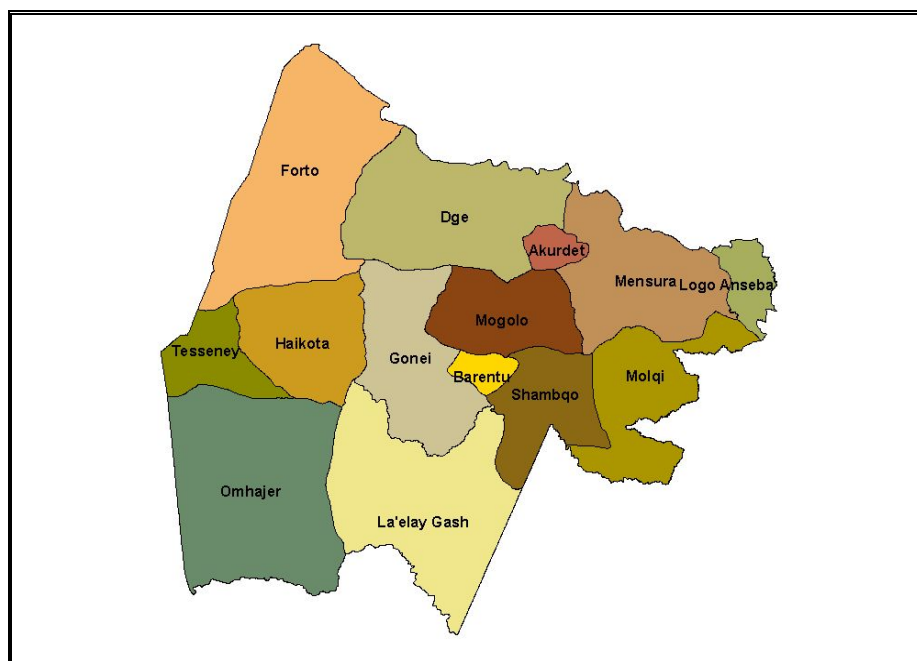




## Baseline Study on Livelihood Systems in Eritrea

### Phase I: Preliminary Identification of Livelihood Systems through Research on Secondary Sources

#### Zoba (Region) Gash Barka



January 2005



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## Background Information – Zoba Gash Barka

### 1. Human Capital

#### 1.1 Population Data

Nine ethnic groups namely the Bilen, Hidareb, Kunama, Nara, Rashaida, Soho Tigre and Tigrigna, inhabit Zoba Gash Barka. The Tigre and Hidareb are found in the north along the Barka River, Nara and Kunama in the middle and Tigrigna in the south and east. The billen and Saho are found among the Tigrigna in the south, while the Rashaida are found in the west and northwest along with the Hidareb. The Tigre and Hidareb ethnic group are basically semi-sedentary pastoralist while the remaining ethnic groups are sedentary Agro-pastoralist except the Rashaida who are mobile following their goats and actively involved in cross border trade.

In 2002 the local Government estimated the population of Zoba Gash Barka at 512,764. With an average size of 3.9 persons per household, 14 persons per square Km and 1.5 persons per hectare of cultivable land, zoba Gash Barka with an area of 370,000 sq. km is the largest zoba in Eritrea. Zoba Gash Barka has 92.4 % of its population in rural areas deriving their livelihoods from animal and agricultural production. Based on the Socio-Economic and Production Systems Study conducted by FAO in 1998, it was estimated that 90% of the population of zoba Gash Barka as semi-sedentary pastoralists and sedentary agro-pastoralists, while 10% are engaged in other activities.

As a consequence of the border war and recurrent droughts, Gash Barka is accommodating most of the Internally Displaced Ppopulations(IDPs), refugees returnees from the Sudan and expellees from Ethiopia. According to the Consolidated Appeal Process (CAP) 2005, of the 22 IDP and expellee camps in the country, 9 are located in Bash Barka. In these camps there are 52,732 persons that accounted for 69.6% of the total number of expellees and IDPs in the country. In addition to the IDPs and expellees there are the refugees returned from the Sudan who have settled in Gash Barka. The regional ERREC Office in Barentu reports that the status of vulnerable groups as of September 2004 is as follows. There are 44, 568 IDPs in camps and settlements, 59,360 returnees and 896 recently arrived refugees making a total of 104,824. This group receives a monthly ration of 17.25 kg. of cereals, 1.20 kg. of pulses and 0.90 kg. of cooking oil per month per person. In addition to these there are 262,990 drought affected population (with a monthly ration of 15.5 kg. of cereals, 1.0 kg. of pulses and 0.70 kg. of cooking oil) in Gash Barka bringing the total number of vulnerable population to 367,814. According to UNHCR report, between 2000 when the voluntary repatriation resumed and mid 2004 a total of 119,903 Eritrean refugees have returned from the Sudan under the voluntary repatriation programme. A total of 59,438 persons accounting for 49.6% of the number of returnees in the country have settled in the different sub-zobas of Gash Barka. The majority of the returnees (71.2%) have settled in sub zoba Goluj and Tessenei while the rest are scattered in the remaining subzobas.

#### 1.2 Education

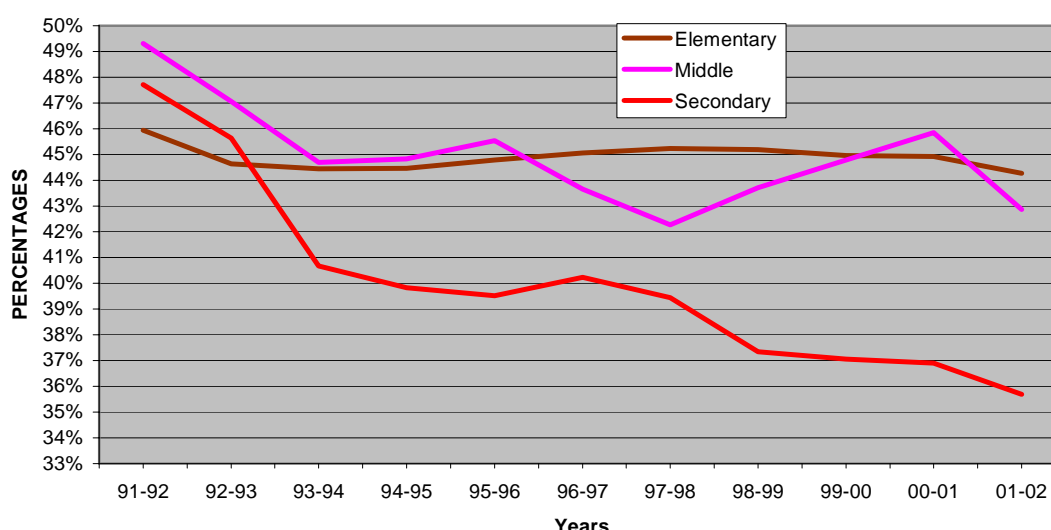
Post independence Eritrea has made remarkable strides in the Educational field. Cognizant of the importance of learning in mother tongue for young children's development, the Government of Eritrea issued a directive that all children in Eritrea will be taught in their mother language during the first six years. To this end, the Ministry of Education introduced mother tongues as medium of instruction in



elementary schools soon after independence. So far, there are ten different languages used as medium of instruction in Eritrea of which only two are foreign languages. In Gash Barka for instance, 651,522 children were taught in six different languages during the school year 2001/2002. These were 16,909 in Arabic, 2,651 in Kunama, 1,740 in Nara, 6,317 in Tigre, 34,707 in Tigrigna, and 198 in Saho.

In the last 10 post independence years, the number of schools, teachers and school going children has significantly increased. Although the absolute number of students has more than doubled during this period, the proportions of female enrolments have been showing a down ward trend at country level. This is depicted in figure 1 below. This noticeable decrease in female enrolment could undermine the government's commitment in gender equality in the long run. Unless this downward trend is reversed so that it at least reaches the 50% mark, the role of females as equal participants in the future economic life of the country cannot be ascertained.

Figure 1 PERCENTAGE OF FEMALES ATTENDING SCHOOL BY LEVEL



Between 1991/92 and 2001/02, the percentages of females attending school have decreased from 45.9% to 44.3% in the elementary level and from 49.3% down to 42.9% in the middle level. The highest decrease is in the secondary level where the proportion of females attending school has decreased from 47.7% down to 35.7% between 1991/92 and 2001/02. This large decrease in the proportion of females in secondary schools begs for some interventions that would at least stabilize in the short term and reverse the trend in the long term.

According to the Report issued by the Ministry of Education, there were a total of 183 schools in 2001/2002 in Gash Barka. These schools comprise of 7 secondary schools, 29 Middle schools and 147 elementary schools. When compared to the total number of schools in the country this accounts for 15.9%, 19.1% and 21.2% respectively. The report indicated that, in these schools, there were 76,684 pupils who attended school during the year 2001/2 in Zoba Gash Barka. This accounts for 16% of the total number of children attending school in Eritrea during the same year. Gash Barka accounts for 14% of the total population of Eritrea. The national and regional number of schools per 1000 inhabitants is 3.9 and 2.8 respectively. The breakdown of schools and enrolments at the different school levels and the percentage contribution of Zoba Gash Barka are presented in table 1 below.



In table 2, an attempt has been made to ponder into the performance of female students in the different

Table1. Schools and enrolment in Zoba Gash Barka (2001/02)

	Pr-primary	Primary	Middle	Secondary	Total
Schools -Eritrea		147	29	7	183
Schools -Gash Barka		695	152	44	891
% of schools in G/barka		21.2%	19.1%	15.9%	20.5%
Total enrolment Eritrea	12,747	330,278	80,882	70,183	494,090
Enrolment Gash Barka	522	62,522	8,519	5,121	76,684
% of enrolment G. Barka	4%	19%	11%	7%	16%

Source: Ministry of education 2001/02 report

levels in Gash Barka during the academic years 200/01, 2001/02 and 2003/04. A close look at the female percentage dropouts indicates that the highest number of dropouts occur in the middle level i.e. grades 6, 7 and 8. For the years 2000/01 and 2001/02 the female percentage dropouts in the middle level was twice that in elementary level. Overall the percentage of female dropouts has been below 16% during the previous three years. The percentage of female repeaters showed slight decrease from 31%, 29%, and 29% to 20%, 16% and 14% in elementary, middle and secondary schools respectively between 2000/01 and 2003/04. On the other hand the proportion of females that are promoted have increased from 62%, 57% and 63% to 77%, 79% and 80% in elementary, middle and secondary levels respectively between 2000/01 and 2003/04. While the performance of female students are showing positive trends, the proportion of female students in Gash Barka is following a decreasing trend like the national figures indicated in figure 1 above. This trend must be reversed at any cost.

Table 2 Percentage of Female dropouts, repeaters and promoted during 00/01, 01/02 and 03/04												
Year	Level	Dropouts			Repeaters			Promoted			Enrolment	
				%ge of Females dropout			%ge of Females repeaters			%ge of Females promoted		
00/01	Grade	Fem	Tot		Fem	Tot		Fem	Tot		Fem	Tot
	1-5	1491	3651	7%	6147	13011	31%	12278	31375	62%	19916	48037
	6-7	328	787	14%	695	1566	29%	1343	4054	57%	2366	6407
	8-11	63	258	8%	225	748	29%	493	1953	63%	781	2959
	1-11	1882	4696	8%	7067	15325	31%	14114	37382	61%	23063	57403
01/02	1-5	2153	5081	8%	7924	16821	30%	16419	42292	62%	26496	64194
	6-7	490	1338	16%	886	2051	30%	1595	5265	54%	2971	8654
	8-11	198	879	13%	430	1269	29%	867	3121	58%	1495	5269
	1-11	2841	7298	9%	9240	20141	30%	18881	50678	61%	30962	78117
03/04	1-5	1023	2407	3%	6470	14258	20%	25564	63236	77%	33057	79901
	6-8	229	688	5%	660	2145	16%	3289	10428	79%	4178	13261
	9-11	61	188	6%	143	467	14%	838	3200	80%	1042	3855
	1-11	1313	3283	3%	7273	16870	19%	29691	76864	78%	38277	97017

Source: Ministry of Education Gash Barka

### 1.3 Health

The health service in Eritrea is structured on three levels: health stations, health centers and hospitals.

The health facilities in Zoba Gash Barka have been gradually improving in quantity and quality over the last ten years, in spite of the disruptions and destructions of health facilities by the Ethiopians during the border war of 1998-2000. There are 62 Health facilities in Zoba Gash Barka. These account for 23 % of the total health facilities in the country. These facilities include hospitals, health centers and health stations.



There are three main hospitals, 15 health centers and 44 health stations. The three health stations are temporally setup at camps for the internally displaced people. The rest of the health stations are scattered throughout the zoba and provide the basic health service needed by the rural communities.

Gash Barka has the highest neonatal mortality (29 per 1000 live births), still birth rate (92 % per 1,000 live births) and the highest maternal mortality (742 per 100,000 live births) in the country according to the Gash Barka Livestock and Agricultural Development Project appraisal report. The 1998 socio-economic production system study conducted in Gash Barka indicated that the major health problem in zoba Gash Barka in terms of severity according to the respondents in the study were Malaria, Tuberculosis, Diarrhea and Respiratory Infections. The seasonality of the diseases are presented in the table 3 below.

**Table 3. Seasonality of Major health problems**

Disease	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Malaria	P						P	P	P	P	P	P
TB	P	P	P	P	P	P	P	P	P	P	P	P
Diarrheal disease							P	P	P	P	P	P
Asthma							P	P	P	P	P	P
Influenza	P	P										
Respiratory Infections	P	P	P	P	P	P	P	P	P	P	P	P

Source: MoH SEPSS

The Ministry of Health has established Nutritional Surveillances systems to monitor the nutrition status of the communities at least twice a year. So far two round nutrition surveys have been conducted. It is important to note that when comparing the results of these surveys one must take into account the period the surveys were conducted. It is obvious that a survey, which is conducted after the harvest season a time of food abundance, will show a better nutritional status of a community than the one conducted before the harvest a time usually known as “the hungry periods” when there is food shortages and if available it is only cereals received as food aid.

The last two nutritional surveillances in Gash Barka conducted in December 2003-March 2004 and June-July 2004 indicate that the Global Acute Malnutrition(GAM) for children under 5 years in some parts has deteriorated from 20-22.8% to 20%-29.5%. The June-July 2004 survey shows that in subzoba Forto, Dighe, Gogne, Barentu, Mogolo, Akurdet and Mensura had Global Acute Malnutrition between 20%-29.5%, while Tessenei, Hykota, Goluj, Lalay Gash, Shambuko, and Mulki had Global Acute Malnutrition between 15%-19.9%. Only sub zoba Logo Anseba had Global Acute Malnutrition in the range of 10%-14.9%.

Investment in food security and nutrition can directly and indirectly address the causes and consequences of poverty, ignorance and ill health. Improvement of nutritional status is important factor in economic development due to its impact on productivity and educability of future generations. The high prevalence of malnutrition in Eritrea in general and in Gash Barka in particular is due to inadequate dietary intake, poor maternal and childcare and high disease prevalence.

It is hoped that a good understanding of the livelihood systems of communities would enable one to identify indicators that would be monitored on regular basis to facilitate early warnings of impending problems that could damage livelihoods of communities.





## 2. Social Capital

Many Eritrean communities especially the rural ones are still practicing traditional communal life style. The social obligations, among the communities in the rural areas, are based on extended family and community links. This is a clear evidence that only few members of the community can individually afford to live independently and self-supporting.

The Norms of rights and obligations among community members and their fellow village mates have been established many years ago as a unifying factor in the social fabrics of societies. An example of this type of social support practiced in the sedentary or semi sedentary agro pastoralist is called “wefera” in Tigrinya or “Kewa” in Tigre. The Kewa or Wefera are often used to share oxen for plowing or to overcome labor shortage during weeding, harvesting, building huts and construction of water wells. Depending on the specific ethnic group where gender division of labour is defined based on sex; women also participate in the wefera activities. For example in the Tigrigna ethnic group when the men are helping each other in plowing, their wives and other women also work with them in clearing the plowed fields as a group. Similarly weeding is carried out by wefera made up of men and women. In a typical Kewa four or five men have to work together in rotation and the host should prepare some food and drinks. Among the semi sedentary pastoralist (Hidareb and Beni-Amer (Tigre)), small herds are combined to form a large herd called “murah” which is then looked after by one or two member of the community. The households whose livestock join the Murah pay either in cash or kind to the herders. Similar system also used on marketing livestock.

Other form of social capital is a local saving group called “aekoub”. This saving group - “aekoub” is popular especially among the Tigrinya ethnic group and usually comprises of eight to twelve members. The members contribute specified amount of money in specified time (weekly or monthly) and is given to one of the members whose name is randomly selected until every member gets her or his turn.

Traditionally, poor households, women headed households and elderly men and women in the community used to gain access to animal traction through communal support organized by village leaders.

Among closely related households or family members (through blood or marriage) the support could be in a more direct form by providing oxen for plowing, lending a milking cow to support relatives children, contribution to dowry, drinks and food during wedding ceremonies.

The “Baito” is a very important social institution that is found practically in every village in Eritrea. This is a social institution where every community discusses and settles down issues that affect the community. Conflict resolution and natural resource management are always dealt in the baitos. The issues that are dealt in the baitoes include the guarding and management of grazing areas, implementing development programs, such as rural roads, schools, clinics, earth dams, terracing of hill slopes, guarding and utilization of forest products, etc.

The sharing of food aid is common in rural Eritrea. This concern for fellow villagers is quite unique and is not common in other parts of the world where food aid is not at all shared with the consent of all food receiving vulnerable households. In Eritrea food aid is distributed according to the list of needy households identified by the



administration/village food aid committee. However when the food arrives, the total amount of the food allocated to the needy ones is again re-distributed to all the households in the village. The rationale behind this is that, the needy households do not feel it is right to consume food aid alone when at times of crises they call upon those households who are slightly better off than themselves for support. Therefore they willingly share whatever amount of food aid they receive with their folks. In times of crises/food shortages people tend to be rather greedy and want to keep as much as they can for themselves for future use, however in Eritrea vulnerable households are ready to forgo temporary extra kilograms of grains than severing their long-term social benefits they could get from their communities. When difficult times arrive, the poor villagers are not willing to trade their ancient solidarity and support from the wealthier in the community by a one-time round of food aid.

It is very unfortunate such social fabrics are gradually disintegrating and disappearing in urban areas these days. It is believed that, in urban areas, where people from different backgrounds and communities are working and living together and the economic independence that people have gained are blamed to be as one of the causes of disappearance of the traditional social fabrics.

### Gender Roles

Against this background, the roles of women among the different Ethnic groups in Gash Barka are defined by tradition or religious justifications. Among the predominantly Moslem communities of Tigre, Hidareb, Rashaida, and Nara, the role of women is strictly confined to household chores and minor activities outside the homestead. While in the Kunama and Tigrigna ethnic groups the women have more possibilities to participate in many activities in addition to the household chores and child bearing and upbringing. However this does not mean that there are no gender division of labor in the Kunama and Tigrigna. Like all traditional societies where there is gender loaded division of labor, the women of Gash Barka are also subjected to such tradition and belief that does not recognize the basic rights of women to participate in all the economic spheres of their communities.

The Eritrean Peoples Liberation Front (EPLF) has right from the outset took a political decision that recognizes the contribution of the Eritrean womenfolk during the thirty years war. For this reason the EPLF formed the National Union of Eritrean Women (NUEW) as one of the mass organizations to look into the gender issues and advance and advocate the rights of women in all the affairs of the country as equal partners. After independence the work of the NUEW continued to consolidate what it had achieved during the liberation war and extended its presence in all the zobas, subzobas and village levels. Since independence the NUEW has been advocating the rights of women through consciousness rising among womenfolk. At the political level the government has taken a number of practical measures that protect and guaranteed the participation of women in political as well as economic life of the country. To that effect the government has reserved some seats in the national and regional assembly. Over the last ten years the women in Gash Barka have shown much interest in the political life of their communities. In the last local elections many women have contested against men for political posts in the local Baito elections and were elected with very high votes. It was reported that over 90% of women participated in the local elections. 12 women got more than 30% of the votes to win their seats in the Baito of Gash Barka that consists of 63 seats. During the last elections, participation among the Tigre, Hidareb and Nara women has shown an increase challenging the cultural/religious mechanisms that restricted them from participating in public meetings. Relatively speaking the





Kunama and Tigigna women have less restrictions that prevent them from attending public meetings and debates.

The government through the NUEW and Ministry of Agriculture has been providing education about nutrition, preparation and preservation of foods, child feeding and care to women especially those in the rural areas. The government through the NUEW and the Ministry of Health has been campaigning against Female Genital Mutilation (FGM), increasing the awareness about the danger and prevention against HIV/AIDS and other Sexually Transmitted Diseases.

### 3. Natural Capital

#### 3.1 Administrative Boundaries

With an area of 370,000 square kilometers, Zoba Gash Barka is the largest of the six zobas in Eritrea. It borders Zoba Maekel to the east zoba Debub to the southeast, Zoba Anseba to the north. Internationally, it borders Sudan to the west and northwest and Ethiopia to the south and southeast. It lies between 14° 25" and 15° 51" north and between "36° 44" and 38° 15" east.

Zoba Gash Barka is sub-divided into 11 sub-zobas, 176 Kebabis (local administrative areas) within which there are 784 villages. The restructuring of the zoba into desks is not yet complete; however three desks have already been established. In addition Zoba Gash Barka has three urban centers administered as municipalities. These are Barentu- the administrative capital, Akurdet and Tesseney.

sub-zoba	No. of Kebabi	NO. of villages	No. of H/holds	Population
Akurdet	8	71	6891	33131
Barentu	4	17	6505	26811
Dighe	8	10	7762	29994
Forto	10	84	9501	32298
Gogne	19	72	7698	32609
Haikota	9	83	8359	37626
La'elay Gash	19	101	13259	56775
Logo Anseba	13	22	17061	33446
Mogolo	10	38	4951	18971
Mensura	14	23	8629	39706
Molqi	17	61	10115	42003
Omhajer	8	16	11174	46945
Shambqo	16	51	9659	39040
Tesseney	8	36	10398	43409
<b>Total</b>	<b>163</b>	<b>685</b>	<b>131962</b>	<b>512764</b>

#### 3.2 Physiographic and Natural Conditions

With the exception of sub zoba Dighe, Logo Anseba and Molqi where the terrain is rather mountainous and hilly that form part of the highland, the remaining sub zobas belong to the western lowland. There are valleys in the highlands of the east and northeast. The vegetation coverage is rather poor in almost all areas except in some parts of sub zoba Omhajer, La'elay Gash, and riverine areas along the banks of river Gash, Barka and Setit.

The altitude of the zoba varies between 630-2300 meters above the sea level. Zoba Gash Barka can be divided into three distinct areas based on altitude. These are:

- **The Highland** (2000-2370 meters above sea level) that consists mainly of the high grounds that include parts of sub Zoba Logo Anseba, Molqi and Dighe. The major crops that grow in these areas are barley, wheat, maize, sorghum, and horse beans.
- **The Midland** (1500-2000 meter above sea level) that includes parts of sub zoba Logo Anseba and Molqi, Barentu Lae'lay Gash, Guluj, Shambqo, Mogolo,



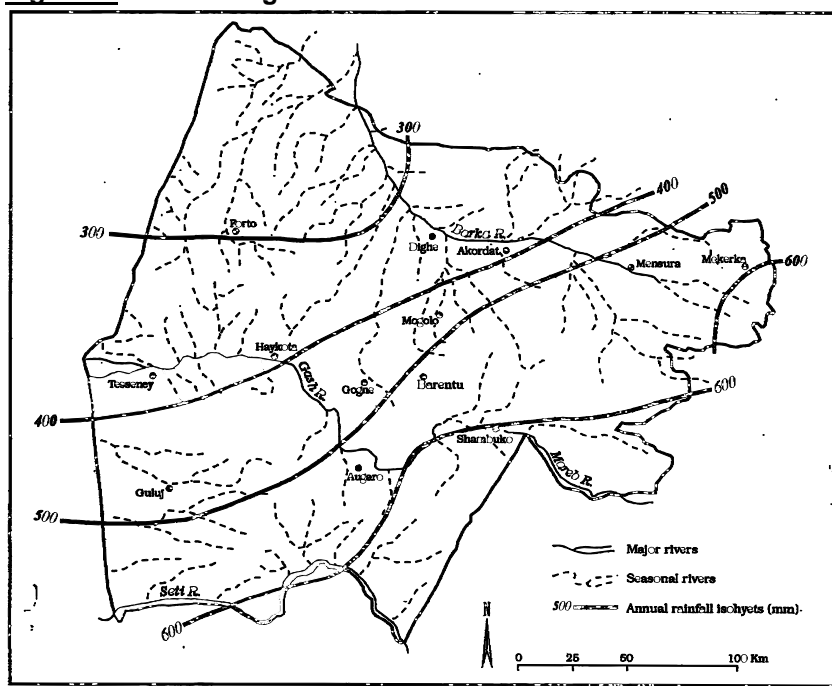
Gogne and Haikota. Major crops such as wheat, barley, sorghum, maize, finger millet, chickpeas, horse beans, peas and lentils are grown.

- **The Lowland** (630-1500 meters above sea level) consists of sub zoba Akurdet, Forto, Mensura, Tesseney and parts of Haikota and Dighe.

### 3.3 Climate and Water Resources

There are three main rivers of interest in Gash Barka namely Mereb-Gash, Barka and Setit. The River Setit, which flows to the Sudan throughout the year, forms the southern border of Gash Barka with Ethiopia. The banks of the Setit is known for its grazing potentialities and used to be an important grazing area during dry the season before the border war broke out. Many of the livestock from other parts of Gash Barka, are taken there for grazing. The other two rivers Mereb-Gash and Barka are seasonal. These seasonal rivers usually have running water for a maximum of three to four months after the rainy season. The Barka river originates in the highland of Logo Anseba and the Duluk plains. It passes through Subzoba Mensura and continues westward to Subzoba Akurdet and finally enters subzoba Dghe where it changes its direction northward and flows to Zoba Anseba. The Mereb-Gash river flows from the highlands of Zoba Debub and Zoba Makel south ward where it forms the border of Eritrea with Ethiopia along sub zoba Mai Aini, Adi quala, Mai mne and then continues to sub zoba Mulqui in Gash Barka, where it meets Mai Anbessa River around Shambuko. From the confluence of the Mereb with Mai Anbessa it changes its name to Gash river. The Gash river flows westward through sub zoba Lalay Gash. Gogne, Haikota and Tesseney before it enter the Sudan. These rivers are major sources of water and riverine vegetation that determine the extent of the settlement patterns of the pastoralist communities.

**Figure 2: Rainfall regimes Gash Barka**



Source: MoA Zoba Gash Barka

Climatologically zoba Gash Barka falls under the Sudano-Sahelian agro-climatic zone.). The rainfall intensity is higher on the southern part and it gets weaker as it reaches the northern part of the zoba. It ranges from below 300 mm in the



northwest lowland to above 700 mm per annum in the sub-mountain and mountains areas in the southeast of the zoba.

Over 70% of the zoba receives less than 500 mm per annum and only 10 % of the zoba receives 700 mm or more. For the past nine years, the highest annual rainfall totals are observed in sub-zoba Barentu, Guluji and Molqi. There are however, large variations in annual rainfall between some parts of the Zoba to the others.

**Table 5: Mean annual rainfall in mm for selected stations**

STATIONS	1997	1998	1999	2000	2001	2002	2003	Average
Agordat	216	428	484	297	302	325	209	323
Barentu	549	532	522	348	418	264	306	420
Dighe	0	264	0	0	208	96	180	107
Forto	273	365	354	155	193	246	148	248
Gogne	542	452	478	172	179	439	367	376
Gollige	688	437	425	377	291	369	386	425
Hykota	352	239	540	350	326	223	356	341
Mekerka	599	256	532	180	393	270	214	349
Mensura	334	256	490	151	267	219	235	279
Mogolo	374	214	557	305	474	271	293	355
Mulki	451	409	489	160	251	349	369	354
Shambuko	501	0	0	104	354	376	569	381
Tessrnei	340	352	465	153	182	186	264	278

Source: MOA Gash Barka Office

Guluji received on the average over 400 mm of rainfall over the last nine years, while the drier parts of sub-zoba Dighe have slightly over 50 mm annually on the average over the same period. Although the main rain season for the large part of zoba Gash Barka is the main Kremti season (June to mid September), the Azmera or spring rains of March-May is only common in sub zoba Molqi. The Potentials evapo-transpiration is also high, ranging between 1500 and 2000 mm per annum.

The mean monthly air temperature of the Zoba ranges between 23<sup>o</sup>c to 29<sup>o</sup> c. The average duration of sunshine is between 10 to 12 hours daily. However the southwestern and northeastern parts of the Zoba experience warmer temperatures.

### 3.4 Agro-Ecological Zones

Five of the six Agro Ecological Zones in Eritrea are found in Zoba Gash Barka. However, there are only two dominant Agro-ecological zones namely the Arid Lowland (ArL) and Moist Lowland (ML). The Moist Highland covers only small areas in the eastern part of the Zoba.

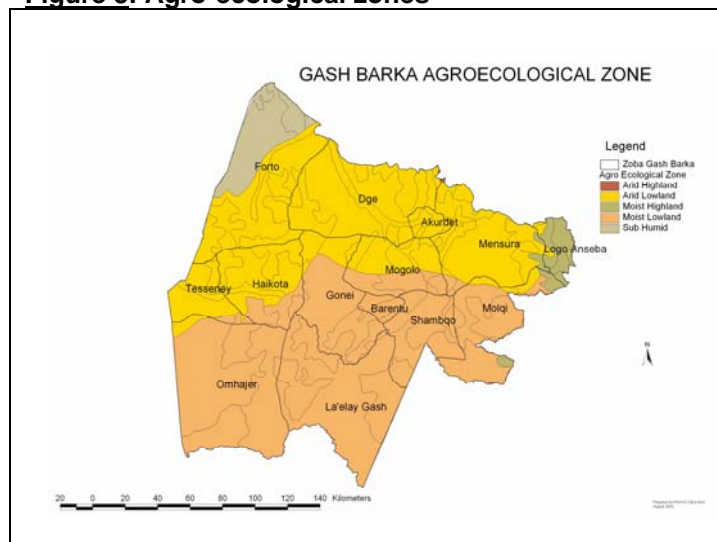
The Semi Desert (SD) covers a small area in the Northwestern part of the Zoba bordering Sudan. The Arid Highland (ArH) covers an insignificant part of Mensura and Dghe Bordering Zoba Anseba. Each Agro ecological zone is composed of agro ecological units identified on the basis of soil types, altitude, temperature, vegetation and potential evapo-transpiration. There are 19 of these units in Zoba Gash Barka. In the lowlands, the soils have a reasonable level of inherent fertility because of their alluvial nature and the major limiting factors to agricultural production are the poor weather characterized by frequent dry spells and poor rainfall distribution in terms of space and time.

### Moist High Land (MH):

Covers subzoba Logo Anseba and small part of sub zoba Molqi. It has a moist hot semi-arid climate, with an altitude between 1600 and 2600 meters above sea level and an average of 500-700 mm of mean annual rainfall. The dominant soil types are Cambisols, Luvisols, Lithosols, Regosols, and Vertisols. Except the Lithosols that require different management practices, the other soils have good agricultural potential.

The types of crops grown in this agro-ecological zone include barley, wheat, sorghum, taff, pulses, finger millet, flax, niger seed and potatoes. The livestock rearing includes cattle, sheep, goats and camels. There are three different Agro-ecological units under this Agro ecological zone.

**Figure 3: Agro-ecological zones**



**Source: Ministry of Land, Water and Environment**

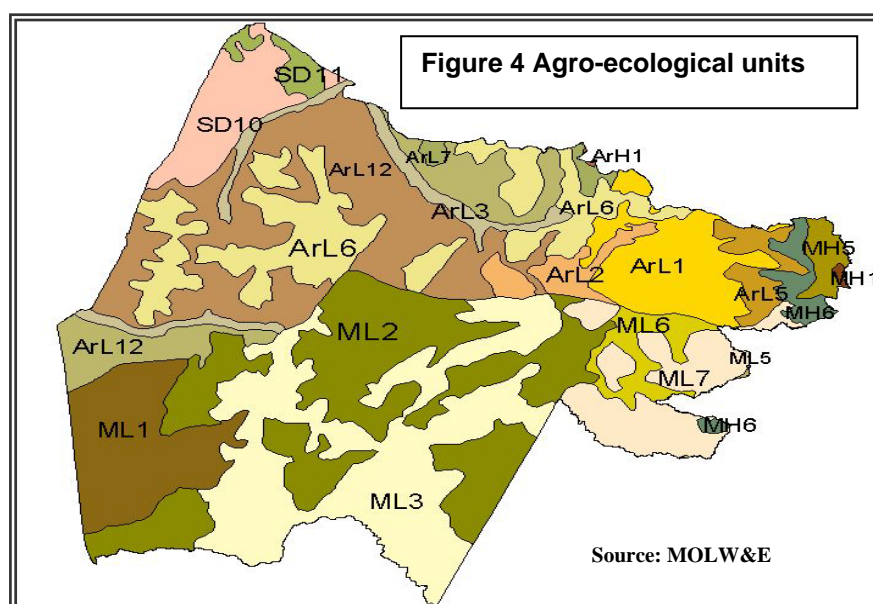
**Moist Low Land (ML):** - Covers 40% of zoba Gash Barka that includes sub zoba Lalay Gash, Guluj, Shambuko, Barentu, Molqi, 40% of Mogolo, 75% of Gogne and 25% of Hykota. The ML has an altitude in the range of 500-1600 meters and an annual rainfall between 500-800 mm. The dominant soil types are Cambisols, Vertisols, Fluvisols, Luvisols, Lithosols and Regosols. The type of crops grown in this agro-ecological zone includes sesame, sorghum, cotton, maize, pearl millet, and finger millet. The livestock rearing includes cattle, sheep, goats and camels. There are six-agroecological units under this agroecological zone.

**Arid low lands (ArL):** -Covers about 50% of the total area of the Zoba and has an altitude between 400 and 1600 meters above sea level. The annual rainfall in the ArL is between 200 and 500 mm. The subzobas that fell within the ArL include Mensura, Akurdet, Dghe, Tesseney, 80% of Hykota and 70% of Forto, The main soil types are Xerosols, Cambisols, Fluvisols and Lithosols. The type of crops that are grown in this agro-ecological zone include, cotton (under irrigation), sorghum and pearl millet. The livestock rearing includes cattle, sheep, goats and camels. There are seven agro-ecological units under this agro-ecological zone.

**Arid Highland (ArH):** Covers the smallest part of zoba Gash Barka and is located in the northeast on the boarder with zoba Anseba. Generally the altitude under this agroecological zone ranges between 1600-2600 m. The annual precipitation is between 2 and 100 mm. The dominant soil types are Lithosols, Cambisols, Xerosols, Regosols and bare rock. In terms of livestock rearing cattle, goats, sheep and camels are common. There is only one agro-ecological-unit, in this agro-ecological zone. Due to the small size of the areas under this agro-ecological zone in Gash Barka, ArH is not discussed in detail.



**Semi Desert (SD):** Covers about 50% of subzoba Forto is restricted to the northwestern part of the zoba bordering Sudan. The altitude of SD ranges between



630 to 1200 meters above sea level. Annual mean rainfall is below 200 mm. The dominant soil types are Xerosols, Solonchaks, Lithosols, Cambisols, Fluvisols, Regosols and Andisols. This part of the subzoba is poor in terms of crop and livestock production. There is very limited spate irrigation. There are two agro ecological -units in this agroecological zone.

The farming systems in each agro-ecological unit are presented in the following table

**Table 6: Agro-ecological units and farming system in Zoba Gash Barka**

		Farming System	Land form	Altitude
1	MH1	Crop based (mixed agriculture)	Gently undulating plateau with few hills	2200-2400
2	MH5	Crop based (mixed agriculture)	Ridges, valleys, hills, and escarpments; moderate relief	1600-2200
3	MH6	Crop based (mixed agriculture)	Escarpments, dissected plateau, rolling hills and valleys	1600-2000
4	ArH1	Agro-pastoral	Dissected rolling to hilly plateau	1600-2000
5	ML1	Agro-pastoral	Undulating plain, rolling in south	500-800
6	ML2	Agro-pastoral	Undulating to hilly plains, low hills and foot slopes	600-1200
7	ML3	Agro-pastoral with cultivation in valleys and seasonal grazing	Hills and mountains with valleys	800-1200
8	ML5	Mixed Agriculture	Valley and foot slopes with hills	1400-1600
9	ML6	Agro-pastoral	Valley and foot slopes with hills	1000-1400
10	ML7	Agro-pastoral	Escarpment with associated hills and valleys	1000-1600
11	ArL1	Agro-pastoral	Collo-alluvial plains and outwash fans	600-1000
12	ArL2	Agro-Pastoral	Hills and moderate relief	600-1000
13	ArL3	Agro-pastoral and pastoral	Alluvial flood plains and low terraces	500-800
14	ArL5	Agro-pastoral	Undulating to rolling plain with hills	1000-1500
15	ArL6	Agro-pastoral	Hills of moderate high relief resting from adjoining plain	600-1200
16	ArL7	Mainly pastoral	Steep ridges, valleys and escarpments	600-1600
17	ArL12	Pastoral to Agro-pastoral	Flat to undulating plain with outlying hills	500-1000
18	SD10	Pastoral	Flat –undulating plain with outlying hills	500-800
19	SD11	Pastoral	Undulating to rolling pains with hills	200-1000

Source:MLW&E





## 4. Physical Capital

### 4.1 Agriculture

Gash Barka is in the major cereal producing Zoba in Eritrea. Generally Gash Barka is referred as the “Bread Basket of Eritrea”. However due to its long border with Ethiopia it has suffered the heavy brunt of the border war. There was a serious displacement of local people and property from the 25 km wide Temporary Security Zone (TCZ) that runs along the southern border of the Zoba. The TSZ, which is currently idle due to infestation of land mines and security risks, lies on the most productive part of the Zoba. On top of the local displacement of people, Gash Barka is the new home to thousands of Refugees returning from the Sudan and expellees from Ethiopia. Until all mined areas are cleared and demarcation is completed Zoba Gash Barka will remain food insecure.

There are two main production systems in Gash Barka namely the Semi Sedentary Pastoralist Production System practiced by the Tigre and Hidareb in the low rainfall subzobas (Tessenei, Haikota, Forto and Dghe, Akurdet, Mensura) where livestock are the main source of subsistence with crops having a secondary role. This system is characterized by:

- a) seasonal shifting of the homestead within the village area between the riverine and upland areas,
- b) reliance on livestock as the main source of livelihood and rain fed upland crop production as a secondary activity,
- c) narrow range of crops mostly sorghum and pearl millet
- d) herd species composition dominated by camels and goats
- e) long range of cattle, sheep and camels

Under this Production system, the crop-livestock interaction is very limited, where land preparation is done manually with the help of a hoe or camel. The animals depend almost entirely on natural grazing and browse on shrubs for their feed with out any supplementary fodder crops. After harvest crop residue are grazed in the field and are rarely cut and carried to the homestead for use during the dry season.

In the sedentary agro pastoral production system crops and livestock are of equal importance. Within this system, there are a number of sub systems practiced by the Nara, Kunama and Tigrigna. The sedentary agro pastoral system is characterized by:

- a) year long residence in a single site
- b) roughly equal importance of crops and livestock,
- c) wider range of crops and better cropping skills( sorghum, pearl millet, sesame, maize, beans, and vegetable)
- d) herd composition dominated by cattle, sheep, and goats
- e) migration of animals to upland areas during rainy season and to riverine areas during the dry season.

Under this system, crop production is the main source of subsistence, while livestock are important for animal traction (oxen and camels), transportation (donkeys, mules and camels), dairy products for home consumption (cattle, sheep, goats) and sale of live animals (mainly sheep and goats). Livestock sales represent a large share of household income. There is a moderate degree of crop-livestock integration. Animal dung is applied to home gardens and crop residues are cut and carried to homestead and stored for use as animal feed for plow animals and pregnant or lactating cows and sheep.



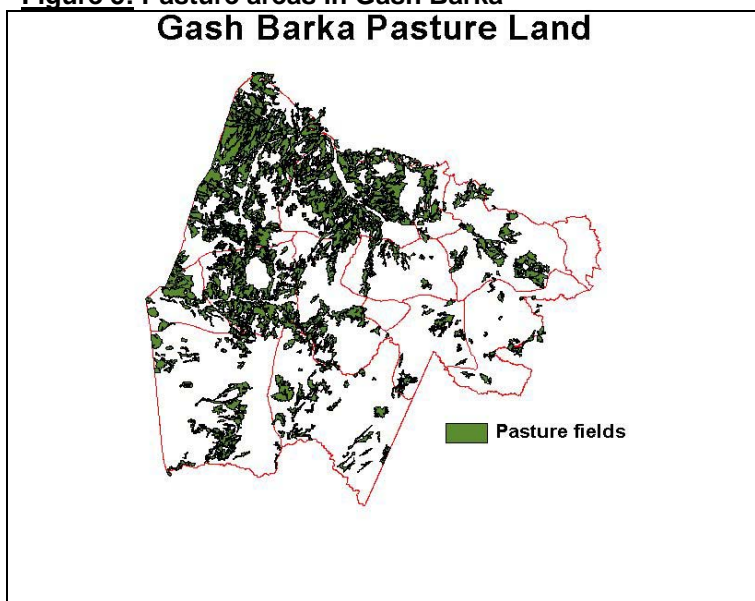


Within the sedentary agro-pastoralists there are two distinct mechanized rain fed production systems, one practiced by private investors growing sesame and sorghum and another practiced by returnees in settlement schemes supported by the government.

Other production system that is gaining relative importance in Gash Barka is the capital intensive pump-irrigated Horticulture Farming Systems, practiced by large-scale commercial concessions along the rivers. Several minor ethnic groups (Bilen, Tequarir) are involved in intensive commercial gardening of fruits mostly banana, vegetables and forage crops such as alfalfa and weeds.

Gash Barka supports more than 60 % of the nation's livestock wealth. Almost all ethnic groups share this wealth. Figure 4 below shows the extent of the grazing areas in Gash barka. Table 6 shows estimated number of livestock in the country and the share that Gash Barka contributes is close to 50% of the livestock in the country and about a third of each of sheep, goats and camels.

**Figure 5: Pasture areas in Gash Barka**



Source: FAO Africover land cover classification

Of the total area of 3,700,000 ha, only 336,181 ha is cultivable, of which 183,754 ha is already under cultivation. The breakdown of agricultural land use in Gash Barka is presented in table 8 below.

**Table 7: Estimate Livestock Population in 2003**

	Cattle	Sheep	Goats	Camels
Gash Barka	917,344	675,268	1,745,784	113,263
% of total	47.6	31.7	37.5	35.5
Eritrea	1,927,457	2,128,944	4,661,785	318,914

Source: Ministry of Agriculture

Table 8, shows the total area of 336,181 ha that is suitable for cultivation under rain fed is only 9% of the total area of the Zoba. However the area currently under cultivation is

**Table 8: Agriculture land use in Zoba Gash Barka**

Type of use	Hectares
Total Area of Gash Barka	3,700,000
Total cultivable land	336,181
Area under rain fed	150,695
Irrigable land	193,465
Area under irrigation	11,880
Area under vegetation cover	14,207

Source: MOA

only 44% of the total cultivable land. On the other hand the area currently under irrigation is only 6.1% of the total irrigable land. This shows that there is a possibility for expansion rain fed agriculture in the remaining 185,486 ha and 181,585 ha under irrigation amounting to a total of 367,071 ha.



According to the land cover map of Eritrea prepared under the Africover project, the different agricultural land is presented in figure...

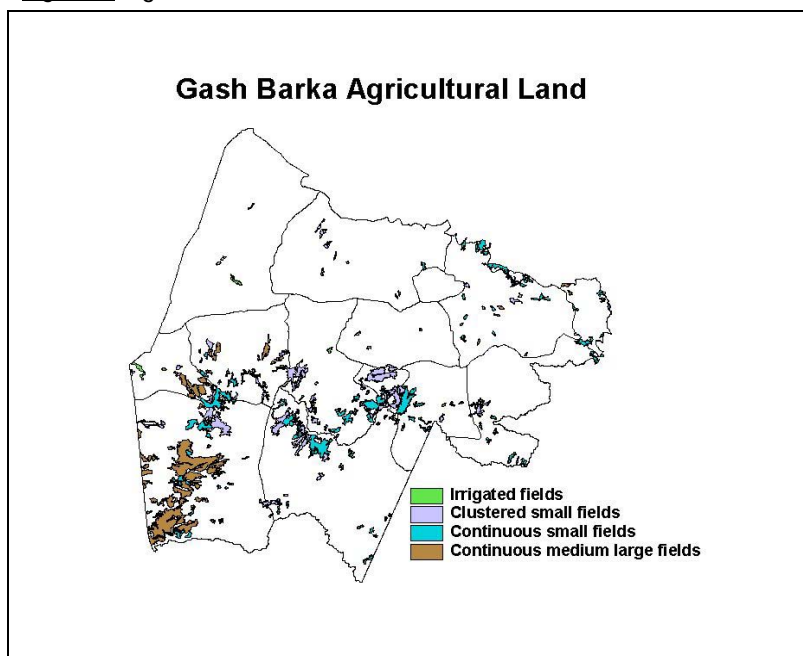
## 4.2 Economic Activities

Due to the predominantly rural livelihoods of the communities, the major economic activities in zoba Gash Barka are mostly in the Agriculture and livestock sub sectors. Especially the commercial/mechanized farms are becoming employment sources for the local people.

However, zoba Gash Barka has also other economic activities outside the agriculture and livestock sectors. There is a thriving construction activity in the large towns and major roads linking these towns. In addition there is some petty trading in the major towns. There is small scale marble mining in and around the

town of Gogne. The industrial activities are quite few but there is potential for further growth especially in the agro industries.

Figure 6: Agricultural land in Gash Barka



Source Africover land classification

Major sources of income in rural Gash Barka include sale of livestock, firewood, sale of handicrafts (mostly mats) and casual labor in the irrigated and large rainfed farms.

A survey made by the MoA in 2002 indicated that more than 4000 ha is under vegetables such as onions, okra, peper and tomato and fruits such as bananas, papaya, oranges and guava. Table 9 shows the number of investors, irrigated area in hectares, and the total production by subzobas. It is clear from table 9 that the major commercial farms are concentrated in five sub-zobas where the annual rainfall is below 400 mm.

The five large agro industries presented in table 9 are providing

Table 9: Number of investors and land for commercial farms by in Zoba Gash Barka 2002

Desks	# of investors	cultivated land (ha)	Vegetables (ha)	Fruit (ha)
Tssenei	152	10221	637.1	222.3
Barentu	1	1.5		
Akordet	137	994.8	356.3	439.9
Geluj	14	45.4	7.3	3.2
Hykota	52	2850.5	402.6	123.8
Shambuko	9	80	0	40
La'elay Gash	15	66.6	26.5	0.5
Gogne	18	304.6	15.5	32.1
Forto	149	742.3	500.9	9.2
Mensura	6	36.1	10.3	8.6
Dighe	87	965.9	332.5	427.1
Mogolo	2			
Molki	5			
Logo-Anseba	2	24.6	6.5	7.5
Total	649	16333.3	2295.5	1314.2

Source: MOA



employment opportunities to the people living in their surroundings. The Alighider agro industry is capable of employing 81 permanent, 93 contract and 751 casual workers.

Although banana production has been in existence in Eritrea on small scale, the area under banana plantation has increased to over 1,600 hectares by 2002. Similarly, the production of banana has reached above 130,000 quintals per annum (see table 10).

**Table 10: Banana Production in Zoba Gash Barka in 2002**

	Sub-Zoba	Area (ha).	Monthly Production in (Q)	Yearly Production in (Q)
1	Dge	414.6	10365	82920
2	Forto	1.	25	200
3	Haikota	64	1600	12800
4	Mensura	7	175	1400
5	Tesseney	187.9	4697.5	37580
	Total	674.5	16862.5	134900

Source: MOA

Livestock rearing is also an important activity in the zoba as main source of income. The principal livestock species are cattle, camels, goats and sheep. The small ruminants are source of main income as well as milk. Other sources of income generating activities that have been identified include bee keeping and poultry farming are common in limited amount in the high land part of zoba.

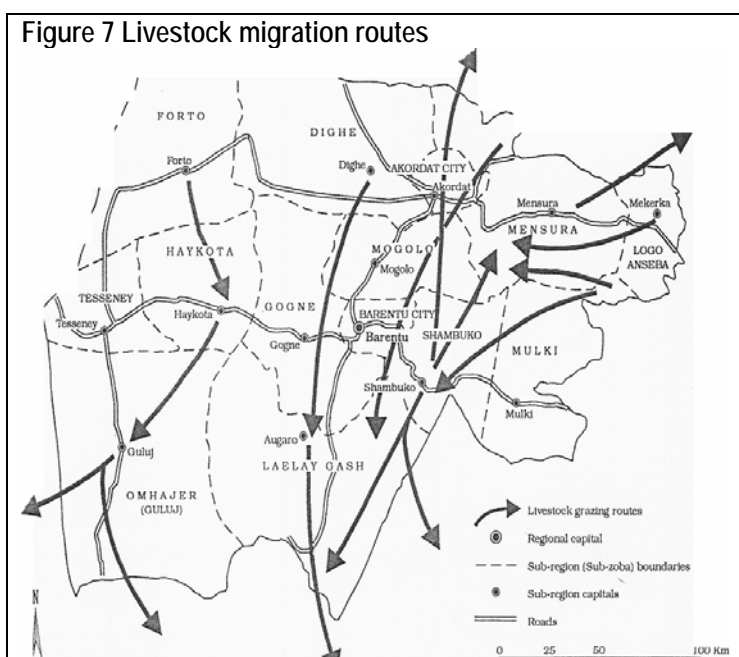
The majority of the livestock are reared under traditional free range, except in the investors farm and agro industries modern dairy farms are being established. The contribution of livestock to the national figure is quite substantial as can be seen from the table below. This explains that livestock in zoba Gash Barka is major contributing factor to the livelihood of the communities. The outside the country the main market for the live livestock includes Sudan and Middle East countries.

The distribution of Large Scale Manufacturing Establishments (LSME) in Zoba Gash Barka is two and it is only 0.9 % nations share. LSMEs are establishments that employ more than ten persons.

Other important activity, which play role in the economy of the household, is handcraft product. Handicrafts are produced mainly from the palm tree and generate some income to the household.

Making long term plans for sustainable development programs in Zoba Gash Barka requires baseline information that would enable planners to have a good understanding of the different livelihood systems that exist in the Zoba before venturing out any intervention.

The traditional migration routes of livestock as depicted in figure 7 is from north towards south and even crossing the border to Ethiopia. It is feared Because of the border war the possibility of grazing in Ethiopia is no more possible. The security situations in the Temporary Security Zone have tremendously reduced the possibilities of grazing in Eritrean side because of land mines and fear of harassment. This is feared will create over grazing on the Eritrean side damaging the long term grazing possibilities.



Source:

## 5. Financial Capital

Speaking of rural communities of Eritrea, one is tempted to generalize that these communities have almost exhausted all their asset bases due to the recurrent drought and the border war and security problem with the Sudan. As a result the local source of financial capital that used to be generated through the cross border trades in livestock, grains and other commodities has shrunk tremendously. For some farmers, selling their cereal grain as seed has been a recent source of income linked to the emergency assistance from NGOs, FAO and others, but this has been circumstantial and does not go beyond 7.000 MT a year.

Other sources of financial capital in rural Eritrea are credit-providing institutions. These include the Commercial Bank of Eritrea, Housing and commercial Bank of Eritrea, Eritrean Community Development Fund (ECDP), Eritrean Development and Investment Bank (EDIB), the Rural Enterprises and ACCORD. Accord does not operate in Zoba Gash Barka. These institutions provide credit to agricultural and non-agricultural activities. The loan disbursement by Eritrean Development and Investment Bank for the last seven years is presented below in table 11.

**Table 11: Loan disbursement by sector in G/Barka 1998-2004 in '000 ERN**

Sector	1998	1999	2000	2001	2002	2003	2004*	Total
Industry	477.6	549.5	982.1	55.0	82.0	1,600.7	963.4	4,710.3
Agriculture	9,048.6	1,612.5	1,748.5	8,139.9	2,357.2	10,243.5	4,522.0	37,672.2
Total	9,526.2	2,162.0	2,730.7	8,194.9	2,439.3	11,844.2	5,485.4	42,382.5

Source = EDIB, \* Jan-sept,

Other sources of financial capital are the Eritreans in the Diaspora who transfer money to their relatives in Eritrea. Although there is no exact figure on how much is being transferred to the country, it is believed to be quite substantial.



## 6. Previous Studies carried out in Zoba Gash Barka

### 6.1 Socio-Economics and Production Systems Study

There were only two studies on Gash Barka that were consulted heavily for the preparation of this preparatory work. These are base line socio economic survey reports one carried out in 1995 and the second in 1998/999.

The first report is the Baseline Study on Socio Economic and Environmental Conditions of Rural Residents in Eastern Gash Barka zone of Eritrea by Norwegian Peoples Aid Development Fund, Oslo, Norway, October 1996.

The baseline study had the following objectives:

- To collect and analyze socio economic and environment data to be used as a basis for planning of rural development programmes in the eastern Barka-Gash zone of Eritrea combining conventional household surveys with participatory approaches.
- To identify critical economic, social, and other constraints that need to be addressed by development programmes
- To initiate and establish a data bank that can be updated regularly to serve government and non-government agencies in the planning of development programmes reflecting local needs and priorities.

The baseline study was implemented in two phases.

Phase one – Rapid Rural Appraisal (RRA)/Participatory Rural Appraisal (PRA)

Phase one of the study was conducted in 16 villages over seven weeks of fieldwork during June and July 1995. Study areas were selected in consultation with local administrators; development ministries based on ethnic, socio economic, ecological and gender diversity in the region. The selected villages are listed in table 12.

**Table 12: Study areas**

<b>Barka Region</b>	<b>Gash Region</b>
1. Mensura	1. Mogolo
2. Duluk	2. Gogne
3. Adi Saidna	3. Delle
4. Deret	4. Tokombia
5. Adi-sheik Humed	5. Dasse
6. Gharsay	6. Sossana
7. Adi- Sheik Suleman	7. Shambuko
8. Tekreret	8. Boshuko

Phase two- Household survey: For an in-depth exploration of the socio economic conditions prevailing at household level, a household survey based on structured questionnaires was conducted in September 1995 by interviewing 288 house hold heads and 163 women. Part one of the questionnaire was filled by team members during individual interviews with heads of households while part two of the questionnaire were filled in during interview with adult women, conducted by a female team leader. Interpreters were hired for translation of Tigre, Nara, Kunama, into English and Tigrigna.

The baseline study is one of the earliest studies conducted in Gash Barka and covers Agriculture, Livestock, Other economic activities, Water supply, Housing, Health, and gender.





Some of the major findings in agriculture are that the population in the study areas combines livestock with crop production for their livelihood. However the short agricultural season does not provide them with enough food to cover their annual crop requirements. There is a lot of variation between areas in terms of the degree of self-sufficiency in grain production. The average self sufficiency (enough grains that lasts for 12 months) was 39 % while the range is between 12% and 60%. The importance of livestock is more vividly seen in the Barka region as compared to that of gash where crop production is more prominent. While land in the study areas is mostly inherited and temporarily borrowed from friends and relatives acquisition and clearing of virgin land is also another mechanism of getting it.

Camels and oxen are used as draught animals. The People in Barka prefer camels to oxen because they can use them as pack animals outside the plowing season. The Ministry of Agriculture was introducing the use of tractor services on rental basis. Chemical fertilizers are not used but animal dung is applied in Gash on small scale. Crop rotation is not common due to few varieties of crops but fallowing is practiced to regain soil fertility.

The major constraints facing crop production in the study areas is drought, pest infestation such as grasshopper, locusts, stalk borer, beetles, army worms white fly, termite, ball worm and sting bug and the parasitic weed striga that are responsible for crop losses. Plant disease such as blight, smut, rust, thrips and leaf spot in cereals and powdery mildew, downy mildew and wilting for horticultural products are also identified as serious problems. Bird attacks on both sorghum and pearl millet are also common. Post harvest losses are estimated to be between 30-40 % in the study areas.

The baseline study reported that Livestock is the main storage of wealth in the study areas. Preference for big livestock varies between the Beni amer areas in Barka and the Kunama and Nara areas in Gash. Camels play more important role in Barka than it does in Gash. There is a considerable variation in livestock holdings between villages in the study areas. Sale of livestock, offspring or livestock products, or hiring out or bartering of animal services is among the options available to livestock owners. There is a glaring difference between the official figures on livestock numbers when compare to the figures generated from the baseline study. Livestock owners have a good understanding of the daily and seasonal feeding needs of their animals and adjust their practices and labor resources to fit particular season. The seasonal movements of livestock among agropastoralists are a survival strategy. The average duration of livestock migration ranges between 2.75 and 6.73 months in a year. The percentage of households practicing migration of livestock is higher in Barka where there is livestock concentration and less grazing possibilities during the dry season, than in Gash.

Animal diseases are among the major constraints to livestock production and productivity in the study areas. The range of livestock diseases identified in the study includes rinderpest, pasteurellosis, anthrax, PPR, hemorrhagic septicemia, black leg, tuberculosis, and trypanosomiasis. Another constraint on livestock production is related to poor and increasing competition for grazing grounds. There is an emerging conflict of interest between newly established cooperatives and livestock owners. Irrigated farms in the riverine areas traditionally used for livestock grazing are mushrooming.





## Other economic activities

As a result of a short agricultural season, the average household in the study areas has a positive time balance after accounting for the time spent for livestock raising and other domestic chores. Households in the study areas engage in a number of economic activities apart from subsistence agriculture and livestock raising. The relative importance of the activities outside agriculture and livestock vary between villages and regions. There are opportunities for wage labor in the commercial farms along the Barka River. It is estimated that households earn more income in wage labor when compared to that they earn from subsistence agriculture. Income from sale of livestock and livestock products is a main source of income in the major livestock areas of Duluk and deret Fuel wood collection and collection of doum palm leaves is another source of income in the study areas. Agriculture is relatively more important in Gash than in Barka. Employment opportunities in and around Tesseney attract one member out of every three households. Another source of income is generated through the provision of services in larger settlements like Dassie. Women in the study areas produce traditional mats for sale and also produce local beer.

In the education field, the study found out that adult male literacy is higher than adult female literacy in all villages. The level of illiteracy among adult women shows some variations between ethnic groups. While adult Beni Amer women are close to 100% illiterate and have never attended school, the situation in the liberal kunama areas is slightly better. The share of girls in school –age attending schools on regular basis is below the share of boys in school age attending school regularly. The sources of water supply in the study areas are surface and ground water. In Barka water points include boreholes, hand dug wells, and ponds. River Baka, Gash and other seasonal streams are the main source of water for both human and livestock. Most of the water points are traditional hand dug wells located on river beds and because they are unprotected, silt up when floods come and remain out of service until the floods stop. Generally there is shortage of water for both human and animal consumption in barka and gash. Community participation in water supply development is high, but awareness regarding measures to prevent water contamination is low. As a result water borne diseases are common in the area.

The houses in rural Gash barka are traditional and simple. Construction demands wood, straw, leaf and grass. In the past households used to get these materials easily at no cost, however at present because of draught and indiscriminate cutting of trees construction materials are scarce. Most of the houses constructed in the study areas are temporary houses that require maintenance every two years and reconstruction every six years.

The diseases that are prevalent in the study include Diarrhoea, Malaria, Respiratory infection, eye diseases, and skin diseases.

The gender dimension of the baseline study highlighted the following observations. In all the eight rural communities a distinct gender inequality was observed Girls and women are relegated to subordinate positions in their communities where female circumcision is practiced by 100% of the households. The mother and her daughter are the main contributors to the household's labor that includes all domestic activities such as cooking, fetching water and collecting firewood. In barka women generally do not participate in farming activities, but they contribute in livestock maintenance and in all the household activities. In all the eight villages communities, it was observed that the cultural and religious mechanisms have delineated women's rights. In the Kunama ethnic group the woman is allowed culturally to divorce her husband, but among the Tigre in Barka a woman can only divorce her husband when he is impotent or mentally sick. In Gash and Setit,



women take part in the implementation of development programmes although they do not participate in decision making.

It must be noted that the above summary which is directly copied with some paraphrasing here and there from the executive summary of the report, must be read with caution because so many changes ( of which some are fundamental ) have taken place in Gash Barka since the report was written in 1996.

In 1998, under the FAO support (report number 99/019 IFAD-ERI) a group of experts prepared the report “on Gsah Barka Livestock and Agricultural Development Project and Socio-Economic and Production System Study”. This was a comprehensive study of selected 12 villages representing a range of situation present in the region. The criteria for selection of villages are access, agro-ecological zones, production system, ethnicity, religion, presence/absence of returnees and presence/absence of development project.

The report contains detailed information on the following aspects:

1. Natural conditions- topography, hydrology, climate, soil and vegetation
2. Socio economic – demography, social organization, infrastructure and services, health problem and challenge, production system, land tenure and use system, gender roles, household food security and livelihood systems.
3. Livestock production system – Herd size, livestock disease, livestock calendar, animal feed etc
4. Crop production system – cropping system, major crops, mixed cropping, crop rotation, crop calendar, seed rate and crop yield, seed selection, fertilizer use, factors causing crop loss, weeds, insects and pests, diseases, rodents, birds, pests, storage, estimates of annual income, cost of production and crop sales etc.

## 7. Use of the Sustainable Livelihood Systems Approach

According to the previous studies reviewed, there have been clear contributions that would help improve understanding of the livelihood systems and food insecurity in the zoba, however there have not been so far studies that aim specifically to identify the different livelihood systems. (i.e. using the conceptual framework of the Sustainable Livelihoods Analysis) in zoba Gash Barka.

What follows is the result of the analysis of available secondary data on Gash Barka that NFIS managed to have access to.

Compilation of Livelihood profiles involve five major phases, namely, Desk research, Brain storming sessions at regional level, group discussions in sample villages, household village surveys and analysis of surveys. What NFIS is trying to do in Gash Barka is to identify the different livelihood systems through a quick and fast baseline study that can be updated and improved or fine tuned in the future by any interested stakeholders. As a first step towards meeting the envisaged goal of identifying livelihood systems in Gash Barka, NFIS has produced this desk research and is proposing the following livelihood systems that will be discussed amended, improved and finally endorsed by the stakeholders in Gash Barka in a workshop in Barentu.



Key to the Livelihood Systems Designation	
<i>Traditional</i>	Rain fed cereal cultivation
<i>Mixed agriculture</i>	Combination of crops and livestock, with crops being more important
<i>Irrigation</i>	Irrigated and diversified crops (vegetables, fruits) , market oriented.
<i>Rain fed Commercial</i>	Rain fed cash crops or market-oriented production
<i>Agro-pastoralism</i>	Combination of livestock and crop activities, with dominance from livestock
<i>Pastoralist</i>	Based on livestock rearing.
<i>Sedentary pastoralism</i>	Livestock rearing without migrating
<i>Temporarily migrating pastoralism</i>	Livestock rearing with seasonal migration

## 8. Proposals of Livelihood Systems in Zoba Gash Barka

Generally livelihood systems are identified based on:

- Natural resource base
- Dominant livelihoods (main staple and income source, balance between crops, livestock, and off farm activities)
- Degree of crop-livestock, crop-off farm and livestock-off farm and crop-livestock -off farm activities integration
- Scale of operation

Based on the above review, it is found that in Zoba Gash Barka there are two major livelihood systems based on the afore mentioned criteria namely the temporarily migrating agro pastoral and sedentary agro pastoral. The main activities are pastoralism, more livestock rearing and little crop production, traditional rain fed crop production combined with livestock rearing. The urban centers like Akurdet, Barentu, Tessenay, and the major irrigation schemes of Afh-himbol, Aligider and Sawa and the numerous small scale irrigated farms along the banks of river Barka and Gash, also provide off farm employment opportunities to the communities in the nearby villages. More over several minor farmers are involved in commercial production of fruit and vegetable along the major rivers.

Within these two major livelihood systems it is possible to identify other smaller livelihood systems that have unique characteristics that make them different from the rest. These different characteristics are the outcomes of traditions; beliefs and cultural backgrounds coupled with some inherent natural endowment differences that influence the specific livelihood systems, such as the abundance of grazing possibilities.

For example the pastoralists in Forto, Dighe and Akordet have very little option for getting grazing possibilities during the dry season and used to migrate to Gash, Ethiopia and Sudan seasonally while sedentary Agro pastoral around the Gash river have no need to migrate. Taking these into account, 8 different livelihood systems have been identified in zoba Gash Barka.



### 8.1 Traditional Semi Sedentary Pastoralism in Semi Desert

This livelihood system (LS) is found in the drier areas of sub zoba Dghe and Forto and extends from the northwestern parts of Sub-zoba Dighe to sub zoba Forto and northern part of Hykota (kebabi Balkai). The rainfall amount is below 300 mm per year. The inhabitants of the LS are semi sedentary households that belong to the Tigre and Hidareb ethnic groups. They reside in villages close to the cropland during rainy season. During dry season the household move to the riverbank in search of water and grazing lands. These communities depend to a large extent on livestock rearing and as their secondary source on crop production for their livelihoods. This Livelihood System is mostly vulnerable to the changing climatic conditions. The populations have very limited options for getting grazing possibilities during the dry season and they have to migrate to riverine areas and as far as Gash in search of water and grazing for their livestock. Although sales of livestock is the main source of income they do supplement it by selling mats made of doum palm leaves. Another off farm source of income is the employment opportunities in the 149 small and large irrigated farms in sub zoba Forto. In this livelihood system all the different vulnerable groups such as middle, poor and destitute households are represented.

The landform is made up of alluvial plains, with associated hills and valleys. Major crops that grow in these areas are sorghum and pear millet. Land is prepared either manually (by hoe) or camels. The livestock types that are found in these areas are cattle, sheep, goats and camels. Camels and goats dominate the livestock herd. The livestock migration routes during dry season are depicted on figure 7 of this document

### 8.2 Traditional Semi Sedentary Pastoralism in Arid Lowlands

This livelihood system (LS) is found in the drier areas of Gash Barka along the catchments of the Barka River. It includes eastern and southern parts of sub zoba Dghe, sub zoba Akurdet and western part of subzoba Mensura. The populations that are mostly Tigre belong to the Moslem faith and are semi sedentary with minor movement between up land and the riverside during dry season and rainy season. In terms of rainfall these areas are slightly wetter than the Semi desert agro-ecological zone. The annual rainfall varies between 300mm and 500 mm. The major source of livelihood is a combination of livestock with some agriculture but dominated by livestock. The major livestock types are goats; sheep, cattle and camels while the dominant crops are sorghum and pearl millet. Due to the availability of water in the Barka River, there are 137, and 87 investors in sub Zoba Akurdet and Dghe respectively involved in irrigated agriculture along the banks of the Barka River. In this irrigated farms onions, vegetables, tomatoes, paper and bananas are cultivated. These irrigation activities have created employment opportunities for the villages nearby. In addition to the income generated by sale of livestock; hand crafts (mats and brushes and raw export of the doum palm leaves to other parts of the country) made by the women folk is a source of income to the households in this livelihood. There is also cross border trade.

### 8.3 Traditional Sedentary Agro-Pastoralism in Low Land1

This Livelihood System is found in sub zoba Mogolo, Barentu and Gogne. The communities in this LS are sedentary that have permanent villages with some members of the household migrating seasonally with their livestock to the banks of Gash and Setit rivers. The ethnic groups that belong to this livelihood are the Nara, Tigre and Kunama. Crop and livestock are roughly of equal importance in this livelihood. It must be noted here that the migration is during dry season only for the livestock with one or two members of the family and not the entire family. Some



households in these areas make arrangements to send their livestock with other persons for fee or other services. Major crops grown in this LS include sorghum, pear millet, and sesame.

The landform varies from hilly to flat alluvial planes. The livestock types include cattle, sheep, goats, camels, and donkey. Camels are used for animal traction and donkeys are used for transportation and fetching water. Other income generating activities include handcraft from doum palm leaves, sale of crops and livestock and employment in the towns.

#### 8.4 Traditional Sedentary Agro-Pastoralism in Low Land2

This livelihood covers sub-zoba Lalay Gash, Shambuko and Kebabi Tokibu, Brar, Dase, Kuluku, Fode, and Shakat from sub-zoba Gogne and Sosena, and Asheti from subzoba Barentu. The ethnic groups that are found in this livelihood system are the Tigrigna, Kunama, Tigre and Saho. The Tigrinya whose ancestors migrated from the highlands are agropastoralists like the Kunama who are the indigenous inhabitants of the areas. Both communities are sedentary that live in permanent villages and share common Christian belief although there are some kunamas whose religions are outside Christianity. The Saho and Tigre are also descendants of migrants from other parts of Eritrea but are followers of Islam. For all the communities' agriculture and livestock have equal importance. The major source of their livelihood is agriculture and livestock; however all communities are engaged in trade of livestock, livestock products like butter and crops and other off farm activities. For instance in subzoba Lalay Gash around Augaro, gold panning is practiced by many house holds to supplement their income.

#### 8.5 Traditional Crop Based Mixed Agriculture in High Land

This Livelihood System is part of the moist highland agro ecological zone found in sub zoba Logo Anseba and small part of sub zoba Molqi at an altitude between 1600-2400 meters and depends mainly on rain fed crop production. Only 9.7% of the total area of the sub zoba is suitable for agriculture. The crops grown in the LS are barley, wheat, sorghum, finger millet and pulses. Limited livestock raised include small ruminants and cattle. The oxen are mainly used for traction. The inhabitants of the LS are sedentary agriculturalists that live in large villages and depend mainly on rain fed agriculture and livestock for their livelihoods. Because of the limited agricultural land most households migrate to Gash Barka to cultivate crops and return after harvest to their villages in the highland. (This arrangement is called locally Wefri Zemet) However, the communities in this livelihood also engage themselves in trade of livestock and livestock products to supplement their income. The inhabitants of this livelihood depend on food aid for most of their subsistence. In addition bee keeping is another income generating activity in this livelihood. During the dry season the livestock migrate to the banks of Gash and Settit rivers.

#### 8.6 Traditional Crop Based Mixed Agriculture in Low Land

This livelihood is found in sub zoba Molqui. The LS depends on traditional rain fed agriculture combined with livestock rearing. Although most of the subzoba is hilly, there are some plains towards the west bordering sub zoba Shambuko. The major crops grown include barley, wheat, and pulses in the highland part and sorghum and finger millet in the plains. Livestock is mainly cattle but some ruminants are also available. Other income generating activities include trade in livestock and livestock products and crops. During the dry season the livestock migrate to the banks of Gash and Settit rivers.



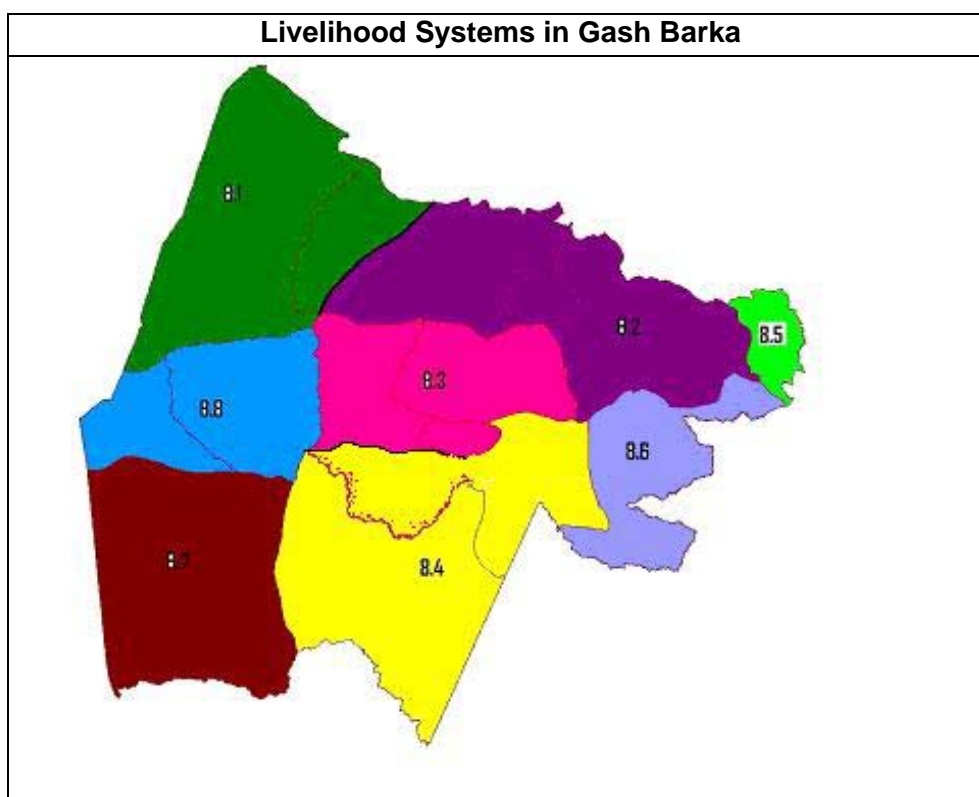


## 8.7 Rainfed Commercial and Small Scale Mixed Agriculture

This livelihood system is found in sub zoba Goluj. The commercial farmers have an average farm more than 100 hectares while the small holders have between 2-15 hectares of land. Most of the large commercial farms are owned by absent land lords who live outside the subzoba but come during the Kremti to cultivate. The majority of the returnees from the Sudan are settled in this livelihood system in permanent villages or settlements. Most of the land is plowed with tractors. Major crops in this livelihood are sorghum and sesame. The livestock include cattle, goats and camels. Camels are used for transport and oil crashing. Some households carry out the camel driven oil-crashing activity during the off-season. The major sources of income generating activities in this livelihood are sale of crops such as sorghum and sesame, sale of livestock and livestock products and sale of sesame oil.

## 8.8 Traditional Pastoral in Arid Lowlands

This Livelihood System is found in Hykota and Tessenei. There are three major ethnic groups namely the Hidareb and Tigre and Nara and a minor group Rashaida that belong to this LS. Both the Hidareb and Tigre are agro-pastoral sedentary communities while the Rashaida are very mobile and migrate in and out of the Sudan. Agriculture and livestock are the main source of livelihoods of the communities. Beside sales of livestock, doum palm leaves, handcrafts from doum palm leaves and cross-border-trade. The other income generating activities include employment opportunities in the irrigated farms along the Gash river, the agro industry of Alighidir and the town of Tessenei. There is also some gold panning in this livelihood. The livestock, which include sheep, goats and camels, contributes substantially to the livelihood of the communities.







<b>Gash Barka Livelihood Systems legend</b>	
8.1	Traditional Semi Sedentary Pastoralism in Semi Desert
8.2	Traditional Semi Sedentary Pastoralism in Arid Lowlands
8.3	Traditional Sedentary Agro-Pastoralism in Low Land1
8.4	Sedentary Agro-Pastoralism on Low Land2
8.5	Traditional Crop Based Mixed Agriculture in High Land
8.6	Traditional Crop Based Mixed Agriculture in Low Land
8.7	Rainfed Commercial and Small Scale Mixed agriculture
8.8	Traditional Pastoral in Arid Lowlands