (Table 1.5), overall enrollment rates are low and the proportion of girls is also low. In others such as Dankalia , Gash Setit and Senhit, overall enrollment rates are low, but over 40% of those enrolled are girls. It is difficult to interpret the gender dimension when overall enrollment is low; this is because gender biases may or may not be apparent and may become more obvious only as overall enrollment increases.

1.33 Further, as the following table shows (*Table 1.7*), although there are no significant differences in the rate at which girls and boys are withdrawn from schools , girls have a higher repetition rate and a lower continuation rate. Because of high repetition rates, it takes 12.3 years to produce a female fifth grade graduate, in contrast to 10 years for

producing a male graduate. The difference is greater at the secondary level, for girls it takes about 40 years to graduate which means that most girls do not complete secondary school. There are also significant differences in test achievement. While 80% of the boys who appeared for the Grade Seven National Exam in 1995 passed, only 56% of the girls did. In the University Entrance Exam in 1994, 14% of all candidates achieved a passing grade, but only 5% of female candidates did.

Table 1.7 Rates of Withdrawal from Schools and Repetition

	Withdrawal			Repetition		
Grade	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
1	7.5	6.8	7	31.1	34.5	33
2	6.2	7.0	7	16.4	21.2	18
3	6.2	6.0	6	13.3	18.2	15
4	6.0	6.4	6	17.4	27.0	22
5	6.4	8.1	7	13.1	20.4	17
6	10.4	11.8	11	12.3	23.3	17
7	9.3	12.0	10	9.9	21.6	15
8	14.0	11.9	13	22.0	38.6	29
9	9.7	10.7	10	17.2	33.2	23
10	10.9	10.6	11	24.0	42.3	31
Totals	**9.5**	**10**	**10**	**17.4**	**28.7**	**22**

Source: GSE: Basic Educational Statistics, 1993-1994, Table 21.

Female Genital Mutilation

1.34 Although gender discrimination is not evident in indicators of nutrition and health of children, the practice of female genital mutilation is recognized as a prevalent custom that violates girls in Eritrea. It is not known with any certainty how widely prevalent it is, but it is believed to be associated with poor education and rural location. During the liberation struggle, the EPLF campaigned strongly against this practice and continues to raise public awareness. Yet this harmful practice has not disappeared. The health consequences range from bleeding, infection, pain and even death from infection. Long-lasting complications include chronic urinary tract infection and menstrual problems. There is difficulty in providing pre-natal examinations and the worst complications arise at childbirth: delays in second stage of labor, ruptured uterus and increased likelihood for Cesarean sections.

HIV Infection

1.35 The prevalence of HIV infection is estimated to be quite high, and higher than earlier understood. Recent evidence from a study in Asmara (Ministry of Health and National AIDS control Program) shows that the HIV+rate among women attending antenatal clinics and blood donors is approximately 3%, and is 1.9% among outpatients in clinics and hospitals and as high as 25% among sex workers. Currently, it is estimated that perhaps 50,000 people are infected in the country, the majority of them in Asmara, Assab and Massawa. However with increasing economic activity and related movement of people, it seems likely that the infection will spread to other areas as has been evidenced in other countries.

Population and Family Planning

1.36 The population of Eritrea is estimated to be growing at 2.9 percent per annum; the estimate is not, however, based on census or other survey data. It is likely, as experience elsewhere on the continent indicates, that the growth rate will increase unless appropriate interventions in health (improving infant mortality, for instance) and education (increasing access to schooling for girls) and family planning (increasing education and supply of contraceptives) are implemented. At the same time, the high rate of HIV infection referred to above is likely to result in a high mortality rate for men and women in their prime income earning years. The rate of contraceptive use is extremely low in Eritrea. It is currently estimated to be 2.3% among women in the age-group of 15 to 45 years. The ongoing Demographic and Health Survey (DHS) will shed further light on this issue.

Structure and Role of the Community

1.37 Before we leave this chapter, it is appropriate to discuss briefly the important role of community organizations in Eritrea which will play a significant role in the development of the country. Community life has been important in Eritrea, and community structures have been incorporated into the overall administrative and political framework of the government.

1.38 Traditionally, the kinship group (a number of inter-related families) has been the basic unit of the community structure in the highlands, home to predominantly Tigrinya-speaking farmers who live in cluster villages. The kin-ship group often coincides with the land owning unit, the ENDA. Within the kin group, authority is vested in the council of elders which regulates such social functions such as marriage and land disputes that arise between kin-related families. Above the kin-group is the village and then the district comprising of several villages or communities. Since pre-colonial times, villages have had a number of committees and these committees in turn have elected the district officer as the administrator for the villages.

1.39 Among the pastoral and nomadic peoples of the lowlands who engage in commerce, animal husbandry and some mixed crop cultivation, traditional community structure is based not on territorial units but on descent and kinship is organized along tribal or clan lines. These tribes and clans have had hereditary chiefs and a committee of (hereditary) elders. While this is the basic organization, a variety of systems exist to manage communal affairs. Over the past twenty years, the EPLF has been working to modify the administrative system of these groups by transforming the committees into elected councils, but the process is still on-going.

1.40 Immediately following independence in May 1991, the Provisional Government of Eritrea initiated a process of administrative decentralization that established a system of local government. This modern administrative structure makes use of many of traditional communal traditions. Elected councils called BAITOS have been established and allocated a wide range of decision-making responsibilities. The BAITOs are both the center of community life, and the foundation level of local government. Village and

district Baitos identify and prioritize community needs for services and interventions and communicate their priorities to the provincial administration. (Box 1.7) The baito structure is served by a number of elected development committees .

Box 1.7 Functioning of a Baito

Rora Habab in the highlands had severe water shortage, specially during winter, forcing the bulk of the population to emigrate to the coastal areas for the season. "We had to learn to harvest water, not mine it" says one member of the village Baito, "Wells were not effective in this area, and we have to catch water in dams". A few years ago, the village Baito assembly met and decided to do something about it. They mobilized the whole village population and asked for government support for a natural resource project which would include water management. It was decided that all labor costs would be borne by the village; 640 families took part voluntarily. "The key to successful planning at Rora was the participation of people in all aspects of planning, designing, construction and implementation. There was a monthly meeting of all village dwellers that participated in the project, but the meeting was open to anyone who was interested and wanted to be informed about the progress made. The meeting assessed the previous month's work and set the program for the following month. The Baito also supervised the creation of groups of 7-10 people who took the responsibility to carry out parts of the work load. For example, one group had the responsibility to carry out measures against army work, man insect that destroys crops. Other groups were busy with reforestation. Others were concerned with pit latrines, others with the introduction of new crops, especially vegetable and potatoes". All decisions were made by the Baito. If a particular action did not achieve the expected result, it was discussed during the assembly and a decision made to look for technical assistance. A few representatives would be elected to liaison with the line ministry. Monthly expenditure summaries would be provided to the Baito assembly and decisions made possible savings. So far the project has had a strong impact on the population. The living conditions have improved, and people are no longer forced to migrate. A school has also been built, and now the community is thinking of another school and eventually a health station.

Source : Revolution At Dusk, Robert Papstein, Red Sea Press ,1991.

1.41 The Baitos' primary revenue sources are the allocations made by the central and provincial governments for various developmental projects and some taxes and fees authorized by the provincial government to be collected by the Baitos (such as a local beer tax, for example). The Baitos also raise money and labor for community projects, including community contributions to projects funded by donors and sector ministries. Sometimes funds are raised on a voluntary basis and sometimes as a levy. At other times, contributions are requested only from the wealthier households, or from Eritreans abroad. Baitos have been known to send representatives to Asmara or Addis Ababa to collect funds. A particularly good example is provided by the ECRF pilot funded by donors which financed the building and rebuilding of infrastructure (about 150 projects) in Eritrea during 1992-95. Representatives of the ECRF visited villages and local communities and explained during village assembly meetings the opportunities offered by the Fund and its operational modalities. As the following table indicates, the communities provided donations in both cash and kind.

Table 1.8 Eritrea Social Fund - Completed Projects Under the Pilot

	No. of Beneficiaries ('000)	No. of Pilots	Avg. Cost to the Fund ("000 Birr)	Community Contribution (% of total costs)	Avg. Ministry Cost (000 Birr)
Health Stations	94.8	17	316.3[1/]	10.5	284.7
Health Centers	59.1	9	959.2	9.8	2,016.3
Elementary Schools	116.5	34	291.8	10.3	430.1
Hospital [2/]	180.0	1	448.0	12.7	N/A
High School	120.0	1	440.0	8.5	N/A
Micro-Dam	4.0	2	175.0	84.4 [3/]	N/A
Bridge	71.5	2	167.0	-	N/A
Water Supply	48.0	8	200.0	16.0	27
Flood Control	7.2	1	68.0	16.0	N/A
Total	701.1	75			

[1/] The average cost is higher than the average ministry cost, because three health stations were built in the remote province of Dankel, with very high transportation costs.

[2/] Partial rehabilitation of existing hospital

[3/] Mainly labor

Source: Staff Appraisal Report: Eritrea Community Development Fund, 1996

2. POLICIES AND PROGRAMS FOR DEVELOPMENT AND POVERTY REDUCTION

2.1 Developmental experience across the world has shown that strong and broad-based economic growth that makes use of the poor's most abundant resource -labor- is the basis for sustained poverty reduction. This has to be complemented by investment in human capital, particularly the basic health and education of the poor[2]. Since winning its freedom, Eritrea has demonstrated a strong dedication to the goal of development. Given the widespread nature of poverty in the country and the low economic base that it is starting from, a development strategy aimed at generating economic growth, equity and social justice is seen to be central to poverty reduction.

2.2 In a short period of time, the country has made significant progress in restructuring institutions, establishing key elements of a functioning government, eliminating a number of restrictive policies and expanding investment in human resources. In November 1994, the Government of Eritrea issued a policy document called Macro-Policy which highlighted the main thrust of government policy i.e. to swiftly move to a market economy; to introduce a liberal trade policy; provide a central role for the private sector as the engine of growth; and, to put a strong emphasis on human resource development[3]. In 1991, the GSE also launched an Emergency Recovery and Rehabilitation Program supported by external aid. This was followed in January 1996 by the Community Development Fund Project, also funded by donors, designed to rebuild physical and social infrastructure such as roads, schools and health centers. It is the purpose of this chapter to briefly review these recent economic and social sector developments and focus more detailed attention on actions that would move the country further towards sustained growth, human capital development and hence a reduction in poverty. The findings of Chapter 1 provide many insights that feed into this analysis.

2.3 The return to peace and the institutional reforms undertaken have helped to improve the environment for economic activity. After contracting by more than 1% p.a. during the period 1985-93, Eritrea's economic growth averaged 8% p.a. in the last two years. Export and industrial production as well as service activities have contributed to this growth through a partial rehabilitation of few large-scale industrial enterprises, a pick-up in construction activities, and a growing private micro-enterprise sector. Sustaining such high growth rates will require maintaining momentum of recent

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[2] World Development Report on Poverty, World Bank, 1990.

[3] See also Bank report "Eritrea: Options and Strategies for Growth" of 1994 (Report No. 12930-ER, November 1994) which provided a comprehensive discussion of the options for economic growth and development in Eritrea. The report also provided the broad framework within which human capital investment could take place.

macroeconomic and sectoral policy reforms, supported by selective public investment, as will be discussed below.

SOURCES OF GROWTH

The External Sector

2.4 Because of the small size of the economy, significant growth and transformation can only take place if Eritrea exploits all opportunities for export of goods and services, both traditional and new, and is open to foreign investment. In this effort, Eritrea can take advantage of its strategic location in the northeastern part of Africa, a long history of sea-trade through the two ports of Massawa and Assab, a past industrial tradition, and the skill, knowledge and wealth of its expatriate community.

2.5 The Government has, since independence, undertaken several structural and institutional reforms that are designed to support the objective of increasing exports and foreign investment. The import and export regimes are being liberalized. Most quantitative restrictions on imports have been eliminated and import tariffs reduced, with capital goods and spare parts being duty free and intermediate inputs facing a 2 percent duty. Export duties and restrictions have been eliminated and a 100% retention scheme for exporters introduced, along with a duty draw back scheme. Public sector import and export agencies have been dismantled to permit direct private sector trade. Export license fees have been drastically reduced and licenses automatically given through one window operation. A new Banking Law will be approved in the near future whereby private commercial banks (both domestic and foreign) are permitted to operate in the country.

2.6 Eritrea has also followed a pragmatic exchange rate policy to encourage exports and maintain external balance. Devaluation of the exchange rate has been accompanied by the use of a parallel auction rate for remittances and other transactions. The use of an attractive exchange rate has sustained a high level of remittances which currently account for 24% of GNP, a substantial increase from 14% of GNP in 1992. These remittances are mostly used for own-financed imports of goods.

2.7 In parallel with these external sector reforms, a new Investment Law has been introduced, which opens up all sectors to private investment and allows 100% foreign ownership compared to the old code which required 51% in certain sectors. Investments are guaranteed against nationalization, confiscation or other non-commercial risks. Approval time has been reduced. At the same time many restrictive policies of the previous regime that inhibited private investment have been removed. Private hiring of labor, formerly not allowed is now permitted. The labor code is being revised accordingly. Properties that were nationalized (e.g. retail shops, some large-scale factories, hotels etc.) are being returned to previous owners. The maximum income tax rates have been lowered for both personal and corporate income, from over 80% to less than 40%.

2.8 The initial success of these reforms has been a growth and some diversification of foreign trade (Table 2.1). Preliminary data shows that exports increased by 50% in nominal terms, albeit from a very small base. Two thirds of the increase was to non-Birr areas which bring in convertible currency. Salt was the most important commodity followed by beverages and tobacco. It will be necessary to expand and further diversify this base by developing "new" exports such as base metals, marble and granite and possibly some manufactured or processed goods such as garments and shoes and cement and, possibly, fish.

Table 2.1 Eritrea - Key Economic Indicators, 1992-1995

	1992 est.	1993 est.	1994 est.	1995 proj.
Economic Activity				
Real GDP growth rate	..	-2.5	9.8	6.0
Share of Agriculture /1	28.5	13.1	16.4	..
Industry /1	19.3	20.7	21.4	..
Services /1	52.2	66.2	62.2	..
Inflation, Asmara CPI index annual change	8.8	9.6	6.4	8.0
External Sector				
Growth rate of mchd. exports, current dollar terms	..	137.5	78.7	20.9
Growth rate of mchd. imports, current dollar terms	..	-5.8	26.7	18.5
External current account balance (% of GNP)				
Excluding official transfers	-9.9	5.6	2.7	-6.7
Including official transfers	16.8	19.2	16.1	7.4
Exchange rate, period average, Birr/US$	4.59	6.17	6.63	6.70
Auction rate	2.80	5.23	6.16	6.30
Preferential rate	6.37	7.10	7.10	7.10
Gross official reserves (in months of imports)	0.3	3.5	5.2	5.6
Fiscal Sector (% of GNP)				
Government revenue (excluding grants)	17.3	28.4	26.1	26.1
Government expenditure	26.0	49.6	50.9	47.4
Recurrent expenditure	22.8	35.1	39.6	35.7
Capital expenditure	3.2	14.5	11.3	11.7
Overall fiscal balance				
Excluding grants	-8.7	-21.2	-24.8	-21.3
including grants	-2.3	-5.1	-8.9	-9.3
Foreign financing of fiscal deficit (incl. grants)	0.0	0.0	3.9	1.0
Domestic bank financing of fiscal deficit (incl. grants)	2.3	5.0	5.0	8.2
Monetary Sector				
Growth rate of broad money	140.0	62.2	50.3	35.0

Sources: staff estimates and projections based on data provided by the Eritrean authorities.

1/ Percent of GDP at current factor cost.

Note : Much has been done by the GSE, with the support of IMF and the Bank Group, in improving the data base which for the present must be considered preliminary. It is expected that, with time, the accuracy and coverage of the data will improve.

2.9 The GSE should further reduce tariff rates and reduce tariff dispersion, and continue to take an active role in enterprise development and export promotion such as providing time-bound support (technical and marketing) to sectors with identified export

potential, and organizing contacts with importers and investors in foreign countries. The rehabilitation of the port at Massawa, which serves as the major port for import/export of Eritrean cargo as well as for an increasing volume of traffic for northern Ethiopia, along with improvements in management efficiency, would not only facilitate international trade but also provide opportunities in the medium term for setting up entreport facilities and export processing zones.

Industry and Manufacturing

2.10 Eritrea with a population of less than 10% that of Ethiopia retained almost 30% share of Ethiopian industrial production. As with other sectors, the years of war made most enterprises non-operational ; at independence, most of the public enterprises were not working, and were characterized by outdated technology, weak management and poor knowledge of markets. Access to foreign exchange was limited. Presently there are about 1000 industrial enterprises, of which 42 are in the public sector. Public enterprises are much larger (including a large oil refinery) while the private enterprises are small and fragmented. The main products are food products, beverages, textiles, leather goods, chemical products, glass and construction material.

2.11 The GSE has adopted a multi-pronged strategy for private sector led and export oriented development of enterprises. First, as discussed above an enabling environment has been created. Second, the physical infrastructure of the country is being rehabilitated and expanded. Third a hard budget constraint has been imposed on all public enterprises, and commercial procedures and practices are being rapidly introduced. Public enterprises are being exposed to domestic and foreign competition. The Government has announced that all public enterprises will be privatized. To this end, a supervision and privatization agency has been established.

Infrastructure

2.12 Eritrea's two ports, Massawa and Asseb, along with road infrastructure, were damaged by the war and have suffered from lack of maintenance for the past 10-15 years. The GSE's strategy is to rehabilitate these ports quickly, increase their use substantially and raise the level of services to international standards. Institutional reforms and improvements in management efficiency through increased autonomy and accountability are also major components in their rehabilitation. Eritrea has also embarked upon a program to rehabilitate essential roads and maintain its roads network; the donor-funded sector study underway should lead to an overall strategy for the sector.

Agriculture and Rural Development

2.13 As discussed earlier, the future for a small economy such as Eritrea lies in export oriented development of processing, manufacturing and service industries. Agricultural development does have a role to play, however, in the short to medium term even though modest natural resource endowments and poor climatic conditions limit agricultural potential. Some of Eritrea's new exports could derive from agriculture. Moreover, the

fact that 80% of the poor in Eritrea live in rural areas and depend on crop cultivation, animal husbandry and related off farm activities suggests that increasing the productivity of these sectors would have a widespread impact on poverty alleviation. Further, as illustrated by the village studies pictured in Chapter 1, farmers who have access to land-augmenting inputs such as irrigation can increase their income by producing higher-value crops such as fruits and vegetables for the domestic market and possibly for exports. In addition, Eritrea is a food deficit country; even in years of good rainfall, it produces only 60% of the food consumed and the rest is provided by food aid. Food self-sufficiency at any cost is not the right objective for Eritrea, and in the short and medium term, food aid will play a pivotal role in providing food security for the poor in Eritrea (See Food Aid). As we have seen in Chapter 1, without food aid, the incidence of poverty would be much higher.

2.14 However, a 60% chronic dependency on food aid is risky, and the country will have to ultimately earn enough foreign exchange to pay for food imports if necessary. Further, there is some evidence that the availability of free food is resulting in a mentality of dependence, and is driving up the wage at which people will seek work. (See Food Aid). To the extent that agricultural production can be efficiently increased by bringing in more land under cultivation, increasing irrigation and the use of modern inputs including extension advice, it will make an important contribution to income growth and food security of the poor.

Increasing Land under Cultivation

2.15 The data and knowledge base of Eritrean agriculture at this time is limited. At present, about 440,000 hectares of rainfed land are under cultivation. Although historical data are scanty, it appears that the area under cultivation declined from about 373,000 hectares in the fifties to less than 250,000 hectares in the late seventies before increasing to the present level. Much of this cultivated land (about 50%) is found in the highlands, where farm sizes are typically less than a hectare in size, a bit larger in Seraye. On the other hand, there appear to be significant (but as yet not accurately quantified) tracts of sparsely populated land available for rainfed development, mainly in the Gash Setit province in the southwest lowlands. The fact that these areas have remained sparsely populated is explained partly by the poor climate and associated health risks. Population pressures in the highlands had started migratory movements in the early sixties, but these were reduced to trickles by the war. At present, all this land is considered to be state-owned .

2.16 Private development of the sparsely developed land in the southwest lowlands is probably the best option for increasing agricultural production in Eritrea in the short to medium term. The Government has, over the years, encouraged commercial agriculture through the granting of concessions to private entrepreneurs on government held land in the lowlands. But there is need for some caution in expanding these concessions. First, the southwest lowlands are grazing lands for the livestock of a large number of pastoralists and agro-pastoralists and the rivers provide water for their animals as well. Second, these lowlands are also the (existing and proposed) sites for settling thousands

of refugees (see section on Refugee Rehabilitation). It is very important therefore that the Government have a comprehensive land capability and land use plan for the area. At the present time a task force has completed work on land issues in Barka. The report includes discussion of the principles for resolving competing claims, but no survey of resource use was carried out.

2.17 In actual fact, the Government has been rather prudent in granting new concessions or renewing previous ones. In the four years 1992 through 1995, less than 700 licenses have been granted (184 old ones renewed and the rest newly granted), accounting for a total of less than 15,000 hectares (compared to nearly 4300 requests for new concessions covering 185,000 hectares). However, even though the expansion of concessions has been modest, they have been concentrated on river banks. This location may create conflicts with pastoralists in their access to the water. The location of concessions near rivers and well-wooded areas may also give rise to environmental damage through felling of valuable tree cover if existing regulations are not enforced strictly. Care also needs to be taken to provide pastoralists with access to water.

2.18 The average size of the concessions is 12 hectares on old plots and 25 hectares for new ones. Most of the concessions are for irrigated production of fruits and vegetables, for both domestic consumption and exports. It is expected that the farms will create some demand for labor in these rural areas. Until the end of 1995, concessionaires did not pay any land rent or other area-related charges, but only a flat rate per concession. Starting from 1996, differentiated (according to whether land is irrigated or not, has access to markets or river, and soil quality) land rents have been introduced. This is a step in the right direction ; both from the point of view of raising much needed revenue and maximizing use of the land.

Irrigation

2.19 Only about 22,000 hectares are under irrigation, including about 4000 hectares under perennial irrigation and the rest under seasonal irrigation. Seasonal irrigation is mostly spate (flood) irrigation in the eastern lowlands and on the Alighider state-owned estate in the province of Gash Setit. On these lands, sorghum yields as high as 4 tons per hectare have been reported although not on a large scale and only in intermittent years of favorable river flows. In the western lowlands, irrigation from aquifers along the major rivers provide water for many of the concessions. Perennial irrigation is mainly in the form of small scale irrigation from hand-dug wells tapping the shallow groundwater. This is practiced on communal lands in the valleys of the highlands; water is pumped out of wells or small reservoirs and command areas are usually small, rarely exceeding 5 hectares.

2.20 Because data on surface and ground water potential is as yet not fully known, the future potential for irrigation remains to be estimated. The Government should therefore press ahead with the proposed study of Water Resources and Irrigation Potential. The study should include a program of groundwater drillings and the setting up of an extended system of permanent climatological and hydrological stations. This will

generate data over several years to permit a sound estimate of secure and sustainable water use. In the meanwhile, small community based micro-dams, wells and small irrigation canals, particularly in the highlands where holding sizes are very small, would provide profitable returns, provided appropriate community based maintenance and cost recovery systems are also institutionalized. Programs to repair the existing small irrigation infrastructure and build new such structures, based on community identified needs, should be strongly supported. Such programs are likely to have a special impact on the income of the poor by increasing the productivity of their small land holdings. The further --but controlled -- expansion of irrigation in the southwestern lowlands should also be continued.

Increasing Input Use

2.21 Agricultural production is generally characterized by low use of modern inputs such as improved seed varieties and fertilizer. Even farm manure is sparingly used because animal waste is used for fuel. Pests are a constant threat. Grain yields are therefore low even compared to rainfed agriculture elsewhere on the continent. The average yield in 1992 is estimated to be 0.7 tons per hectare varying from 1.8 tons in Semhar (under spate irrigation) to about .6 tons per hectare in the highlands. On irrigated land, particularly for growing horticultural produce, there is greater use of imported seed, fertilizer and pesticide. Nevertheless, the overall use of modern inputs is low: less than 1000 tons of fertilizer in 1992 for example. The research and extension services lack the needed skilled and trained staff and facilities. There is thus scope, even in the short to medium term, for increasing yields of crops through, most importantly, strengthening of the crop protection service, and, testing and introduction of improved varieties and the selective introduction of fertilizer where rainfall patterns justify this (for example in parts of Seraye and the border fringe of Gash Setit).

2.22 At the same time, efforts should be made to develop, in stages, a national research service covering all sub-sectors and focused sharply on the needs of the country's different agro-ecological zones and production systems; it should be entirely adaptive in nature and wherever possible be executed on producers' fields rather than in research stations. A longer research plan should be formulated with the assistance of expert international agencies. In agricultural extension, as in research, the situation is characterized by shortage of staff with advanced degrees. The future organization and orientation of the extension service has to be determined in synchronization with the development of a research service, but it should be an integrated service covering crop production, animal husbandry (see below) and forestry.

Livestock

2.23 Livestock numbers fell in Eritrea, from a high of about 2.5 million heads of cattle in 1972 to 1 million in 1992, and possibly further in the drought of 1993-94. Similar decline has occurred in the number of small animals. In recent years however, there has been a recovery and increase in herds. Income from livestock is an important component of total income, particularly in the lowlands, where about 50% of income is derived from

livestock compared to about 30% in the highlands. Ownership of livestock is also a feature distinguishing the poor from the non-poor. The poor have, on average, only 2 livestock units compared to 7 among the nonpoor households.

2.24 The foremost objective must be to protect the national herd from major epidemics; in this context, it is impressive that the Government was able to vaccinate 50-55% of the national herd against Rinderpest. Beyond this, animal husbandry strategy must be differentiated according to agro-ecological zones. In the desertic and semi-desertic lowlands, the traditional system of moving livestock in accordance with rainfall is the most efficient way of utilizing available fodder. Improved market information may facilitate the flow of stock onto domestic markets or into exports. Provision of water points and improved range management could also be tried on a pilot basis. In all other zones, particularly the highlands, the scope for increased animal productivity will be a function of progress in crop production which provides the by-products required as animal feed. Introduction of forage in the farming systems and backyards of farmers, adaptive trials and seed multiplication are all areas worth supporting. The most readily available entry point for developmental activities in the dairy industry is through the dairy farmers associations around major towns. Expanding and improving the supply of milk and milk products has high priority from the nutritional point of view. Technical advice, improvement of breeds and other appropriate investments may be made after a careful study of demand and constraints.

Rural Roads

2.25 While the provision of infrastructure is not a sufficient condition for growth, it is central to people's abilities to respond to new opportunities and changes. In rural Eritrea where people obtain about a thirdof their income from self employment, working for others and from trade, the role of infrastructure is quite central, both for expansion of current activities and creating new ones. Perhaps the most critical of all production-related infrastructure is the roads network. In Eritrea, the rural road network is badly run down. In the lowlands, particularly in the southwest, the network is inadequate, particularly in light of the expected expansion of activity in the region through resettlement. The main program for building rural roads and related infrastructure has been the donor-supported community development programs referred to in the last chapter. As in the case of small irrigation infrastructure, this activity needs to be based on community based choices, and the institution of community based maintenance and cost recovery systems.

The Services Sector

2.26 As in many parts of Africa, the services sector is the largest in the economy. Activities in the services sector are usually labor intensive and can be expected to increase employment and reduce poverty in Eritrea. It is the experience of many developing countries that growth in other sectors is the main determinant of growth in this sector. Thus for example in Eritrea, the inflow of remittances is the driving force for the increase in construction activity and other services such as transport, wholesale and

retail trade. Demand for services described in Box 1.3 of Chapter 1 for example, is crucially related to the income of people living in cities. Similarly, it is the increased production of crops that determines the opportunities for trade (marketing of inputs and output) and self-employment in off farm activities in rural areas which are so important to growing out of poverty.

2.27 Even though the primary demand for services is derived from other sectors, some investments and regulations can either facilitate or constrain the growth of these service activities. An important facilitating investment is that in physical infrastructure, i.e. roads and communications as already discussed. On the other hand, over-regulation of the sector, particularly the informal micro-enterprise sector, can reduce its potential for income generation and poverty alleviation. There is as yet little knowledge of the informal sector or the constraints it faces. A small ILO survey however highlights some of the problems they encounter. A majority of those surveyed cited high rents --9 Birr per month for one square meter of space compared to a gross income of 25 Birr per month--, working conditions and lack of basic services as the primary constraints. Lack of credit, access to markets, high cost of inputs and, significantly, municipality regulations, were each quoted as a major constraint by 50% of the respondents.

SOCIAL SECTOR STRATEGIES

Health

2.28 As explained in Chapter 1, Eritrea has started on the road to rebuilding its human capital. The Ministry of Health has formulated its plan in the health sector in the document "Strategic Health Sector Plan" (early 1995), a policy document that proposes to improve health status by implementing primary health care throughout the country. Active participation of the private sector and the support of the community through local contributions will be a part of the strategy.

2.29 The main health problems faced by the Eritreans are ones which are amenable to primary health care interventions, as the following table indicates. The top five diseases in terms of discounted life years lost are Perinatal/maternal diseases, Diarrhea, Respiratory Infections, TB and Malaria which together account for over 62% of the burden of disease in terms of life years lost. Available information on visits to health facilities confirm this pattern of disease. In addition, the prevalence of HIV infection as discussed in Chapter 1, is now estimated to be much higher than earlier understood, perhaps as high as 3% of the population.

Table 2.2 Eritrea's Burden of Disease

Major Diseases	Share of Life Years Lost
Perinatal/Maternal	17.9
Diarrhea	17.4
Acute Respiratory Infection	14.7
Tuberculosis+	7.3
Malaria	5.6
HIV	2.0
Immunizable Diseases	4.4
All Others	30.7

Source: M. Sebhatu et al., Burden of Disease Study, Ministry of Health, 1994. Note : A life year lost is the difference between the age at which a person would have normally died (average life expectancy in the industrialized countries) and the average age of death in Eritrea as a result of a particular disease. The data presented do not refer to rates of prevalence of diseases although there is a close rank correlation.

2.30 The strategy for achieving primary health objectives is the implementation of primary health care services. At present, 183 facilities (including MOH, NGO and Missionary) provide basic health care services on an ambulatory basis as well as inpatient care. In addition, there is one private hospital and perhaps up to 15 physicians practicing medicine privately, mostly part time. Fifteen full-fledged pharmacies, 15 drug shops and 65 rural vendors complete the health system.

2.31 A review of the existing state of primary health care services show considerable improvement since independence. The number of facilities providing immunization (the most closely watched indicator is immunization coverage) has increased and current estimates (1995) suggest that 25% of children under one year of age are covered. Solar powered storage refrigerators for vaccine have been installed in many facilities. As already noted, the share of under 5 children monitored for growth has tripled to 22%, there is a doubling of the share of pregnant women having at least one ante-natal clinic visit, and far more women give birth in a health facility or are attended by a trained health worker. The average number of people attending a health education class has increased from 24 to 49.

2.32 Nevertheless, the average attendance at health facilities is low in comparison to other countries -- between .7 to .8 per person per year, compared to 1.5-2 per person per year in other sub-Saharan countries and 7-8 in more affluent countries. Further, as discussed in Chapter 1, the number of and visits to facilities varies, along with other indicators of facility use, with the urban areas and the highlands being favored. The strategy for improving the health status of Eritrea must therefore concentrate heavily on improving access in rural areas and the lowlands. In the lowlands, it will be necessary to deliver services to a widely dispersed population.

2.33 The financing of this strategy is another area to which the Government needs to pay close attention. The MOH via the national budget financed health services to the tune of about 1.1% of GNP in 1994, and a similar amount may have come from international donors. (It should be mentioned here that Eritrea is still in the process of

adopting a formal budget and therefore all data on public expenditures are provisional). In per capita terms, the average public sector spending during 1993 and 1994 is estimated to have been less than two dollars, i.e. much lower than $ 4.8 for Sub-Saharan Africa. This low level of spending, i.e. about 104,000 Birr per health station and 217,000 Birr for a health clinic has to be substantially increased if the range and quality of services is to improve.

2.34 The MOH does not fund much preventive services such as immunization and malaria control because international spending has been available for these services. But important programs such as Malaria and Tuberculosis control and treatment, the control of AIDS, and programs for Population and Family Planning are inadequately funded. An equally disquieting feature of MOH funding is that hospitals receive the largest share -- 70% in 1994. This, inspite of the fact that a number of health centers and stations have been rehabilitated and opened in recent years with donor support, and a further expansion is rightly seen as essential for providing primary health care throughout the country. Budgeting adequately for the expansion and recurrent costs of primary health giving centers is therefore of the greatest importance.

2.35 The financing issues for the health sector are therefore three fold i.e. to increase per capita public spending overall, reallocate spending towards health centers and stations, and provide adequately for the important basic preventive and curative services. The Government is aware of these issues and has proposed a significant increase in the 1995 health budget. with hospitals getting only 46% of public expenditures. The Government has also instituted user fees, particularly at hospitals. The present fee schedule, if actually collected, could yield upwards of 20% of recurrent expenditures of the Ministry of Health. The policy has a number of attractive features, including fee differentials for non referred patients, and local financing of fee waiver vouchers, however it is unclear whether the cost-sharing funds raised will be additional or substitute for further public fund allocations from the Ministry of Finance. Further, since all fees are expected to be returned to the Ministry of Finance, there is a possibility that collections may not be as vigorous as may be expected due to the lack of a local incentive for collection. Finally, the financial management systems in place for managing the fees collected have yet to be fully implemented throughout the health system. It is also important to note that the price elasticity of demand for health services in Eritrea has not been empirically estimated because of lack of data. Experience in other sub-Saharan countries indicates that utilization declines if fees are increased without concomitant increase in service quality. It will be prudent therefore to carefully monitor the impact.

2.36 An important part of primary health care is the availability of drugs. A public parastatal under the jurisdiction of the Ministry of Health imports drugs and in turn distributed to the pharmacies, and drug vendors. Items supplied by donors is distributed free to all government run health facilities. Patients either get the drugs free at the government facilities at the time of consultation, or, when not available, buy them from the private pharmacies and drug vendors. The Ministry of Health promulgated a national drug list, based on WHO guidelines in 1993. Surveys and anecdotal information provide a mixed picture of availability of these essential drugs; while for the most part, drug availability at health facilities is good, temporary shortages and distribution delays do

occur. A Bamako initiative type of drug revolving fund could be explored for sustaining the provision of pharmaceuticals in the country.

2.37 Utilization of hospital beds is low outside of Asmara , ranging between 40% to 60%. The expansion of hospitals should be kept to the minimum and whatever expansion there is should be based on a careful cost benefit analysis incorporated within a financing management framework and designed to sustain basic health services incorporated

Education

2.38 At the time of independence, over 80% of the population of the country was illiterate and the education sector was in a state of severe crisis due to damage to schools, demoralized teachers, an almost total lack of textbooks and other materials, high rates of repetition and drop-out. Although Eritrea has made much progress in each of these areas, achieving widespread basic education and literacy remain the highest priorities. In addition, as in the case of health care, financing issues (public expenditure is 2% of GNP), and regional disparities need to be addressed. Ethnic minorities in Eritrea constitute the least educated of the Eritrean population. Children of nomadic groups are less likely to attend school, more likely to be overage and to repeat grades and more likely to drop out of primary school without achieving literacy. Although gender inequalities do not appear to be as severe as in some Asian developing countries, in some rural lowland areas girls are less likely to go to school. Everywhere, as explained in Chapter 1, the rate of repetition is much higher for girls, and performance in achievement tests is lower.

2.39 The problem facing the education sector is primarily lack of access to facilities, particularly in the rural and lowland areas. Rehabilitation and building of new facilities, particularly in the presently underserved areas is therefore of critical importance. In fact, the Government has, with donor support, started on just such a program and between 1992 and 1995, 136 primary schools were constructed and 169 rehabilitated. The varied topography and differing population density of the country requires that the size and capacity of the schools be kept flexible so that more but smaller facilities are constructed closer to where people live. This too has been the Government's policy.

2.40 Rehabilitation and building of new facilities must go hand in hand with providing complementary resources, i.e. teachers, books and other teaching materials. As in the case of health, the opportunity to share the cost of schooling with the community and direct beneficiaries is being explored by the Government. In fact, communities contribute in kind and money to the building of schools and their maintenance, and although primary education is free, parents in some areas have started paying a registration fee. In some community schools, teachers salaries are also paid by the community.

2.41 A second priority is the provision of secondary and technical education. Compared to a gross enrollment rate of nearly 50% in 1995 at the primary school, enrollment at the junior secondary level is only 23% and 15% at the senior secondary level. As illustrated by the examples in Box 1, parents wishing to provide secondary schooling have to send their children away to the provincial and national capitals, and

sometimes split the family. Basic education (i.e. primary and junior secondary) has benefits for society as a whole as well as to the individual and provides basic skills and knowledge necessary to function effectively in society. Secondary and technical education provide fewer benefits to society, greater individual benefits and have to be more market-oriented in the sense of providing training relevant to labor market conditions. Because of higher private benefits, there is scope for more cost recovery at these higher levels of education, a principle that the Government has accepted. (In fact, secondary school students pay for textbooks which includes the cost of printing and distribution). Cost recovery should be introduced in all new secondary schools being built by the Government on an experimental basis.

2.42 The shortage of technical skills is also apparent in the private sector. The technical schools and skill development centers are very few in number and provide training to less than 1000 people. The experience worldwide is that vocational training institutions in the public sector are generally ineffective in gauging labor market needs and responding to changes quickly. Further, job-specific skills are best taught in specific job settings. But Eritrea's special conditions after 30 years of war may require a different approach. During the war, little technical skill could be gained and therefore the stock is low. The private sector is in a nascent stage. The economy is seriously constrained by the absence of even basic technical skills needed for sustaining economic activity. It may be necessary therefore for the Government to, in the first instance, finance a few new vocational centers and , at the same time, test other approaches that involve the private sector and workers in managing the centers, that provide training vouchers and that experiment with different modalities of cost recovery. Based on these experiments and collection of data and understanding of the labor market, a more appropriate strategy can be developed in the medium term.

SOME SPECIAL ISSUES

Food Aid and Food Security

2.43 The size of the so called "structural food deficit" i.e. the difference between recommended consumption of food and domestic production in a year of normal rain, is uncertain given the uncertain nature of the data on the size and stratification of the population and on agricultural production. It is estimated however that in the last 20 to 30 years, Eritrea has never been able to meet more than about 60% of its cereal consumption requirements from domestic production whilst in many drought years, the food gap has been over 70%. An average of 235,000 tons per year of food aid was provided during 1991-94, making Eritrea one of the highest recipients of food aid per capita. Much of the food aid was distributed free to the needy i.e. the disabled and elderly and their families, orphans and those taking care of them and female headed households with small children. In some areas, food aid was given to everyone. Farmers and pastoralists in drought stricken areas were also given free food, as were ex-fighters, spontaneous and repatriated returnees. In urban areas, in addition to free food to the needy, there was a subsidy on bread rolls. Food aid was also channeled to food for work programs executed by the government ministries and some NGOs.

2.44 While the relatively widespread use of free food undoubtedly helped in the initial years after independence, it became increasingly apparent to the Government that an attitude of dependency on food aid had developed particularly since the conditions of eligibility were not strictly enforced. This had the result that people expected the Government to maintain them or at least provide them with work close to home. This had reduced labor supply and labor mobility with consequent labor scarcity for development projects and in the commercial concessions of the lowlands[4]. The implicit wage rate in many food -for-work programs was also higher than the market wage-- although the daily ration had a cash value of some 7-8 Birr for example, the worker only needed to put in 3-4 hours per day.

2.45 Recognizing these drawbacks, the Government announced a change of policy in early 1996. Food aid received from various donors will henceforth be monetized and the monetization proceeds will be used to provide cash grants to the needy and for development projects to be implemented by the line ministries. All food wages in food for work programs will be replaced by cash wages. At the same time, applicants for food aid will be screened more critically than in the past and eligibility criteria will be enforced more strictly. In particular, able bodied persons will be urged to earn their livelihood through participating in development projects, even if that means leaving their place of residence for that purpose.

2.46 There are several desirable features of the new policy relating to food aid. Monetization can help mitigate some of the adverse side-effects of food aid such as artificially increasing the supply price of labor and reducing incentives for local food production, provided the price at which it is monetized is appropriate. Monetization can also provide for greater flexibility in the use of donor resources for developmental projects. On the other hand, there is a risk that the government's budget will become dependent on counterpart funds.

2.47 Many implementational details of the monetization program in Eritrea are still evolving, but it will be important to focus on some critical parameters. An important issue is the price at which food-aid is sold on the market. The current plan is for the Eritrean Grain Board (EGB) to buy the donor food from the Government (i.e. the rehabilitation agency ERRAC) and transport the purchased food to various locations for sale to retailers. The price to be charged by the EGB will be determined by the price considered "affordable" to consumers, after taking into account the different logistical costs such as port handling, transport, storage and profit margins for retailers. It is important to note that if the resulting price is, on average, substantially lower than the import parity price, then the monetization of food will have the same kind of detrimental impact on incentives to work and produce as free food distribution did. Because the EGB will market substantially more grain then the country's domestically produced marketable surplus, it will in fact set (rather than follow) market prices. It is even more essential therefore that the EGB use the import parity price (rather than a desirable price to the

[4] Rural wages are now said to be around 15 birr (US$ 2.35) per man day and some concessionaires even add a 5-10% share of sale proceeds) .

consumer) as the main yardstick. Since the needy will be covered by cash transfers, there will in fact be no need to keep prices artificially low. Their interests can be protected by setting the amount of the cash transfer at a level that enables them to purchase the targeted amount of food at import parity prices.

2.48 A related issue is that of the disincentive impact of large-scale trading activities by a parastatal and of pan-territorial pricing on private trade. Regional price differences are substantial in Eritrea and provide strong incentives for private trade. While there is little dispute of the need for EGB managed distribution of grain in the more distant areas of difficult access such as Sahel and Dankalia where few private traders would venture, it is both unnecessary and undesirable for the EGB to act as the distributor of the entire quantity of monetized grain throughout the country or to try and control retail prices everywhere. Auctioning of grain to private wholesalers in the port towns would require far less EGB infrastructure and personnel and be far more conducive to the development of private sector trading activity to which the Government is committed. Since the Government now has in place a functioning system for collection of price data from all over the country, it could monitor price variations closely and intervene in retail marketing only if and when necessary. It has been the experience of other countries in the region that large-scale state trading operations are financially costly, that the costs are rarely recovered and result in large subsidies from the budget. This is an experience that Eritrea should avoid.

2.49 The use of monetization to pool donor resources to finance approved (by the Macro Policy Office) projects will be a highly desirable outcome that the donors can support. A broad agreement on the kind of projects or programs to be implemented could be reached and transparency assured by the provision of independently audited accounts of monetized funds.

Land Reform

2.50 In an effort to improve the incentive structure for improved land management and utilization, a law was approved in 1994 that introduces a reformed and uniform land tenure system. According to this law, all land belongs to the state and is leased to Eritreans for a life-time usufruct. The land may not be sold but usufruct rights are inheritable. Land can be mortgaged, and tenancy and share cropping arrangements are permitted and recognized. Every Eritrean over the age of 18, regardless of gender, marital status or ethnic origin, qualifies for a life-time right of usufruct over currently held land or land that will be allocated in future.

2.51 The new policy will modify or replace a variety of complex local systems of land tenure. These fall into three broad categories. Village ownership or DEISA is the most common system in the land-scarce highlands . In this system, there is periodic redistribution of the land among inhabitants for cultivation. The system of (extended) family ownership RESTI or its variant TSILIMI, prevalent in the lowlands, permits redistribution only within the family and in some cases provides inheritable rights. The third, i.e. state ownership or DEMANIALE was introduced by the Italian administration

early in this century and covers most of the lowlands. It resulted in the creation of some state farms, but more importantly, a system of concessions to private commercial farmers. The traditional types of land tenure include a common pool of undivided land or GULTI used to graze the community's livestock and serve as a reserve. The land tenure system has been far from stable over the last century, and as a result, mixed forms of these three main variations exist in many locales.

2.52 The motivations for the new law are several. A primary motivation is the prevention of fragmentation of land. In all traditional systems, holding sizes have become smaller as population has grown. A second motivation arises from the perception that in community ownership which changes user rights every few years, there is less incentive to make improvements to land such as planting trees, terracing and building irrigation channels. A third factor is the perceived lack of access to land by migrants and returning refugees. And finally, it is believed that women will have better access to land in the new system, particularly in those areas where the system of family ownership prevails because this system may not fully protect the rights of access and inheritance for women.

2.53 The implementation of the new laws on a nationwide basis is yet to begin. At present, housing concerns in the peri-urban areas seem to dominate and thus sorting out tenure and land use issues in the areas surrounding the city of Asmara are receiving priority. In Hamasien, a pilot survey was undertaken, comprising land use patterns in 13 villages in the expanded Asmara region. Village land was surveyed and classified by land quality and land use and village maps have been produced. A similar survey was conducted the highland district of Tselema but no reallocation has taken place yet. Considerable uncertainty therefore persists regarding the implementation of land reform, which may discourage on-farm investment.

Refugee Integration

2.54 The reintegration of nearly a half million refugees will be a difficult task. Over 70,000 people have returned spontaneously and about 25,000 repatriated through a pilot program. The Government prepared nine pilot settlement sites in areas thought to be suitable for the returning refugees. As it turned out, most refugees (nearly 90%) wanted to return to the Gashsetit province and the government is therefore building more resettlement sites there. Rehabilitation includes the provision of relief supplies and basic services not only to the refugees but to the hosting communities. In addition, many quick impact projects were started. The Government will also provide the returning refugees with long term leases to land. There are many issues, including cost, that need to be considered while designing and implementing a program of settlement. In addition, experience from the pilot program and other settlement schemes suggests that the program should offer, not a fixed package but the chance to choose from a few alternatives -- for example, farming, animal husbandry or cash and that the receiving communities should also receive some benefits.

ANNEX 1: RAPID APPRAISAL SURVEY METHODOLOGY AND CALCULATION OF POVERTY LINE AND INCIDENCE[5]

Rapid Appraisal Methodology

The Rapid Poverty Appraisal was carried out in October 1993 and additional data collected during a further mission to Eritrea in September 1994. The field work for the Rapid Appraisal lasted six weeks, and was carried out by three survey teams coordinated by the National Statistics Office (NSO), with the assistance of a donor-funded specialist. Each survey team consisted of three interviewers, a supervisor, and a driver. The interviewers were third year and fourth year economics students from the University of Asmara, who were coached in the Rapid Appraisal Survey methodology by the specialist and the NSO supervisors. Of the nine interviewers, four were women. They were assisted by locally recruited facilitators who served as interpreters and guides during the interviews with households and community groups. During the six week period, the teams covered all provinces with the exception of Dankalia Province.[6] The goal was to cover a representative sample of communities typifying the most important variations in conditions throughout the country, including major population centers and outlying isolated areas. In total, 92 communities (villages, small semi-urban centers, and urban neighborhoods) were surveyed. Each survey included one or more community level sessions and a number of individual household interviews. In total the teams conducted 664 household interviews.

Sampling. The communities and households were selected by a combination of random and purposive sampling. Sampling proceeded hierarchically, starting at the national level and moving to the provincial, the district, and, finally, to the community level. At each stage the team consulted experts in Eritrea who had intimate knowledge of the various factors on which selection was based. The conversations were guided by reference maps or schematic drawings.

Table A1.1 summarizes the main factors used in the selection process.

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[5] This annex provides a brief explanation of the main steps involved in conducting the survey and calculation of poverty incidence. The full documentation and data gathered is available upon request.

[6] Dankalia Province is arid and very sparsely populated, and makes up between 3 percent and 4 percent of the total population of Eritrea. Its capital, Assab, is one of Eritrea's two ports. Beyond Assab, the population consists largely of scattered, nomadic communities over a large territory, with very poor communications. It was decided that it would have taken too long to cover an adequate sample of the nomadic population for Dankalia Province to be included in a rapid appraisal. Therefore, it has been proposed that Dankalia Province be the subject of a special follow-up survey.

Table A1.1.: Factors used in Community Selection for Eritrea Appraisal

Primary Selection Factors		**Secondary Selection Factors**	
Ecology / Agricultural Potential		*Agronomic Factors*	
Indicators:	1. Soil fertility 2. Gradient of slopes 3. Rainfall conditions 4. Presence of irrigation, water harvesting, or flood diversion 5. Access to alternative ecological niches	Indicators:	1. Crop management capacity 2. Animal management capacity 3. Forest resources 4. Harvest conditions
Degree of urbanization		*Degree of Isolation*	
Indicators:	1. Community Size 2. Availability of services 3. Availability of non-agricultural employment	Indicators:	1. Access to and location on road system 2. Access to transport: distance to and frequency of service 3. Access to markets and social services
Representativeness		*Additional social factors*	
Indicators:	1. Distance to nearest selected community 2. Location on selection gradient	Indicators:	1. Ethnic and religious composition 2. Degree of heterogeneity of the community

Of primary concern in selection were three factors: (i) ecological variation (or often more significant, agricultural potential) as the most important factor distinguishing different types of rural communities; (ii) degree of urbanization as the main factor distinguishing truly urban communities from small rural towns; and (iii) the extent of coverage desired for the region, given the existing population density and the variation among neighboring communities. Each of the primary factors used in selection was related to a number of secondary selection factors. If for instance, some communities in an area were thought to be particularly important because (for example) of their key role in trade, more communities were included in the sample than would have been warranted on population proportions alone. Another example would be communities thought to be more than usually heterogeneous. In a few cases, the reverse might be true. Areas considered largely homogeneous were surveyed less intensively since the amount of new knowledge that could be obtained by adding more cases would have been limited. However, these departures from a representative grid were exceptions. In general, most of the selection factors turned out to be strongly correlated to ecological zone (or micro-climate) and community size. Consequently, it was seldom necessary to select additional communities on the basis of secondary factors. The outcome of number of communities selected was close to the original planning grid for each region.

Box A1.1: Three Examples of Sampling Selection

Community Selection in Seraye

Seraye Province consists of a central high plateau, gradually descending in the west towards the lowlands of Barka and Gash-Setit. To the east and south the plateau skirts the deep incision of the Mareb valley. In the south, the Mareb river forms the border with Tigray Province of Ethiopia. This side of the plateau is unusual for its marked relief structure, consisting of long ridges and deep valleys. The communities selected in Seraye reflect these different topological/ecological patterns. The sample included (i) a number of communities of the central plateau (there was significant, although not total crop failure in this area 1993); (ii) a range of communities along the gradual slope towards Gash-Setit (those located on the east-west axis were most vulnerable to crop failure, and those on the lower end most dependent on firewood trade): and (iii) a number of communities in the South close to the border with Tigray, where crop failure was nearly total in 1993. It was decided not to include the larger urban towns in the sample, as similar communities from neighboring Akele Guzai were included.

Community Selection in Semhar

Semhar Province consists of a coastal plain, with the port of Massawa at its center. The main road connecting Massawa with the Asmara, the capital of Eritrea, lies along the north-south axis of the Province, almost dividing Semhar into equal parts to the east and west of the road. Most of the rural population of Semhar live in the communities near this road, which climbs rapidly from sea-level to the central highlands of Hamasien Province. The ecological variation along the way is considerable as the road passes from the hot and arid Coastal Plains Zone into the humid and moderate Green Belt Zone. A first group of communities were selected near this road to represent this ecological variation.. A second group of communities was selected near the coast, east and west of Massawa, while a third group of communities was selected more inland at some distance from the road but still in the Coastal Plains Zone. Together these communities represent the typical variation in economic opportunities found in Semhar: trade, fishing, firewood collection, pastoralism, crop cultivation, farm labor, and migrant labor in the port of Massawa. Several communities were involved in spate irrigation, and one of the communities selected could be reached only on foot. Massawa city, one of the main urban centers of Eritrea, was also included in the survey, and interviews were conducted in three parts of the city.

Community Selection in Barka

Barka province is very large. It's capital, Akordat, lies on the main road between Kasala (Sudan), Tesseney, Barentu, and Keren. Three communities were selected on this road, including Akordat itself. One of them actually belongs to Gash-Setit Province as it is close to the Provincial border. Three other communities were selected to the east of the road in the foot lands of escarpments with Hamasien and Seraye Provinces. To the west, most of the population lives along the trade route towards Keru, Sawa-Forte and Girmaika near the Sudanese border, and along the Barka valley to the north-west. People in this area live scattered in family units and in trading centers. Trade, livestock rearing, flood plain cultivation and small scale irrigation using wells are the dominant activities. Communities were selected at different distances from Akordat in both directions.

The process of selection of communities was also utilized at the household level. In larger towns and cities, a number of zones or sub-zones were selected with the

objective of including areas that were locally viewed as poor sections.[7] In smaller towns particular attention was paid to the outskirts of the towns, where houses are often of lower quality than those in the more settled town centers. In villages or small communities no standard pattern of selection was utilized. Once the neighborhood or village community was identified, the aim was to obtain a representative picture through systematic sampling. Care was taken to include households from different parts of the community in the sample, avoiding either a "road-side" or "center" bias.

The sampling procedure adopted required the weighting of results through population proportions represented by the different selected communities. A complication in the Eritrean case was that reliable population estimates are lacking. However, although there are wide discrepancies among different population estimates, most sources agree on the broad regional proportions of the total population.

Table A1.2.: Regional population distribution estimates

Province	% of population	% urban
Asmara	17	100
Akele Guzai	12	12
Barka	7	8
Dankalia	4	25
Gash Setit	11	8
Hamasien	10	0
Sahel	7	12
Semhar	5	28
Senhit	11	25
Seraye	17	12

Note: Staff calculations.

Table 1.2. shows an approximation of the regional distribution of the population used for weighting the sample. The second column in the table presents the proportion living in urban communities.

Team organization and interview content. Interview teams consisted of three interviewers and a supervisor. Each interviewer, working with local facilitators/interpreters, was allocated one section of a community and moved from house to house to conduct household interviews. Meanwhile, the supervisor conducted a community-level interview with the local leaders, community representatives and administrators, often followed by household interviews if time allowed. The final number of interviews depended on the time availability (transport constraints sometimes limited the number of interviews) and on the depth of the interviews. Each interviewer would typically conduct two to three interviews per day.

All interviews were semi-structured. The community level interviews focused on an overview of the living conditions in the community. Generally, statistics were

[7] If an administrative division in zones and/or sub-zones existed, this was followed. Otherwise the neighborhood selection was based on the community lay-out.

available on the number of households in the community, and an estimate of the number of poor households was also made available in situations where the local administration had made counts of people eligible for assistance of one kind or other. All surveys included discussions with the community leaders of the main problems as experienced by the community. Another recurrent theme was the subject of refugee returnees (for example, the number of spontaneous returnees living in the community; expectations of future returnees, and adequacy of community services to respond to those already returned or expected to return). Other topics included in all surveys were the sources of livelihood of the inhabitants; the quantity and quality of the farm land available to the community; the land tenure system; harvest conditions; alternative sources of income in the case of an harvest failure; the availability and quality of water; the distance to health facilities; access to public transport and the nearest school.

At the household level, interviews systematically covered certain categories of information: household composition; economic activities; size of farm land; harvest expectations; optimal harvest; and number of livestock. A common starting point was a short life history of the respondents; where they came from; how they settled in the community; how they had been married or divorced; and what had happened to them during the independence struggle. Once this type of information was available, interviews focused on understanding the way the household made its living; the type of income earned; the daily, weekly, or monthly budget; and the type of expenses incurred. Interviews also included a discussion of what the respondents understood as "being poor", and how they responded to and coped with poverty and misfortune.

Each evening the survey teams met to write a summary report on the community they had visited. This report combined the major findings on all household interviews with the community level interview. In addition to a systematic presentation of the main results, the report included special observations related to the community, new issues that had not yet been encountered elsewhere, and views on important issues that had arisen during previous community surveys (including the need for greater clarification, the testing of hypotheses, or the search for patterns, similarities, and differences). Especially during the earlier stages of the Appraisal, each team presented its own report at a daily meeting of the three teams. This was followed by discussions and sharing of experiences, and decisions concerning the main directions of the next round of surveys. Each team produced a summary report of the key conclusions drawn from their fieldwork during the survey.

Estimation of household incomes from rapid appraisal data. Estimation of household income was done in an iterative fashion. Data collected in interviews were used to develop a simple representative model for each economic activity pursued by the households in the sample. For example, interviews with women who earn a living making mats indicated a range of output (ability to finish a certain number of mats in a particular time), selling price (what they receive in the local market) and costs (of materials, taking account of the fact that some left-over materials are productively used). Following these interviews, checks were made on whether prices and material costs were equal in different parts of Eritrea (it was found that materials were far cheaper in urban than in rural areas), whether there were cases of women reaching higher production volumes,

and whether there were major variations in the amount of income women could earn through making mats. Both the results of the interviews and this follow-up validation procedure were used to arrive at estimates of income that could be earned from mat making.

In some countries with a low GDP, it is difficult to estimate incomes in monetary terms, because the economic activities of the population are rarely expressed in monetary terms. In Eritrea however, it was possible to obtain monetary values for almost every service or activity, even when a form of barter was used. For example, poor people may work for a few days in the fields of the owner of a pair of oxen, in return for which they are allowed to use his oxen on their own farms. The number of days of work exchanged for the use of oxen (valued at the usual rate for agricultural day labor) is roughly equivalent to the rate usually quoted for outright hire of oxen.

The most important and difficult estimation was that of income from livestock ownership. Household interviews captured information regarding the number of animals owned, prices obtained for any produce sold, and rates at which animals could be hired out. These data were used to estimate income derived from livestock ownership i.e. sale of livestock and livestock products, hiring out etc., taking account of reported farm gate prices and officially recorded market prices in different parts of the country.

Estimation of Household Expenditures. The main purpose of collecting data on households expenditures was to construct a poverty line. Expenditure data were more difficult to estimate than incomes not only because of the different types of food consumed but also because expenditures vary with the availability of ready cash (or credit to bridge a temporary shortage of funds). In households with a more regular source of cash income (salaried workers, larger volume traders, or, in general, the "rich"), household consumption can be readily expressed in terms of a daily, weekly, or monthly budget. to be reliable without an extensive survey. But for households without a regular source of income, expenditure is often bulky.

Reliability and validity of the collected data. Reliability needs to be assessed from two points of view. First, there is the degree of confidence around the computed incomes. Individual incomes may differ from the derived estimates, since representative models were used to compute the incomes. Checks of the stability of model parameters (such as ownership of livestock and land, the income earning activities of households) that were performed indicated that they were quite robust, in particular price variation generally turned out to be small; and where a larger variation was discovered, it usually was related to entrepreneurial decisions (such as to sell a young animal rather than a full grown and heavy animal). A second aspect is the *reliability* of the survey data for computing nation-wide per capita income. The most significant problem in assessing this was the lack of suitable population data that could be used to improve the weighting of the results. The differences among the various sources providing regional population distributions is fairly limited and the effect on weighting factors is small, certainly within cautious margins. However, it is more difficult to set actual confidence intervals for the computed values as this depends on the absolute regional population figures. Therefore, the computed values for annual incomes from the total sample have a margin of error of

about 15 Birr per capita for incomes below 200 Birr per capita (those at the lower end of the scale), and 375 Birr per capita for incomes over 1000 Birr per capita (those at the higher end of the scale). In other words, an average per capita annual income of 100 Birr should be interpreted as between 85 and 115 Birr per capita per year.

Calculation of Poverty Line and Poverty Incidence

Poverty Line. The most common method of calculating a poverty line is probably the Cost of Basic Needs (CBN) method. whereby the poor are defined as those persons (or households), who because of insufficient income or equivalent resources are unable to satisfy specified basic needs: i.e. food intake that satisfies minimum energy/caloric requirements and the consumption of minimum amounts of essential non-food commodities such as clothing and housing, The process of determining an absolute poverty line begins with the definition of which basic consumption needs to be included so that the poverty line can be defined as the cost of meeting those needs. Other considerations are: the extent to which regional price variations and cost-of- living differences among different parts of the country should be included in the calculation; how to handle seasonal price variations; and how to treat the impact of food- aid. The first two questions are relatively standard and require attention in all poverty line calculations. The third question applies in the case of countries (like Eritrea) that experience strong climatic variation and large annual price movements. It has been observed that the poor, especially small-scale subsistence farmers, often do not obtain their consumption bundle at the average annual cost, but buy food later in the year, when food stocks have dwindled and prices are higher, which reduces their purchasing power. Poverty lines in countries with important seasonal price variations need to be sensitive to this aspect of poverty. The fourth question is important in the case of Eritrea that receives large proportions of food aid compared to levels of domestic production.

Selecting the Consumption Bundle. The selection of the consumption bundle for the Eritrea survey needed to resolve the issue of whether strong local consumption patterns or preferences should be included in the bundle. From one perspective, their inclusion facilitates a more locally pertinent basis for comparing levels of relative deprivation (what is considered a basic consumption requirement by the inhabitants of Asmara, is a measure of wealth to the inhabitants of remote village communities, or perhaps even irrelevant to their needs in some cases). However, including specific local variations in the bundle also adds complexity for process of comparison, requiring greater judgment and less automatically on interpretation.

The poverty lines developed for Eritrea from this survey are the result of an approach which *blends* both standard criteria for the determination of poverty applied consistently throughout the sample, and criteria that have special meaning to a region or group in defining the poverty they experience. The food requirement component in the consumption bundle is held constant with only very selective concern for relative preferences for certain food items in different parts of the country. Other components of the consumption bundle are related to the life-styles and consumption patterns in the region being surveyed. While this does not imply that the items in the bundle are all unique to a region, it does mean that somewhat different poverty classifications could be

applied to persons or families that have similar income and expenditure patterns but live in different parts of the country.

Further, a separate poverty line was calculated for each region of sufficient size to be of interest in terms of policy formulation, and that appears to have unique aspects in consumption patterns or costs. The three highland provinces, Akele-Guzai, Hamasien, and Seraye, were grouped together. So were the lowland provinces of Gash-Setit, Barka, and Semhar, with Sahel (which for practical considerations is usually considered as Lowland, even though part of the Sahel is in the Northern Highland Zone), but in terms of price levels Barka and Gash-Setit emerged as sufficiently different from Sahel and Semhar to require an adjustment in the grouping. The three main urban centers (Asmara, Massawa, and Keren) were each kept separate, and Senhit (with its intermediate position between the highland provinces and the lowland provinces) was kept separate, too. The final result is a range of poverty lines based on differences large enough to warrant special policy attention.

The consumption bundle used for calculating poverty lines for Eritrea consisted of the following items:

(a) *Cereals.* Cereals are the basic staple in all parts of Eritrea, although the way they are prepared differs from region to region. ERRA aims at a daily requirement goal of 2200 calories per capita, with cereals providing 75 percent of the calories (equivalent to an annual per capita ration of 182.50 kg cereals).. Taking a slightly lower daily *minimum* requirement of 2000 calories,[8] and following the general rule that 75% of all energy requirements are covered by cereal consumption, the required cereal consumption would be 162 kg per capita per year. In the survey, this level of consumption (about 0.47 kg per capita per day) was associated with cash incomes between 500 to 900 Birr per capita per year, which is close to the poverty line. The price of cereals was assumed to be the price of sorghum, which is the cheapest and most widely consumed cereal.

(b) *Non-cereal foods.* There has not been a national food consumption or budget survey in Eritrea, so the quantity and cost of non-cereal foods consumed by the Eritreans is an estimate verified in part by available price statistics. In general, the cost of non-cereal calories was found to be about twice the cost of cereal calories.

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[8] Calorie requirements can be calculated using the age and sex distribution of a population, with additional data on stature, weight, birth rate, and infant mortality. It also requires data concerning the activity pattern of the population, and estimates of the energy expenditures associated with these activities. Such calculations are impossible for Eritrea as the necessary data are all lacking. In general, a value of 2000 to 2050 calories per capita seems a good *minimum* requirement level. This minimum has also been used in other parts of Africa. With its reliance on animal traction, energy expenditures in Eritrea may be slightly lower than in societies that use hoe cultivation. The minimum should satisfy the general needs of all adults, while allowing the children, pregnant women, and lactating mothers sufficient intakes to achieve healthy growth.

(c) *Housing.* For the estimated costs of housing, rents have been taken as broadly indicative of the differences among housing costs of different regions. Rents in the cities (Asmara, Keren, and Massawa) and the in the larger semi-urban communities of the highlands differ widely, being much higher in Asmara and Massawa due to Government measures in late 1993 that increased rents from a previously very low levels. In Asmara and Massawa only rents paid by those in the 500 to 1500 per capita income bracket were considered. This excludes the most extreme sub-standard housing, such as the houses at the Asmara garbage dump, and does not include some higher quality housing with private running water.

(d) *Water.* The areas where water is most commonly purchased rather than collected from source are the main urban centers, and some of the smaller lowland towns, where water becomes very scarce during the dry season. Water is particularly expensive in Gash-Setit and Barka. In large parts of the country, the rural population often pays a community tax to be allowed access to a protected water source, and arrange for transport to their home by family labor. For the survey actual consumer behavior of modal water buying households was taken as an indication of the requirements.

(e) *Wood Fuel and Kerosene for Cooking.* Available consumption data indicate that the modal expenses on wood fuel and kerosene are equivalent to the costs of 2 quintals of fire-wood per capita per year. The amount of wood consumed shows little regional variation; higher consumption of fuel-wood was only indicated in the lowlands, where many people collect fire-wood themselves. The differences therefore are in the most part directly related to price levels rather than consumption patterns. Fire-wood prices are lowest in the lowlands, in particular in areas at some distance from the main road connecting Tesseney to Keren. Much higher consumer prices were recorded in Asmara and elsewhere in the highlands. The amount people spend on fire-wood in the rural parts of the highlands remains small, because of collection of wood by family labor and the use of relatively cheap alternatives such as cattle dung and twigs.

(f) *Kerosene or Electricity for Light.* The electricity costs reflect the consumption pattern of poor households in Asmara who economize on electricity use by sharing a single meter with a group of households. Each household however has its own light point and pays according to the number of sockets. The costs of kerosene consumption for light purposes are about equal to electrical light. Light is an important requirement for education because of the importance of night studying.

(g) *Health, Education, Clothing, and Miscellaneous Items.* The calculations for the poverty line use data from low-income groups in Asmara. Expenditures for basic education include a small fee per school-year from each child, and the costs of exercise books and writing material. Official basic health services require a token administrative fee from poor

households. Medicines are free, but as they are often not available, they sometimes have to be purchased in shops. Many households use home remedies and traditional methods before visiting modern health services, thereby keeping expenses low. Other miscellaneous items include purchases like clothing, soap, matches, and utensils. The modal value of expenditures on clothing for households with cash earnings around 600 Birr per capita per year. This amounted 60 Birr per capita per year in Asmara while expenses for health, education, and miscellaneous items amounted to an average of 40 Birr per capita. The costs of the same items in other parts of Eritrea were treated as a proportion of the total expenditures for all other food and non-food items

Adjusting for Food Aid. The food aid factor is of particular importance to understanding poverty in Eritrea, because over the past years large proportions of the food consumed in Eritrea has been food aid. For the Eritrea survey, two poverty lines have been computed, one with and one without taking food aid into account. The former i.e. the poverty line taking food aid into account is estimated by deducting from the food requirements the amount of food aid received by each family on average.

Adjusting for Seasonality of Prices. A further complication in calculating the poverty line is the pattern of strong peaks in agricultural prices in Eritrea. Agriculture is very seasonal, with most areas having only a single harvest a year. This seasonality therefore influences both the value of expenditures and incomes. To take these factors into account, the poverty calculations for Eritrea value subsistence incomes at post harvest prices. Food aid, which usually does not arrive before January, has been valued at higher prices, equal to the market price prevalent during the end of the agricultural season.

Calculating Household Incomes

Choice of the Time Scale. The interval, August to July, represents the agricultural year. Because rural incomes are very dependent on harvest outcomes (household spending limits are fixed largely by earnings from the previous harvest), other sources of income were synchronized with the agricultural year, to keep the income measures comparable across sub-groups. Therefore, some non-cultivation source income was projected forward.

Incomes from Salaried Jobs and Wage Labor. The key factor in these calculations was accounting for the rate of pay in different occupations and the cost of housing to value employer provided housing. As in the case of salaried workers, information was collected from casual laborers and day-laborers concerning the conditions of employment, the amount earned, and number of days worked per month. In addition to the regular income calculations, market information was gathered to assess the number of monthly working days and the rate of pay characteristically associated with different kinds of casual and day jobs, and different locations.

.**The Self Employed.** Many interviews provided data on the general conditions of self-employment, profits, costs, and turn-over. In certain forms of small, informal businesses in Eritrea, conditions are very predictable and the persons involved have a clear idea about their normal weekly earnings. Through comparison and triangulation, much of this information could be checked and interpreted to verify whether the turn-over, gross income, and net profits reported by informants were reliable. If it was found reliable, income was calculated from such data. typical for that employment category.

Income Derived from Cultivation. In most cases incomes from cultivation were derived by multiplying the number of quintals harvested or anticipated by the local consumer price. If this price was not available, or if the information was too scanty, use was made of the regional price data. Corrections were made for the costs of plowing and seeds, and in a few cases for reported use of chemical fertilizer. Whenever an expense was mentioned it was subtracted. Plowing costs were always subtracted for those households that did not own at least one ox or camel. In some cases, these subtractions rendered incomes from cultivation negative in real terms.

Income from Livestock. Deriving the income from animal husbandry in Eritrea faced a number of difficulties. Herds were often on-the-move and their numbers as a result are not easy to determine. Sometimes the herders could not be found, and it was difficult to determine whether the observable livestock constituted the entire herd. Some households had such a small number of livestock that deriving income was complicated by a range of special circumstances (for example, the household may be in the process of selling, or may have just sold some animals; or an animal may be ill and it was not certain whether it would survive or constitute a loss for which the family could not compensate). All the collected data on prices, livestock management, and earnings obtained from draft animals or pack animals were combined with generally accepted herd parameters such average expected herd growth, average offtake and lactation to construct income models. The models were constructed for different kind of animals, managed under various conditions using prices collected in the field and verified against reported market prices and field However, it is sometimes difficult to distinguish clearly between the income earned through animal ownership (e.g. through hiring); through owner-utilization of the animal (e.g. in cultivation or transport, or even ploughing services); and through profits made from sales of animals. For example, a camel owner may use his camel to transport firewood from one town to another, thereby making a profit on his own labor as transporter, on his ownership of the animal, and on the sales of the wood. In some instances each of these functions is performed by a different person: the wood seller who derives the income from the actual sale, hires a transporter, who in turns hires a camel from a camel owner.

In cases where no clear distinction could be made between incomes earned by animal owners and the actual value of the labor of the animal, incomes presented as those derived from livestock could be inflated by incomes that should have been classified as deriving from transport services or trade. While this has no distorting effect on the calculation of total household income, it does imply that some incomes associated with *livestock ownership* reflect the wider range of earning opportunities that ownership

facilitates, not all of which can be fully ascribed to livestock value or animal-provided power.

Table A1.3: Calculation of Annual Minimum Food Expenses Per Capita Corrected for food-aid

	A Total Food Needs in Birr	*B* Food Aid in kg	*C* Value of Food Aid in Birr per kg
Barka/Gash Setit	141	72	0.60
Semhar/Sahel	192	72	1.00
Highland	319	68	1.50
Senhit	239	68	1.00
Keren	248	68	1.00
Asmara	332	68	1.50
Massawa	332	68	1.50

	D Share of Needs Covered by Aid (Cereals)	*E* Share of Needs Covered by Aid (Non-Cereals)	*F* Total Food Needs in Birr (Corrected)
Barka/Gash Setit	36	72	69
Semhar/Sahel	60	99	72
Highland	85	148	149
Senhit	57	111	126
Keren	57	111	135
Asmara	85	148	162
Massawa	85	148	162
			A-D-E

Notes:
(a) On the basis of ERRA information, it was assessed that 42 percent of the calorie requirements of poor households are covered by food aid. This food aid reached the households after December 1993.
(b) The usual ration provides 25 percent of its calories in non-cereals

Table A1.4: Calculation of Annual Minimum Non-Food Expenses per Capita

	A Housing Costs (in Birr)	*B* Costs of Water (in Birr)	C Costs of Cooking Fuel (in Birr)
Barka/Gash Setit	14	8.8	3
Semhar/Sahel	14	2.5	8
Highland	19	2.5	15
Senhit	14	2.5	14
Keren	14	27	70
Asmara	36	24	100
Massawa	29	20	50

	D Costs of Light (in Birr)	*E* Costs of Other Items (in Birr)	*F* Non-Food Costs Total (in Birr)
Barka/Gash Setit	12	34	72
Semhar/Sahel	12	44	80
Highland	12	72	121
Senhit	12	55	91
Keren	12	73	196
Asmara	12	100	272
Massawa	12	88	198

Notes:

(a) The cost of housing is estimated as the normal rent of customary housing in the sampled communities.

(b) Consumption of water varies from community to community. In the cities modal consumption of low income (but not poor) households is about 20 barrels per capita per year. In the lowlands consumption is much lower (7 barrels). Outside the cities people buying water may do so only during the dry season. In the highlands water is not paid for, although there is often a community tax for using a protected water source.

(c) Fuel wood and kerosene for cooking are bought in the cities, and by part of the inhabitants of small towns. It was assumed that outside the big cities only one fifth of the fuel is bought. Consumption is about 200 kg of fuel wood per year per capita.

(d) Light is provided by either electricity or by kerosene. The costs are about equal.

(e) The remaining non-food costs (E), which include clothing, health, and education were set as proportional to all other items in the budget. As a starting point, the amount for Asmara was set at 100 Birr, on the basis of field observations.

Table A1.5: Final Poverty Lines in Birr

>	Assuming Food Aid	Without Food Aid
Barka/Gash Setit	150	225
Semhar/Sahel	150	275
Highland	275	450
Senhit	225	350
Keren	325	450
Asmara	425	600
Massawa	350	525

	Proportion of Food in Poverty Lines	
	With Food Aid	Without Food Aid
Barka/Gash Setit	50%	67%
Semhar/Sahel	50%	73%
Highland	55%	72%
Senhit	56%	71%
Keren	38%	56%
Asmara	35%	54%
Massawa	43%	62%

Notes:

(a) All poverty lines are rounded to the nearest multiple of 25 Birr (to indicate relative precision)

(b) Proportions of non-food items reflect the relatively high cost of living in urban Eritrea, even at minimum income levels. In the lowlands, water and fuel are expensive for the semi-urban population.

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