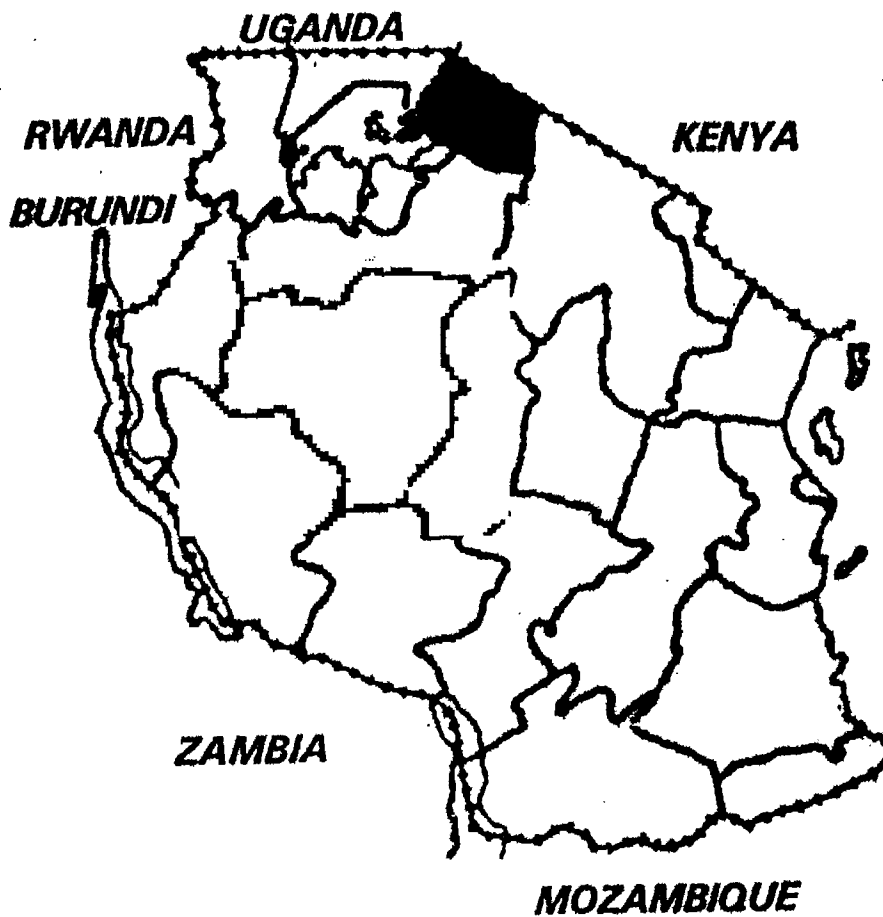




THE UNITED REPUBLIC OF TANZANIA

MARA REGION SOCIO-ECONOMIC PROFILE



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and
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MARA**

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FOREWORD

1. *As we approach the 21st Century the problems facing rural areas in developing countries like Tanzania are numerous and formidable. Social and Economic services are deteriorating and proving to be unsustainable; school enrollment rates are declining; food situation is precarious; infant and maternal mortality rates continue to be high; unemployment is on the rise triggering off mass migration of youth from the rural areas into already overcrowded urban centres; in Mara Region, for example, land pressure is escalating and deforestation is going on at an alarming rate.*
2. *This situation has arisen because of many factors including ill - prepared rural development programmes and weak monitoring and supervision of the implementation of development programmes and sectoral strategies. The observed shortcomings in the policy formulation, project identification, design, and implementation in the developing countries is in turn attributed to lack of reliable and adequate data and information on the rural development process.*
3. *The publication of Regional Socio-economic Profiles series by the Planning Commission in collaboration with Regional Commissioner's offices should be viewed as a fruitful attempt towards finding solutions to the existing problem of data and information gap.*
4. *The Regional Profile series cover a wide range of data and information on geography, population, social economic*

parameters, social services, economic infrastructure and productive sectors. The publications so far have proved to be of high demand and a vital source of information to many policy makers, planners, researchers, donors and functional managers.

The Planning Commission has found it a worthwhile effort to extend the exercise to cover even more regions. Readers are invited to make suggestions and constructive criticisms which can assist in improving the quality and effectiveness of future Profiles.

5. *I would like to take this opportunity to acknowledge with thanks once again the financial support of the Royal Norwegian Embassy which facilitated the preparation of the Mara Region Socio-Economic Profile. I would also like to thank both the Planning Commission and Mara Regional Planning Staff who put a lot of effort into ensuring the successful completion of this task.*



Nassoro W. Malocho (MP)

MINISTER OF STATE

PLANNING AND PARASTATAL SECTOR REFORM

December, 1998

SECTION I

LAND, PEOPLE, CLIMATE AND AGRO-ECONOMIC ZONES:

1.0 GEOGRAPHICAL LOCATION:

Mara region is in the northern part of Tanzania. It is located between latitude 1 and 2 and degrees 31° South of the Equator and between longitude 33° 10' and 35° 15' East of Greenwich. The region is bordered by the Republic of Kenya to the North, Kagera Region to the West, Mwanza and Shinyanga regions to the South and Arusha to the East. It is also flanked by lake Victoria on the Northern -West.

1.1 LAND AREA AND ADMINISTRATIVE UNITS:

The region has an area of 30,150 sq. km. of which 7,750 is covered by Lake Victoria water and 7,000 sq. Km. by Serengeti National Park. The area available for human settlement and agricultural production is 14,799 sq.km. Only about 3,000 sq km of this area is used for crop cultivation. With a population of around 1 million, it is among the smallest and most densely populated regions of Tanzania (about 43.7 people per km² and 1.9 people per acre of good arable land).

The five administrative districts in the region include Musoma Urban, Musoma Rural, Serengeti, Bunda and Tarime. It has a total of 17 divisions, 113 wards and 409 villages distributed in the region as indicated in table I.

Fig. 1: Land area in Sq. Kms, Mara Region

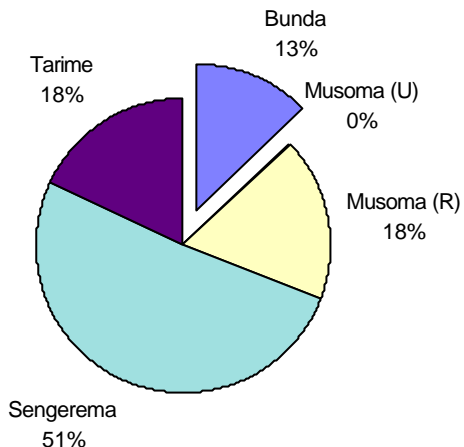
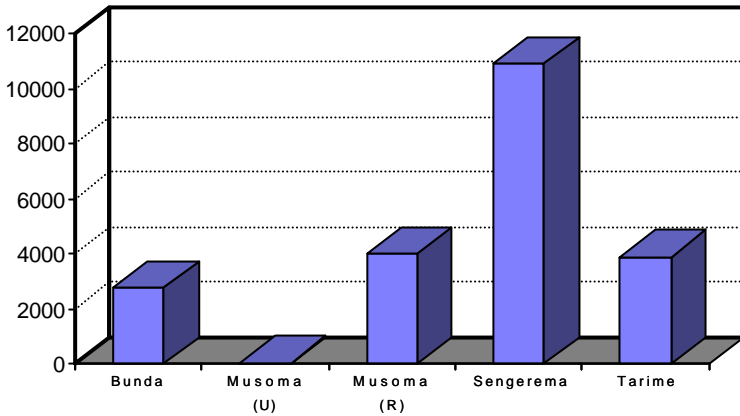


Table I: LAND AREA AND ADMINISTRATIVE UNITS

District	Land Area (km ²)	Divisions	Wards	Villages
Bunda	2,782	3	20	91
Musoma (U)	28	1	13	-
Musoma (R)	3,981	3	26	103
Serengeti	10,942	2	14	60
Tarime	3,885	8	40	155
TOTAL	21,618	17	113	409

Source: Mara regional Office (Taarifa ya Mafanikio, ya Serikali ya Awamu ya pili).

Fig. 2: Administrative Units, Mara Region



1.2 ETHNIC GROUPS:

Over 95% of the population is christian or animist with a few moslems mostly in urban areas. The main ethnic groups in terms of their numbers are Kurya, Jita and Luo. Kurya are the main ethnic group in the Tarime highlands and in the midlands, they account for roughly 50% of the population. The Jita are the main ethnic group in the lake shore and lowland inland areas south of Musoma. The Luo stretch along the Kenyan border from the lake shore to the foot of the Tarime highlands. The Kurya are agro-pastoralists, whereas the Jita and Luo are semi-agro-pastoralists. There are other small ethnic groups such as Wazanaki, Wasuba, Waikizu, Waisenyie etc. in the region.

Historically, population concentrated around the lake because life was easier than in the hinterland: soils were light enough to work by hand hoe; there was easy access to drinking water and fish from the lake and the main communication lines were by boat.

The midlands were the last to be settled due to insecurity (wild animals and clan warfare) absence of drinking water and the prevalence of heavy clay soils that could not be worked without animal traction. Consequently, the areas with the richest soils in the midlands are still under populated whereas the areas with the least fertile soils are overpopulated (Mara Region Farmer Initiative Project, Volume I, FAO/IFAD July 1995).

1.3 POPULATION SIZE AND GROWTH:

There is general agreement that persistent widespread poverty and serious social problems have significant influence on, and are in turn influenced by demographic factors such as population growth, structure and distribution. There is also general agreement that unsustainable consumption and production patterns are contributing to the unsustainable use of natural resources and to environmental degradation. It is important therefore to integrate population concerns fully into development strategies and into all aspects of development planning at all levels.

With regard to 1988 Census, Mara Region had a population of 952616 people. This was about 4 percent of the total Tanzania Mainland's population, making Mara region one of the least populous regions after Lindi, Pwani, Rukwa, Ruvuma, Singida, Kigoma and Mtwara. Based on 1978-1988 annual average growth rate of 2.7 percent, the population of the region is estimated to be 1.3 million people in 1998 (Table III).

Table II highlights 1967, 1978 and 1988 population size, 1978-1988 population growth rates by district.

Fig. 3: Population Trend, Mara Region.

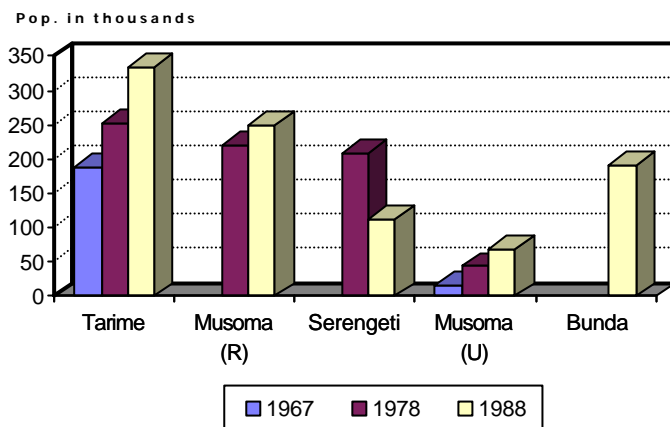


Table II: POPULATION SIZE AND 1978-88 GROWTH RATES BY DISTRICT

District	Population Census			Annual Growth Rates
	1967	1978	1988	1978 - 88
Tarime	188,536	252,513	333,888	2.7
Musoma (R)	340,177*	219,127	248,268	2.5
Serengeti	-	207,675	111,710	8.3
Musoma (U)	15,412	43,980	68,364	4.5
Bunda	-	-	190,386	0.6
Total	544,125	723,295	952,616	2.6

Source: 1967, 1978 and 1988 Population Census.

* The figure seems to be high for 1967 census because Musoma Rural included Serengeti and Bunda by then.

It is observed from Table II that between 1967 and 1988 census, Mara region's population increased by 75 percent from 554,125 to 952,616 million. It is worth noting that the population of the Region almost doubled in just two decades. It is further observed in Table III below that the region's population will almost triple by the year 2000 compared to what it was in 1967. This is a very high growth rate and some efforts must be made to lower it, otherwise the rate of food production may not cope, let alone other demands on the regional economy. Rapid population growth rate is mainly caused by high fertility rate, marriage patterns and non-use of family control methods such as contraceptives.

Table III: POPULATION PROJECTIONS BASED ON 1978/88 AVERAGE GROWTH RATES

District	1967 Census	1988 Census	Population Projections		
			1995	1998	2000
Tarime	188,536	333,888	402,616	436,116	459,984
Serengeti	-	111,710	195,206	247,958	290,827
Musoma (R)	340,177	248,268	295,114	317,805	333,894
Musoma (U)	15,412	68,364	93,034	106,167	115,936
Bunda	-	190,386	198,527	202,121	204,554
Total	544,125	952,616	1,184,497	1,310,167	1,405,195

Source: 1967 and 1988 Population Census Report.

Planning Commission: Compiled data.

Table IV: POPULATION BY RURAL/URBAN AND SEX, 1988

District	Rural			Urban		
	Male	Female	Total	Male	Female	Total
Tarime	147,533	168,275	315,808	9,824	8,256	18,080
Serengeti	49,541	55,481	105,022	3,704	2,984	6,688
Musoma (R)	109,795	123,543	233,338	8,594	6,336	14,930
Bunda	87,731	93,523	181,254	4,248	4,884	9,132
Musoma(U)	3,151	3,516	6,667	29,804	28,893	58,697
Total	397,751	444,338	842,089	56,174	51,353	107,527

Source: Mara Regional Statistical Abstract, 1993.

According to Table IV Mara Region is not an urbanized region, as most of its population is still in the rural areas. This trend is likely to change because the process of urbanization is intrinsic to economic and social development, necessitating almost all countries to shift from predominantly rural to predominantly urban societies. The objective is to foster a more balanced distribution of population by promoting sustainable development in both major sending and receiving areas.

The population living in rural areas during 1988 Census was 88 percent of the total population and only 12 percent of it was urbanized. It is still expected that Mara region will remain a predominantly rural population even by the year 2000. This is evidenced by 1993 population estimates which puts the rural population at almost 88 percent already attained in 1988. This

also implies that there is very little growth in the modern urban industrial sector which would have absorbed surplus labour from the rural subsistence sector.

Table V: **POPULATION PROJECTED BY SEX BASED ON 1988 CENSUS**

District	Population 1988 Census			Estimated Population 1995		
	Male	Female	Total	Male	Female	Total
Tarime	157,357	176,531	333,888	189,617	212,999	402,616
Serengeti	53,245	58,465	111,710	93,039	102,167	195,206
Musoma (R)	118,389	129,879	248,268	140,727	154,387	295,114
Musoma (U)	32,955	32,409	68,364	44,846	48,188	93,034
Bunda	91,977	98,407	190,386	95,912	102,615	198,527
Total	453,925	498,691	952,616	564,141	620,356	1,184,497

Source: 1988 Census Report.
 Planning Commission: Compiled Data.

1.4 POPULATION DENSITY AND DISTRIBUTION:

Compared with relatively densely populated regions like Kilimanjaro, Mtwara, Mwanza and Kagera, Mara could be categorized as one of the moderately densely populated regions. According to the 1988 Census (Table VI), the Region's average population density was 43.7 persons per sq. km., being above the national average of 26 persons per sq. km.

Table VI: POPULATION DISTRIBUTION AND DENSITY BY REGION, 1988 CENSUS REPORT

Region	Land Area (Kms)	Population	Density
Dar es Salaam	1,393	1,360,850	976.9
Mwanza	19,683	1,876,776	95.8
Kilimanjaro	13,309	1,108,699	83.7
Mtwara	16,710	887,583	53.2
Tanga	26,677	1,280,262	48.1
Kagera	28,456	1,313,639	46.6
Mara	21,760	952,616	43.7
Shinyanga	50,760	1,763,960	34.9
Dodoma	41,311	1,235,277	30.0
Mbeya	60,350	1,476,261	24.0
Kigoma	37,040	853,263	23.1
Iringa	56,850	1,193,074	21.3
Arusha	82,098	1,352,225	16.5
Rukwa	68,635	704,050	10.1
Lindi	66,040	642,364	9.8
Tabora	76,151	1,036,293	14.0
Pwani	32,407	638,015	20.0
Singida	49,341	791,814	16.0
Morogoro	70,799	1,222,737	17.0
Ruvuma	66,477	783,327	12.0
Total Tanzania Mainland	885,987	23,174,443	26.1

Source: 1988 Population Census report.

Table VII: POPULATION DENSITY AND DISTRIBUTION BY DISTRICT

District	Land Area (Sq.Km.)	Census 1988	Population Density (1988 Census)	Population 1995 (Estimates)	Population Density (1995 Estimates)	Population 2000 (Estimates)	Population Density (2000 Estimates)
Tarime	3,885	333,888	86	402,616	104	459,984	118
Serengeti	10,942	111,710	10.2	195,206	18	290,827	26
Musoma(R)	3,981	248,268	62.0	295,114	74	333,894	84
Musoma (U)	28	68,364	2441	93,034	3323	115,936	4141
Bunda	2,782	190,386	68.4	198,527	71	204,554	73
Total	21,618	952,616	43.7	1,184,497	55	1,405,195	65

Source: 1988 Census Report.
 Planning Commission: Compiled data.

Despite land area of 21,618 sq.km. the population density of Mara Region has continued to increase by 26 percent from a density of 43.7 persons per sq.km. in 1988 to an estimated density of 55 persons per sq. km. in 1995.

District-wise, Tarime re-corded the highest population density followed by Bunda and Musoma Rural in 1988. Projections for population density in the year 2000 puts Musoma Rural second after Tarime district, whose population density continues to rocket. This would call for immediate steps to ensure that environmental degradation does not occur. The over-all population density for Mara Region is projected at 65 persons per sq.km. in the year 2000 compared with only 43.7 persons per

sq.km. during 1988 Census. This will increase more pressure on land.

The average number of people per household in Mara region is given in Table VIII. It is observed that, the average number of people per household is seven, which is above the national average of six persons per household.

Table VIII: POPULATION BY SEX, NUMBER OF HOUSEHOLDS AND AVERAGE HOUSEHOLD SIZE 1988

District	Sex			No. of Households	Average Household size
	Male	Female	Total		
Tarime	157,357	176,531	333,888	51,052	6.5
Serengeti	53,245	58,465	111,710	18,288	6.1
Musoma (R)	118,398	129,879	248,268	32,424	7.7
Bunda	91,979	98,407	190,386	28,191	6.8
Musoma (U)	32,955	32,409	68,364	13,291	5.1
Total	453,925	498,691	952,616	143,246	6.7

Source: Mara Regional Statistical Abstract, 1993.

It is observed in Table VIII that household density is highest in Musoma Rural followed by Bunda, an indication of a high dependency ratio. The large number of people per household is partly attributed to the high incidence of polygamy common in Mara. Population concentration in the region is shown in Table IX. It is observed that, about 39 percent of the region's

population is concentrated along the Lake shore, 49 percent in the Midlands and 12 percent in the Highlands.

Fig. 4: Occupation Rate in Mara Region, 1998

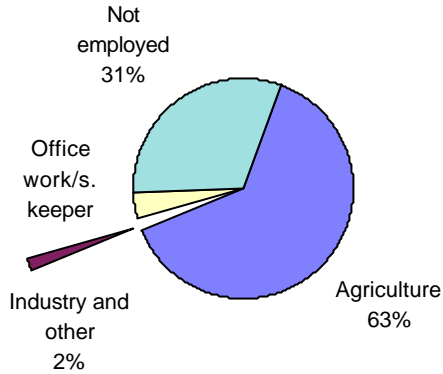


Table IX: ESTIMATED POPULATION DISTRIBUTION BY ZONE 1994

Zone	Musoma Rural	Tarime	Bunda	Serengeti	Population Concentration (%)
<u>Lake Zone:</u>					
1. Area km ²	1,090	1,101	1,318	-	
2. Population	124,03	190,478	143,781	-	39
3. population Density	0	173	109	-	
<u>Midlands:</u>					
1. Area km ²	3,520	2,250	1,562	3,370	
2. Population	238,13	89,135	101,589	136,012	49
3. Population density	3	40	65	40	
<u>Highlands:</u>					
1. Area km ²	-	549	-	-	
2. Population	-	137,113	-	-	12
3. Population Density	-	250	-	-	

Source: Mara Regional Office:
FAO/IFAD Report, July 1995.

Population distribution pattern might have been influenced by the availability of water and fish in the case of the Lake shore zone, while settlements in the Midlands could have been influenced by the existence of heavy black cotton soils. The Highlands of course, good weather and reliable rainfall should have been the driving force that influenced settlement.

Table X indicates the population in each age-group. Children aged between 0-14 years constitute 49 percent of the total population. While, youth aged between 15 and 39 years constitute 34 percent of the total population. The working group age (15 - 64 years) comprises 46 percent. Whereas the dependent group 0-14 and above 65 years old constitutes 53 percent of the total population. This implies that dependence ratio is high in Mara Region at more than 50 percent. High dependence ratio is not a healthy situation for the economy. More children in the population creates huge demands on social amenities that the economy sometimes may not afford.

Table X: POPULATION BY AGE GROUPS IN MARA REGION 1988

Age Groups	Tarime	Serengeti	Musoma (R)	Bunda	Musoma (U)	Total
0-4	60,434	20,331	44,439	33,698	11,759	170,661
5-9	56,427	19,214	42,454	31,794	10,596	160,485
10-14	49,749	16,868	37,737	27,225	9,297	140,876

15-19	38,063	13,182	28,550	20,562	6,973	107,330
20-24	26,043	8,490	18,620	14,660	6,084	73,897
24-29	21,369	6,814	15,144	12,375	5,742	61,444
30-34	15,693	4,803	11,172	8,948	4,375	44,991
35-39	13,022	4,133	9,186	7,615	3,213	37,169
40-44	10,017	3,239	7,448	5,902	2,461	29,067
45-49	9,015	3,016	6,951	5,331	1,982	26,295
50-54	7,345	2,569	6,207	5,140	1,504	22,765
55-59	6,678	2,234	5,214	4,379	1,162	19,667
60-64	5,342	2,011	5,214	3,427	1,094	17,088
65-69	4,341	1,564	3,724	3,046	820	13,495
70-74	3,673	1,340	2,483	2,285	547	10,328
75-79	2,003	670	1,489	1,333	273	5,768
80+	2,337	1,117	1,986	1,713	410	7,563

Source: Planning Commission Compiled Data based on Mara Regional Statistical Abstract, 1993.

Dependency group exceeds the working group by 7 percent. Thus, the working group in Mara region has to work much harder and more diligently in order to feed 53 percent of the population, otherwise, the region will constantly face food shortages in future.

Efforts to reduce dependency ratio and slowing population growth will very much reduce poverty, increase economic progress, improve environmental protection and reduce unsustainable consumption in Mara Region.

1.5 MIGRATION:

Migration has not been a common occurrence in the communities in the region. However, migration occurs foremost in response to food shortages or drought. While, livestock owners migrate in search of pasture, farmers sometimes migrate to rent land for cultivation. Tarime highlands have had a remarkable in-migration, mainly from Shinyanga and Mwanza. In-migration to Tarime highlands is attributed to the area's safety and food production potential.

Currently, the main migratory currents' are of Jita and Luo peoples from the over-populated peninsulas on the lake shore to adjacent lowland inland and midland areas and of Kurya peoples from the densely-populated Tarime highlands to the sparsely-populated eastern and central midlands, particularly in the Serengeti where they are gradually displacing the indigenous Ikoma peoples.

1.6 EMPLOYMENT:

The majority of the economically active population in Mara region is engaged in subsistence agriculture as its main economic activity.

Small portion of the population, especially those close to the shores of Lake Victoria is absorbed in the fishing industry. However, the declining productivity of the agricultural resources resulting from; pest infestation, less reliable rainfall; increasing land infertility; the unavailability of pesticides and fertilizer; and land shortages have rendered agriculture as an economic activity unable to engage fully and throughout the year the people depending on it. The failure of agricultural sector to provide reliable employment is now causing an employment problem in Mara Region, as evidenced by many people who are now trying to diversify livelihood options.

1.7 OFF - FARM EMPLOYMENT:

Wage labour constitutes the most important off-farm employment. Mining is cited to be providing an off-farm employment opportunity. More commonly, relatively poor farmers sell their Labour to other farmers during the ploughing, weeding and harvest periods. Some lake village residents work on fishing boats. Others hire out their labour as carpenters, latrine diggers, or shoe and bicycle repairers. Few have employment in the public sector (education, health, extension services) and employment in cotton gins. Table XI attempts to show the magnitude of unemployment in Mara Region following the 1988 Population Census analytical results. The 1988 Census results put unemployment in Mara Region at 189,617 people which is equivalent to 31 percent of the total labour force. Out of 189,617 unemployed, 96,278 were female representing 51 percent of the total. It is observed in the table XI that unemployment was more pronounced in Tarime and Musoma Rural districts with 62,700 and 48,198 people respectively.

Table XI: POPULATION 10 YEARS AND ABOVE BY SEX, DISTRICT AND OCCUPATION, IN MARA REGION, 1988

District	Occupation				Total
	Office work and Shop Sales	Agricultural work	Industrial and Other	Number not Employed	
	Sex: Male				
Tarime	3,996	57,246	2,332	32,063	97,297
Serengeti	1,223	19,057	897	11,470	32,768

Musoma (R)	2,659	41,528	1,132	24,040	69,587
Bunda	2,625	38,334	1,574	18,298	61,324
Musoma (U)	4,843	4,395	4,022	7,468	20,967
Total	15,346	160,560	9,957	93,339	281,943
District	Sex: Female				Total
Tarime	1,667	84,302	1,010	30,637	118,632
Serengeti	504	27,280	312	11,417	39,618
Musoma (R)	965	56,950	316	24,158	82,659
Bunda	957	49,729	665	19,138	70,956
Musoma (U)	3,395	8,069	2,674	10,928	25,234
Total	7,488	226,330	4,977	96,278	337,099
District	Both Sexes				Total
Tarime	5,663	141,548	3,342	62,700	215,929
Serengeti	1,727	46,337	1,209	22,887	72,386
Musoma (R)	3,624	98,478	1,448	48,198	152,246
Bunda	3,582	88,063	2,239	37,436	132,280
Musoma (U)	8,238	12,464	6,696	18,396	46,201
Total	22,834	386,890	14,934	189,617	619,042

Source: Mara Regional Profile 1988
 Planning Commission: Compiled data based on Mara Regional Profile.

1.8 CLIMATE AND SOIL:

The region has three rather homogenous agro-ecological zones. These are the lake shore and midlands and the Tarime highland zone.

(a) **The Lake shore Zone:**

The lake shore zone is a strip of land with a width of 10 to 15 km along lake Victoria, spanning through Tarime, Musoma rural and Bunda districts. This zone occupies an estimated area of 3,500 km². It is characterized by altitudes between 1,100 and 1,200 metres, warm temperatures and annual rainfall of less than 900 mm falling from Mid-September to early December and from March to June. Duration of rainy seasons is highly variable. Therefore, planting dates and general timing of farm operations are difficult to forecast and mid-season dry spells are common.

Soils are mainly light sandy and easily erodible but heavy clay soils are found in seasonal swamps and river valleys.

(b) **The Tarime Highlands:**

The Tarime Highlands lie at an altitude of 1500 to 1800 metres above sea level and cover an area of about 549 km² to the north of Tarime district. The Highlands have cool temperatures and receive rainfall exceeding 1500 millimeters per year distributed in two rainy seasons; one from mid-February to June and the other from mid-September to the beginning of January.

The Highlands have deep, well-drained, red or brown soils on the gentle hillsides but frequently become shallow and stony on the steeper slopes and dark-grey or brown clays with impeded drainage on the valleys. This zone appears to have the greatest agricultural potential because of its plentiful rainfall, fertile soils, good connections with neighbouring Kenya and market orientation of its inhabitants.

(c) **The Midland Zone:**

The midland zone is a transition area between the lake shore and the Tarime highlands, spanning all 4 districts. Altitude of the zone varies from 1,300 to 1,500 meters above sea level. Rainfall is highly variable and increases with increasing altitude, ranging from less than 900 mm per year near the lake shore zone to over 1,250 mm in the area bordering Serengeti National Park. Apart from a strip of foothills between lowland inland and midlands areas, the landscape is mostly flat or gently sloping with a predominance of heavy black cotton soils.

1.9 AGRO-ECONOMIC/ECOLOGICAL ZONING:

Mara Region can be divided into three distinct zones on the basis of criteria such as populations density, arable land, proportion of households owning cattle, degree of ozonization, and presence/absence of off-farm income earning opportunities.

Table XII: **POSSIBLE ZONING OF THE REGION BY DIFFERENT RAMETERS**

Parameter	Lake shore	Lowland inland and Midlands	Highlands
Population density	High	Low	High
Cattle ownership (No)	Low	High	Low
Ozonization	Low (10%)	High (60%)	Intermediate
Intensivity of Agriculture	intensive	Extensive	Intensive
Off-farm Income earning opportunities	High	Low	High

Source: Mara regional office: Mara region Farmer Initiative Project, FAO/IFAD

(a) **Lake shore:**

This zone borders lake Victoria on the Western part of Mara region. It is characterized by several beautiful peninsulas. Although, most of the land is flat, very gentle sloping hills form most parts on which agriculture takes place. These gently sloping lands form valley bottoms which are not broad and in some instances are wet and good for rice production and gardening.

The farming system of the lake shore is influenced by population pressure, infertile soils and availability of alternative income-generating activities such as fishing. The cropping system trend is towards intensification. Cassava interplanted with sweet potatoes is the main food crop association, occupying over 50% of the cultivated area. The main cash crop is cotton, which is grown on 20-25% of the cultivated area. Rice is rapidly expanding as a cash crop wherever heavy mbunga soils are present and rain water can be harvested for its cultivation. Sorghum, finger millet, maize, groundnuts and fruit trees are grown in limited areas around the homestead.

The lake shore is the poorest area; all households have a chronic food deficit and about 80% are food insecure. The remaining 20% are able to buy food with income from other sources. The upper stratum includes the owners of boats and fishing gear, cattle owners, fish traders, shop-keepers, household selling rice or "bustani" vegetables on a large scale and households with off-farm employment or non-farm enterprises.

The interplay between crops, livestock, fishing and farm income plays a major role in socio-economic differentiation. Cash earnings from cotton are invested in purchase of fish nets. Income from fishing is re-invested in cattle, which are either held for emergencies, or sold to build fishing boats, shops or houses for rental.

There is relatively little differentiation between the remaining 80% of the households with regard to farm size or ownership of livestock and assets, as holdings are uniformly small (average 5 acres), land preparation is exclusively by hand.

The main difference regards the household head's age, the number of mouths to feed and the active labour force. The poorest and least dynamic households tend to be those with inadequate family labour and a high dependence ratio, for instance, old people, female, household heads and families hit by AIDS.

Sustainability:

The lake shore zone is confronted by several constraints including:-

- (i) increasing population pressure
- (ii) declined soil fertility (land exhausted of nutrients)
- (iii) low moisture holding capacity of soils
- (iv) few trees
- (v) infestation of striga on cereals
- (vi) slow disappearance of sorghum, finger millet and bullrush millet from the original food supply system.

Therefore, the lakeshore zone future sustainability is a major concern, although farmers and leaders are not aware of the seriousness of the problem. Nevertheless, sustainability can only be achieved through an integrated approach, taking into account the need to search for adequate water for domestic use, improved feeder roads, general training of the beneficiaries, tree planting and improved crop rotation.

(b) **Midlands:**

The Midlands is an intermediate zone between the lakeshore and Tarime Highlands. It is characterized by recent settlement, low population density and rapid population growth due to immigration. The zone is inhabited by Luo and Jita ethnic groups in inland areas nearest the lakeshore, Kurya in the centre, limited numbers of Sukuma in the south near Mwanza Region and Ikoma on the fringes of Serengeti National Park. Grazing is the main activity and accounts for 30-50% of land use. There is a predominance of heavy soils that are difficult to cultivate without oxen.

In the Midlands, socio-economic differentiation is greater and wealth is a function of numbers of wives, cattle and ox-teams and the ability to cultivate relatively large areas of land. Earnings from crop sales are invested in cattle. Cattle are kept for natural increase and milk and are also exchanged for wives. Wives are used to command more land and increase the family labour force available for crop production. Wealth is increased by extending the cultivated area, re-investing earnings in cattle and increasing numbers of wives. There are major variations in farm size from a

low of 45 acres under hand cultivation to a high of over 100 acres. The founding families tend to control larger land areas than recent migrants but some of these families leave large areas fallow due to a shortage of oxen (following cattle rustling).

Cattle ownership varies from none to over 100 heads. The poorest households are those without cattle. This includes people who have never owned cattle, victims of cattle rustling who have lost their animals and female household heads who have migrated to the area without a husband. Cropping is mainly oriented towards food crops such as sorghum, maize, cassava and finger millet. Rice is rapidly expanding as a dual purpose food and cash crop. Cotton is the main cash crop in low land inland areas. The main problems are shortage of water for humans and livestock, followed by presence of disease vectors such as ticks and tsetse flies.

(c) **Tarime Highlands:**

Tarime Highlands are one of the most densely populated areas in Mara region. Farming systems are influenced by two opposite trends:

- (i) population increase and pressure over good cultivable land (good reddish yellow loamy soil) and
- (ii) decrease in the number of cattle due to unavailability of grazing area and insecurity.

This is only partly compensated by a growing interest in zero grazing of cross-bred dairy cattle. Nevertheless, farmers point out that this package is quite expensive and therefore only a limited number of households can adopt it. There is a marked trend towards cash crops. The area under perennial crops such as banana and coffee is expanding at the expense of traditional staple food crops such as finger millet and sorghum. Cassava and sorghum continue to be preferred food staples while maize is widely grown as a cash crop.

Coffee rehabilitation has begun following improvement of producer prices and establishment of private sector marketing channels. However, decreasing soil fertility is a major problem, which is particularly observed on maize, fingermillet and sorghum plots.

In the Tarime Highlands, cash crops and off-farm incomes are the motor of socio-economic differentiation. Earnings from cash crops such as maize are invested in permanent crops (bananas and coffee) and in off-farm enterprises such as shop keeping, land purchase, house construction and rental to businesses in road side towns. Many households have at least one member with off-farm employment or non-farm enterprises such as carpentry or brick making.

Sustainability

Population pressure in Tarime highlands, expansion of the cultivatable land, the recent trend towards cash oriented crops, and the aspiration to increase livestock numbers seem to be the

major factors threatening the sustainability of Tarime highland farming system. Decreasing soil fertility particularly observed in cereals (maize, sorghum and finger millet) need immediate attention with a focus on utilization of farm yard manure coupled with practices enhancing soil organic matter.

1.10 TOPOGRAPHY AND DRAINAGE:

(i) Topography:

Mara Region is generally lying between the low granite hills rising at about 100m. above the gently sloping foothills which lead down to rather narrow flooded areas of Musoma point and Makoko foothills. Other parts of the region are the areas in which plateau surface is broken up by long narrow hill ranges which rise above flat lowlands. There are also several hills which are within the region areas, these include, Ryamakongo hills which rise up to 1,259m., Kibayo hills 1,254m. and Nyabisonga hills. In general, the topography of the region is undulating to rolling with wide valleys and occasional steep side hills.

(ii) Drainage:

Mara Region falls within the Lake Victoria basin. Mara river is the only, perennial river in the Region. It forms the major drainage pattern in the region with its tributaries flowing to the Lake Victoria. Other streams flow to the low land forming rivers like Tigitai, Suguti and Kyarano which in turn are the confluence of the Mara River. Other

streams drain to the North into Kenya where they flow into Migori River.

SECTION II

2.0 REGIONAL ECONOMY:

2.1 INTRODUCTION:

The region's main economic activities are agricultural production, livestock rearing and fishing. Food production is undertaken by individual families but is inadequate to feed the regions population.

Food crop production is carried out by individual farmers to meet their food requirement. The main food crops are sorghum, cassava, maize, finger millet and paddy.

Food per person is estimated at 2-3 bags per annum. The present production is not adequate to meet food requirements in the region. The region has 1,102,605 heads of cattle, according to 1989 estimates. On the average, milk production is in the range of 2-3 liters per cattle. Fishing is carried out along lakeshore villages in Bunda, Musoma and Tarime districts by fishermen who use both traditional and modern techniques for fish processing and preservation. Production of fish is about 30,000 metric tons/year.

Forestry and environmental conservation covers about 50% of the region's arable land and 4,273,000 seedlings were raised and planted in 2,224 hectares of land by schools, public and private institutions during the period 1992/93.

Despite abundant natural resources in Mara Region, the region is still one of the poorest regions in Tanzania, when measured against the Regional GDP and Per Capita GDP at current prices.

2.2 GDP AND PER CAPITA GDP:

The GDP of Mara region, according to Table XIII appears to be relatively low compared to the GDP of the three sister Lake zone regions. Nevertheless, the GDP of Mara Region managed to increase by 1,305 percent over the last 10 years (1985 - 1994), while that of Kagera increased by 1,576 percent, 1,068 percent for Mwanza and 1,966 percent for Shinyanga. By the end of 1994, the GDP of Mwanza and Shinyanga were already twice the GDP of Mara Region. Table XIII makes a better comparison of both GDP and Per Capital GDP of the four regions.

Fig. 5: The 1994 Regional GDP's for Mara Region compared to neighbouring Regions (Millions T.shs) at Current Prices.

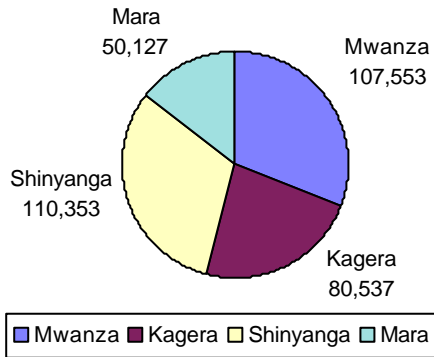


Fig. 6: The 1994 per Capita GDP for Mara Region compared to Neighbouring Regions

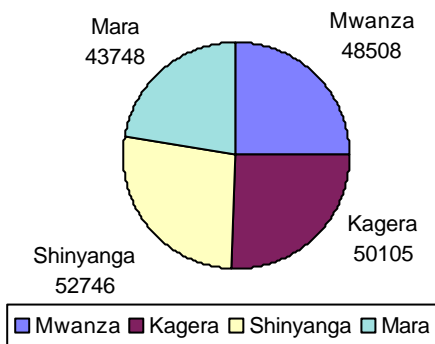


Table XIII: REGIONAL GDPs AND PER CAPITA GDPs FOR MARA, KAGERA, MWANZA AND SHINYANGA IN MILLION TSHS (AT CURRENT PRICES)

Year	Mara		Kagera		Mwanza		Shinyanga	
	GDP	Per Capita GDP*	GDP	Per Capita GDP*	GDP	Per Capita GDP*	GDP	Per Capital GDP*
1985	3,568	4,035	4,805	3,949	9,210	5,332	5,342	3,304
1986	5,182	5,695	6,477	5,183	11,658	6,578	7,773	4,672
1987	13,455	14,371	5,479	4,269	16,611	9,135	6,110	3,569
1988	25,464	26,290	10,376	7,636	31,314	16,706	11,097	6,275
1989	40,361	40,518	16,493	11,803	49,837	25,854	17,980	9,886
1990	20,517	20,028	30,325	21,103	42,802	21,592	43,614	23,317
1991	25,805	24,495	38,715	26,197	54,299	26,635	56,109	29,169
1992	31,371	28,956	49,101	32,307	66,708	31,819	68,240	34,496
1993	38,686	34,722	63,336	40,523	83,474	38,716	85,304	41,932
1994	50,127	43,748	80,537	50,105	107,553	48,508	110,353	52,746

Source: Planning Commission Compiled Data Based on National Accounts of Tanzania 1976 - 1994 Eleventh Edition August, 1995.

* Per Capital GDP figures are not in millions (simply TShs.)

It is observed from Table XIII that Mara region when ranked in terms of the GDP and Per Capita GDP growth, it becomes the poorest region in the Lake Zone. Surprisingly enough, for three consecutive years (1987, 1988 and 1989), the GDP of Mara region was higher than the GDP of her two sister Lake zone Regions (Kagera and Shinyanga), but the trend changed abruptly beginning in 1990 and by the end of 1994, Kagera's and Shinyanga's GDPs rose sharply to T.shs. 80,537 million and T.shs. 110,353 million from a GDP of only T.shs. 16,493 million and T.shs. 17,980 million in 1989, respectively. The growth in GDP of Kagera and Shinyanga between 1989 and 1994 was 388 percent and 514 percent respectively, while for Mara it was only 24 percent. In terms of Per Capita GDP, it is observed that Mara Region has a higher per Capita GDP than that of Kagera and Shinyanga between 1985 and 1989 and that of Mwanza between 1987 and 1989. However, like the trend observed in the growth of GDP, the growth in per capita GDP of Mara slowed down as well, beginning in 1990 to 1994 compared with the growth in per capita GDP of Mwanza, Kagera and Shinyanga. Growth in per Capital GDP of Mara region slowed down from 20,028 shillings in 1990 to 43,748 shillings in 1994. For Kagera Region, growth in per capita GDP increased from 21,103 shillings in 1990 to 50,105 shillings in 1994, while for Mwanza and Shinyanga the growth in per Capita GDP increased from 21,592 and 23,317 shillings in 1990 to 48,508 and 52,746 shillings in 1994 respectively. Kagera region recorded the highest growth in per capita GDP at 137 percent between 1990 and 1994, followed by Shinyanga Regional 126 percent. Relatively therefore, Mara Region could be referred to as the poorest region in the Lake zone. Could we say that Kagera, Mwanza and Shinyanga have

higher GDPs because of incomes from Coffee and Cotton grown more extensively in those regions than in Mara? Table XIV further highlights the trend in GDP and per Capita GDP growth of Mara Region in the last 15 years (1980 - 1994).

Fig. 7: The GDP trend of Mara Region at Current prices, 1980 - 1994

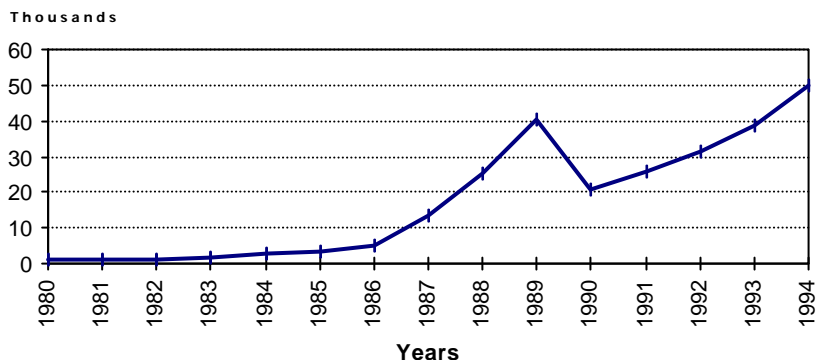


Table XIV: THE GDP AND PER CAPITA GDP OF MARA REGION AT CURRENT PRICES AND PERCENTAGE CHANGE, 1980 - 1994

Year	GDP at Current Prices in (Tshs. Millions)	% Change	Per Capita GDP at Current Prices (Tshs. and in USA Dollars)			% Change	GDP at current Prices as Percent of National GDP
			Tshs.	Exchange Rate (Tshs/Dollar)	U.S.A Dollars		
1980	948		1237	8.22	150		3
1981	1,188	25.32	1506	8.35	180	20.0	3
1982	1,389	16.92	1713	9.52	180	0.0	2
1983	1,688	21.53	2021	12.44	162	-10.0	3
1984	2,538	50.35	2954	18.16	163	0.62	3
1985	3,568	40.58	4035	16.50	244	49.70	4
1986	5,182	45.23	5695	51.70	110	-54.92	4
1987	13,455	159.65	14371	83.70	172	56.36	5
1988	25,464	89.25	26290	125.00	210	22.09	5
1989	40,361	58.50	40518	192.00	211	0.48	5
1990	20,517	-203.40	20028	197.00	102	-51.65	3
1991	25,805	25.77	24495	234.00	105	2.94	3
1992	31,371	21.57	28956	335.0	86	-18.09	3
1993	38,686	23.32	34722	480.00	72	-16.28	3

1994	50,127	29.57	43748	553.00	79	9.72	3
Average	17485.8		16819.3		148.4		3.5

Source: Planning Commission: Compiled Data based on National Accounts of Tanzania 1976 - 1994 Eleventh edition August, 1995. Bank of Tanzania Economic Bulletin 1981 - 1994.

It is observed from Table XIV that although, the per capita GDP of Mara region at current prices increased in absolute terms from T. shs. 1,237/= in 1980 to T. shs. 43,748/= in 1994, the purchasing power of a shilling fell drastically in dollar terms from US \$.150 to only US \$.79 during the same period. This means that Mara region in 1994 was about two times worse-off (poorer) in terms of per capita GDP than what it was in 1980. The value of the shilling continued to depreciate against the dollar from T.shs. 8.22 in 1980 to Tshs. 553 in 1994. Further observation in Table XIV reveals a slow growth in GDP at current prices over the last 15 years between 1980 and 1986. It was in 1987 when the region recorded relatively a significant growth in GDP, but this continued to 1989 and dropped by 49 percent to T.shs. 20,517 million in 1990. On the whole, the regional GDP contribution to the National GDP has not been impressive. Table XV compares the average annual Regional GDP contribution to the National GDP between 1980 - 1994.

Table XV: AVERAGE ANNUAL REGIONAL GDP CONTRIBUTION TO THE NATIONAL GDP (1980 - 1994)

Regional	Average Annual GDP Contribution (%)	GDP Contribution Ranking
Dar es	20.33	1
Salaam	7.80	2
Arusha	7.67	3
Mwanza	6.00	4
Mbeya	5.80	5
Shinyanga	5.53	6
Iringa	5.52	7
Tanga	4.67	8
Morogoro	4.60	9
Kagera	3.67	10
Kilimanjaro	3.47	11
Mara	3.40	12
Tabora	3.33	13
Ruvuma	3.27	14
Mtwara	3.13	15
Rukwa	3.07	16
Dodoma	2.87	17
Singida	2.53	18
Kigoma	2.00	19
Lindi	1.00	20
Coast		
Total	100.00	

Source: Planning Commission: Data Based on National Accounts of Tanzania 1976 - 1994, August, 1995.

Ranked in descending order of magnitude, Mara region takes the eleventh position (Table XV) as far as the average annual GDP contribution to the National GDP is concerned. Measured against other regions the average annual GDP contribution of Mara was only 3.47 percent for the last 15 years (1980 - 1994). It's

contribution however is above the contribution of 9 regions, including Tabora and Dodoma.

2.3 PRODUCTIVE SECTORS:

These sectors include, agriculture, livestock, fishing, forestry, bee - keeping, mining and industries.

(a) Agriculture:

Land is the major potential resource for Mara region, covering 21,618 Sq.Km. The land currently under cultivation is about 14 percent. This vast agricultural potential is yet to be exploited. Apart from dependence on rain-fed agriculture, the available perennial rivers and Lake Victoria could usefully be exploited for irrigation farming as well.

Agriculture is the major economic activity of Mara people, contributing about 60 percent of the region's GDP and employs 80 percent of the population. Although, more than 80% of the population depend on agriculture for their livelihood, crop production levels are still very low mainly due to the employment of inferior agricultural implements, the usage of out-dated agricultural methods, pest problems, soil exhaustion and increasingly soil infertility, land scarcity and over-cropping of cassava without fallowing the land. Low food production levels in the region have sometimes been supplemented by Food Aid as indicated by Table XVI below.

Table XVI: FOOD AID (TONES) IN MARA REGION

District	Year		
	1989-1991	1992	1993
Musoma	1,305.9	1146.0	1210.3
Bunda	824.4	1125.5	1195.5
Tarime	21.2	836.7	1210.3
Serengeti	-	92.0	7.0
TOTAL	2,151.5	3,200.2	3,623.1

Source: Mara Regional Office, ("Karne Ijayo" Document 1993).

The critical years that prompted the supply of food aid (Table XVI) in Mara region were 1974, 1984, 1986, 1987, 1991 - 1994/95. Some villagers, particularly at Bulamba in Bunda district recall with agony the way, they were forced to participate in the limited government food for work programmes in exchange for food aid! It is reported that food aid has always been inadequate to have an impact on people's health or nutritional status, and in most cases it has been given without taking into account the actual size of the families concerned. Nevertheless, food aid is not something that the region should entertain, given the amount of resources still lying idle in the region. Food aid normally tends to discourage domestic food production and changes food tests of the people.

(i) **SASAKAWA GLOBAL 2000 (SG 2000)**

The implementation of this project was first tried in Tarime district in 1989/90 and later introduced in Bunda and Musoma districts in 1990/91 and Serengeti district in 1991/92.

The objectives of Sasakawa Global 2000 were as follows:

- to impart knowledge to cereals (maize and sorghum) growing farmers on the use of fertilizers and the application of modern farming methods.
- to provide farmers with agricultural inputs on credit terms.
- to offer technical assistance or advice to needy farmers.
- to give support to the business-men who sell agricultural inputs, so that the services they render satisfy farmers' needs.
- to develop the capability of farmers' so that they become independent and able to continue buying agricultural inputs without having recourse to credit facilities.

It is reported that SG 2000, has succeeded in raising crop yields from 12 bags of maize to 25 bags of maize per acre. In addition, 10 - 18 bags of sorghum are now being harvested in an acre against 5 or less bags previously harvested. An increase in the

yield per acre is a clear testimony of the effectiveness of SG 2000.

Therefore, given support by the government and Mara people, the SG 2000 may help eliminate the chronic food shortage in the Region. Table XVII indicates the number of villages, number farmers and the number of acres involved in the SG 2000.

Table XVII: NUMBER OF VILLAGES, FARMERS AND ACREAGE UNDER SG 2000

DATA	1989/9 0	1990/9 1	1991/9 2	1992/9 3	1993/9 4
<u>TARIME</u>					
<u>HIGHLANDS</u>	26	58	26	-	15
1. Villages (No.)	277	946	781	-	138
2. Farmers (No.)	277	955	1057	-	139
3. Acreage (No.)					
<u>BUNDA</u>					
1. Villages (No.)	-	9	9	4	6
2. Farmers (No.)	-	112	97	40	19
3. Ecreages (No.)	-	112	100	40	19
<u>MUSOMA</u>					
1. Villages (No.)	-	4	10	5	2
2. Farmers (No.)	-	44	137	38	10
3. Acreage (No.)	-	52	148	50	12
<u>SERENGETI</u>					
1. Villages (No.)	-	4	10	5	2
2. Farmers (No.)	-	44	137	38	10
3. Acreage (No.)	-	-	83	221	52

Source: Mara Regional Office: "Karne Ijayo" Document.

Nevertheless, the picture portrayed by Table XVII is not good at all, especially when it is reported that SG 2000 has succeeded in raising maize and sorghum yields per acre. Infact, one would have expected to see in Table XVII, an increasing number of farmers involving themselves in the project. It is inappropriate to see a declining trend in all parameters used as indicators to measure the success of the SG 2000 in Mara region. In all four districts in Mara Region, the number of villages involved in the project dropped by the year 1993/94. The same tragedy applied to farmers taking part. For instance, in Tarime Highlands the number of villages dropped from 26 in 1989/90 to only 15 in 1993/94, while the number of farmers dropped from 277 to 138 in 1993/94. The Regional Authority should find out the reasons for this trend and rectify the situation.

2.4 FOOD AND CASH CROP PRODUCTION:

The major food staple is cassava, which accounts for about 32 percent of all food crops cultivated in the Region. It is supplemented by sorghum, maize, finger millet, sweet potato and to a lesser, extent rice. Seasonal production patterns vary considerably throughout Mara region depending on rainfall and the use of short and long duration cereal varieties, particularly of maize. Coffee is the primary cash crop, and both Robusta and Arabica varieties are grown. Maize is another major cash crop in the Highlands zone; in addition, farmers rely on maize as a food crop at times of food shortages. Coffee and maize are marketed to a large extent in Kenya due to the proximity of the border. Cotton is the major cash crop grown in non - Highlands of Mara throughout Bunda and predominant in Musoma Rural as well.

Processed cassava is occasionally sold as a cash crop, for example at Nyambori and Obwere in Tarime and Kamgendi in Musoma. Rice is also used as a cash crop especially in Kaburabura in Musoma but only cultivated by very few households.

The overall crop production in Mara region over the last 9 years are shown in Tables.

Table XVIII: **PRODUCTION OF MAJOR FOOD CROPS IN MARA REGION 1986/87 - 1994/95 (TONS)**

CROPS	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	1994/95
Maize	38000	22000	47000	46000	44280	25030	47430	33650	45300
Sorghum	23000	29000	31000	51000	<u>37570</u>	39380	61460	44110	30040
Paddy	1000	1000	1000	2000	5310	2270	1240	750	2480
Beans	3000	3000	2000	3000	4530	1590	4610	1290	2790
Sweet Potatoes	50000	31000	32000	53000	61080	48000	51750	65050	47630
Cassava	77000	43000	49000	57000	47910	51570	47470	49550	57740
Finger Millet	22000	7000	18000	20000	10570	2630	7750	3920	3870
Bulrush Millet	-	-	-	-	2390	210	470	450	220
Total	224000	136000	180000	232000	213640	170680	222180	198770	190070

Source: Mara Regional Statistical Abstract, 1993 (1986/87 - 1990/91).
The Office of Mara Regional Agricultural Office 1996 (1991/92 - 1994/95).

One serious observation can be made from Table XVIII. That is, trends in food crops production have tended to fluctuate for all crops over the years. But, the first requirement for agricultural development and, therefore, self-sufficiency in food production, is

land utilization. Looking at table XVIII, people in Mara Region will be unable to feed themselves by the year 2000 unless there is a major effort to develop agriculture. In most of the Regions in Tanzania, food shortages are explained more by declining agricultural production rather than by rapid population growth. Food requirement (cereal) for the region stands at 320,232 tons a year, but the Region was only able to produce 190,070 tons in 1994/95, leaving a deficit of 130,162 tons of food.

Fig. 8: Major food crops produced in Mara region (1994/95)

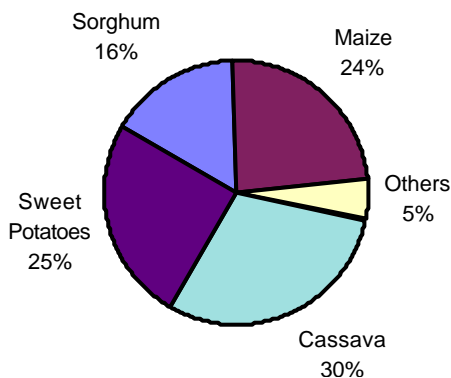


Table XIX: GROWTH OF PRODUCTION OF SELECTED FOOD CROPS

Crops	1986/87 To 1988/89	1992/93 To 1994/95
Maize	0.36	0.03
Cassava	-0.30	0.10
Sorghum	0.16	-0.30
Sweet Potatoes	-0.17	-0.0
Finger - Millet	0.44	-0.25

Beans	-0.17	0.22
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Source: Planning Commission:

Table XIX is even more significant because the growth in food production from 1986/87 to 1988/89 was marginally positive for sorghum and finger millets. This growth rate declined to negative between 1992/93 and 1994/95. There was also a decline in growth rate of maize production from 0.36 to 0.03. Growth rate in production of cassava (major staple) and beans marginally increased from - 0.30 and - 0.17 to 0.10 and 0.22 respectively. Zones which are commonly food deficient are Lowland and some parts of Midland, due to exhausted soils and crop pests (Cassava mealy bug).

Fig. 9: Major cash crops produced in Mara region based on 1994/95 production.

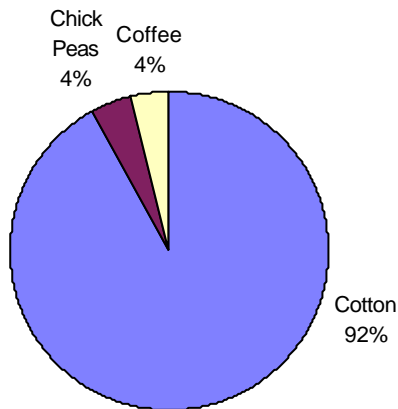


Table XX: PRODUCTION TRENDS OF CASH CROPS, 1990/91 - 1994/95

Crop	Production Trends in (Tons)				
	1990/91	1991/92	1992/93	1993/94	1994/95
Cotton	22,480	26,860	18,100	15,490	29,140
Coffee	1,370	N.A	1,300	1,630	1,110
Sunflower	10	-	-	-	4
Groundnut	2,310	90	110	230	260
Simsim	240	20	-	30	-
Chick Peas	-	-	150	830	1,110
Total	26,410	26,970	19,660	18,250	31,624

Source: Mara Regional Agricultural and Livestock Office, 1996.

Quick observation made on Table XX depicts lack of constancy or increasing trend in cash crop production in Mara region. The production trend is of a fluctuating nature. For instance, in 1990/91 cotton production was 22,480 tons, but in 1993/94 it dropped to 15,490 tons and shot up again to 29,140 tons in 1994/95. the same production behaviour seem to apply to all cash crops.

Table XXI: GROWTH OF PRODUCTION OF SELECTED CASH CROPS

Crop	Production Trend in Tons	
	1990/91 To 1991/92	1993/94 To 1994/95
Cotton	0.19	0.90
Coffee	N.A.	- 0.32
Groundnut	- 0.96	0.13
Simsim	- 0.92	N.A

Source: Planning Commission: Compiled Data based on Table....

Table XXI reveals either marginal growth in cash crop production or negative decline in growth. Decline in growth of cash crop production does manifest itself in low incomes of the people dependent in such crops for income earning.

2.5 FARM INPUTS:

Most farmers are limited to the use of seeds from their own crops. There is demand for the introduction of improved drought resistant sorghum seeds as well as short - cycle maize. Farmers in Nyantira village in the Tarime highlands have access to hybrid maize seed from Kenya, they claim, other conditions being equal, the hybrid seed produces a better yield. However, commercial fertilizer is not frequently used due to low availability and high price. Some prefer using farm - yard manure.

Fig. 10: Farm inputs made available in Mara Region, 1988/89 - 1994/95

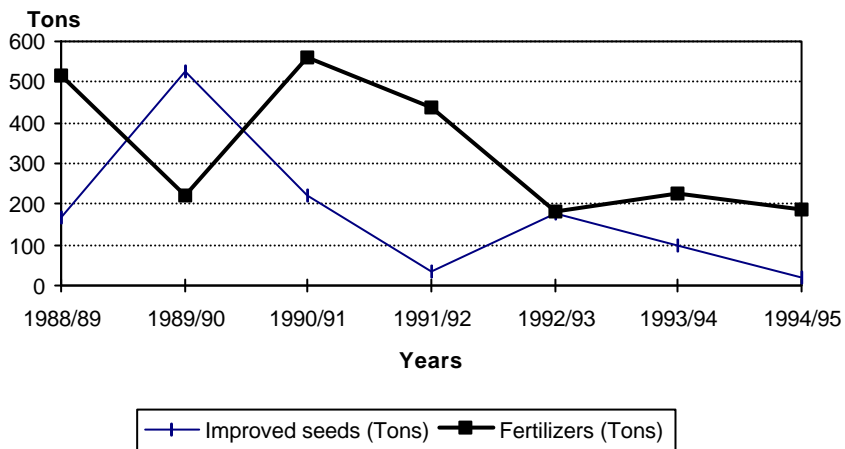


Table XXII: IMPROVED SEEDS AND FERTILIZER MADE AVAILABLE, 1988/89 - 1994/95

Year	Improved Seeds (Tons)	Fertilizer (Tons)
1988/89	165.4	518.5
1989/90	526.8	222.9
1990/91	221.9	560.3
1991/92	32.6	437.8
1992/93	176.8	182.2
1993/94	98.7	226.0
1994/95	22.0	187.4
Total	1244.2	2335.1

Source: Mara Regional Agricultural and Livestock Office, 1996.

2.6 FARM IMPLEMENTS:

Basic agricultural tools remain the hand - hoe and panga. Few families own Oxen or ploughs. Ox-plough usage is therefore relatively uncommon, which is problematic on land constituting black cotton soil, which is difficult to cultivate by hand.

Table XXIII: NUMBER/TYPE OF FARM IMPLEMENTS

Type	Quantity (No.)
Hand Hoe	435,976
Axe	156,174
Bush - Knives	312,174
Tractors	158
Ox - Ploughs	21,233

Source: Mara Regional Agricultural and Livestock Office, 1996.

Table XXIV: AGRICULTURAL IMPLEMENTS AND DRAUGHT ANIMALS BY DISTRICT, 1995

Implements and Draught Animals	Musoma (No.)	Bunda (No.)	Tarime (No.)	Serengeti (No.)
Oxen	13632	9495	30769	9977
Donkey	1698	670	2738	432
Ploughs	3403	2374	7693	2495
Harrows	21	11	24	9
Riggers	13	6	8	6
Cultivators	15	6	10	7
Carts	15	5	13	11

Source: Mara Regional Office: Karne Ijayo Document, 1995.

2.7 FOOD STORAGE FACILITIES:

The problem of food storage is principally caused by the existence of inadequate and poor storage facilities which usually render stored crops vulnerable to pests and rodents attack. Currently, the region has no food storage problem due to lack of food crops surplus for the past few years. Food storage structures widely used in Mara Region are locally made in traditional styles (dero, ikitara, kitara, kihenge) depending on the location and inhabitants (Luo, Kurya, Jita, or Sukuma). However, loss of crop produce do occur at house hold level due to poor quality traditional granaries. In addition there is a problem in the preservation of root and tuber crops (e.g. sweat potatoes).

The table highlights the distribution of the godowns in the Region.

Table XXV: DISTRIBUTION OF GODOWMS BY DISTRICT, 1996

District	Number of Godowns	Capacity (Metric Tons)	Owner
Bunda	126	18,972.0	Tanzania Cotton Authority
Musoma	95	10,687.5	-do-
Serengeti	43	4,981.6	-do-
Tarime	60	7,305.3	N.M.C.
Total	324	41,946.4	-

Source: Mara regional Agricultural and Livestock Office, 1996.

2.8 IRRIGATION:

Irrigation farming system in Mara region is very feasible considering the fact that a big portion of the region is surrounded by water. Irrigation potentials in Mara region lie in Bugwema Giant, Bugwema Solar, Tamau and Butiama. Table XXVI below indicates irrigation potential hectares not yet exploited and hectares for food crops production under irrigation.

Table XXVI: **NUMBER OF IRRIGATION POTENTIAL HECTARES AND HECTARES UNDER CROP PRODUCTION BY DISTRICT**

District	Irrigation Potential (No. Hectares)	Hectares under crop production (No.)	Hectares not Utilized
Musoma	14,720	560	14,160
Bunda	5,830	890	4,940
Tarime	9,520	650	8,870
Serengeti	2,220	110	2,090
Total	32,070	2,210	29,860

Source: Mara Regional Agricultural and Livestock Office, 1996.

Table XXVI shows that only 7 percent of the total irrigation potential hectares is exploited. If this is true, then how is Mara region going to solve food shortage problem, occurring mainly because of inadequate rainfall especially in the low lands and some parts of the Midlands? Irrigation water sources in each district are given as follows:-

(i) Musoma:

Lake Victoria, Suguti river, Mara river, Rwa - Mgango river, water springs and rain water harvesting

(ii) Bunda:

Lake Victoria, Rubana river, Suguti river, small streams and water springs, rain water harvesting.

(iii) Tarime:

Lake Victoria, Mori river, Mara river, Nyathorogo river, small streams and water springs and rain water harvesting.

(iv) Serengeti:

Mara river, water dams, natural ponds, rain water harvesting, small streams and water springs.

The regional Authority needs to focus their attention on rain water harvesting for irrigation farming development in the Region as a way to curb food shortage. The private sector should be encouraged to come forward and assist in irrigation farming development as well.

2.9 ACCESS TO MARKETS:

Four types of marketing activities are found in Mara region. That is the Primary Society, the private sector, growers' markets where agricultural produce is sold, and livestock marketed and auctioned. The former two types of markets deal mainly in cash crops such as coffee and cotton. Most food crops are bought and sold in small growers' markets within a few miles of the villages. In the lake zone, fish are sold at shore among village residents and to traders to be transported to Musoma and other large towns for resale. Cotton farmers preferred to sell to the defunct Mara Cooperative Union (MCU), instead of private traders because the price was generally better and seeds were provided to farmers for free. However, the main problem with the defunct MCU was a delay in payments to farmers.

Maize farmers living near the Kenyan border do rely on Kenyan buyers and sellers for purchase of hybrid seeds. A shift to Kenyan markets is caused by inadequacy of food crop markets in Tanzania. The problem in selling in Kenyan markets is that, Tanzanian farmers get very low prices for their produce. There is need therefore to establish reliable food crop markets on the Tanzania side.

2.10 ACCESS TO AGRICULTURAL EXTENSION SERVICES:

Like in many regions in Tanzania, agricultural extension services are also not adequate in Mara region. It is reported that some of the extension workers simply serve a selected few households in a given village that happen to be of a class (standard) they prefer; usually better-off households. In some villages it is claimed that people in those villages cannot even identify any extension worker

serving their villages simply because they have never seen anyone of them before. The farmers are left to continue using their traditional farming methods, which will make it difficult not get us to the twenty first century. But the extension workers also have their story. They claim that the government does not give them any transport facilities to facilitate their movements from one village to another. Thus, we are caught up in a situation, where, farmers on one hand blame extension workers for not serving them, while on the other hand the extension workers blame the government for not giving them the necessary working tools. But, with 21st Century being only few years ahead, Mara people cannot afford to miss the services of the Extension workers. Thus, it is upon the Regional authority and government in particular, to ensure that Extension workers perform their duties accordingly - so that productivity in the agricultural sector is improved.

2.11 LIVESTOCK:

Mara communities continue to rely on livestock production and ownership predominantly cattle, goats and sheep to fulfil social as well as economic needs. Animals represent a bank stock, to be purchased when there is good harvest and sold during distress times in order to buy food. However, over the past decade, the occurrence of erratic rains and livestock distress, sales have tremendously reduced the quantity of livestock in Mara region to the extent that very few households now own cattle. Surprisingly, a majority of the households in the lake zone no longer own sheep or goats let alone cattle. Cattle ownership is more widespread in the midlands agropastoral communities. Animal products such as

meat, milk, butter and cheese are occasionally sold or retained by households to supplement their diets. In most cases cattle is used as traction animal, donkeys for transportation, and all types of livestock are used to meet bride prices. The main problem constraining livestock development in Mara region is the high stock mortality caused by East Coast Fever and other tick borne diseases. Other problems include, breakdown of dipping services, unavailability and high cost of acaricide, trypanosomiasis and CBPP in bovines. It is reported that problems facing livestock are exacerbated by lack or inadequate veterinary services and un-availability of drugs and Vaccines. Other serious problems include, cattle rustling and dry season water shortages. Table XXVII highlights distribution of livestock in the region.

Fig. 11: Major Livestock distribution in Mara region - Cattle, 1984 Census

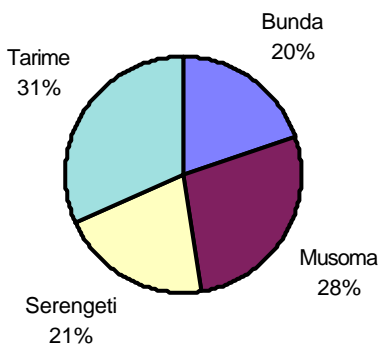


Table XXVII: MAJOR LIVESTOCK DISTRIBUTION IN THE REGION 1984-CENSUS

Type of Livestock	District			
	Musoma	Bunda	Serengeti	Tarime
Cattle	272,635	189,902	199,533	307,694
Goats	90,606	67,139	307,694	150,300

Sheep	40,257	39,896	150,300	69,265
Donkey	1,698	670	432	2,738

Source: Mara Regional office: (Katika Karne Ijayo Document) 1995

Fig. 12: Major Livestock distribution by district in Mara region , 1984 Livestock Census

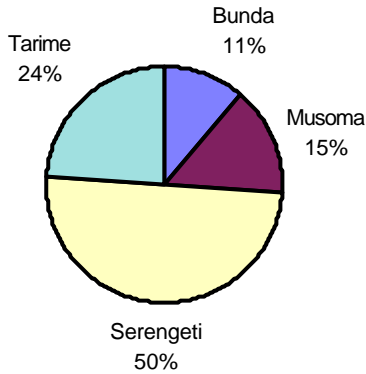
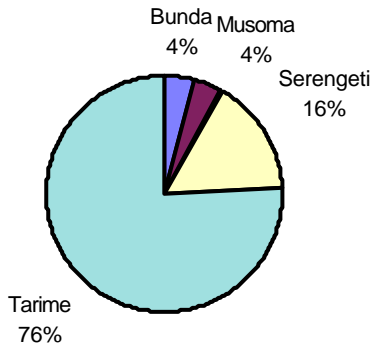


Fig. 13: Major Livestock distribution by district in Mara region - sheep, 1984 Livestock Census



Mara region recorded 969,700 cattle, 392,491 goats and 217,4122 sheep during 1984 Livestock Census. It is reported that, Mwanza, Mara and Shinyanga regions possess 4.3 million cattle, equivalent to 34 percent of the total number of cattle in Tanzania. Table XXVII shows that Serengeti district had the highest number of goats and sheep during the 1984 livestock census, while Tarime and Musoma districts had the highest number of cattle.

Fig. 14: Distribution of Dairy Cattle owners by District, Mara Region (1984)

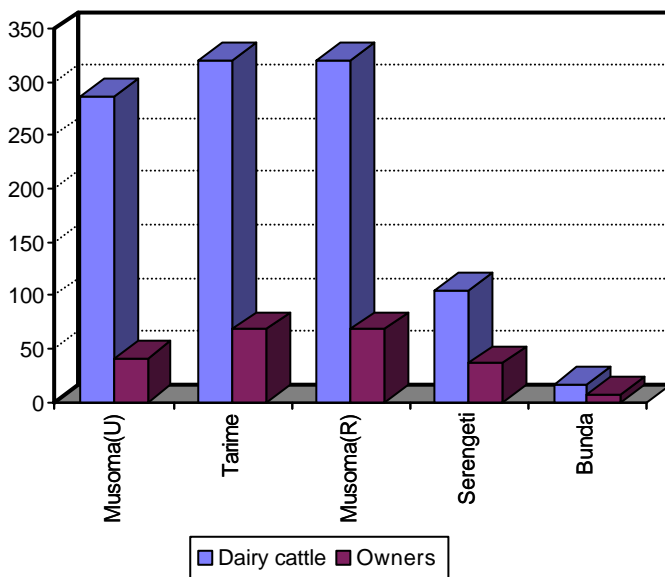


Table XXVIII: DISTRIBUTION OF DIARY CATTLE OWNERS BY DISTRICT

District	Small Scale owners		Big Cattle Farms	
	No of Dairy cattle owners	Diary cattle	No of farms	Diary cattle

Musoma	40	287	-	-
(U)	68	320	4	623
Musoma ®	68	320	4	1020
Tarime	36	105	1	819
Serengeti	7	16	-	-
Bunda				
Total	291	1048	9	2462

Source: Mara Regional Office: (Karne Ijayo Document) 1995

2.12 LIVESTOCK INFRASTRUCTURE:

The main problems facing pastorists relate to their animal health. That is high stock mortality due to East Coast Fever and other tick borne diseases, especially in calves; breakdown of dipping services, etc. These problems are exacerbated by lack of frontline veterinary services and poor availability of drugs and vaccines. Table XXIX indicates the distribution of Livestock infrastructure in each district.

Table XXIX: **AVAILABLE LIVESTOCK INFRASTRUCTURE IN MARA REGION, 1996**

District	DIPS	Abattoirs	Crushers	Health Centers	Hide/Skin Shed
Bunda	15	1	19	4	3
Musoma (R)	30	1	32	8	11
Serengeti	23	1	23	9	7
Tarime	45	1	45	8	12
Total	113	4	87	29	33

Source: Mara Regional Agricultural and Livestock Office, 1996.

2.13 PROBLEMS FACING LIVESTOCK DEVELOPMENT:

- (i) Cattle rustling
- (ii) Cattle diseases such as the most contagious Bovine Pleuropneumonia

- (iii) Inadequate infrastructure
- (iv) Lack of livestock product market, especially milk products as well as milk processing facilities.
- (v) Lack of proper land use plans to cater for the interests of livestock investors/developers.

2.14 NATURAL RESOURCES:

(i) Forests:

Mara is one of the regions in the mainland with the lowest forestry potential. There are no substantial natural forests and government forest plantations. There are just a few forest reserves. Most of the Region is mainly woodlands, wooded grasslands and bushlands covering an area of 1,550,900 hectares. Woodlands are heavily exploited for charcoal and fuel as well as building and construction materials. Unfortunately, the region has failed to promote the growth of the indigenous species such as acacia, coniphara, ficuspecies, prodocurpus, khaya nyasica, cordia african, combrotum species, mearkhamia, growia hohumia kigelia ethiopica, etc. simply because there is no effective protection of the existing forest reserves.

While firewood is a principal energy source in poor societies, wood is a primary building material almost everywhere. Vast tracts of forests are cut to secure the lumber used for building and meeting other needs.

Forests have proved to be one of humanity's most valuable economic resources and in consequence one of the most heavily

exploited. If cutting is excessive, forests shrink, and their capacity to satisfy human needs diminishes. In Mara Region efforts have been made by both the Government and Private people to avoid further depletion of forests by preserving some of the forests as follows:-

District	Name/Type of forest	Category	Area (Ha.)	Ownership
Musoma	Kyarano (P.F.R.)	Protected	2765	Central Government
	Mukendo (P.F.R.)	-do-	175	-do-
	Musoma Ranges (P. F.R.)	-do-	5	Town Council
	Bisumwa (P.F.R.)	-do-	95	Local Govert.
	Buruma (P.F.R.)	-do-	200	-do-
	Departmental Plantation	-do-	50	-do-
	Village Plantations	-do-	150	-do-
	Woodlands	-do-	228,000	-do-
	Sub - Total	-do-	239,490	
Bunda	Kurwirwi (P.F.R.)	Protected	1,580	Local Govert.
	Bariri Ranges (F.R.)	-do-	35,000	-do-
	Malambika (P.F.R.)	-do-	350	-do-
	Salama (P.F.R.)	-do-	300	-do-
	Departmental Plantations	-do-	230	-do-
	Private Forests	-do-	400	-do-
	Woodland	-do-	32,050	-do-
	Sub - Total (Ha.)	-do-	69,910	

Serengeti	Bigori (P.F.R.)	Protected	4,000	Local Govert.
	Ring'wani (P.F.R.)	-do-	6,000	-do-
	Manchira (P.F.R.)	-do-	800	-do-
	Departmental Plantations	-do-	100	-do-
	Woodland	-do-	138,640	-do-
	Sub - Total (Ha.)		149,540	Local Govert.
Tarime	Bwiregi	Protected	85	-do-
	Nyabasi	-do-	17	-do-
	Mogabiri	-do-	6	-do-
	Tarime (A)	-do-	46	-do-
	Kuruya (P.F.R.)	-do-	4,000	-do-
	Bwiri (P.F.R.)	-do-	1,000	-do-
	Rorya (P.F.R.)	-do-	500	-do-
	Departmental Forest Stands	-do-	4,000	-do-
	Private Forest Stands	-do-	130	-do-
	Village Forest Stands	-do-	40	-do-
	Woodlands	-do-	150	-do-
	Woodlands	-do-	126,200	-do-
	Sub - Total (Ha.)		136,200	-do-
	Grand Total (Ha.)		595,110	

Note: P.F.R = Proposed Forest Reserve.

It is observed above that the area under forest reserves is still very small and this may lead to depletion of forests as more people

continue scrambling for fuelwood, charcoal and other timber requirements. Efforts to prevent deforestation is a stumbling block as there is no provision for alternative sources of energy especially for domestic uses. Thus, there is a need for environmental education for the people through extension services on the shortcomings of deforestation.

The Regional Authority should involve people in afforestation activities through distribution of seedlings, encouraging establishment of their own woodlots, and in the prevention of forest fires and destruction of ecosystems. However, there are encouraging steps being taken by the Region, including seedling raising for distribution and planting by various people as well as institutions. For instance, in the last seven years the region has been able to raise 2,709,884 seedlings as shown in table XXX.

Table XXX: NUMBER OF SEEDLINGS RAISED PER DISTRICT

YEAR	NUMBER OF SEEDLINGS RAISED				
	TARIME	MUSOMA	BUNDA	SERENGETI	TOTAL
1989	-	236,000	238,578	465,000	939,578
1990	133,350	206,270	-	280,000	619,620
1991	170,000	-	105,721	220,000	495,721
1992	105,607	68,408	96,000	91,500	361,515
1993	104,525	-	-	-	104,525
1994	188,925	-	-	-	188,925
1995	-	-	-	-	-
TOTAL	702,407	510,678	440,299	1,056,500	2,709,884

Source: Mara Regional Office: Natural Resources Department 1996.

It is estimated that about 800 hectares of land were planted with 2,709,884 seedlings from 1989 to 1995 . Principal actors in the planting exercise were institutions, schools and few individuals. Encouraging steps have been taken by Bulamba and Nyantira villages, whereby people have began planting trees. It is reported that Bulamba villagers have established a four acre woodlot, and those wishing access to it have to pay a user fee. In Nyantira village in Tarime, villagers have established an effective system of control over 100 acres of forestry land, whereby households can purchase an, entire tree for 300 to 10,000 shillings depending on the size. Money received is controlled by the Forest Committee of the village. This initiative should be encouraged, supported and promoted so that the approach is emulated by other villagers in the region. Apart from balancing deforestation and afforestation, the government and individuals can earn incomes from the sale of fuelwood, charcoal, poles, seedlings etc. Table XXXI indicates potential sources of revenue from forest products.

According to Table XXXI, the government collected shs. 1,442,675/= from 8454 bags of charcoal sold in 1994 while in 1995 it collected shs. 2,432,430/= from 12,011 bags of charcoal sold. Fuelwood also earned the government shs. 365,830/= in 1994 and shs. 460,779/- in 1995.

Table XXXI: **REVENUE FROM THE SALE OF SOME OF FOREST PRODUCTS, 1994 - 1995**

District	1994		1995	
	Charcoal	Fuel Wood	Charcoal	Fuelwood

	No. of Bags	Revenue (Shs)	(Stm.)	Revenue (Shs)	No. of Bags	Revenue (Shs)	Stm.	Revenue (Shs)
Tarime	2,782	308,275	115	1,500	2,551	76,360	-	-
Musoma	5,672	1,134,400	183	364,330	7,796	1,773,670	1,149	169,729
Bunda	-	-	-	-	1,664	582,400	831	291,050
Total	8,454	1,442,675	298	365,830	12,011	2,432,430	1,980	460,779

Source: Mara Regional Natural Resources Office, 1996.

2.15 WILDLIFE:

Mara region is one of the regions in Tanzania bestowed with wildlife potential. This is evidenced by the fact that a big portion of the Serengeti National Park is in Mara Region, covering an area of 14,763 Sq. Km. Serengeti designated as a National Park in 1952, is divided into three parts, namely, Game reserves, Game controlled areas and Open areas. Table XXXII shows the type of Game Reserves and the area occupied by each.

Table XXXII: TYPE AND AREA OCCUPIED BY GAME RESERVES

TYPE	COVERAGE (Area)
A: GAME RESERVES	
1. Grumeti	1973 Sq.km
2. Ikorongo	1860 sq.km
B: GAME CONTROLLED AREA	
1. Speke Gulf	300 sq. km

<p>C: OPEN AREA</p> <ol style="list-style-type: none"> 1. Isenye 2. Nata Sibora 3. Nyichoka 4. Nyamatoke 	<p>Not yet surveyed</p>
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Source: Mara Regional Office: Natural Resources Department

Speke Gulf Game Controlled area (Bunda District) is facing a problem of frequent invasion by people from Tamau and Nyatwali villages. Their settlement in the Game Controlled Area (Speke Gulf) is causing serious, environmental degradation, game poaching and migration of some of the wildlife especially wildebeest (nyumbu) which are easily scared by people's presence.

Poaching can be said to be the main problem facing wildlife in the Park. Table XXXIII indicates the number of poachers netted and the amount of revenue collected from Tourists' hunting between 1990 and 1995.

Fig. 15: Number of Poachers netted in Mara Region

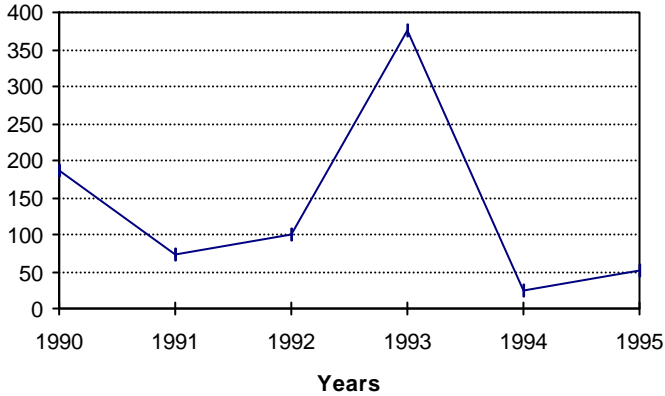
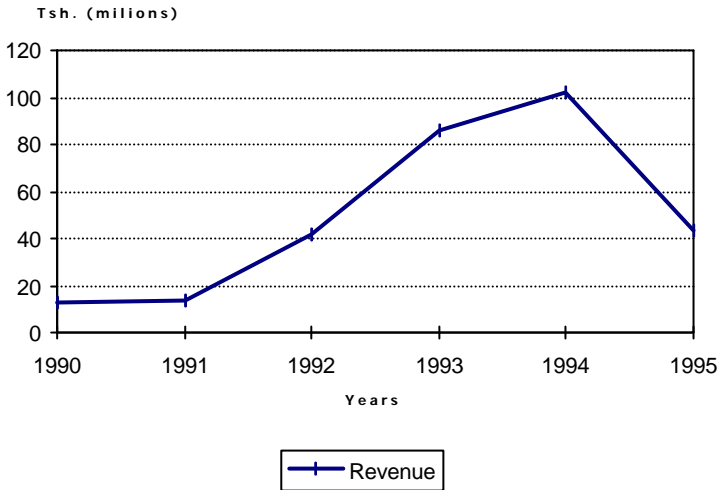


Table XXXIII: NUMBER OF POACHERS AND REVENUE FROM TOURISTS HUNTING.

YEAR	NUMBER OF POACHERS NETTED	REVENUE FROM TOURISTS HUNTING
1990	187	12,936,200/-
1991	72	13,942,500/-
1992	100	41,362,200/-
1993	376	86,210,000/-
1994	24	101,725,050/-
1995	52	43,447,000/-
TOTAL	811	299,622,950/-

Source: Mara Regional Office, Natural Resources Department.

Fig. 16: Revenue collected from Tourist hunting in Mara Region.



2.16 THE SERENGETI REGIONAL CONSERVATION STRATEGY:

In order to mitigate poaching tendencies in the National Park the Government formulated the Serengeti Regional Conservation Strategy, whose implementation began in 1988/89. Its objectives are:-

- (i) to allow on agreed terms, people living around the National Park to crop certain type of wildlife for meat consumption.
- (ii) to involve fully villagers living around the National Park in the conservation and protection of the wildlife.
- (iii) to ensure sustainability of the wildlife and the environment.

- (iv) to encourage and assist villagers around the National Park to establish their own wildlife management units to safeguard against poachers.

The Strategy in the long-run aims at bringing a peaceful co-existence between the villagers around the Park, the Wildlife and the Game Authority. The strategy is implemented in an area of 30,000 Sq. Km. only. This area includes some portions of Arusha, Shinyanga and Mwanza regions.

2.17 FISHING INDUSTRY:

Fishing still remains a major livelihood activity in the Lake zone and continues to provide employment to many people along the Lake. Fish trade within and outside the country also continues to cement business contacts and increases cooperation among the people in other Regions and those in the neighbouring countries. Lake Victoria is the main fishing ground supplemented with minor fishing activities in Mara, Mori, Suguti and Rubana rivers.

Lake Victoria is the second largest Lake in the world after **Lake Superior** in **U.S.A.** and it is the first largest Lake in Africa. It occupies an area of 68,800 sq. km. with 31 percent of its water mass lying in Tanzania. Fish catch in the Lake increased significantly, especially after the Government's policy towards a more market-oriented economy in the 1980s and early 1990's. This policy allowed private sector operations in the economy and hence the establishment of private sector fish processing industries in Mwanza and Musoma. Table XXXIV below shows an

increase of fish tonnage from 29,315 in 1989 to 40,440 in 1995. A comparison of fishery data in three regions for 1992 and 1993 is given below. According to Table XXXIV, Mwanza Region is more aggressive in the exploitation of its fish potential.

Fig. 17: Comparison of Fish Catch by selected lake zone Regions, 1992 and 1993

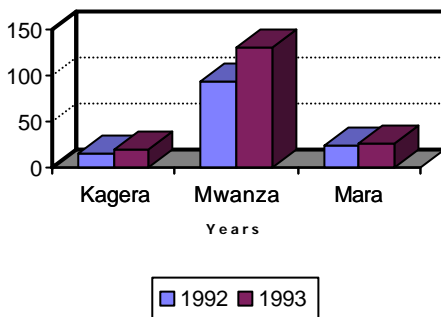


Table XXXIV: COMPARISON OF FISHERY STATISTICS BY SELECTED LAKE ZONE REGIONS 1992 AND 1993:

Fishery Data	Kagera		Mwanza		Mara	
	1992	1993	1992	1993	1992	1993
Number of Fisher-men	1700	1700	13172	13172	5192	5192
Weight of Fish (Metric Tons)	16678.1	20636.4	93327	129881	22166.1	25747.3
Value of Fish (In 000's)	2121510	2330178	4564767	1401183 9	3082691	217168 0.3
Number of Vessels	485	797	3578	2332	996	1056

Source: Ministry of Tourism, Natural Resources and Environment (Fisheries Division) Annual Statistic Report, 1993

It is reported that increases in all fishing statistics in 1995, follows strong demand of fish created by Fish Park (T) LTD and Fish

Fillets Industries and good fish prices offered by the fish industries in Mwanza and Musoma.

Table XXXV: COMPARISON OF FISHERY STATISTIC FOR MARA REGION 1989 - 1995:

Year	Number of Fishmen	Number of Vessels	Weight of Fish (Metric Tons)	Value of Fish (000's Tshs)	Fishnets (No.)	Dagaa (Seines) Tons
1989	6254	1299	29315	751784.8	18281	368
1990	6442	1362	30142	946331	12773	455
1991	6018	1352	29896	1016963	47100	491
1992	6282	1428	25443	1011113.5	-	-
1993	5192	1056	25747	2171660.3	11752	455
1994	-	-	-	-	-	-
1995	11127	2543	40440	15367200	37862	1171

Source: Mara Regional Natural Resources Office, 1996.

The establishment of fish processing industries in both Mwanza and Musoma have significantly stimulated the growth in the fishing industry. There has been an increase in almost all fishery statistics as indicated by Table XXXV. The number of fishermen increased from 6254 in 1989 to 11,127 in 1995. The number of fishing vessels increased as well, from 1299 in 1989 to 2543 in 1995. Fishnets increased from 11,752 in 1993 to 37,862 in 1995, an increase of 222 percent in just two years. The volume of fish-catch also increased from 25,747.3 metric tons in 1993 to 40,440 metric tons in 1995.

There are 8 Fish Fillets industries in Mwanza and Musoma. Seven are in Mwanza and one in Musoma. In total the industries produced and exported 15,704 tons of fish fillets valued at US \$13,713,025 or Tshs. 7,267 billion.

Table XXXVI: VALUE/QUANTITY OF FISH FILLETS EXPORTED 1993 - 1995 BY FISHPAK (T) LTD (INDUSTRY).

Year	Product	Weight (Metric Tons)	F.O.B. (Value, Tshs.)	5% Royalty Fee, (Tshs.)
1993	Fish Fillets	4,389.828	1,464,636.922.50	81,248,249.30
1994	Fish Fillets	4,657.669	2,547,010.707.00	126,385,795.00
1995	Fish Fillets	-	-	130,000,000.00
Total		-	-	337,634,044.00

Source: Mara Regional Natural Resources Office, 1996.

2.19 FISH BREEDING/RAISING:

Overfishing as now being experienced in Lake Victoria, leads to shrinking stocks and declining catches. To avoid or mitigate the effects of overfishing, people should be encouraged to raise their own fish by either constructing fish ponds or using already available ponds or dams/wells, etc. Table XXXVII shows the number of ponds/dams/wells with or without fish in three districts.

Table XXXVII: NUMBER OF FISH PONDS IN MARA REGION, 1996

District	No. of Ponds with fish No.	No. of Ponds without Fish No.	Total
Serengeti	19	4	23
Bunda	-	6	6
Tarime	5	8	13
Total	24	18	42

Source: Mara Regional Natural Resources Office , 1996.

Table XXXVIII shows that very few ponds/dams are available in the region for fish planting. It is observed that only 57 percent of the ponds/dams are planted with fish. Although, the importance of fish in diets varies widely by region or district, it is worthwhile for the region to encourage more people to include fish in their diets, because it is a first class protein and easy to raise. In addition, people in Mara region are increasingly experiencing shortage of land-based protein food resources and this can only be offset by oceanic sources of protein.

2.20 FISHING PROBLEMS IN LAKE VICTORIA:

- (i) Water pollution by industrial effluence. Pollution of industrial wastes can easily ruin fisheries.
- (ii) Usage of unrecommended fishing methods, such as, dynamites, poison, etc.
- (iii) Presence of Water Hyacinth (Gugu Maji)
- (iv) Lack of modern fishing gear.

2.21 BEE-KEEPING:

Bee-keeping is another potential source of income still not exploited to the maximum by the people in Mara Region. Incomes from bee-keeping would provide an alternative source of income for Mara people who are always experiencing an increasingly low income resulting from decline in agricultural production, land scarcity and reduction in incomes from fishery activities. Mara Region is suitable for bee-keeping and appropriate also for nursing about 45,000 bee colonies which are capable of producing 450 tons of honey and 30 tons of wax annually. Tables XXXVIII and XXXIX do highlight bee-keeping activities in the region and their ability to generate income.

Table XXXVIII: BEE-KEEPING PRODUCTS AND VALUE, (1985 - 1995)

YEAR	MODERN BEE HIVES (NO.)	TRADITIONAL BEE HIVES (NO.)	BEE WAX		HONEY	
			KGS.	TSHS.	KGS.	TSHS.
1985	41	102	15	600	541	63120
1986	36	262	74	29600	847	127050
1987	71	268	59	23600	272	54400
1988	70	280	70	35000	907	226750
1989	77	317	103	51500	1037	311100
1990	86	472	19	5700	166	212650
1991	84	460	21	10500	1431	500850
1992	109	629	96	57600	3948	1381800
1993	127	613	89	62300	1340	536000
1994	132	640	290	203000	4357	2614200
1995	153	674	332	232400	4983	2989800

Source: Mara Regional Office: Natural Resources Department

Table XXXIX: QUANTITY OF BEE - HIVES BY DISTRICT, 1985 - 1995

Year	Bunda		Musoma		Serengeti		Tarime	
	Modern Bee-Hives (No.)	Traditional Bee-Hives (No.)	Modern Bee-Hives (No.)	Traditional Bee-Hives (No.)	Modern Bee-Hives (No.)	Traditional Bee-Hives (No.)	Modern Bee-Hives (No.)	Traditional Bee-Hives (No.)
1985	-	-	18	46	15	-	8	56
1986	3	3	10	36	17	102	6	121
1987	3	3	13	36	21	103	34	126
1988	8	13	12	103	34	126	13	38
1989	8	13	20	28	10	125	34	126
1990	8	68	24	30	20	168	34	206
1991	8	68	41	53	15	193	20	146
1992	8	182	30	54	28	247	43	146
1993	8	182	30	54	36	231	53	146
1994	8	188	30	58	38	239	56	155
1995	13	196	36	67	43	247	61	164

Source: Mara Regional Natural Resources Office, 1996.

Of the four districts in Mara region, Serengeti by 1995 had already made 247, traditional bee-hives, compared to 102 bee-hives it had in 1986. Bunda district comes second after Serengeti with 196 traditional bee-hives compared to only 3 in 1986. Tarime district similarly increased the number of its traditional bee-hives by 19 percent from 56 in 1985 to 61 in 1995. The only district with low number of traditional bee-hives is Musoma. Musoma district had only 67 bee-hives by 1995. With regards to modern bee-hives Tarime district is coming first with the highest number followed by Serengeti. Bunda district has the least number of modern bee-hives. An increase in the number of bee-

hives in all districts however, reflects peoples realisation of bee-keeping as a good alternative source of income.

(v) **Industrial Activities:**

Mara Region does not have many industries compared with most regions in Tanzania. Currently, there are only 12 important industries in the region, as indicated below.

Type of Industry	Type of product produced	Present Status
1. Musoma Textile Ltd. (MUTEX)	Textiles	Stopped Working
2. Tanzania Dairy Musoma	Milk	Stopped Working
3. Tanzania Dairies Utegi Plant	Milk	Stopped Working
4. Mugango Ginnery	Cotton	Working
5. Ushashi Ginnery	Cotton	Working
6. Kibara Ginnery	Cotton	Working
7. Coffee Processing Industry (Tarime)	Coffee	Working
8. Fishpak Tanzania Ltd.	Fish	Working
9. Fish Filleters (T) Ltd	Fish	Working
10. Mara Oil Mill & Ginnery	Cotton Oil	Working
11. Virian Ginneries	Cotton	Working
12. Gachuma Ginnery	Cotton	Working
13. Musoma Bottlers	Soft Drinks	Working
14. A & G General Industries Ltd	Foam Mattress	Working

Apart from major industries in the region, there are other small-scale industries throughout the region mainly engaging in carpentry work, cereals milling, tailoring and mining.

Table XL attempts to highlight industrial output in mining and fishing for six years, 1990 - 1995.

Table XL: INDUSTRIAL OUTPUT (VALUE)

Industrial Activities	1990 (`000' Tshs)	1991 (`000' Tshs)	1992 (`000' Tshs)	1993 (`000' Tshs)	1994 (`000' Tshs)	1995 (`000' Tshs)
Mining	562,016	2,073,749	2,707,995	1,193,225	143,089	-
Fishing	946,531	1,016,963	3,052,690	2,171,680	2,547,010	-

Source: Mara regional Office., Department of Industry and Trade, 1996

It is observed from Table XL that the value of mining output improved from 1991 to 1993 and suddenly dropped to only 143,089/= million in 1994. It is reported that the drop in 1994 followed the withdrawal of the Bank of Tanzania from the purchase of gold, giving rise to gold smuggling and uncertainty in the gold market.

2.23 MINING:

Mining in Mara Region is exclusively undertaken by small-scale miners. Thus, the contribution of mining sector to the GDP has tended to be very low (negligible). However, the move taken by

the Government early 1990 to allow the Bank of Tanzania to buy gold directly from small miners improved tremendously the volume of gold sales. It is reported that this move enabled the government to obtain 1,846,147.87 grams of gold valued at shs. 7,292,814,907.60 in a very short time (1990 - July 1993). Table XLI is a clear testimony of the amount of gold purchased following Bank of Tanzania intervention.

Table XLI: QUANTITY AND VALUE OF GOLD PURCHASED BY BANK OF TANZANIA IN MARA REGION 1990 - 1993, JULY

Year	Weight (Grams)	Value (Shs)
1990	196,665.22	570,978,200
1991	674,154.0	2,120,240,403
1992	773,611.5	2,709,965,867.6
1993 July	201,717.0	1,891,630,437.0
Total	1,846,147.87	7,292,814,907.60

Source: Mara regional Office (Karne Ijayo Document, 1995)

The effectiveness of direct involvement of the Bank of Tanzania in buying gold from small miners is measured by sudden increase in the volume of grams sold in 1992. The amount of grams of gold sold between 1990 and 1992 rose by 293 percent. Mining sector in Mara region and the country, as whole is lacking reliable market. The absence of transparent market is the main root cause of gold smuggling. It is reported that the withdrawal of Bank of Tanzania from gold purchase has very much aggravated and intensified smuggling of gold. While, solving gold smuggling

problem, deliberate efforts be made by the Government to provide small miners with the right mining equipments and whenever need arises be given access to credit facilities. The Regional Authority should also not loose sight of the dangers that may accompany laisses faire type of mining. For instance, health, safety and environmental regulations to protect miners and minimizing land degradation must always be in the agenda of the government.

Mining activities are reported to be going on in the areas of Sirorisimba, Buhemba, Nyasirori, Kataryo, Seka, Suguti, Nyarufu and Ikungu in Musoma District. Potential areas in Bunda District are Bulamba, Nyasana, Kamkenga, Kiroreri and Nyaburundu. While in Serengeti, mineral potential is in Majimoto, Kemambo, Naigoti and Rwamchanga, and also Nyamongo in Tarime District.

SECTION III

3.0 ECONOMIC INFRASTRUCTURE:

3.1 ROADS NETWORK:

The primary road network in Mara Region is relatively good but the secondary and feeder roads are in a very poor state of repair.

The Lakeshore peninsulas and eastern midlands are particularly disadvantaged. During Colonial times, Musoma and Shirati were bustling port towns which benefitted from trade with Kenya and Uganda. Today, transport on the lake is relatively unimportant and the axis of communications has shifted away from the lakeshore. The main artery of communications is a road running north/south from Bunda to Tarime connecting Mwanza with Kisumu in Kenya. The stretch from Musoma to Mwanza is already paved and a new highway from Musoma to Kenya via Tarime is completed. In addition, there is a gravel road connecting Musoma with Arusha via Serengeti National Park. In the lakeshore there are dirt roads from Bunda to the Kara peninsula in the South, from Musoma along the coast to Majita peninsula in the centre and from Utegi to Shirati port in the north. Local transportation is mostly on foot with crops head loaded to market or carried on bicycles or donkeys.

Road network in the region and total mileage are shown in Tables XLII - XLIV.

Table XLII: TYPE OF ROAD AND ROAD SURFACE IN MARA REGION:

Type of Road	Surface			Total (Kms)
	Tarmac (Kms)	Gravel (Kms)	Earth (Kms)	
Trunk Roads	179	175	51	405
Regional Roads	-	352	267	619
District Roads	-	-	705	705
Feeder Roads	-	-	968	968
Total	179	527	1,991	2,677

Source: Mara Regional Engineer's Office, August, 1996.

Mara region has (August, 1996) in total 2,677 Kms. of trunk and rural road network (Table XLII). Feeder Roads account for 36 percent of the total while trunk roads account for only 15 percent.

Table XLIII: DISTRIBUTION OF ROADS BY DISTRICT AND TYPE OF ROADS, 1996

District	Type of Road				Total (Kms)
	Trunk (Kms)	Regional (Kms)	District (Kms)	Feeder (Kms)	
Musoma	96	196	220	327	839
Tarime	139	209	182	270	800
Serengeti	79	121	136	117	453
Bunda	91	93	167	254	605
Total	405	619	705	968	2,697

Source: Mara Regional Engineer's Office, August, 1996.

Table XLIV: DISTRIBUTION OF ROADS BY DISTRICT AND SURFACE, 1996.

District	Surface			Total (Kms)
	Tarmac (Kms)	Gravel (Kms)	Earth (Kms)	
Musoma	59	170	610	839
Bunda	39	160	406	605
Tarime	81	124	595	800
Serengeti	-	127	326	453
Total	179	581	1,937	2,697

Source: Mara Regional Engineer's Office, August, 1996.

Improvement of road network as well as increases in total road lengths (Table XLIII and XLIV) are very important in opening up new agricultural potential avenues, stimulating trade and makes easy transport for the people. But the state of roads in the region has been seen not to be good and this in turn may retard the pace of movement of goods, people and services. The roads from Bunda to Kara peninsula, Musoma to Majita peninsula, Utegi to Kirongwe Via Shirati and Shirati to Kogaja are very important roads for trade, especially trade in fish and goods from and to Kenya. We should not forget that roads are like blood arteries in the economy.

ROAD NETWORK

3.2 AIR TRANSPORT:

Mara Region is served by the Musoma Airport, having two Fokker passenger flights a week, operated by Air Tanzania. The Airport situated right in Musoma town caters for charter airplanes as well. In addition, the region is served by 9 Airstrips namely, Kiabakari, Bunda D.D.H., Mugumu D.D.H., Seronera, Fort, Ikoma, Nyabuta, Shirati and Tarime. These Air strips are mostly accessed by light Private Aircrafts.

3.3 MARINE TRANSPORT:

The whole of Western part of Mara Region is covered by Lake Victoria water. In addition, the region has four big rivers: Mara, Mori, Mbalageti and Rubana. These water bodies do provide a number of water transport services. The famous ports on Lake Victoria are Mwanza, Musoma, Bukoba and Kemono. These ports serve for both passenger and goods ships. Apart from the ships plying the Lake, there are several boats of varied sizes providing water transport services as well. Since, the region is not served by a Railway line, people prefer to transport bulky cargo from Mwanza to Musoma by lake. It is always cheaper to use water transport than any other means. Some of the light passenger boats plying Lake Victoria and their capacities are indicated below.

Boat Registration Number	Capacity (No. of Passengers)	Route
MUC. 187	36	Rukuba - Musoma Town
MUC. 207	30	Rukuba - Kibuyi - Musoma Town
MUC. 203	50	Kinesi - Musoma Town
MUC. 273	45	Kinesi - Musoma Town
MUC. 279	20	Kinesi - Musoma Town
MUC. 95	35	Kinesi - Musoma Town
MUC. 168	30	Kyamwame - Musoma Town
MUC. 65	35	Kinesi - Musoma Town
MUC. 248	30	Kibuyi - Musoma Town
MUC. 170	45	Busanga - Musoma Town
MUC. 152	30	Musoma - Kinesi
MUC. 220	25	Kinesi - Musoma Town
MUC. 137	48	Musoma (T) - Kinesi
MUC. 261	25	Kinesi - Musoma (T)
MUC. 253	28	Kwisanju - Nyamulibwa
MUC. 323	30	Bukima - Urugwa

3.4 COMMUNICATION NETWORK:

The Region is served by 1425 telephone lines, 15 telefax, and 18 telex lines. In addition, there are 4 full Post Offices and several Sub-Post Offices.

Table XLV: TELECOMMUNICATION SERVICES IN MARA REGION

Year	Type of Service			
	Telephone Lines	Radio Calls	Telex	Fax
1989	-	Not Available	16	-
1990	-	-do-	20	-
1991	-	-do-	20	-
1992	1092	-do-	21	-
1993	1273	-do-	17	-
1994	1426	-do-	16	-
1995	1411	-do-	17	-
1996	1425	-do-	18	15

Source: Mara Regional Telecomms Office, 1996.

3.5 ENERGY:

The evolution and structure of present - day society is intimately linked to the amount and form of energy we use. Over the past generation, cheap energy has shaped the global economic system and helped triple the output of goods and services. But, the amount of energy at our disposal shapes not only the nature of our economic system but our individual lifestyle as well.

(i) **Electricity:**

Electricity is most needed as a energy for development in a modern society and where it is lacking it becomes difficult to engage in a meaningful industrial development. Mara region like many other regions in Tanzania Mainland lacks electricity power in most of its areas. Electricity is only available in Musoma and Tarime, which are the main urban centres. These urban centres are supplied with Hydroelectricity drawn from the National Grid (Kidatu/Hale Grid System).

Unfortunately, Bunda and Mugumu townships are not yet connected to the National Grid System. In Tarime district, the Grid System is extended to Kinesi, Shirati and Sirari, while in Musoma Rural, the Grid system extends to Kiabakari, Mugango, Butiama, Nyamuswa, Busegwe, Bumangi and Makutano Juu/Chini. There are two transformers of 24 Megawatts against Regional demand of only 6 megawatts. It means, the capacity of electricity supply in the region exceeds the demand. Excess supply of electricity is attributed mainly to the closing down of big industries such as, MUTEX, Dairy Industries and some ginnery Industries.

The largest part of electricity is consumed by medium and light industries in different parts of the region. Unlike Kilimanjaro region, where 30.3% of the villages are supplied with electricity,

Mara region has none. Thus, Mara region commands a very low percentage of electricity distribution to its households. Table XLVI shows the number of households supplied with electricity in Mara Region in 1988 (Census).

Table XLVI: HOUSEHOLDS SUPPLIED WITH ELECTRICITY BY DISTRICT IN MARA REGION, 1988

District	Electricity Supply				Percentage with Electricity (of Total)
	Available	Not Available	Not Stated	Total	
Tarime	1,075	48,270	7	49,352	2.2
Serengeti	35	17,468	1	17,504	0.2
Musoma (R)	197	30,708	0	30,985	0.6
Bunda	367	28,908	0	29,275	1.3
Musoma (U)	4,903	8,987	3	13,893	35.3
Total	6,577	134,341	11	140,929	4.7

Source: Mara Regional Statistical Abstract, 1993.

It is observed from Table XLVI above that only 4.7 percent of total households in the region were supplied with electricity in 1988. Musoma Urban, the Regional Headquarters was not well supplied with electricity either. Only 35.3 percent of the urban households in Musoma had electricity in 1988. The least supplied with electricity in 1988 was Serengeti followed by Musoma Rural.

(ii) **Alternative Sources of Power:**

It is reported that an average villager requires between one to two tons of firewood each year, which means, expanding village populations raises firewood demands so fast that the regenerative capacities of many forests may not be able to cope or surpass, and this in turn may lead to a complete deforestation. In addition electricity is not a cheap and easily available power source to many people. It is against this background, that we see a need to search for alternative power sources.

(a) **Biogas:**

Biogas as energy is not known to many people in the region. Given the number of livestock available in the region, and the magnitude of environmental degradation taking place, the use of biogas should be encouraged throughout Mara region. It may be expensive for many people but the cost of leaving people cutting down trees at will causing environmental degradation is much greater. Places known to be applying biogas power in Mara region include, Butiama village (not the whole village), Mogabiri Farmer's Centre in Tarime district, Baraki Sisters in Tarime district (Kinesi) and Buhemba Agricultural Training Centre. Main problem discouraging its use is the cost element. Many people are unable to meet the initial costs involved.

(b) **Solar Energy:**

Like biogas technology discussed above, the use of solar as energy is also not common, or rather expensive for most people but so long as it would ease pressure exerted on forests by people extracting firewood, it is worthwhile encouraging and promoting its use.

It is reported that the Regional Authority tried to utilise solar energy in remote dispensaries but the effort failed due to thefts of solar pannels. This behaviour discouraged the spread of technology further. Other bad news regarding theft of pannels refer to water pumps at Nyabange, Murangi and Bugwema. The three pumps were operated by solar energy but since solar pannels were stolen they have ceased to function.

(c) **Fuel Wood:**

Fuelwood is another source of energy although, its effects on environmental eco-system are far reaching. Like in other regions, fuel wood still remains the only dependable source of energy for cooking and other domestic energy needs both in rural and urban centres in Mara region. A detailed fuelwood consumption survey in the region has not been adequately carried out yet. However, casual observation indicates that the consumption is 2 M³ per capita per annum. This figure is within the national average of phalloid consumption which stands at 2 M³ per capita per annum.

SECTION IV

4.0 SOCIAL SERVICE SECTORS:

4.1 EDUCATION SECTOR

Education is acclaimed worldwide as one of the basic tools for social and economic development. This understanding has been evidenced by steps so far taken by the Government of Tanzania to increase the intake of children to primary schools, especially after the adoption of the Universal Primary School Education Programme in 1974. The 1974 programme aimed both at providing primary education to all children aged 7 - 13 and reducing the adult illiteracy rate from 69 to 5% throughout the country. Unfortunately this programme has not succeeded very much due to limited resource allocation by the government to primary school education development. Nevertheless, Mara region is among the best served by primary education. One hundred percent of rural population is served by a primary school (Mara Region Farmer Initiative Project Formulation, FAO/IFAD, 1995). Unlike, Primary School education, Secondary School education entry has been difficult to many children to attain due to inadequacy of both Government and Private Secondary schools in the region. The majority of those who managed to go to secondary schools made it in Private Secondary schools in other regions.

4.2 PRIMARY SCHOOL EDUCATION:

By the end of 1995 there were 541 public primary schools in Mara region. Enrolment of children in primary schools dropped from 81,613 children in 1974 to 59,523 children in 1995. The enrolment of boys in standard I increased by 106 percent from 1985 to 1995, while that of girls increased only by 86 percent during the same period. The number of pupils in primary schools increased by 155 percent from 81,613 in 1974 to 208,394 in 1995. Tables below indicate education development/expansion in Mara region.

TABLE XLVII (a): PRIMARY SCHOOLS EXPANSION, 1974 - 1995

DISTRICT	No. of Primary Schools in 1974	No. of Primary Schools in 1985	No. of Primary Schools in 1995
BUNDA	-	100	110
MUSOMA (U)	10	15	20
MUSOMA (R)	116	116	134
SERENGETI	90	76	79
TARIME	96	182	198
TOTAL	312	489	541

Source: Mara Regional Education Office, 1996.

TABLE XLVII (b): NUMBER OF PUPILS IN PRIMARY SCHOOLS FROM 1974 - 1995

DISTRICT	PUPILS IN 1974	PUPILS IN 1985	PUPILS IN 1995
BUNDA	-	30,651	40,870
MUSOMA (U)	3,455	9,772	15,432
MUSOMA (R)	25,424	38,317	52,895
SERENGETI	7,966	22,364	22,783
TARIME	44,768	58,692	76,414
TOTAL	81,613	159,796	208,394

Source: Mara Regional Education Office, 1996.

Looking at Table XLVII (a) and XLVII (b) between 1985 and 1995, we observe a relatively slow increase in the number of primary schools, may be as have been stated above, Mara region is among the best served by primary education in the country. This sort of feeling among the people could create contentment and hence reduce the tempo to build more primary schools. In ten years (1985 - 1995) for instance, Serengeti district managed to build only 3 additional primary schools against 18 built in Musoma Rural and 16 in Tarime district. Similarly, in the same period, Serengeti district increased the number of pupils in its primary schools by only 2 percent from 22,364 in 1985 to 22,783 pupils in 1995. Musoma Rural took the lead by increasing the number of pupils in primary schools by 38 percent followed by 33 percent in Bunda district.

TABLE XLVII (c): PRIMARY SCHOOL ENROLMENT RATE AND TARGETS, 1974 AND 1995

DISTRICT	ENROLMENT TARGET		NUMBER ENROLLED			
	1974	1995	1974	PERCENT (%)	1995	PERCENT (%)
Bunda	-	9,492	-	-	9,438	99.43
Musoma Urban	5,230	4,627	3,455	66.05	2,419	52.28
Musoma Rural	38,492	27,435	25,424	66.03	15,563	56.73
Serengeti	13,713	12,289	7,966	58.09	12,289	100.00
Tarime	67,152	21,503	44,768	66.67	19,814	92.15
TOTAL	124,587	75,346	81,613	65.51	59,523	79.00

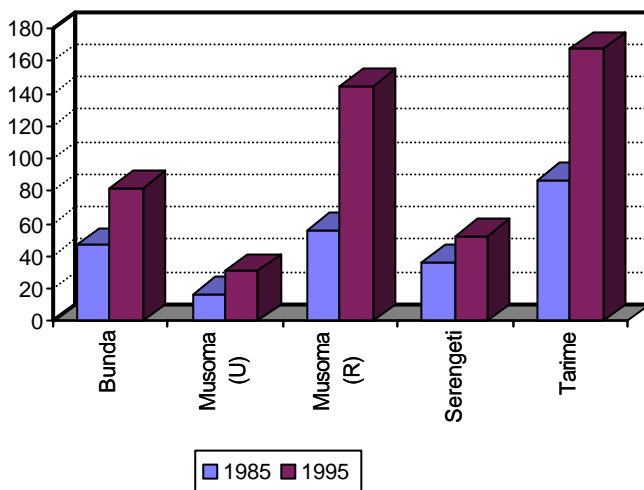
Source: Mara Regional Education Office, 1996.

TABLE XLVII (d): STD I ENROLMENT RATE BY SEX, IN 1985 AND 1995

DISTRICT	BOYS		GIRLS		ENROLMENT (%)
	1985	1995	1985	1995	
Bunda	2,360	4,237	2,332	3,968	74.87
Musoma (U)	778	1,571	898	1,522	84.54
Musoma (R)	2,749	7,134	2,902	7,338	156.09
Serengeti	1,767	2,891	1,893	2,355	43.33
Tarime	4,286	8,754	4,422	7,959	91.93
TOTAL	11,940	24,587	12,447	23,142	95.72

Source: Mara Regional Education Office, 1996.

Fig. 18: STD I, enrolment rate by District, Mara region, 1985 and 1995



4.3 GROSS ENROLMENT RATE:

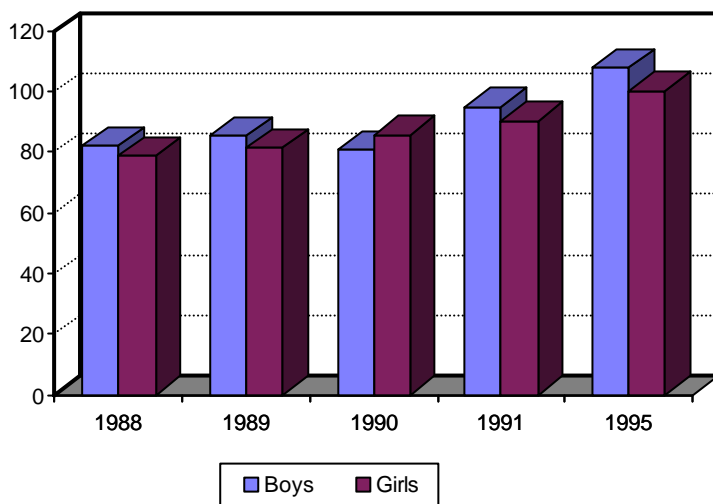
For the country as a whole, general gross enrolment rate for primary education defined as the number of children in school divided by the number of school going -age children, declined by 27 percent from 81,613 children in 1974 to 59,523 children in 1995. The most affected districts by the decline are Musoma Rural and Tarime (Table XLVII (c)). The standard I enrolment, according to Table XLVII (d), increased by 106 percent for boys and 86 percent for girls between 1974 and 1995. The increase is more pronounced in Tarime and Musoma Rural districts for both boys and girls. For instance, in 1995 Tarime district enrolled 8,754 Standard I boys against 4,286 boys in 1985, while standard I girls enrolled in 1995 were 7,959 against 4,422 in 1985. Standard I enrolment rate is lowest in Serengeti district with only 43 percent.

TABLE XLVII (e): ENROLMENT IN PUBLIC PRIMARY SCHOOLS IN MARA REGION BY SEX AND GRADE 1988 - 1995

SEX	YEAR	GRADE						
		I	II	III	IV	V	VI	VII
BOYS	1988	14900	13500	11700	14400	9000	7400	11300
	1989	15100	14400	13300	13400	12700	9000	7600
	1990	18100	14800	14000	14600	11400	11600	9500
	1991	16300	14600	14100	15600	11700	11000	11600
	1995	24587	15863	14695	15030	14598	11242	12046
GIRLS	1988	13900	12500	11500	17600	7200	6000	10300
	1989	15500	13100	12700	13800	13100	7400	5900
	1990	15400	14700	13300	14000	10200	11200	7000
	1991	15300	14000	13700	15300	10700	10200	11100
	1995	23142	14672	14071	13917	13572	10405	10554
TOTAL	1988	28800	26000	23200	32000	16200	13400	21600
	1989	30600	27500	26000	27200	25800	16400	13400
	1990	33500	29500	27300	28600	21600	22800	16500
	1991	31600	28700	27800	30900	22400	21200	22700
	1995	47732	30535	28766	28947	28170	21647	22600

Source: 1. Mara Regional Statistical Abstract, 1993.
 2. Mara Regional Education Office, 1996.

Fig. 19: STD I enrolment trend by sex in Mara region 1988 - 1995



Observation made on Table XLVII (e) above shows that there is a serious drop-out problem between standard I and standard VII.

For instance in 1989 and 1995 the drop-out was significant for both sexes. Boys dropped out by 50 and 51 percent between standard I and VII in 1989 and 1995 respectively. Girls dropped out by 62 percent from 15,500 pupils in class I in 1989 to only 5,900 pupils in class VII, while in 1995 the drop in girls was 54 percent from 2314 pupils in Class I to only 10554 pupils in Class VII. The main reasons given for the drop-outs are truancy, pregnancy and death.

Fig. 20: Situation of Primary Schools by District, Mara Region, 1974

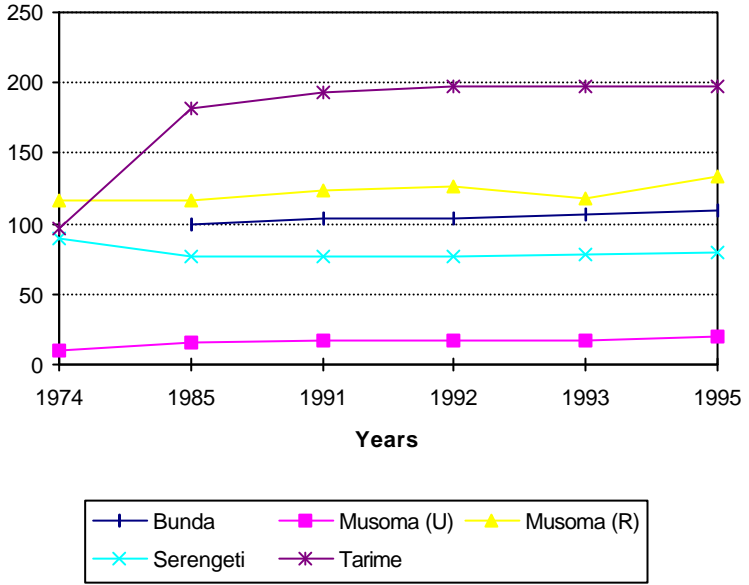


TABLE XLVII (f): INCREASE IN THE NUMBER OF PUBLIC PRIMARY SCHOOLS, 1974 - 1985 AND 1991-1995

DISTRICT	NUMBER OF SCHOOLS						% Increase 1985 to 1995
	1974	1985	1991	1992	1993	1995	
Bunda	-	100	103	103	107	110	10
Musoma Urban	10	15	17	17	17	20	33
Musoma Rural	116	116	123	126	118	134	15
Serengeti	90	76	76	77	78	79	4
Tarime	96	182	193	197	198	198	9
Total	312	489	514	520	528	541	11

Source: 1. Mafanikio na Matatizo ya Elimu Mkoani Mara Mwaka 1989-1993
2. Mara Regional Education office, 1996.

Fig. 21: Situation of Primary School Pupils by District, Mara Region, 1974

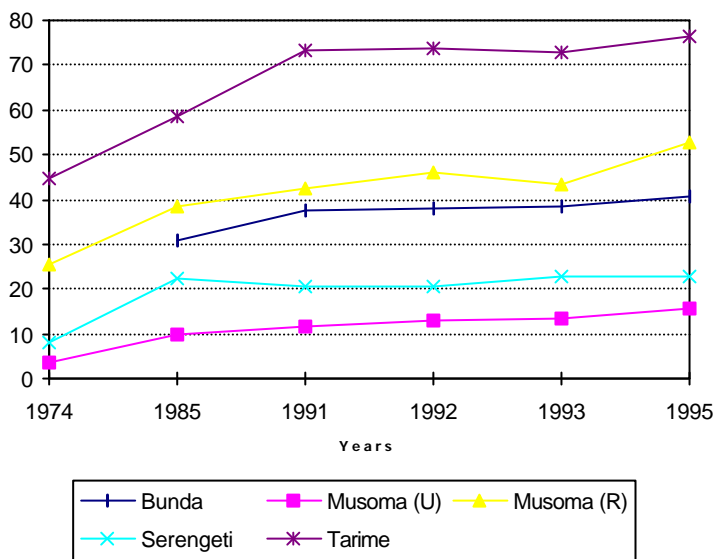


TABLE XLVII (g): INCREASE IN THE NUMBER OF PUPILS

DISTRICT	NUMBER OF PUPILS						% Increase (1985 to 1995)
	1974	1985	1991	1992	1993	1995	
Bunda	-	30,651	37,338	38,154	38,651	40,870	33
Musoma Urban	3,455	9,772	11,663	12,903	13,494	15,432	58
Musoma Rural	25,424	38,317	42,493	46,139	43,285	52,895	38
Serengeti	7,966	22,364	20,748	20,769	22,624	22,783	2
Tarime	44,768	58,692	73,368	73,700	72,851	76,414	30
TOTAL	81,613	159,796	185,610	191,665	190,905	208,394	30

Source: (i) Mafanikio na Matatizo ya Elimu Mkoani Mara mwaka 1989 - 1993.
(ii) Mara Regional Education Office, 1996.

Tables XLVII (f) and XLVII (g) indicate the number and distribution of primary schools and pupils by district from 1974 to 1995. The existing 541 primary schools with 5875 streams in the region, have only a capacity of enrolling about 205,625 pupils (35 pupils per stream) in total against 208,394 pupils registered in 1995. Tarime district has the highest number of both primary schools and total enrolment of pupils followed by Musoma Rural. Apart from Musoma Urban, Serengeti district has the least number of primary schools as well as total enrolment of pupils.

TABLE XLVII (h): PUPILS SELECTED FOR FORM I BY SEX, 1990-1995

Year	CANDIDATES			NUMBER SELECTED FOR FORM I					
	Boys	Girls	Total	Boys	Percent	Girls	Percent Girls	Total number selected	Percent Selected
1990	9322	6810	16132	596	6.4	390	5.7	986	6.1
1991	10673	10310	20983	598	5.6	425	4.1	1023	4.9
1992	10727	8833	19560	555	5.2	399	4.5	954	4.9
1993	9899	7864	17763	549	5.5	394	5.0	943	5.3
1994	10108	8141	18249	548	5.4	504	6.2	1052	5.8
1995	11286	9647	20933	1085	9.6	1032	10.6	2117	10.0

Source: Uwekezaji wa Rasilimali Mkoani Mara kwa kutumia Sekta Binafsi, August, 1995

Fig. 22: Pupils Selected to Join Form I by sex, Mara Region

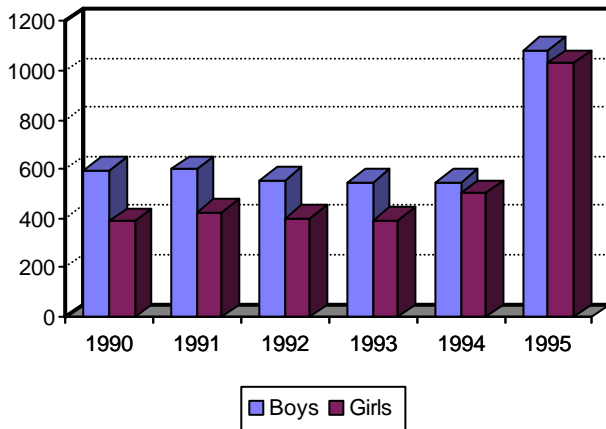


TABLE XLVII (i): PUPILS SELECTED FOR FORM I BY SEX PER DISTRICT IN 1985 AND 1995

District	No of Candidates				No. Selected				Total Selected	
	Boys		Girls		Boys		Girls			
	1985	1995	1985	1995	1985	1995	1985	1995	1985	1995
Bunda	3483	2084	3016	1846	59	122	21	110	80	232
Musoma Mjini	622	865	671	752	16	93	9	88	25	181
Musoma Vijijini	4434	2671	3616	2166	72	209	26	196	98	405
Serengeti	2036	1259	1810	1015	45	104	14	97	59	201
Tarime	4828	4407	6182	3868	108	557	59	541	167	1098
Jumla	15403	11286	15295	9647	300	1085	129	1032	429	2117

Source: Mara Regional Education office, 1996.

TABLE XLVII (j): NUMBER OF PUPILS SELECTED TO JOIN FORM I IN DIFFERENT SCHOOLS FROM MARA REGION BY SEX 1995

Name of Secondary School	Male	Female	Total
Mara	75	45	120
Musoma	105	40	145
Tarime	61	89	150
Moshi Ufundi	50	7	57
Tabora Boys	5	-	5
Ilboru	12	-	12
Maswa Girls	-	65	65
Tabora Girls	-	6	6
Msalato	-	12	12
Serengeti	40	40	80
Ngoreme	40	40	80
Magoto	40	40	80
Kiagata	40	40	80
Bunda	40	40	80
Mogabiri	40	40	80
Kasoma	40	40	80
Total	588	544	1132

Source:Uwekezaji wa Rasilimali Mkoani Mara kwa kutumia Sekta Binafsi, August, 1995.

TABLE XLVII (k) NUMBER OF PUPILS IN MARA REGION WHO JOINED FORM I IN PRIVATE SECONDARY SCHOOLS IN MARA REGION 1995

Name of Secondary School	Male	Female	Total
Nyegina	36	64	100
Kowak	-	78	78
Bwasi	109	57	166
Masonga	41	12	53
Mugango	5	9	14
Mwembeni	49	35	84
Songe	130	40	170
Ikizu	70	30	100
Makongoro	55	25	80
Issenye	23	12	35
Matare	43	18	61
Nyabihore	20	20	40
Nyasincha	50	50	100
Shirati	25	15	40
Isango	6	9	15
Makoko Seminary	50	-	50
Total	712	474	1186

Source: Uwekezaji wa Rasilimali Mkoani Mara kwa Kutumia Sekta Binafsi, August, 1995.

Tables XLVII (h) - XLVII (k) attempt to show the number of pupils who have so far joined different Secondary Schools from Mara region. However, the number selected to join Form I in public Secondary Schools seems to be small, ranging between 6 percent and 10 percent of the total number of candidates (Table XLVII (L)). The percentage of boys selected tended to be higher than that of girls between 1990 and 1993, except in 1994 and 1995, when the percentage of girls surpassed that of boys. There has been a significant increase in the number of pupils joining public Secondary Schools between 1985 and 1995. In 1985, only 429 pupils joined Secondary Schools, while in 1995, 2117 pupils joined. The significant increase is explained by 7 additional public Secondary Schools built between 1985 and 1995 (Table XLVII (a)). According to Table XLVII (i), more children from Tarime and Musoma Rural districts joined Form I in public Secondary Schools than in other districts. The only way to increase the number of pupils in Secondary Schools is through Private Secondary Schools. Only Private Secondary Schools may be able to quench the educational thirst of many children in Mara region who are in most cases capable but are dropped out to let quota system takes its course.

4.4 DROP -OUT PROBLEM

Drop-out in primary schools has been a common phenomenon. Some causes are clearly defined and others are not. nevertheless, the most common reason sending many pupils out of school is truancy. Other reasons are said to be death and pregnancy in case of girls. For instance in 1995,52 percent of the drop-outs

was caused by truancy, 8 percent by death and only 7 percent by pregnancy.

It is also observed that cases of truancy in 1985 and 1995 were more common in Bunda district followed by Tarime district. Out of 30,651 pupils in Bunda, 423 left school on truancy reasons in 1985. In 1995, truancy cases were 621 equivalent to 2 percent of total pupil population in Bunda. Further observation reveals high figures for pregnancy cases in Musoma Rural. Musoma Rural in 1985 had 110 cases of pregnancy compared with only

TABLE XLVII (L): SCHOOL DROP - OUTS 1985 AND 1995

DISTRICT	DROP-OUT REASONS	STD. I - VII					
		BOYS		GIRLS		TOTAL	
		1985	1995	1985	1995	1985	1995
BUNDA	Truancy	221	327	202	294	423	621
	Pregnancy	-	-	29	33	29	33
	Death	26	17	20	19	46	36
	Other	4	10	3	12	7	22
MUSOMA URBAN	Truancy	114	135	25	118	139	253
	Pregnancy	-	-	8	20	8	20
	Death	-	5	5	10	5	15
	Other	4	-	6	1	10	1
MUSOMA RURAL	Truancy	157	168	46	154	203	322
	Pregnancy	-	-	110	64	110	64
	Death	7	29	5	20	12	49
	Other	4	1	3	1	7	2
SERENGETI	Truancy	248	103	163	79	411	182
	Pregnancy	-	-	33	7	33	7
	Death	10	8	11	3	21	11
	Other	4	8	9	2	13	10
TARIME	Truancy	220	121	194	109	414	230
	Pregnancy	-	-	32	24	32	24
	Death	24	31	7	22	31	53
	Other	5	3	15	10	20	13

TOTAL		1,04	966	926	1,002	1,97	1,968
		8				4	

Source: Mara Regional Education Office, 1996

29 cases in Bunda, 8 in Musoma Urban, 33 in Serengeti and 32 in Tarime. In 1995, again Musoma Rural took the lead with 64 cases of pregnancy compared with only 7 pregnancy cases in Serengeti, 33 in Bunda, 20 in Musoma Urban, and 24 in Tarime. In total there were 148 cases of pregnancy in Mara region in 1995. Table below also shows that more drop-out cases are more common in Musoma Rural than any other district in 1990, 1991 and 1993. In 1994 Musoma Rural came second after Bunda with 438 girls drop-out cases. Musoma Urban had the least girls drop-out cases in those years. All in all, it is worthwhile to find out why there are so many cases of primary school girls pregnancy in Musoma Rural than any other district. The authorities should not close their eyes on this issue.

Fig. 26: Reasons for School Drop-outs in Mara Region, 1995

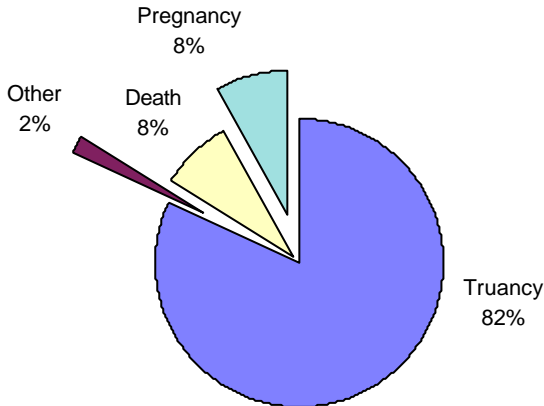


TABLE XLVII (m): SCHOOL DROP - OUTS, 1990 - 1995

DISTRICT	1990		1991		1993		1994	
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
BUNDA	63	74	54	96	126	141	498	438
MUSOMA (U)	39	41	74	74	63	102	92	117
MUSOMA (R)	133	194	140	186	241	158	243	309
SERENGETI	87	87	82	74	104	114	198	158
TARIME	578	663	176	229	1,275	1,177	134	150

Source: Mara Regional Education Office, 1996.

TABLE XLVII (n): DROP-OUTS FROM PRIMARY SCHOOLS IN EIGHT SELECTED REGIONS, 1992

REGION	GRADE							TOTAL	RANKING
	I	II	III	IV	V	VI	VII		
Kilimanjaro	139	209	306	410	315	390	316	2,085	8
Arusha	329	412	518	1,038	471	524	740	4,050	4
Dar-es-Salaam	287	424	447	499	384	471	233	2,745	6
Kagera	256	482	673	1,181	1,035	1,003	1,119	5,749	1
Mara	144	150	149	247	1,241	1,440	874	4,245	2
Mbeya	278	220	366	528	443	420	546	2,781	5
Mwanza	345	440	583	768	612	610	793	4,151	3
Pwani	152	244	310	461	525	354	105	2,151	7

Source: Planning Commission: Compiled Data based on Best 1992

It is observed from Table XLVII (n) that Mara Region among the selected eight regions is ranked number two after Kagera region, when checked against the number of drop-outs in primary schools in 1992. Kilimanjaro had the fewest number. Mara had 4245 drop-outs, Kagera 5749 and Kilimanjaro 2085.

4.5 PRIMARY SCHOOL INFRASTRUCTURE

Problems of primary school education are almost similar, they may only differ in magnitude. Like other regions, Mara is experiencing shortages of class-rooms, teachers' houses, desks, teaching materials and even qualified teachers.

Table XLVII (o) shows the number of pupils in each district and the corresponding number of class-rooms.

TABLE XLVII (o): CLASS - ROOM PUPIL POPULATION RATIO, 1995.

DISTRICT	No. of Pupils	No. of Classrooms	Pupil per Classroom
BUNDA	40,870	386	106:1
MUSOMA (U)	15,432	177	87:1
MUSOMA (R)	52,895	670	79:1
TARIME	76,414	1,009	76:1
SERENGETI	22,783	334	68:1
TOTAL	208,394	2,576	81:1

Source: Mara Regional Education Office, 1996.

Fig. 23: Situation of Primary School buildings (Class Rooms) by District, Mara Region, 1994

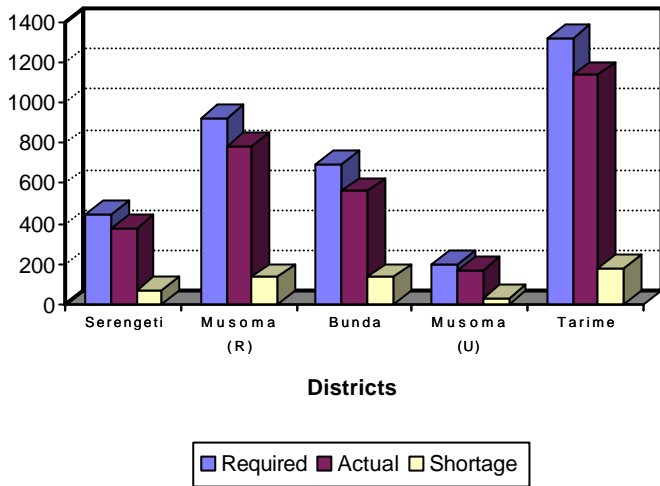


TABLE XLVII (p): SITUATION OF PRIMARY SCHOOL BUILDINGS BY DISTRICT, 1994.

TARIME				
BASIC FACILITY	NUMBER REQUIRED	ACTUAL	SHORTAGE	PERCENTAGE OF SHORTAGE
Class-rooms	1316	1136	180	13.7
Staff Houses	2,222	618	1,604	72.2
Toilets	3839	676	3162	82.4
SERENGETI				
Class-rooms	445	377	68	15.3
Staff Houses	761	211	550	72.3
Toilets	1375	377	998	72.6
MUSOMA RURAL				
Class-rooms	920	783	137	14.9
Staff Houses	1,821	838	983	54.0
Toilets	2,745	798	1947	70.9
MUSOMA URBAN				
Class-room	199	169	30	15.0
Staff Houses	461	17	444	96.3
Toilets	599	146	453	75.6
BUNDA				
Class-room	694	560	134	19.3
Staff Houses	1,449	240	1,209	83.4
Toilets	599	146	453	75.6

TABLE XLVII (q): SITUATION OF PRIMARY SCHOOLS' FURNITURE BY DISTRICT, 1994

TARIME				
TYPE OF FURNITURE	NUMBER REQUIRED	ACTUAL	SHORTAGE	%
Desks	36780	6010	30770	83.6
Tables	3447	535	2,912	84.5
Chairs	1942	378	1564	80.5
Cupboards	2554	390	2164	84.7
SERENGETI				
Desks	15853	3068	12785	80.6
Tables	1501	303	1198	79.8
Chairs	659	190	469	71.2
Cupboards	957	76	881	92.1
MUSOMA RURAL				
Desks	24187	3044	21143	87.4
Tables	2,006	415	1591	79.3
Chairs	1431	350	1081	75.5
Cupboards	888	180	708	79.7
MUSOMA URBAN				
Desks	7,776	2874	4902	63.0
Tables	779	119	660	84.7

Chairs	487	154	333	68.4
Cupboards	392	96	296	75.5
BUNDA				
Desks	22419	3558	12861	84.1
Tables	1392	283	1109	79.7
Chairs	1291	255	1036	80.2
Cupboards	1650	193	1457	88.3

Source: Mara Regional Education Office, 1996.

Fig. 24: Situation of Primary School Buildings (Staff Houses), Mara Region, 1994

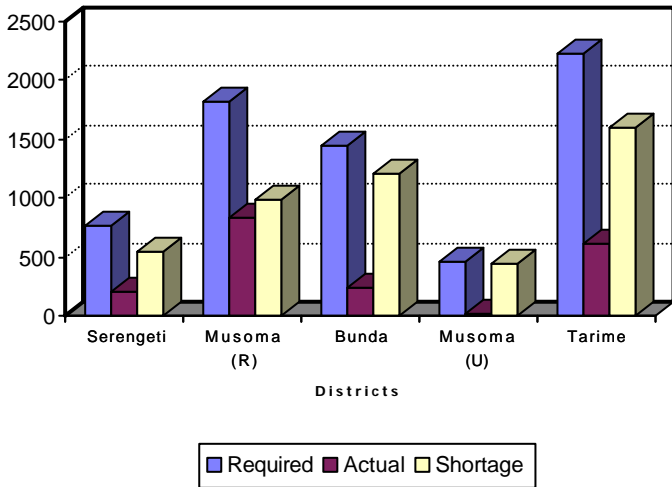


Fig. 25: Situation of Primary School Buildings (Toilets), Mara Region, 1994

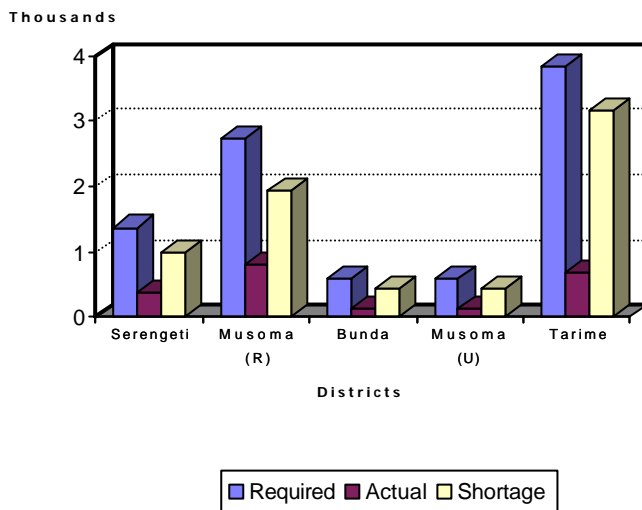


TABLE XLVII (r): TEACHERS STAFF DISPOSITION BY SEX AND DISTRICT, 1995

DISTRICT	NUMBER OF SCHOOL TEACHERS (PRIMARY)		
	MALE	FEMALE	TOTAL
TARIME	1,329	578	1,907
MUSOMA RURAL	830	405	1,235
MUSOMA URBAN	146	368	514
SERENGETI	425	214	639
BUNDA	761	490	1,251
TOTAL	3,491	2,055	5,546

Source: Mara Regional Education Office, 1996.

Fig. 26: Situation of Primary Schools' Furnitures (Desks) by District, Mara Region, 1994

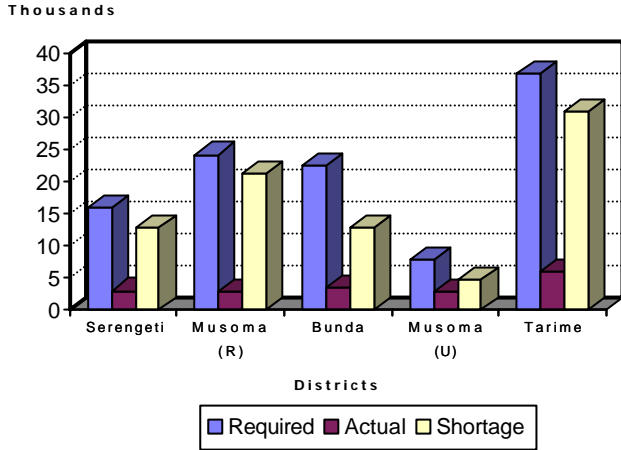
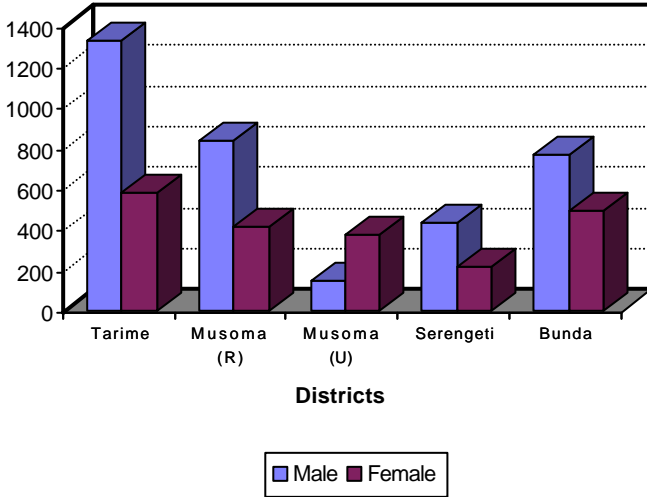


Fig. 27: Teachers disposition by Sex and District, Mara Region, 1995



Poor school infrastructure is a major problem facing most primary schools in the region. For instance, in terms of class-rooms, we

observe from Table XLVII (p) that Bunda district led in 1994 by having the highest percentage of class-rooms shortage, followed by Musoma Urban and Serengeti. In terms of Staff houses, Musoma Urban and Bunda had 96.3 percent and 83.3 percent shortages respectively in 1994. In terms of furniture, almost all primary schools in the region are facing shortages of desks, tables, chairs and cupboards. With the exception of Musoma Urban, all districts have serious shortage of desks. This means that most of the pupils in the region take their lesson notes while sitting on the floor or bricks/stones. If the country is seriously talking of standards then something must be done immediately to arrest the situation, otherwise we should not expect good students.

4.6 NURSERY SCHOOLS:

The availability of nursery schools is yet another feature distinguishing the level of development of education system from one region to another. Pre-schools are meant for children between 3 - 6 years. There are only 31 pre-schools in Mara Region, while in Kilimanjaro region there are 325. It is reported that most of pre-schools in Mara region are crowded with an average of 58 children per centre. For young children who need close attention of the teacher, the number is too high for a class (centre). The Regional Authority therefore, should encourage more people to establish these centres so that more room is created for pre-school children. Other problems said to be facing pre-schools include, poor or lack of meals for the children and play materials. Table XLVII (s) shows the number of pre-schools and the number of children per district.

TABLE XLVII (s): NURSERY SCHOOLS 1995

DISTRICT	NO. OF SCHOOLS			NO. OF PUPILS		TOTAL
	Public	Private	Total	Boys	Girls	
BUNDA	2	2	4	85	110	195
MUSOMA (U)	3	2	5	166	156	322
MUSOMA (R)	7	-	7	161	153	314
SERENGETI	2	1	3	53	56	109
TARIME	9	3	12	461	425	886
TOTAL	23	8	31	926	900	1,826

Source: Mara Regional Education Office, 1996.

TABLE XLVII (t): FACTS ON PUBLIC PRIMARY SCHOOLS IN MARA REGION 1987 - 1994

FACTS	1987	1988	1989	1990	1991	1995
Number of Schools	485	487	498	505	514	541
Total Enrolment (000)	158.7	161.2	166.9	179.8	185.1	208.397
Number of Qualified Teachers	4,921	5,062	5,040	4,698	5,062	5346
Number of Streams	4,201	4,291	4,458	4,727	4,963	5875
Pupils/School, Average	327	331	335	356	361	385
Pupils/Stream, Average	38	38	37	38	37	35
Pupil/Teacher, Average	32	32	33	38	37	37

Source: Mara Regional Statistical Abstract, 1993.

4.7 SECONDARY SCHOOL EDUCATION:

Mara region is one of the regions with few secondary schools. In 1967, the region had only 2 public secondary schools and 2 private secondary schools. This number however, has risen to 10 public secondary schools and 18 private secondary schools by 1995. Table XLVIII makes good comparison of the actual situation pertaining to the availability of secondary schools in the selected regions in 1994.

TABLE XLVIII: SITUATION OF SECONDARY SCHOOLS IN MARA REGION COMPARED WITH SELECTED FEW REGIONS IN TANZANIA, 1994

REGION	No. of Public Secondary Schools	No. of Private Secondary Schools	TOTAL
Mara	8	10	18
Kilimanjaro	13	76	89
Arusha	8	20	28
Mbeya	7	17	24
Kagera	9	23	32
Mwanza	10	14	24
Dar-es-Salaam	8	15	23
Dodoma	9	6	15
Kigoma	4	3	7
Morogoro	12	8	20
Mtwara	9	3	12
Pwani	8	3	11
Rukwa	11	9	20
Singida	4	4	8

Tabora	5	10	15
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Source: Planning Commission: Compiled data, 1996

TABLE XLVIII (a): DISTRIBUTION OF SECONDARY SCHOOLS BY DISTRICT 1967 - 1995

DISTRICT	1967		1985			1995		
	Public	Private	Public	Private	Total	Public	Private	Total
Tarime	-	-	1	2	3	3	5	8
Musoma Rural	-	-	-	1	1	2	5	7
Musoma Urban	2	1	2	1	3	2	3	5
Serengeti	-	-	-	-	-	2	3	5
Bunda	-	1	-	2	2	1	2	3
TOTAL	2	2	3	6	9	10	18	28

Source: Mara Regional Education Office, 1996.

It is observed from Table XLVIII (a) that there were only 9 Secondary Schools in Mara region by the end of 1985, but this number increased to 28 schools by the end of 1995. Significant increase is observed in Private Secondary Schools which were only 6 in 1985, but increased three times to reach 18 in 1995. Bunda district has the least number of Private Secondary Schools followed by Serengeti. Tarime and Musoma Rural have the highest number of Private Secondary Schools. In terms of public Secondary Schools, Tarime again has the highest number while Bunda possess only one public Secondary School, by the end of 1995.

Fig. 28: Enrolment trend in public against Private secondaryschools, Mara region, 1990 - 1996

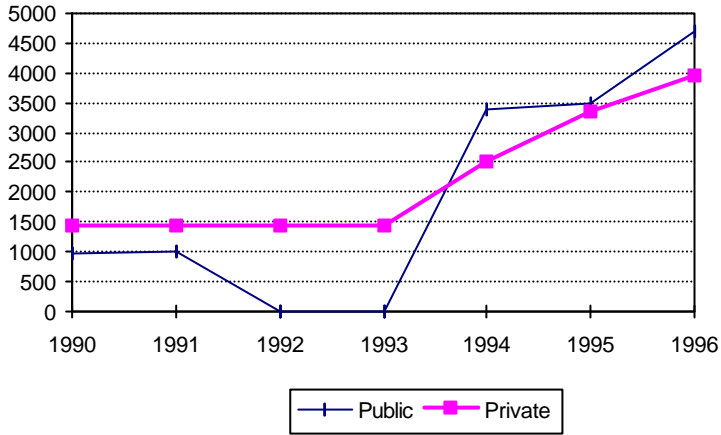


TABLE XLVIII (b): ENROLMENT IN PUBLIC AND PRIVATE SECONDARY SCHOOLS BY SEX 1990 - 1996

YEAR	PUBLIC SCHOOLS			PRIVATE SCHOOLS			TOTAL	
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls
1990	596	390	986	557	875	1,432	639	407
1991	598	425	1,023	559	877	1,432	642	443
1992	-	-	-	559	876	1,435	559	876
1993	-	-	-	560	876	1,436	560	876
1994	2,353	1,038	3,391	1,765	760	2,525	4,118	1,798
1995	2,312	1,164	3,476	2,393	977	3,370	4,705	2,141
1996	2,908	1,778	4,686	2,603	1,346	3,949	5,511	3,124

Source: 1. Mara Regional Statistical Abstract, 1993.
 2. Mara Regional Education Office, 1996.

We observe from Table XLVIII (b) that the number of students enrolled in Private Secondary Schools is less than that in public Secondary Schools in 1995 despite the fact that there are more private Secondary Schools (Table XLVIII (a)). Between 1990 and 1993, girls enrolment in private Secondary Schools exceeded boys enrolment, while in public secondary schools the enrolment of boys exceeded that of girls in all years in question (Table XLVIII (b)).

4.8 ADULT EDUCATION:

(i) LITERACY:

Literacy and education data provide vital information about the level of achievement and distribution of education in a particular place. Literacy level, defined as the ability to read and write Kiswahili in Tanzania context is relatively high in Mara region as shown in Table XLIX below.

**TABLE XLIX PERCENT OF LITERACY FOR POPULATION
AGED 10 YEARS AND ABOVE BY REGION**

REGION	1967 CENSUS	1978 CENSUS	1988 CENSUS
Kilimanjaro	56	74.1	80.8
Dar-es-Salaam	60	73.3	80.7
Ruvuma	41	66.3	70.5
Tanga	40	60.6	66.0
Morogoro	37	58.6	62.8
Mara	35	56.4	63.9
Iringa	31	54.0	68.3
Kagera	40	52.9	59.5
Mtwara	28	51.4	57.1
Dodoma	24	49.5	55.5
Mbeya	29	49.2	61.9
Rukwa	-	48.5	58.6
Lindi	-	48.4	53.8
Singida	24	46.7	57.4
Mwanza	25	44.3	57.3
Coast	26	44.0	51.1
Kigoma	19	43.7	55.1
Arusha	26	41.9	58.1
Tabora	27	40.5	50.5
Shinyanga	16	33.2	48.3

Source: 1988 Population Census (National Profile, Table 5.2)

TABLE XLIX (a): LITERACY RATES FOR RURAL AND URBAN POPULATION OF 10 YEARS AND ABOVE, 1988

REGIONS	MALE			FEMALE		
	RURAL	URBAN	TOTAL	RURAL	URBAN	TOTAL
Mara	73.7	88.0	75.3	53.7	71.5	55.6
Dodoma	61.5	85.4	64.3	45.1	73.7	48.2
Arusha	61.5	91.8	65.6	46.4	82.8	50.9
Kilimanjaro	84.5	90.3	85.5	75.7	83.6	76.9
Tanga	72.8	88.6	75.9	53.2	75.6	57.3
Morogoro	68.8	86.4	72.9	49.5	72.0	54.6
Coast	60.1	72.2	64.0	40.1	51.8	44.9
Dar-es-Salaam	68.4	90.0	87.9	48.0	77.7	74.6
Lindi	62.4	75.9	64.6	42.0	60.2	44.8
Mtwara	65.5	77.9	67.3	46.3	61.6	48.5
Ruvuma	77.7	87.6	78.7	61.4	75.7	63.3
Iringa	80.1	87.4	84.9	57.2	70.4	58.5
Mbeya	69.9	87.5	73.3	48.4	70.0	52.4
Singida	65.0	85.5	66.8	47.2	70.8	49.3
Tabora	50.1	85.2	60.5	36.7	67.8	41.6
Rukwa	69.1	84.3	71.3	43.9	66.4	47.3
Kigoma	65.1	83.1	67.4	43.1	62.7	45.5
Shinyanga	57.9	85.9	59.9	36.2	67.7	39.3
Kagera	68.0	84.4	69.0	49.7	72.4	50.9
Mwanza	63.7	83.7	67.6	43.4	66.9	47.8

Source: 1988 Population Census: National Profile.

There were 97,362 people who could not read or write in Mara region by the end of 1989. About 65 percent of them were women and illiteracy percent was 19.2 then. Table XLIX (b) below indicates the distribution of adult population and literate adults through formal education in 199

TABLE XLIX (b): LITERATE ADULT POPULATION, 1995

DISTRICT	NUMBER OF ADULT POPULATION			NUMBER OF LITERATE POPULATION		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
Bunda	43,367	66,290	109,657	30,914	47,027	77,941
Musoma Urban	18,207	21,982	40,189	16,190	16,264	32,454
Musoma Rural	57,701	70,277	127,978	32,912	31,051	63,963
Serengeti	24,865	32,103	56,968	8,187	6,086	14,273
Tarime	77,213	96,213	173,510	31,294	31,487	62,781
Total	221,353	286,943	508,302	119,497	131,915	251,412

Source: Mara Regional Education Office, 1996.

TABLE XLIX (c): ILLITERATE POPULATION BY DISTRICT, 1989 AND 1995

DISTRICT	POPULATION 1989			POPULATION 1995		
	MALE	FEMALE	TOTAL	MALE	FEMALE	TOTAL
Bunda	2,236	5,540	7,776	12,453	19,263	31,716
Musoma (U)	580	2,353	2,933	2,017	5,718	7,735
Musoma (R)	9,621	20,512	30,133	24,789	39,226	64,015
Serengeti	5,524	12,611	18,135	16,678	26,017	42,695
Tarime	15,867	22,518	38,385	45,919	64,726	110,645

TOTAL	33,828	63,534	97,362	101,856	155,028	256,884
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Source: (i) Mafanikio na matatizo ya Elimu Mkoani Mara, mwaka 1989 - 1993.
(ii) Mara Regional Education Office, 1996.

Table XLIX (c) shows that illiteracy increased in all Districts in 1995. In 1989 there were only 97,362 illeterates but the number has surprisingly shot up to 256,884 in 1995. The number of illiterates in Tarime district increased by 72,260 people between 1989 and 1995, being the highest in the region followed by Musoma Rural (33,882), Serengeti (24,560) and Bunda (23,940). It is difficult to tell why the number of illiterates is increasing. In principle, the Ministry of Education is responsible for Education, by providing the necessary budget to cover all activities pertaining to Adult Education development. However, it is reported that the programme is frequently interrupted by the following problems:-

- (i) Tribal conflicts (disrupting smooth attendance).
- (ii) Lack of honoraria to teachers.
- (iii) Lack of teaching materials.
- (iv) Lack of initiative by the people.
- (v) Diversion of funds earmarked for Adult Education to some other non-stated activities.

4.9 VOCATIONAL TRAINING CENTRES:

Mara region has 15 Vocational Training Centres distributed as follows:-

TABLE L: VOCATIONAL TRAINING CENTRES

DISTRICT	CENTRE (NO.)
Bunda	3
Musoma Urban	2
Musoma Rural	4
Serengeti	1
Tarime	5
TOTAL	15

Source: Mara Regional Education Office, 1996.

4.10 HEALTH SECTOR

Health facilities have been constructed in most villages, although they lack medicines, with the exception of aspirin and occasionally chloroquine tablets. Poor state of health facilities in the region has to some extent increased the role of traditional healers (informal health sector). It is reported that traditional healers do demand an initial payment of two to five thousand shillings for the treatment of diseases such as diarrhoea, malaria, bilharzia and anemia, and up to ten thousand for measles. One or more traditional birth attendants have been reported to be living in most of the villages in Mara region. Their fees for attending a patient ranges from 2000/- to 5000/-, although, in most cases it is rendered in kind as well.

Major diseases in Mara region include, malaria (including cerebral), scabies, anemia, yellow fever, cancer, diabetes, hookworm, tuberculosis, bilharzia, epilepsy, measles and

dysentery. The following tables summarize the growth, status, and distribution of health facilities in the region.

TABLE LI: GROWTH, STATUS AND DISTRIBUTION OF HEALTH FACILITIES 1961 - 1994.

DISTRICT	HOSPITALS		DISPENSARIES		HEALTH CENTRES	
	1985	1994	1985	1994	1985	1994
Tarime		3		47		5
Serengeti		1		28		2
Musoma (R)		1		47		2
Musoma (U)		1		17		1
Bunda		2		28		3
TOTAL		8		167		13

Source: (i) Taarifa ya mwaka 1994 ya Huduma ya Afya.

TABLE LI (a): NUMBER OF PUBLIC AND PRIVATE HOSPITALS, HEALTH CENTRES AND DISPENSARIES, 1994.

DISTRICT	HOSPITALS		DISPENSARIES		HEALTH CENTRES	
	Public	Private	Public	Private	Public	Private
Tarime	1	2	27	20	4	1
Serengeti	-	1	16	12	2	-
Musoma Rural	1	-	28	19	2	-
Musoma Urban	1	-	6	11	1	-
Bunda	-	2	21	7	3	-
TOTAL	3	5	98	69	12	1

Source: Taarifa ya mwaka 1994 ya Huduma ya Afya: Compiled Data by the Planning Commission.

TABLE LI (b): COMMON DISEASES IN MARA REGION BY PERCENTAGE, 1996.

DISEASE	OCCURRENCE/PERCENTAGE (%)
Malaria	40
Acute Respiratory Infections	30
Diarrhoea Diseases	28
Anemias	24
Tuberculosis	10

Source: Regional Health Office, Mara Region, June, 1996.

TABLE LI (c): SELECTED TEN DISEASES CAUSING MORE DEATH IN MARA REGION, 1994.

NAME OF DISEASE	NUMBER OF DEATHS*
1. Malaria	88
2. Anaemias	67
3. Tuberculosis	34
4. Pneumonias	31
5. H.I.V.	31
6. Shigella Dysentery	31
7. Cholera	25
8. Chronic Liver Disease	17
9. Marasmus & Kwashiorkor	15
10. Pregnancy Related	8

Source: Mkoa wa Mara: Taarifa ya mwaka 1994 ya Huduma ya Afya.

* These are only reported cases. The number may be more.

4.11 DISPENSARIES:

A dispensary is the first health post in the district referral system. By national standards, a dispensary is supposed to serve 10,000 people. There are 167 dispensaries in Mara region, each serving 7,093 people (1995 population estimates). It appears dispensaries in Mara region are serving less number of people than the standard number set by the Nation of 10,000 people per dispensary. Out of the 167 dispensaries, 98 are public and 69 are privately owned. Table L11 indicates the distribution of dispensaries and MCH facilities in the region.

TABLE LII: NUMBER OF DISPENSARIES AND OWNERSHIP PER DISTRICT, 1994

DISTRICT	DISPENSARY		Total	MCH Clinics	Population (1994 Estimates)	Population per Dispensary
	Public Owned	Private Owned				
Tarime	27	20	47	42	392,031	8,341
Musoma Rural	28	19	47	39	287,916	6,126
Musoma Urban	6	11	17	14	89,028	5,237
Serengeti	16	12	28	21	180,246	6,437
Bunda	21	7	28	29	197,243	7,048
TOTAL	98	69	167	145	1,153,356	6,906*

Source: Planning Commission: Compiled data based on "Taarifa ya Mwaka 1994 ya Huduma ya Afya, Mkoa wa Mara".

* 6,906 is an average figure.

Apart from Musoma Urban, Musoma Rural is the best served with dispensaries followed by Serengeti. Each dispensary in Musoma Rural serves only 6,126 people against 8341 people in Tarime district (Table L11). Nevertheless, there is no cause for alarm because the number of people served by each dispensary is still below the set National standard of 10,000 people.

4.12 HEALTH CENTRES

Rural Health Centres (RHC) are the first referral centres for cases that cannot be handled by dispensaries. Thus, it is the second level of referral at the district. Rural Health Centre by national average standards, is supposed to serve 50,000 people. It is staffed by a Medical Assistant and several health auxiliaries. By the end of 1995 there were 13 Rural Health Centres in Mara region. Table LIII below shows the distribution of Rural Health Centres and Ownership per district.

TABLE LIII: NUMBER OF RURAL HEALTH CENTRES AND OWNERSHIP PER DISTRICT, 1995

DISTRICT	Number of RHC			Population per RHC, 1995	Number of Beds		
	Public	Private	Total		Public	Private	Total
Bunda	3	0	3	66,176	60	-	60
Musoma Urban	1	-	1	93,034	-	-	-
Musoma Rural	2	-	2	147,557	40	-	40
Serengeti	2	-	2	97,603	40	-	40
Tarime	4	1	5	80,523	80	40	120

TOTAL	12	1	13	91,115	220	40	260
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Source: Mara region: Regional Health Office, June, 1996.

It is observed from Table L111 that Mara region population/RHC ratio of 91,115 is well above the National target of 50,000 people per Rural Health Centre. In all Districts in Mara region, Population per Rural Health Centre ratio is higher than the National Standard of 50,000 people. In terms of Rural Health Centre facility, Mara region therefore is still not adequately served. Musoma Rural has the highest ratio (147,557 people). On average Government Rural Health Centre is supposed to supervise not more than 5 public owned dispensaries (National target) but in Mara region, as seen above, each public Rural Health Centre supervises about 8 dispensaries.

4.13 HOSPITAL SERVICES:

The Regional Hospital forms the apex of the regional referral system, whereas a district hospital is the top referral organisation at district level. By the end of 1995 Mara region had 8 hospitals with 840 beds. Three out of eight hospitals are Government owned, while the remaining five are run by voluntary agencies. Table LIV below indicates the distribution of the hospitals in the region, the number of hospital beds and the number of Doctors available.

TABLE LIV: DISTRIBUTION OF HOSPITALS, DOCTORS IN THE REGION, 1994

DISTRICT	Number of Hospitals			No. of Beds	Population per bed (1995)	No. of Doctors	Population per Doctor (1995)	Population per Hospital (1995)
	Public	Private	Total					
Bunda	-	2	2	160	1,241	2	99,263	99,263
Serengeti	-	1	1	120	1,627	1	195,206	195,206
Musoma (R)	1	-	1	60	4,918	1	295,114	295,114
Musoma (U)	1	-	1	200	465	14	6,645	93,034
Tarime	1	2	3	300	1,342	3	134,205	134,205
TOTAL	3	5	8	840	1,410	21	56,405	148,062

Source: Planning Commission: Compiled data based on data from Mara Regional Health Office.

It is observed from Table LIV above that the Regional Population per physician given at 56,405 is more than twice the national average of 24,930 people per physician. The situation is worse in Musoma Rural and Serengeti districts, where 295,114 and 195,206 people are served by one doctor respectively. The population per hospital (148,062) in Mara region is also above the national target of 100,000 people. There is need therefore to increase the number of hospitals in the region especially in Musoma Rural and Serengeti. The same applies to doctors, currently attending 295,114 and 195,206 people each in Musoma Rural and Serengeti respectively instead of just attending an average of 24,930 people in accordance with National target.

TABLE LV: REQUIREMENTS OF THE MEDICAL TEAM IN MARA REGION

STAFF CATEGORY	REQUIREMENT	AVAILABLE	SHORTAGE
Medical Officer	17	6	11
Pharmacies	5	0	5
Laboratory Technicians	13	6	7
X-Ray	6	2	4
Nurse Grade A	134	77	57
Nurse Grade B	316	165	151
Dentists	2	1	1
Daktari Bingwa	6	3	3
AMO	18	11	7
ADO (Dental)	6	1	5

4.14 LIFE EXPECTANCY AT BIRTH:

Compared with Arusha, Kilimanjaro, Singida, Tabora, Dar-es-Salaam, Mara's life expectancy was hardly 50 years (1988 Census), for females and males. According to Table LV1, life expectancy at birth in Mara region (1988 Census) was only above that in Kagera, Iringa and Dodoma regions, for both males and females. Table LV1 gives a summary of life expectancy at birth in all Mainland regions as per 1978 and 1988 population census.

TABLE VI: LIFE EXPECTANCY AT BIRTH BY SEX, 1978 AND 1988 CENSUS

REGION	1978 CENSUS		1988 CENSUS	
	Male	Female	Male	Female
Arusha	50	57	57	58
Coast	47	48	46	51
Dar-es-Salaam	50	50	50	50
Dodoma	45	46	45	47
Iringa	41	45	44	47
Kagera	45	45	44	45
Kigoma	40	48	47	49
Kilimanjaro	58	59	57	62
Lindi	42	47	46	48
Mara	44	47	46	48
Mbeya	41	47	45	48
Morogoro	44	46	45	48
Mtwara	40	46	45	48
Mwanza	44	48	46	50
Rukwa	40	45	44	48
Ruvuma	43	49	48	51
Shinyanga	42	50	48	51
Singida	44	55	54	55
Tabora	44	53	53	54
Tanga	49	49	48	51
MAINLAND	44	50	49	51

Source: Health Statistics Abstract, 1994.

4.15 INFANT AND UNDER FIVE MORTALITY RATES:

Clinical deaths and malnutrition are major problems in Mara region. Baseline data during the introduction of the Nutrition Surveillance Project in Serengeti and Tarime districts revealed high levels of malnutrition to the range of 30 - 60 percent total under weight; and 4 - 10 percent severe malnutrition. During 1988 Census, infant mortality rate was 120/1000 compared to national

average of 115/1000. Child mortality was 201/1000 against the national average of 191/1000 deaths.

It is being observed from Table LVII that there have been relatively high infant and under five mortality rates in 1975, 1985, and 1995 in Mara region.

TABLE LVII: INFANT AND UNDER FIVE MORTALITY RATES BY REGION

REGIONS	IMR			U5MR		
	1975	1985	1995	1975	1985	1995
Arusha	108	75	52	179	119	78
Coast	121	113	105	204	189	174
Dar-es-Salaam	108	105	102	179	173	168
Dodoma	133	132	130	25	222	220
Iringa	152	130	111	257	220	187
Kagera	133	130	127	225	219	212
Kigoma	163	115	81	269	192	137
Kilimanjaro	76	67	59	119	104	90
Lindi	151	140	129	255	236	218
Mara	140	125	112	236	211	189
Mbeya	161	124	96	267	209	163
Morogoro	140	125	112	236	211	189
Mtwara	161	138	119	267	233	202
Mwanza	139	115	95	233	192	157
Rukwa	170	131	101	283	221	172
Ruvuma	145	113	88	245	188	143
Shinyanga	150	110	81	252	183	131
Singida	137	96	67	231	157	106
Tabora	140	101	73	236	166	116
Tanga	112	106	100	187	176	166

Source: Health Statistics Abstract, 1996.

Although, mortality rates for both infant and under five children in 1975, 1985 and 1995 are relatively high, they are declining. For instance, in 1975 Infant mortality rate was 140, in 1985 it was 125 and in 1995 it dropped to 112. Similarly, the U5MR was

236 in 1975, but by the end of 1995 it had dropped to 189 (Table LVII).

4.16 MARTENAL MORTALITY:

Martenal mortality defined as the death of women while pregnant or death within 42 days of the termination of pregnancy, is one of the major health problems facing all regions in the country. Compared with other regions, Mara's Maternal Mortality rate is relatively very low. According to Table LVIII below, Mara, and Mbeya had the lowest MMR in 1992, while in 1993 Mara region was second after Kilimanjaro with 59 MMR. Even in 1994, Mara still came fourth after Coast, Kigoma and Kilimanjaro regions. In 1992 Iringa region had the highest MMR followed by Kagera region.

TABLE LVIII: MATERNAL MORTALITY RATE BY REGION FOR THREE CONSECUTIVE YEARS (1992, 1993 AND 1994)

REGION	MATERNAL MORTALITY RATE (MMR)		
	1992	1993	1994
Arusha	102	158	114
Coast	209	111	70
Dar-es-Salaam	220	398	237
Dodoma	197	214	208
Iringa	311	321	276
Kagera	304	343	190
Kigoma	144	155	105
Kilimanjaro	126	46	107
Lindi	262	289	193
Mara	67	59	106
Mbeya	67	361	436
Morogoro	289	172	190

Mtwara	264	212	161
Mwanza	221	186	266
Rukwa	172	294	243
Ruvuma	225	189	186
Shinyanga	143	188	199
Singida	242	171	238
Tabora	151	185	130
Tanga	255	172	220

Source: Health Statistics Abstract, 1996.

4.17 MALNUTRITION:

Malnutrition in Mara region is likely to be caused by insufficient food intake which results from insufficient education on child feeding practices and poor child care. Other reasons include, women workload which reduces time for child-care and low level of participation of men in child care (The Programme for Women and Children in Mara region, Regional Report, September, 1994).

(a) Child Survival Protection and Development Programme (CSPD):

The Mara region CSPD is a Community Based Programme which has supplemented the efforts of the Nutrition Surveillance Programme (1989/90/91/92), built on the Primary Health Care (PHC) approaches. The implementation of the project began in January 1992 with a package of six sub-projects on community mobilization, participation and management; adequacy of food intake; child development and education, health, water and

sanitation; income generating activities and district management systems.

Child deaths and malnutrition are major problems in Mara region. By the time Nutrition Surveillance project was introduced in Serengeti and Tarime districts there were high levels of malnutrition to the tune of 30 - 46% total under weight children; and 4 - 10% cases of severe malnutrition. During 1988 Census, infant mortality rate was 120/1000 compared to national average of 115/1000 while child mortality was 201/1000 against national average of 191/1000 deaths (Child Survival Protection and Development Programme Mid-Term (1992 - 1994) Review Mara Regional Report, 1994). Table LIX indicates extent of CSPD coverage in Serengeti and Tarime districts.

TABLE LIX: NUTRITION SURVEILLANCE 1989 - 1992

DISTRICT	DIVISIO N	WARD S	VILLAGE S	NUMBER OF UNDER FIVE YEARS
TARIME	2	8	45	8,699
SERENGETI	1	4	39	10,617
TOTAL	3	12	84	19,316

Source: CSPD Mid-Term (1992-1994) Review Mara Regional Report, 1994.

TABLE LX: CSPD COVERAGE, 1992 - 1994

DISTRICT	DIVISION	WARDS	VILLAGES	NUMBER OF UNDER FIVE YEARS
TARIME	4	25	86	39,803
SERENGETI	2	12	49	18,198
BUNDA	1	4	18	7,072
MUSOMA (R)	1	12	45	19,150
MUSOMA (U)	1	7	-	6,390

TOTAL	9	60	198	90.613
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Source: CSPD Mid-Term Review Report, 1994.

Currently, the CSPD project is expanding into Musoma Rural to cover 47 more villages, Bunda 20 villages, Serengeti 10 villages, Tarime 23 villages and Musoma Urban 6 Wards. By the end of 1994 the programme was supposed to cover 70% of all wards and 73% of all rural villages.

By strengthening programmes for Women and Children in the region, the programme by the end of 1996 will ensure that severe malnutrition is reduced to below 2%, moderate malnutrition is to be reduced by half, maternal mortality by half and women's nutritional status improved. Implementation of 1992, 1993 and 1994 activities reduced severe and moderate malnutrition from 2% to 1.1% and 22% to 16.1% in 1993 and 1994 respectively. Table LXI highlights achievements made by the Child Survival Protection and Development Programme.

TABLE LXI: NUTRITION STATUS 1992 - 1994

DISTRICT	1990		1991		1992		1993		1994	
	Severe	Moderate	Severe	Moderate	Severe	Moderate	Severe	Moderate	Severe	Moderate
Tarime	8.2	30.7	1.6	21.4	4.0	22.3	1.7	18.6	1.6	18.1
Serengeti	4.7	36.3	2.3	30.5	3.0	27.9	1.5	23.9	1.9	24.5
Bunda	-	-	-	-	-	-	2.1	22.9	0.5	10.9
Musoma Rural	-	-	-	-	-	-	2.9	22.5	1.3	19.4
Musoma Urban	-	-	-	-	-	-	1.9	20.2	0.1	7.7

Average Total (%)	6.4	33.5	1.9	25.9	3.5	25.1	2.0	22	1.1	16.1
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Source: Mara Regional Office: Child Survival Protection and Development Programme Mid-Term (1992-1994) Review, Report.

According to Table LXI Serengeti and Tarime districts had the highest both severe and moderate malnutrition percentages. However, for Tarime severe malnutrition had dropped from 4 percent in 1992 to 1.6 percent in 1994, while in Serengeti district it dropped from 3 percent in 1992 to 1.9 percent in 1994. The results reflected by Table LXI above indicate a remarkable success in the programme.

With regards to immunization, the coverage increased from 76 percent to above 80 percent between 1992 and 1994. Table LXII shows the extent of immunization coverage.

TABLE LXII: IMMUNIZATION COVERAGE (PERCENT) FOR CHILDREN BELOW 5 YEARS

DISTRICT	1992		1993		1994	
	Under 1 Year	Under 5 Years	Under 1 Year	Under 5 Years	Under 1 Year	Under 5 Years
Bunda	74.8	94.1	75.4	85.7	81.0	-
Serengeti	77.6	76.3	70.2	64.6	85.0	-
Tarime	61.3	55.5	71.8	60.0	60.1	-
Musoma Urban	89.0	94.5	92.2	95.5	98.1	-
Musoma Rural	80.1	61.2	86.0	82.0	90.5	-
Regional Total	76.6	76.3	79.1	83.0	83.0	-

Source: Mara Regional Office: Child Survival Protection and Development Programme Mid Term Review 1992 -1994 Report.

From the table LXII it can be seen that coverage was on the increase, that is, rates had been raised from 76.6 percent in 1992 to 83.0 in 1994 for under 1 while under 5 increase on coverage was 76.3 percent in 1992 to 83.0 in 1993.

4.18 ENVIRONMENTAL SANITATION:

Pollution of water sources has always been a major cause of health problems giving rise to diarrhoeal diseases, typhoid, etc. Safeguarding environmental sanitation in Mara region has been made difficult by bad beliefs which do not encourage the use of latrines. Only 14 percent of the population has permanent latrines.

This small percentage may help explain or may justify cholera cases in the region.

TABLE LXIII: HOUSEHOLDS WITH TOILETS 1994

DISTRICT	NUMBER OF HOUSEHOLDS	HOUSEHOLDS WITH PERMANENT TOILETS	HOUSEHOLDS WITH TEMPORARY TOILETS	HOUSEHOLDS WITHOUT TOILETS	PERCENT WITHOUT TOILETS
Musoma (U)	14,814	13,230	697	887	6
Musoma (R)	47,513	-	-	14,973	31
Bunda	46,167	15,177	24,558	6,432	14
Serengeti	20,401	1,439	15,050	3,912	19
Tarime	83,342	-	-	9,496	11
TOTAL	212,237	29,846	40,405	35,700	17

Source: Mkoa wa Mara: Taarifa ya Mwaka 1994 ya Huduma ya Afya.

4.19 WATER SECTOR:

Provision of adequate water supplies, is one of the basic prerequisites for improving quality of life, as well as being one of the important inputs for productive activities such as agriculture and industry. The importance of water as an infrastructure in the economy notwithstanding, the access to water in Mara region is

still more problematic than people think. In the dry season, especially when some of the village women have to walk three to ten kilometers to collect water, thereby encroaching on valuable labour time required for other activities.

National Water Policy states that every person should have access to potable water at a distance of not more than 400 metres by the year 2002. In attempt to achieve the National target, Mara region is currently involved in the reliabilitation and implementation of 564 water schemes. Out of 564 completed water schemes, 488 are operational while 76 are not functioning. Nevertheless, the major water source in the region is Lake Victoria. Other important sources of water in the region include, bore-holes, shallow wells, both big and small dams, rivers and various water springs. Tables below highlight different sources of water per district and population served.

TABLE LXIV:TYPE AND NUMBER OF WATER SOURCES BY DISTRICT, 1994

TYPE OF WATER SOURCE	BUND A	MUS OMA (U)	MUS OMA (R)	SERENG ETI	TARI ME	TOTAL
	NO.	NO.	NO.	NO.	NO.	NO.
Improved Traditional Water wells	118	-	39	49	7	213
Shallow-wells with Hand pumps.	153	-	49	51	12	265
Boreholes with Hand Pumps	20	-	11	1	4	37
Deep Wells with Engine and Water Pipes	3	-	6	8	7	24
Piped Water from Lake Victoria	5	5	4	2	2	18
Piped Water from Springs	3	-	-	1	1	5
Shallow-Wells	-	3	-	-	-	3
TOTAL	302	8	109	112	33	564

Source: Mara Regional Office: (Mpango wa Maji, 1993 - 2000) Mkoa wa Mara, 1994.

TABLE LXV: POPULATION SERVED WITH CLEAN WATER, 1994, BY DISTRICT

DISTRICT	POPULATION (1994 ESTIMATES)	POPULATION SERVED WITH WATER	PERCENTAGE OF POPULATION SERVED WITH WATER (%)
BUNDA	197,343	117,360	59
SERENGETI	180,246	118,486	66
TARIME	392,031	157,220	40
MUSOMA (U)	89,028	65,100	73
MUSOMA (R)	287,916	141,460	49
TOTAL	1,146,564	599,626	52

- Source:
1. Cost sharing in Rural Water Supply and Sanitation Schemes, Mara region 16th Annual Water Engineer's Conference 1994, Singida, Report.
 2. Planning Commission Compiled Data.

It is observed from Table LXV above that only 52 percent of the population in Mara region was able to get clean an safe water by the end of 1994. Tarime district population was the least served with only 40 percent of its population getting clean water compared with Serengeti with 66 percent of its population getting clean water in 1994. The Regional Water Master Plan requires that by the year 2002, everybody in the region should have clean and safe water. This means that more effort must be made to achieve the set target if by 1994 only 52 percent had clean water in the whole region.

4.20 URBAN WATER SUPPLY

The region has four major towns, namely, Musoma town being the Regional Headquarter, Bunda town for Bunda district, Mugumu town for Serengeti district and Tarime for Tarime district. According to 1993 Urban population estimates, the four towns had a population of 124,323 people. Table LXVI below highlights the population served with clean water in the four towns.

TABLE LXVI: URBAN POPULATION SERVED WITH CLEAN WATER (JUNE 1993)

Towns	Population (1993)	Population Served With Water	Percent Getting Water (%)
Bunda	11,384	8,170	72
Mugumu	8,317	3,380	41
Tarime	19,428	14,310	74
Musoma	85,194	65,100	76
Total	124,323	90,960	73

Source: Mara Regional Office: Mpango wa Maji, 1993 - 2000, 1994).

It is observed from Table LXVI that 73 percent of the Urban population get clean water in Mara region. Musoma and Bunda towns are served with water from Lake Victoria. In addition, Bunda town gets water from Balili water spring and some few shallow-wells. Mugumu town is served with water obtained from deep boreholes, while Tarime town gets its water from Tagota dam as well as Nyandurumo water spring. According to Table LXVI, Mugumu town has the lowest number of people served with clean water, estimated at only 41 percent. The main

problems facing Urban Water Supply in Mara region are mainly caused by the use of dilapidated water pipes and aged water pumping machines.

TABLE LXVII: SITUATION OF URBAN WATER SUPPLY IN MARA REGION

District	Installed Water Capacity	Water Demand (Cu.Metres)	Amount Supplied (Cu.Metres)	Water Shortage (Cu.Metres)
Bunda	1,200	3,900	720	3,180
Tarime	1,500	2,530	900	1,630
Musoma	-	11,000	7,200	3,800
Mugumu	600	1,670	360	1,310

Source: 1. Mara Regional Office: Mpango wa Maji, (1993 - 2000) 1994.
 2. Planning Commission: Compiled data based on Mpango wa Maji (1993 - 2000).

4.21 WATER SUPPLY IN BUNDA TOWN:

Water consumed in Bunda township is drawn from Lake Victoria, Balili Water Springs and Shallow-wells. Bunda town was estimated to have a population of 198,527 people (1995). Given population natural increase and migration of youth into the town, the population is expected to reach 204,554 people by the year 2000. In the meantime, water demand in Bunda town is already 3,900 Cu. metres per day but the amount of water supplied to an estimated population of 199,718 (1996) per day is only 720 Cu. metres. This means that in Bunda town there is already a shortage of water to the tune of 3,180 Cu. metres per day (Table LXVII).

It is also observed from the same table LXVII that, there is under capacity utilisation of water potential in Bunda township. It is reported that under capacity utilisation is mainly caused by inadequate funds given for running water pumping machines and other related water facilities.

If the Regional authorities do not arrest the water shortage problem in Bunda town now, the population natural increase process will unfortunately not wait for them and if they do not react fast enough, by the year 2000 when the population is estimated at 204,554 people, the water problem will be acute and severe.

4.22 WATER SUPPLY IN MUSOMA:

Musoma Urban population gets its water from Lake Victoria, although water supplied is not enough. There are five water pumping machines installed at Mwisenge, Kamunyonge, Nyabisanye Kigera, Nyabisarye and Bweri. The shortage of water supply is caused by rapid urban population growth and the low pumping capacity of the installed machines. Another problem facing water supply in town include, limited ability of the water pipes to supply enough water to ever increasing water demand in Musoma township. From Table LXVII we see that the present water demand in Musoma town is 11,000 Cu. metres per day, but what can be supplied is only 7,200 Cu. metres per day. There is therefore water shortage to the tune of 3,800 Cu. metres per day.

The current and projected population figures based on the 1988 census with a growth rate of 4.5 percent for the town are 68,364 (1988 Census), 97,220 (1996) and 115,936 (2000). This implies

that the urban population is likely to face serious clean water shortage in future if steps are not taken right now to improve water supply. By December 1996, only 73 percent of its population was supplied with clean and reliable water.

4.23 WATER SUPPLY IN MUGUMU:

Mugumu town is served by piped water drawn from deep bore-holes. There is however, serious water shortage as indicated by Table LXVII. The current water demand in Mugumu town is 1,670 Cu. metres of water but what is supplied is only 360 Cu. metres of water causing a shortage of 1,310 Cu. metres.

It is also observed from the same table above that there is under capacity utilisation of 600 Cu. metres of water potential in the township. Under capacity utilisation is reported to be resulting from budget constraint. The Urban authority always lacks enough funds for running water projects including water machines maintenance.

4.24 WATER SUPPLY IN TARIME:

Water supplied to Tarime Urban population is drawn from both Tagota dam and Nyandurumo Water Springs. It is observed from Table LXVII that the current water demand in the town is 2,530 Cu. metres, while the amount of water supplied is only 900 Cu. metres. We can also notice from the same table that there is under capacity utilization of water potential by Tarime Urban Authority. The existing water capacity from two sources is 1,500 Cu. metres of water against 900 Cu. metres supplied. There is therefore under utilisation of 600 Cu. metres of water. Efforts

should be made by the Urban authority to ensure full capacity utilisation is attained. Under capacity utilisation of water potential is mainly caused by both aged water purifying machines and the existing small water reservoir tanks. In addition, Tagota Dam built in 1956 is increasingly becoming filled up with silt, which has tremendously reduced the dam's capacity to hold water.

TABLE LXVIII: URBAN SEWERAGE AND SANITATION COVERAGE

TOWN	POPULATION (1994 ESTIMATES)	POPULATION SERVED WITH SEWERAGE & SANITATION FACILITIES (1994)	PERCENT OF POPULATION SERVED (%)
BUNDA	11,715	8,739	74
MUGUMU	8,558	7,561	88
TARIME	19,992	16,679	83
MUSOMA	87,665	68,837	78
TOTAL	127,930	101,816	79

- Source:
1. Mara Regional Office: (Mpango wa Maji, 1993 - 2000, 1994.
 2. Mara Region: Cost Sharing in Rural Water Supply and Sanitation Schemes, 16th Annual Water Engineer's Conference, 1994 Singida.
 3. Planning Commission Compiled data.

4.25 RURAL WATER SUPPLY:

The Rural Water Supply in the region is mainly donor funded. The Swedish International Development Authority (SIDA) as the main donor, finances the programme through HESAWA (Health through Sanitation and Water). It is based mainly on traditional water sources, shallow wells, medium deep wells, rainwater

harvesting (roof), and pit latrines. The overriding objective of SIDA support in rural water supply and sanitation is to improve the health of the people through improved health education, sanitation, and water supply. In this programme, SIDA provides funds, materials, equipments and technical assistance. In HESAWA programme, local contribution is also necessary. The villagers (the community) are required to contribute cash or in kind (labour) for the successful implementation of the programme. Other contributors to the Rural Water Supply in Mara region include, UNICEF through Child Survival, Protection and Development Programme (CSPD); Evangelische Zentralstelle Fur Entwicklung Hilfe E.V. (EZE) of Germany through the Tanzania Mennonite Church; Roman Catholic Church and African Development Foundation of USA (ADF). Despite these efforts made by both Government and NGO's, an estimated population of 983,900 people in 409 villages in Mara region, only 190 villages are served with clean drinking water. This is only 46 percent of the total number of villages in the whole region. The number of people in 190 villages served with clean water was estimated at 436,738 in 1993, representing 44 percent of the whole rural population in the region. This means that a large number of people, equivalent to 56 percent is still consuming unsafe water. Table LXIX shows the extent of water distribution in the villages of Mara region.

TABLE LXIX: DISTRIBUTION OF WATER IN THE VILLAGES OF MARA REGION, 1993.

DISTRICT	Population (1993 Estimate No.)	Population Served with Water No.	Number of Villages	Villages Served with Water	Percent of Villages with Water	Percent of People with Water(%)
Bunda	209,102	103,190	91	54	59	49

Musoma (R)	286,416	138,960	103	54	52	48
Serengeti	121,175	54,178	60	21	35	45
Tarime	367,207	140,410	155	61	39	38
TOTAL	983,900	436,738	409	190	46	44

Source: 1. Mpango wa Maji (1993 - 2000) Mkoa wa Mara, 1994.

2. Planning Commission: Compiled Data.

TABLE LXX: RURAL SANITATION COVERAGE, 1994

DISTRICT	POPULATION (1993 ESTIMATES)	POPULATION SERVED WITH SANITATION FACILITIES (1994)	PERCENT SERVED (%)
Bunda	209,102	144,975	69
Musoma Rural	286,416	150,468	52
Serengeti	121,175	77,262	64
Tarime	367,207	174,430	47
TOTAL	983,900	547,135	56

Source: 1. Mpango wa Maji (1993 - 2000) Mkoa wa Mara, 1994.

2. Mara Region: Cost Sharing in Rural Water Supply and Sanitation Schemes, 16th Annual Water Engineer's Conference, 1994 Singida.

3. Planning Commission; Compiled data.

Tables LXX show the situation of sanitation (latrines) in the region as per 1994 Cost sharing in Rural Water Supply and Sanitation Schemes in Mara region Report. The table indicates that only 56 percent of the rural population had latrines. This means that 44 percent of the rural population was not using latrines in 1994. Sanitation facilities in Tarime district are the fewest in relation to other districts. Out of a population of 367,207 people in Tarime rural, only 174,430 had latrines, equivalent to 47 percent against 69 percent in Bunda rural.

TABLE LXXI: REGIONAL OVERALL SEWERAGE AND SANITATION COVERAGE, 1994

DISTRICT	Total Population (1994 Estimates)	Population Served with Sewerage and Sanitation Facilities (1994)	Percent Served (%)
Bunda	197,343	153,714	78
Musoma Rural	287,916	150,468	52
Musoma Urban	89,028	68,837	77
Serengeti	180,246	84,823	47
Tarime	392,031	191,109	49
TOTAL	1,146,564	648,951	56

- Source: 1. Mara region: Cost sharing in Rural Water Supply and Sanitation schemes; 16th Annual Water Engineer's Conference, 1994 Singida.
2. Planning Commission: Compiled data.

On the whole, sewerage and sanitation coverage in Mara region (Table LXXI) was poorest in Serengeti district estimated at only 47 percent followed by Tarime district. The best served district with Sewerage and Sanitation in the period in question was Bunda, followed by Musoma Urban, estimated at 78 and 77 percent respectively.

SECTION V

5.0 OTHER RELATED DEVELOPMENT ISSUES

5.1 Women in Development

The empowerment of women and improvement of their status are important ends in themselves and are essential for the achievement of sustainable development. The objectives are: to achieve equality and equity between men and women and enable women to realize their full potential; to involve women fully in policy and decision -making processes and in all aspects of economic, political and cultural life as active decision - makers, participants and beneficiaries.

According to 1988 population census, the number of women in Mara region was 511,003 against 459,939 men. By this simple comparison, we see that women population constituted more than half of the population and hence being the most important human capital in the region. A part from performing the reproductive role, they are the majority producers of food and form the greater part of the agricultural peasantry. Their big number in the population is enough testimony to justify better treatment and consideration when it comes to resource allocation. However, despite their significant contribution to the Regional GDP, they still form a big portion of the illiterate group, about 60 percent, subjected to poor nutrition, left out of the decision making main stream, form a bigger portion of the rural poor and always deprived of the right to get fully or an equal share of the income they generate. According to C SPD Programme report of 1994,

it is reported that 2238 children under Five Years died of malnutrition. The incidence of deaths may have been mitigated if more women had enough incomes and were given the right to use their incomes the way they want. Poverty and meagre incomes which are below subsistence level are the reasons leading to children and women deaths and malnutrition. This is because low income families cannot afford to adequately feed their dependants. In attempt to address the poverty problem, women in the region have organised themselves into various income generating groups. So far, there are sixty three (63) women groups with 1178 members performing different activities as follows:-

TABLE LXXII: NUMBER OF WOMEN GROUPS AND NUMBER OF MEMBERS

DISTRICT	NUMBER OF WOMEN GROUPS	TOTAL NO. OF MEMBERS
BUNDA	7	86
SERENGETI	8	160
MUSOMA RURAL	10	226
TARIME	27	522
MUSOMA URBAN	11	184
TOTAL	63	1178

It is observed from Table LXXII above that the number of women groups in Mara Region are still very few especially in Bunda and Serengeti districts. Tarime district, however, has the highest number of women groups with more than 44 percent of

total members. Women should be encouraged to join or form other groups since it is the most effective way of eradicating poverty. Activities performed by these groups are either of economic nature or service oriented. The most preferred income generating activities undertaken by these groups include:-

- Fish processing
- Cereal grinding Mills
- Running Groceries, shops and Restaurants
- Poultry and Dairy keeping
- Agricultural Activities
- Ceramic Activities
- Needle-work and Tailoring
- Handcrafts, Gardening, Raising seedlings, local beer brewing.

(i) **Women Education**

Education is a key factor in sustainable development. It is a component of well-being and a means to enable the individual to gain access to knowledge. It also helps reduce fertility, morbidity and mortality rates; empower women; improve the quality of the population. When mothers are better educated, their children's survival rate tends to increase, they postpone marriage, reduce family size and in so-doing they get more time to spend on economic activities and raise healthy and happy families.

5.2 Problems Facing Women Groups

If women population in Mara region form more than half the total population, the major food producers and responsible for up-

bringing of children, then it is quite in order for the Regional Authority to ensure that the problems facing women groups activities listed below are solved to enable women perform better for the benefit of their dependants and the region as whole. The problems include:-

- lack of credit facilities/loans to enable them secure working equipments, inputs, etc.
- lack of business exposure due to low education, no training opportunities to enable them acquire marketing skills and improve their entrepreneurship
- lack of communication facilities and transport
- lack of assistance to enable them improve quality of their products/services
- application of out-dated technology in their production units.

5.3 Cooperatives

The cooperative movement in Tanzania has been undergoing important transformations over the last ten years. The major policy modifications are contained in the new Cooperative Act of 1991. These mainly relate to reduced government intervention, individual freedom to join the cooperatives, the establishment of membership entry fees and the obligation to purchase at least one share, by all new members. The new-Act allows the primary cooperatives to form their own apex organizations (Unions and

federations). Prior to the 1991 Cooperative Act, the Mara Cooperative Union (MCU) had the monopoly over the marketing of all the main cash crops produced by the primary cooperatives. The MCU was also the main supplier of inputs on credit to the societies. This led to considerable exploitation and mismanagement. Primary cooperatives are now re-establishing themselves on a more sound economic basis. There are currently 157 registered primary societies in the region (July 1995). That is, 153 are for agriculture, 3 for savings and 1 for dairy. Most of the primary societies however, are still inactive.

5.4 NGOs ACTIVITIES IN MARA REGION

There are 29 NGO's in Mara Region. Nine are operating in Musoma rural, three in Serengeti, four in Tarime, two in Bunda and eleven are in Musoma Urban. All NGO's operating in Musoma Rural engage in agricultural related activities except Sumanya which specifically is rehabilitating and assisting in running Mugango and Kukirango Secondary Schools. The NGO's include, Bread for the World by Anglican Church; Christian Relief Service by Roman Catholic; Buhemba Rural Aid Centre by Anglican Church (ICCO); V.I. Tree Planting by Sweden; H.P.I. by Lutheran Church; Cargil by Cargil; Makoko Centre by Roman Catholic; Tree Planting by Tanzania Mennonite Church and Sumanya.

NGO's in Musoma Urban are concentrating on education sector, health sector, carpentry, gardening and fishing and small-scale irrigation schemes. The most important NGO's in Musoma Urban include; Roman Catholic; Lutheran Church; Lions Club; Christian

Association for Development and AID (CADA); Mwanyangi Women Development Group; Kyangasaga Nyundo Furniture; WAMATA and Ryangubo Irrigation Farmers Association (RIFA).

There are only three NGO's in Serengeti namely, Danish Volunter Services engaging in agricultural and livestock keeping and providing technical and financial support to various economic groups. Friend Church plants trees, dig shallow-wells and rear cattle, while Community Based Care deal with improvement of water sources and provides health services to the people.

In Tarime district, there are four NGO's namely, Tarime Rural Development Trust Fund (TARDTF); Baraki Sisters Farm under Roman Catholic Church; Mogabiri Centre; and Suba Division Development Trust Fund (SUDET). The Centre provides agricultural extension services to farmers/peasants. There is also CARE INTERNATIONAL working hand in hand with the project of the Mara Region Farmer initiative Project to implement some of the activities identified in the districts; such as dams construction, afforestation, small scale irrigation, etc.

Bunda district has two NGO's and being the only district with the least number of NGO's. Ikizu Development Association, assists in improving primary and secondary schools education while, WASAE Development Association engages in the provision of clean and safe water; digging shallow-wells, improving sanitation and improving environment.

The main NGO's providing support to agriculture and rural development are the Catholic Diocese of Musoma which covers approximately 100 villages through a network of 30 parishes and the Anglican Diocese of Mara, which has a network of 11 deaneries and 40 parishes; Kilimo Sasakawa Global 2000 (SG 2000) and the Tarime Rural Development Trust Fund (TARDTF).

Geographical coverage is uneven, being particularly thin in Bunda and Serengeti. The largest NGO agricultural development project is the Cassava Mealybug Control Project of the Catholic Diocese of Musoma covering 30 villages in the lakeshore zone in Musoma, Tarime and Bunda districts. The Anglican Mogabiri Extension Centre is active in the Tarime Highlands and has benefited from Dutch technical assistance.

5.5 DONOR PROJECTS

The only major donor projects active in the region are national programmes such as the World Bank - supported National Agricultural and Livestock Extension Rehabilitation Project (NALERP) and the SIDA Health, Sanitation and Water Supply (HESAWA) Project and the UNICEF Child Survival, Protection and Development (CSPD) Project which focuses on vaccination, breast feedings, oral rehydration therapy and growth monitoring. HESAWA is the most interesting because of its emphasis on beneficiary and local government initiative. When the programme enters a village, school children's health is screened and parents consciousness of the water/sanitation health linkage is raised and demand for clean water supply is generated. To qualify for a shallow well, the population has to build school latrines, form a user group, deposit Tshs 35,000/ in a bank account for well

maintenance and repair,, and supply unskilled labour and materials for well construction. HESAWA provides the cement, lining as well as the pump.

F.A.O. through its International Food and Agricultural Development (IFAD) Programme Department is supporting Mara region in the improvement of food security, pasture, landuse planning and management, afforestation, undertaking small scale irrigation as well as the provision of enough Water for Livestock. IFAD implementation begins in 1996/97 fiscal year.

5.6 ENVIRONMENT CONSERVATION

The issue of environmental conservation brings us to the concept of carrying capacity. The carrying capacity of a natural biological system is determined by its maximum sustainable yield, and this in turn is the product of its size and regenerative powers. For instance, a natural grassland can support a set number of cattle or a somewhat larger number of sheep; and the forest surrounding a village will satisfy the firewood needs of a given population and so on. If the number of livestock or of people dependent on these biological systems become excessive, then the biological system will slowly be destroyed.

It is reported that the Lakeshore typically lacks enough trees for fuelwood and ground cover. High population pressure and intensive non-rotational cultivation of crops has accelerated land exhaustion which is marked by declined soil fertility. The Midlands zone is facing erosion problems in most of the villages. Big gullies can be seen in Kabainja, Wegero and Karukekere

villages. The main causes are likely to be the absence of enough trees, little ground cover and absence of soil conservation practices. Population pressure, expansion of the cultivatable land, the recent trend towards cash oriented crops, and the aspiration to increase livestock numbers seem to be the major factors threatening the sustainability of Tarime highland farming system.

Therefore, overgrazing, annual bushfires, high demand for fuelwood, over fishing will greatly reduce productivity to the extent that a state of ecological disequilibrium will exist in many places in the region. In this regard therefore, it is necessary to devise a policy under which:

- (i) the forest resources of Mara region will be better managed, respected and brought back to a higher level of productivity.
- (ii) fishing does not lead to shrinking stocks and declining catches
- (iii) grazing cattle does not remove more than half of the grass and vegetative matter and hence damaging the stand
- (iv) land degradation does not lead to desertification, poor yields from the fields and a decrease in productivity.

5.7 TOURISM

Tourism is the most developing sector in Mara Region's economy. The number of Hotels and Lodges have increased and they are of

a high standard. Tourists attractions centre on the Serengeti National Park whose 2/3, of its area (9,842 Sq.Km) lies in the region. Serengeti National Park is African's most famous game reserve. Goezwick, the German tourist, once said, Serengeti shall not die". It is a place full of thrills and over three million large mammals. The park holds many pleasant experiences, such as a variety of night time sounds, and of lions preying on their victims. But one of the wonders of Serengeti is the famous animal migration. The principal vegetation in Serengeti National Park are the Acacia Savannah in the Central Area, and in the hills and more densely wooded sections. It flaunts a variety of sceneries across plains, rivers, lakes, hills and rocks each of which has its own atmosphere, appeal and range of wildlife. All these add to a fascinating variety of authenticity giving a magic nature to the place which cannot be found anywhere else in the world. It is here, also, where "George" believed to be the oldest recorded remains of man was discovered by Dr. Leakey. Tourists can be accommodated in the modern lodges, alongside the park such as, Lobo, Seronera, Serena, and Sopa.

In addition, there are several camp sites for visitors who do not wish to stay in lodges.

Lake Victoria being the second largest lake in the World, also provides another good site for tourists. Apart from being rich in fresh water fish, it has nice beaches such as Makoko, where tourists interested in speedboat and scuba diving would find the lake most interesting. There are Fokker Flights to Musoma Town (the regional headquarter) twice a week and several charter flights operated on demand. There are flights also to Mwanza from Dar

es Salaam, where one could take road transport to Serengeti National Park Via Ndabaga Gate.

SECTION VI

6.0 INVESTMENT POTENTIAL AREAS:

6.1 Agriculture :

(i) **Availability of potential agricultural land:**

Agriculture in Mara Region is an important sector in the development of the economy. However, future prospects will very much depend on the newly introduced Arabica and Robusta Coffee, especially in Tarime Highlands. About 14,877 hectares have already been found to be suitable for the development of coffee. Out of the 14,877 hectares, only 3,055 hectares are under coffee development so far, this means 11,822 hectares still need to be developed. In Tarime district there are 5,200 hectares unexploited, 2,922 hectares in Musoma Rural and 3,700 hectares in Serengeti.

(ii) **Irrigation:**

A big portion of Mara Region is surrounded by water but no significant effort is being made to shift from rain fed agriculture to irrigation farming. Irrigation potentials in Mara region lie in Bugwema Giant, Bugwema Solar (Musoma District): Butiama Irrigation and Tamau (Bunda District). In addition, there are 14,720 hectares of land suitable for rice growing in Musoma District; 5,830 hectares in Bunda district; 9,320 hectares in Tarime

district and 2,200 hectares in Serengeti. This gives a total of 32,000 hectares of suitable land for rice growing lying idle. People in Mara Region should change their attitude towards dependence on rain fed agriculture and begin thinking of irrigation farming system, as this would ease them from chronic food shortage resulting from inadequate rainfall and poor soil fertility.

(iii) **Livestock:**

Mara region is one of the regions rich in livestock in Tanzania (1984 Livestock census). In 1984 census, Mara region recorded 969,700 cattle, 392,941 goats and 217,412 sheep. It is also reported that 40,000 cattle, 6,000 goats and 900 sheep are officially marketed annually. Nevertheless, the quantity marketed was reported to be only 3% of the total livestock and to make it worse, the 3% marketed was reported to be far below the national target of 10%. What does this mean?. It means, livestock owners in the region do not exploit fully their livestock as a resource. It is a high time for the region to begin to exploit fully the livestock available, using modern methods so that more milk, good meat and quality livestock is bred throughout the region, with a view to improve productivity, so that it contributes more to the GDP of the region.

6.2 Fishing:

Fishing is a major livelihood activity in the lake zone, where communities are dependent on the production of tilapia (satu), Nile-perch (sangara), herring (dagaa), furu, and sunfish for household consumption and sale in local markets.

Lake Victoria, dams and rivers do provide good fishing grounds. Fish catch has been on the increase, for instance in 1986 it was 19,000 tons and in 1993, 25,747 tons of fish were recorded. Fish potential in the region is still enormous. It is estimated that 200,000 tons of fish could be caught annually, if improvements were made on the fishing gear currently employed. Going by the data given above, the region is only capable of exploiting 15% of the fish potential (200,000 tons) annually. Market is not a problem today, following recent establishment of fish processing industries in Musoma and Mwanza.

6.3 Bee-Keeping:

It is reported that about 50 percent of Mara Region is suitable for bee keeping and appropriate also for nursing about 45,000 bee-colonies, capable of producing 440 tons of honey and 30 tons of wax annually. Using the 1995 prices, the region could earn 224 million shillings a year by selling honey and wax.

Example:

- (i) 1 Kg. of honey = 500/=
- 500/= x 440,000 = 220,000,000/=
- (ii) 1 Kg. of Wax = 800/=
- 800/= x 30,000 = 24,000,000/=

Total: = 244,000,000/=

In the light of the illustrated example above bee-keeping promises a good future for Mara people if they give this sector the attention it deserves. People should be made to understand the importance of exploiting and producing enough honey and wax for their future economic development. People should be mobilised so that more people participate in bee-keeping. For instance, groups of youth and women be organised and encouraged to engage in bee-keeping. This approach may be extended further to smallscale and big farmers, individuals as well as government and private institutions.

Table LXXIII: BEE-KEEPING POTENTIAL AREAS IN MARA REGION

District	Existing Potential (Sq.Km.)	Area utilized Available	Bee-Colonies Available	Percentage of Exploited Potential	Percentage of Un-Utilized Potential
Serengeti	6,000	6,000	257	1.428	98.5
Tarime	3,500	3,500	199	1.895	98.1
Musoma	3,200	3,200	90	0.938	99.0
Bunda	2,200	2,200	182	3.033	96.9
Total	14,900	14,900	728	1.651	98.3

Source: Mara Regional Office - Uwekezaji wa Rasilimali Mkoani Mara kwa kutumia sekta binafsi, August, 1995.

6.4 Minerals:

Research done in Mara region shows that about 3/4 of land surface is rich in minerals, especially gold, Kaolin, limestone gemstones (Vito) and "Madini ya Ujenzi". Mining history in Mara

region dates back to the Germans period 1913. At independence, 1961, some smallscale mining was still taking place in Buhemba Kiabakari, Kabasa and Kerende (Mara Mine). Some of these mining centres have been closed and new ones have been established. The current mining centres include:-

- (i) Sirorisimba, Buhemba, Nyasirori, Kataryo, Seka, Suguti, Nyarufu and Ikungu in Musoma district.
- (ii) Bulamba, Nyasana, Kamkenga, Kiroreri and Nyaburundu in Bunda district.
- (iii) Majimoto, Kemambo, Naigoti and Rwamchanga in Serengeti district
- (iv) Nyamongo in Tarime district.

Production is still at low levels due to inferior mining equipments employed. Given the right mining equipments and credit facilities the production of gold and other minerals would increase substantially, and hence contribute more to the GDP of the region as well as enhancing people's incomes.

6.5 Industrial Activities:

Potentiality for industrial development in Mara Region exists although not yet exploited. SIDO Estate in Musoma town has good infrastructure not optimally utilized. There were industries for Milk processing in Utegi and Musoma but have been closed following Government move to stop engaging itself in productive

activities. In addition, there were industries for Carpentry, Fruit processing and many other small scale ones, also not in operation.

In total, there are only eight industries which are currently running and out of the eight, six of them are cotton ginneries, one coffee curing industry and the remaining one is for Fish processing. Thus, more industries are needed in Mara region either to replace the closed ones or venturing into new avenues not yet exploited like the Agro-industries (milk separators, hoes, plough's cutting edge and simple oil extracting machines).

6.6 Trade:

Trade is an engine of growth. Both internal and external trade are important for the development of the economy of the region. Being rich in livestock and sharing a border with Kenya puts Mara region in a better position to seize large livestock market in Kenya. Livestock trade to Kenya has been there for years but mostly taking unofficial routes. This unofficial transaction has deprived the region of the real export statistics and hence understating the volume of regional GDP. The regional authorities therefore need to educate livestock keepers on the dangers of illegal trade, so that they begin conducting clean trade for the benefit of the region and the country as a whole. Other export potentials include, cotton seeds, cotton cake (mashudu), (Dagaa) horticulture, etc.

6.7 Education:

Education is a key factor in sustainable development. It is a component of well-being and a means to enable the individual to

gain access to knowledge. Mara region like many other regions in Tanzania has not been able to engage fully the human capital as a resource. Main reasons for this failure have been either lack of education or inappropriate education not conforming to the dictates of the regional economy. Mara region is endowed with livestock, good arable land (for agriculture), fishery and minerals. Thus, the region would benefit more if the youth are trained and prepared to man those sectors. Regional Authority and the private sector need to organise short courses, seminars with a view to educate the youth on the need to take an active role in developing potential sectors in the region. Other measures should include:-

- (i) Class seven drop-outs of the age between 13 - 17 years should attend Technical Schools specialising in Livestock keeping, modern farming, fishing methodology, mining and commercial subjects.
- (ii) Expand and improve Technical education being offered in 21 centres namely, Nansimo, Kitengule, Kenkombyo, Mwisenge, Nyamongo, Kyarano, Bumangi, Kyankoma, Kasoma, Mugumu, Turwa, Manyara, Irienyi, Kowak, Shirati, Tarime Vocational Training Centre, Mara Polytechnical Institution, Mwisenge Vocational Training Centre, Mara Vocational Training Centre, Kennedy Vocational Training Centre and Chipuka Polytechnical School.

Parents should take the drivers seat to ensure Technical Schools in the region are being run smoothly and the intended objectives are achieved.

- (iii) Increase the number of Technical Secondary Schools if possible, every ward should have one. Secondary School education enlightens much better than primary education.

TABLE LXXIV: INVESTMENT POTENTIALS IN EACH DISTRICT, 1995

POTENTIAL AREAS	MUSOMA RURAL	BUNDA	SERENGETI	TARIME	MUSOMA URBAN
Trees	1. Orange trees 2. Timber	1. Timber 2. Fruits	1. Fruits 2. Timber	1. Fruits 2. Timber	1. Fruits 2. Fire Wood
Minerals	Gold	Gold	1. Gold 2. Mineral Water Slates 3. Marumaru Chokaa	Gold	1. Sand 2. Magadi 3. Gravel (Kokoto)
Livestock	1. Dairy Cattle 2. Beef Cattle	1. Dairy Cattle 2. Beef Cattle	1. Goats 2. Beef-Cattle 3. Ranch Cattle	1. Dairy Cattle	1. Dairy Cattle
Agriculture	1. Sugar Cane along Mara River		1. Sugar Cane 2. Coffee	1. Coffee	1. Vegetables
Fishery	1. Fish 2. Fish Centres	1. Fish 2. Fish Centres	1. Fish Ponds	1. Fish Centre	-

Industries	1. Small Scale Milk Industries 2. Crude Sugar 3. Fruit Processing	1. Medium Industries for Milk Processing	1. Medium Milk Processing Industries 2. Mineral Water Industry 3. Phosphate Industry	Small Scale Milk Industries	-
Tourism	1. Establish Camp Sites at Lukuba Island	1. Establish Camp Sites	1. Establish Camp Sites		1. Operate sport boats at Lukuba and Ryamgasire Islands
Transport	Operate 1. Water vessels 2. Road Transport	Operate 1. Water Vessels 2. Road Transport	Operate Road Transport for both passengers and cargo	Operate 1. Water Vessels 2. Road transport 3. Boats between Kinesi and Musoma	Operate 1. Town Buses 2. Water Vessels between Musoma and Kinesi
Housing Estates	1. Rental Houses	Rental Houses	Rental Houses	Rental Houses	Rental Houses
Tractor Hire Service	1. Bugwema 2. Murangi 3. Mugango 4. Kiabakari	1. Bunda 2. Guta 3. Kibara 4. Ushashi	1. Issenye 2. Natta 3. Rwanchanga 4. Burunga	Buturi, Utegi, Tarime	-

Source: Uwekezaji Rasilimali Mkoani Mara 1995.

ANNEX A:

MARA REGION IN A NUTSHELL

1.0 **LOCATION:**

Northern part of Tanzania between latitude 1° 00' 2° 31' South of the equator and between longitude 33° 10' and 35° 15' East.

1.1 **Land Frontiers:**

- North - Republic of Kenya
- North West - Lake Victoria
- West - Kagera Region
- South - Mwanza Region and Sinyanga Region
- East - Arusha Region

1.2 **Land Area:**

- Land - 21,618 sq.km.
- Water - 8,532 sq.km.
- Total - 30,150 sq.km

1.3 **Population:**

1988 Census 952,616 equal to 4% of total population of Tanzania which was 23,126,952.

1995 (Estimates), 1,184,497

- Population growth rate 2.6
- Population density 43.7 people per sq.km.

- Average Household size 6.7
- Population estimates (2000) at 1,405,195

1.4

CLIMATE:

Tropical type of climate clearly distinguished rainy and dry seasons. The region has three agro-ecological zones. These are, the lakeshore zone, the Tarime Highlands zone and the Midland Zone.

(i) **Rainfall:**

- (i) Highland Zone - Receives an average annual rainfall of 1250 - 2000 mm. The short and long rainfall periods are respectively from September to January and from February to June. This zone is mainly found in Tarime district and some parts of Serengeti district.
- (ii) Midland - Receives an average annual rainfall from about 900 - 1300 m.m. Found in Musoma rural and some parts of eastern Serengeti.

Lake shore zone :

Receives rainfall of about 700 - 900 mm/year include Bunda and Lake shore.

(ii) **Temperature:**

Maximum - 29.32° C
 Minimum - 27.68°C
 Average - 28.5° C

1.5 **Tourist Attractions:**

Tourist attractions in Mara Region centres on the Serengeti National Park, Game reserves, Game controlled areas open areas and Lake Victoria shores. The Serengeti National Park has an area of 14,763 Sq.Km., out of which 9842 Sq.km. are in Mara Region which is about 66.7%.

Game Reserves - Grumeti in Serengeti District and Ikorongo in Tarime District Game controlled Areas - Speke Gulf - Bunda District, Open Areas - Issenye, Natta Sibora and Nyichoka in Serengeti District, Nyamatoke in Bunda District

1.6 **Administrative:**

Mara Region had 5 districts, 17 divisions, 113 wards and 409 villages by 1995.

Table 1(a) BASIC FACILITIES IN MARA REGION BY DISTRICT (1995)

FACILITIES	BUND A	MUSOMA (R)	MUSOMA (U)	SERENG ETH	TARIM E	TOTAL
Primary School	110	134	20	79	198	541
Secondary Schools						
- Public	1	2	2	2	3	10
- Private	2	5	3	3	5	18
Teachers Training Colleges	1	-	1	-	1	3
Folk Development Centres	1	-	1	-	1	3
Vocational Traing Centres	3	4	2	1	5	15
Home craft Centres						
Shops						

Bars						
Restaurants						
Garages						
Guest Houses						
Grain Mills						
Saw Mills						
Petrol Stations	4	1	5	4	5	19
Nursery Schools	4	7	5	3	12	31
Hospitals	2	1	1	1	3	8
Dispensaries						
- Public	21	28	6	16	27	98
- Private	7	19	11	12	20	69
MCH Clinic	29	39	14	21	42	145
Village Health Posts						
National Bank of Commerce Branches	1	-	1	1	1	4
Full Post Office	1	-	1	1	1	4

Source: Regional Commissioners Office Mara 1996.

SELECTED SOCIAL AND ECONOMIC INDICATORS OF MARA REGION - 1995

INDICATOR	1974	1985	1995
Education Sector			
a) Primary School Education			
- Number of Primary Schools	312	489	541
- Pupils Enrolment (Total)	81,613	159,796	208,394
b) Secondary School Education			
Number of Secondary Schools			
- Public	2	3	10
- Private	2	6	18
Total	4	9	28
c) Students Selected to join Secondary Schools			
- Public	-	429	2,117
- Private	-	-	1,186
Total	-	-	-
d) Adult Literacy Percentage	35	56.4	63.9
e) Health Sector			
i) Number of Hospitals			
- Public	2	2	3
- Private	2	2	5
Total	4	4	8
Number of Health Center			
- Public	-	12	12
- Private	-	-	1
Total	-	12	13
III) Number of Dispensaries			
- Public	-	-	98
- Private	-	-	69
Total	-	-	167
f) Water Sector			
- Population Accessible to clean and safe water	-	-	603,866
- Percentage (%)	-	-	53

Source: Regional Commissioner's Office - Mara 1996.

Note: Area of the Region and Districts: Reference is from Mara Regional Statistical Abstract 1993 Published by Planning Commission.

ANNEX B:

BUNDA DISTRICT:

1.0 GENERAL INFORMATION:

1.1 LOCATION:

Bunda District is boarded by Musoma Rural District - North, Lake Victoria - West Mwanza Region - South, Serengeti District, - East, lies between latitude $1^{\circ} 30'$ and $2^{\circ} 45'$ South and longitude $33^{\circ} 00'$ to $34^{\circ} 30'$ East.

1.2 AREA AND POPULATION:

- Land 2,782 Sq. Km.
- Water 980 Sq. Km.
- Total 3,762 Sq. Km.

Population

- 1988 Census was 190,386 with a growth rate of 0.6% per annum.
- Population projection by the year 1995 is put 198,527.
- Population density is 71 (1995)
- Population projection by the year 2000 is estimated to be 204,554.
- Average household size is 6.8

1.3 CLIMATE:

The district experiences a dry tropical type of climate with rainfall averaging between 700-900 mm per annum.

Temperatures range between 12.9⁰c between June and October and 34.7⁰c between January and mid-March.

1.4 **ADMINISTRATIVE:**

Bunda District has three divisions namely Serengeti, Nansimo and Kenkombyo. The district has 20 wards which are divided into 91 villages.

1.5 **ECONOMIC ACTIVITIES:**

- More 98% of the people of Bunda District live in the rural areas and depend largely on agriculture and livestock keeping as their main economic activities.
- 980 Sq. km. of lake water is used for fishing and partly domestic use by residents along the lake shore.
- Food crops grown include cassava, paddy, maize, millet and sweet potatoes,
- Cash crops grown include cotton and paddy.
- According to the 1984 livestock population census, livestock in Bunda District were as follows:- cattle 189, 902, Goats, 67,139, sheep 39,896.

Table b:1 EDUCATIONAL FACILITIES IN BUNDA DISTRICT BY 1995

TYPE	REQUIREMENT	AVAILABLE	SURPLUS/DEFICIT	% OF SHORTAGE
Classrooms	694	560	134	19.3
Teachers Quarters	1,449	240	1209	83.4
Desks	22419	3558	18861	84.1
Teachers Chairs	1291	255	1036	80.2
Tables	1392	283	1109	79.7
Schools latrines	2256	448	1808	80.1
Cupboards	1650	193	1457	88.3

Source: REO Mara, 1996.1291

Table b:2. EXISTING SECONDARY SCHOOLS 1995

Government	Private	Under construction
1	2	-

Source: REO Mara 1996

Table b:3 HEALTH SERVICES - 1995

Hospitals	Rural Health Centres	Dispensaries	MCH Clinics	Hospitals Beds
2	2	28	29	160

Source: RMO - Mara. 1996

Table b:4 WATER SERVICES - 1995

SOURCES	WELLS	DAMS	PIPED SCHEMES
QUANTITY	291	-	11

Source: RWE - Mara 1996

Table b:5 DOMESTIC WATER DEMAND (CURRENT AND PROJECTED)

Population 1995	Demand 1995 m ³ /day	Population 2000	Demand 2000 m ³ /day
198,537	3,970	204,554	4.091

Source: RWE Mara -1996

Table b:6 LIVESTOCK WATER DEMAND - 1995

Livestock	% of Stock	Total Type	Demanded Lts. per head	Total M ³ /day
Cattle	64	189,902	40	7,596
Goat	23	67,139	2	134
Sheep	13	39,896	2	80

Source:RWE Mara 1996

Note: Assumptions:-
 - One person takes 20 liters of water per day
 - One cattle takes 40 liters of water per day
 - One goat takes 2 liters of water per day.
 - One sheep takes 2 litres of water per day

2.0 ECONOMIC INFRASTRUCTURE:

2.1 Road Network:

- Tarmac roads (kms) - 39
- Gravel roads (kms) - 160
- Earth roads (kms) - 406
- Total (kms) - 605

2.2 Air Services:

There is an airship near Bunda Town, but there are no regular flights between the airfield and other places in the country. The airstrip serves the district hospital by flying doctors' service.

3.0 PRODUCTION SECTORS:

3.1 Agriculture:

Food crops grown include cassava, maize, sorghum, paddy, sweet potatoes and finger millet. Cash crop grown is mainly cotton. There is Tupendane Cooperative Union in Bunda District.

3.2 Processing Industries:

There are four cotton processing industries, namely Kibara Ginnery, Bulamba Ginnery, Virian Ginnery and Ushashi Ginnery.

Table b:7 LIVESTOCK INFRASTRUCTURE - 1995

District	Dips	Abattoirs	Crushers	Veterinary Health Centres	Hide/Skin Shed
Bunda	15	1	19	4	3

Source: RALDO Mara 1996

4.0 Mining:

Small Scale Gold Mining is carried out at Bulamba, Nyasana, Kamkenga, Kiroreri and Nyaburundu.

ANNEX C:

MUSOMA RURAL DISTRICT:

1.0 GENERAL:

1.1 Location:

Musoma Rural District lies east of lake Victoria. It lies between latitude 1°30' and 2°45' south of the equator and between longitude 33° 15' and 30° 39' East of Green which Meridian.

Musoma Rural District is bordered by

- Lake Victoria - West
- Bunda District - South
- Serengeti District - East
- Tarime District - North

1.2 AREA AND POPULATION:

Musoma Rural District has the following data for area and population.

- Land - 3981 Sq. km.
- Water - 300 Sq. km.
- Total - 4281 Sq. km.

Population

1988 census was 248,268 with a growth rate of 2.5% per annum.

- Population projection by the year 1995 is put 295,114.

- Population density is 74 (1995) Population projection by the year 2000 is estimated to be 333,894.
- Average household size is 7.7 (1988)

1.3 **Climate:**

The district experiences a dry tropical types of climate with rainfall averaging between 700-900mm per annum. Temperatures range between 12.9⁰c June and October and 34.7⁰c between January and Mid-March. Eastern part gets rain twice a year and suitable for coffee cultivation.

1.4 **Administrative:**

Musoma Rural District has three divisions namely Nyanja, Makongoro and Kiagata. The district has 26 wards divided into 103 villages by 1995.

1.5 **Economic Activities:**

- The major economic activities in the district are agriculture, fishing, livestock husbandry and small scale gold mining.
- 300 Sq. km of lake water is used for fishing.

- Food crops grown in the district include cassava, maize, millet, finger millet, paddy, sweet potatoes.
- Main cash crops in the district are cotton and coffee.
- According to the 1984 livestock census the livestock in Musoma Rural District was as follows:- cattle 272,635, Goats 90,606, Sheep 40,257.

1.6 LIVESTOCK INFRASTRUCTURE - 1995

Table c:1 Livestock Facilities available at Musoma Rural District, 1995.

District	Dips	Abattoirs	Crushers	Veterinary Health Centre	Hide/Skin Sued
Musoma Rural	30	1	32	8	11

Source: RALDO Mara 1996

1.7 EDUCATION FACILITIES IN MUSOMA RURAL DISTRICT PER YEAR 1995

Table c:2

TYPE	REQUIREMENT	AVAILABLE	SURPLUS/DEFICIT	% DEFICIT
Classrooms	920	733	137	14.9
Teachers quarters	1821	838	983	53.9
Desks	24187	3044	21143	87.4
Teachers Chairs	1431	350	1081	75.5
Tables	2006	415	1591	79.3
School Latrines	2475	798	1947	70.9
Teachers Offices.	888	180	708	79.7

Source: REO Mara 1996

1.8 EXISTING SECONDARY SCHOOL - 1995

Table c:3

Government	Private	Under Construction
2	5	-

Source: REO Mara 1996

1.9 **HEALTH SERVICES :**

Table c:4

Hospitals	Rural Health Centre	Dispensaries	MCH Clinics	Hospital Beds
1	2	47	39	60

Source: RMO Mara 1996

1.91 **WATER****Tables c:5 WATER FACILITIES IN MUSOMA RURAL DISTRICT - 1995**

Source	Wells	Dams	Piped Schemes
Quantity	99	1	10

Source: RWE Mara 1996

Table c:6 DOMESTIC WATER DEMAND (CURRENT AND PROJECTED)

Population 1995	Demand 1995 M³/day	Population 2000	Demand 2000 M³/day
295,114	5,902	333,894	6,678

Source: RWE Mara 1996

Table c:7 LIVESTOCK WATER DEMAND - 1995

	% of Stock	Total Type	Demanded Lts. per head	Total M ³ /day
Cattle	68	272,635	40	10,905
Goat	22	90,606	2	181
Sheep	10	40,257	2	81

Source: RWE Mara, 1996.

2.0 **ECONOMIC INFRASTRUCTURE**

2.1 **Road Network:**

- Tarmac Roads (kms)- 59
- Gravel Roads (kms)- 170
- Earth Roads (kms) - 610
- Total (kms) - 839

2.2 **Air Services:**

There is a private airstrip at Kiabakari Village.

3.0 **PRODUCTION SECTORS:**

3.1 **Agriculture:**

Food crops grown include cassava, maize, millet, finger millet, paddy and sweet potatoes, cash crops include cotton and coffee. There is Victoria Cooperative Union in Musoma Rural District.

3.2 **Processing Industries:**

There is one cotton processing Industry in the district, namely Mugango Ginnery and Oil Processing Plant.

3.3 **Mining:**

Some small scale gold mining is taking place at Sirosimba, Buhemba, Nyasirori, Kataryo, Seka, Suguti, Nyarufu and Ikungu.

ANNEX D:

MUSOMA URBAN (DISTRICT:)

1.0 GENERAL

1.1 Location:

Musoma Urban (District) occupies the boundaries of Musoma Town Council, the Regional Headquarters of Mara Region. It lies East of Lake Victoria.

Musoma Urban (District) is bordered by:-

- Lake Victoria - North
- Musoma Rural District - South, West
- Tarime District - East.

1.2 AREA AND POPULATION:

Musoma Urban (District) has a land area of 28 Sq. km.

Population

- 1988 census was 68,364 with a growth rate of 4.5% per annum.
- Population project by the year 1995 is put at 93,034.
- Population density is 3323 (1995).
- Population projection by the year 2000 is estimated to be 115,936.
- Average household size is 5.1.

1.3 **Climate:**

The district experiences a dry tropical type of climate with rainfall average between 700-900 mm per annum.

1.4 **Administrative:**

Musoma Urban District has one Division of Musoma Urban with 13 urban wards. The district does not have villages.

1.5 **Economic Activities:**

The major economic activities are gardening, fishing, dairy farming and trade.

1.6 **EDUCATION FACILITIES IN MUSOMA URBAN DISTRICT BY 1995**

Table d:1

Type	Requirement	Available	Surplus/Deficit	% OF DEFICIT
Classrooms	199	169	30	15.1
Teachers quarters	461	17	441	95.7
Desks	7776	2874	4902	63.0
Teachers Chairs	487	154	333	68.4
Tables	779	119	660	84.7
School latrines	599	146	453	75.6
Cupboards	392	96	296	75.5

Source: REO Mara 1996

1.7 EXISTING SECONDARY SCHOOLS - 1995

Table d:2

Government	Private	Under construction
2	3	-

Source: REO Mara 1996

1.8 HEALTH SERVICES - 1995

Table d:3

Hospitals	Rural Health Centres	Dispensaries	MCH Clinics	Hospital Beds
1	1	17	14	200

Source: RMO Mara 1996

2.0 WATER:

Musoma Town is served with water from Lake Victoria.

- 2.1 - Estimated population 1993 was 85,194
 - Estimated population served with water was 65,100
 - % Population getting water was 76.
- 2.2 Domestic Water Demand by 1994 was 11,000 cu. meters. Amount supplied was 7,200 cu.meters, there was a shortage of 3,800 cu. meters.

3.0 AIR TRANSPORT:

Musoma Airport situated in Musoma town commands two Fokker Passenger flights a week operated by Air Tanzania, It caters for private charter plains as well.

4.0 **Water Transport:**

Musoma Port Services for both passenger and cargo ships.

Passenger services are seldom due to the tarmac road between Musoma and Mwanza. There are several small engine boats connecting Musoma town with Kinesi village in Tarime District.

5.0 **Processing Industries:**

- Mara Oil Company gins cotton and process oil.
- Fish Park Tanzania Ltd. is processing fish fillets for export.
- Musoma Bottling Plant manufactures soft drinks with VIMTO trade mark.
- A & G Company manufactures Foam mattresses.
- Fish Filleters (T) Ltd is processing fish fillers for export.

6.0 **Electricity:**

Musoma Town is supplied with Electricity from the National Grid (Kidatu/Hale Grid System).

7.0 **Hotels:**

There are four attractive hotels for visitors to Musoma town, namely New Musoma Hotel, Hotel Orange Tree, Peninsula Hotel and Stigma Hotel. There are also several guest houses and restaurants within Musoma town.

8.0 **Other Services:**

The National Bank of Commerce operates a branch to serve customers and there is a full Post Office in Musoma town for customers.

ANNEX E:

SERENGETI DISTRICT:

1.0 GENERAL:

1.1 LOCATION:

Serengeti District lies to the east of Mara Region. It lies between latitude $1^{\circ} 30'$ and $2^{\circ} 45'$ South of the Equator and between longitude $34^{\circ} 15'$ and $35^{\circ} 30'$ East of Green which Meridian.

Serengeti District is bordered by:-

- Tarime District and Kenya -North
- Musoma District and Bunda District -West
- Mwanza Region and Shinyanga Region -South
- Arusha Region - East.

1.2 AREA AND POPULATION:

- Serengeti District covers, 10,942 Sq. kms.
- Population per 1922 census 111,710.
- Population growth rate 8.3% per annum.
- Estimated population (1995) 195,206
- Projected population (2000) 290,827.
- Population density (1995) 18
- Average household size (1988) 6.1.

1.3 CLIMATE:

Serengeti District lies with the midland zone of Mara Region where the altitude of the zone varies from 1300 to 1500 meters above sea level. Rainfall is about 1250 mm per annum.

EDUCATION FACILITIES IN SERENGETI DISTRICT - BY 1995

Table e:1

Type	Requirement	Available	Surplus/Deficit	% OF DEFICIT
Classrooms	445	377	68	15.3
Teachers quarters	761	211	550	72.2
Desks	15853	3068	12785	80.6
Teachers Chairs	659	190	469	71.2
Tables	1501	303	1198	79.8
School latrines	1375	377	998	72.6
Cupboards	957	75	881	92.1

Source: REO Mara 1996

Table e:32 EXISTING SECONDARY SCHOOLS BY 1995

Government	Private	Under Construction
2	3	-

Source: REO Mara 1996

Table e:3 HEALTH SERVICES BY 1995

Hospitals	Rural Health Centres	Dispensaries	MCH Clinics	Hospitals Beds
1	2	28	21	120

Source: RMO Mara 1996.

There are two farming seasons for short rains October - December and long rains March - May. The eastern part of the District is suitable for coffee cultivation.

1.4 **Administrative:**

Serengeti District has two Divisions namely Rogoro and Ngoreme. The district has 14 wards divided into 60 villages by 1995.

2.0 **ECONOMIC ACTIVITIES:**

- Major economic activities in Serengeti district are farming, animal husbandry and small scale mining.
- Crops: Food crops - Maize, cassava, millet, sorghum, finger millet and paddy
Cash Crops - Cotton, coffee and sun flower.
- Livestock - 1984 census indicates that Serengeti District had 199,533 cattle, 307,694 goats, 150,300 sheep.

Table :4 LIVESTOCK INFRASTRUCTURE - 1995

District	Dips	Abattoirs	Crushers	Veterinary Health Centres	Hide/Skin Shed
Serengeti	23	1	23	9	7

Source: RALDO Mara 1996

WATER

Table e:5 WATER FACILITIES IN SERENGETI DISTRICT - 1995

Source	Wells	Dams	Piped Schemes
Quantity	101	-	11

Source: RWE Mara 1996

Table e:6 DOMESTIC WATER DEMAND (CURRENT AND PROJECTED)

Population 1995	Demand 1995 M ³ /day	Population 2000	Demand 2000 M ³ /day
195,206	3,904	290,827	5,817

Source: RWE Mara1996

Table e:7 LIVESTOCK WATER DEMAND - 1995

	% of Stock	Total Type	Demanded Lts. per head	Total M ³ /day
Cattle	30	199,533	40	7981
Goat	47	307,694	2	615
Sheep	23	150,300	2	301

Source: RWE Mara 1996

2.0 ECONOMIC INFRASTRUCTURE:

2.1 Road Network:

- Tarmac Roads - NIL
- Gravel Roads (kms)- 127
- Earth Roads (kms)- 326

- **Total (kms) - 453**

2.2 **Air Services:**

The District has 4 airstrips at Mugumu for Mugumu D.D. Hospital, Senonera, Fort Ikoma and Nyabuta. These air strips are mostly accessed by light Private Aircraft.

3.0 **PRODUCTION SECTORS:**

3.1 **Agriculture:**

Food crops grown include cassava, maize, millet, finger millet, sorghum and paddy. Cash crops include cotton, coffee and sunflower.

3.2 **Bee-Keeping** - is practiced in the District.

4.0 **Tourist Attractions :**

About 66.7% of the Serengeti National Park is in Serengeti district. The area in Serengeti is 9842 sq. km. Out of 14,763 sq. km of the whole National Park.

There are hotels, Lodges and camp sites for tourists in the Serengeti District. These include Lobo Wildlife Lodge, Seronera wildlife Lodge, Sopa Lodge and Serena Lodge.

5.0 **Mining:**

Small scale gold, mining is taking place at Majimoto, Kemambo, Naigoti and Rwamchanga.

ANNEX F

TARIME DISTRICT

1.0 GENERAL:

1.1 LOCATION:

Tarime district lies to the East of Lake Victoria. It lies between latitude $1^{\circ} 00'$ and $1^{\circ} 45'$ South of the Equator and between longitude $33^{\circ} 30'$ and $35^{\circ} 00'$ East of Green which Meridian.

Tarime District is bordered by:-

- Republic of Kenya - North, East
- Lake Victoria - North West
- Kagera Region - West
- Musoma District - South
- Serengeti District- South

1.2 AREA AND POPULATION

- Tarime District covers an area of:
Land - 3,885 Sq. Kms.
Water - 7,252 Sq. Kms.

Total - 11,137 sq. kms.

- Population per 1988 census 333,888
- Population growth rate 2.7% per annum
- Estimated population (1995) 402,616
- Projected population (2000) 459,984

- Average household size (1988) 6.5.

1.3 **CLIMATE:**

Tarime District has three zones of lakeshore, midland and Tarime highland.

- Lakeshore Zone - Warm temperatures and annual rainfall of less than 900mm falling between mid September to Early December and from March to June.
- Tarime Highlands - Have cool temperatures and receive rainfall exceeding 1500 mm per annum distributed in two rainy seasons, as from mid-February to June and the other from mid-September to beginning of January.
- Midland Zone - Rainfall is highly variable and increases with increasing altitude ranging from less than 900 mm per annum to over 1250 mm. per annum.

1.4 **Administrative:**

Tarime District has 8 Divisions namely, Inchage, Ingwe, Inchugu, Inano, Girango, Nyancha, Luo-Imbo and Suba. The district has 40 wards divided into 155 villages by 1995.

1.5 **Economic Activities:**

- The major economic activities in the district are agriculture, fishing, livestock husbandry and small scale gold mining.
- Fishing in Lake Victoria waters of 7,252 Sq. km.

- Food crops grown in the District include cassava, maize, millet, finger millet, paddy, sweet potatoes, irish potatoes and bananas.
- Cash Crops are coffee and cotton
- According to the 1984 livestock census the livestock in Tarime district was as follows:- cattle 307,694, goats 150,300, sheep 69,265.

Table f:1 **LIVESTOCK INFRASTRUCTURE - 1995**

District	Dips	Abattoirs	Crushers	Veterinary Health centres	Hide/Skin Shed
Tarime	45	1	45	8	12

Source: RALDO 1996

Table f:2 **EDUCATION FACILITIES IN TARIME DISTRICT 1995**

Type	Requirement	Available	Surplu s/Deficit	% OF DEFICIT
Classrooms	1316	1136	180	13.7
Teachers quarters	2222	618	1604	72.2
Desks	36786	6010	30770	83.6
Teachers Chairs	1942	378	1564	80.5
Tables	3447	535	2912	84.5
School latrines	3839	676	3162	82.4
Cupboards	2554	390	2164	84.7

Source: REOM Mara 1996

Table f:3 **EXISTING SECONDARY SCHOOLS- 1995**

Government	Private	Under Construction
3	5	-

Source: Mara 1996

Table f:4 **HEALTH SERVICES - 1995**

Hospital	Rural Health Centres	Dispensaries	MCH Clinics	Hospital Beds
3	5	47	42	300

Source: RMO Mara 1996

WATER**Table f:5** **WATER FACILITIES IN TARIME DISTRICT - 1995**

Source	Wells	Dams	Piped Schemes
Quantity	23	2	10

Source: RWE Mara 1996

Table f:6 **DOMESTIC WATER DEMAND (CURRENT AND PROJECTED)**

Population 1995	Demand 1995 M ³ /day	Population 2000	Demand 2000 M ³ /day
402,616	8,053	459,984	9,200

Source: RWE Mara 1996

Table f:7 **LIVESTOCK WATER DEMAND - 1995**

	% OF STOCK	Total Type	Demand its per head	Total M ³ /day
Cattle	58	307,694	40	12,308
Goat	29	150,300	2	301
Sheep	13	69,265	2	139

Source: RWE Mara 1996

2.0 **ECONOMIC INFRASTRUCTURE:**

2.1 **Road Network - 1995**

• Tarmac Roads (kms)	-	81
• Gravel Roads (kms)	-	124
• Earth Roads (kms)	-	595
• Total (kms)	-	800

2.2 **Air Services:**

There are two private Air Strips at Tarime and Shirati.

3.0 **PRODUCTION SECTORS:**

3.1 **Agriculture:**

Food crops grown include cassava, maize, millet, finger millet, paddy, sweet potatoes, irish potatoes, and bananas.

Cash crops are coffee and cotton.

There is Tarime Cooperative Union in the district for coffee and cotton products.

3.2 **Processing Industries:**

There is coffee processing Industry in Tarime Town.

3.3 **Mining:**

Small scale gold mining is taking place at Nyamongo.

3.4 **Fishing:**

Fishing is carried out around Lake Victoria Shores at Shirati and Kinesi Centres.

4.0 **Electricity:**

Tarime District is served with Electricity from the National Grid (Kidatu/Hale Grid System). Centres supplied with electricity are Tarime town, Utegi, Sirari, Shirati, Ochuna and Kinesi.

5.0 **Hotels:**

The attractive CMG Motels Ltd. serves customers in Tarime Town.

6.0 **Border Post:**

Sirari Centre serves as the border post and entry point for travellers from Kenya.

ANNEX G

1.0 GENERAL INFORMATION ABOUT TANZANIA

Location: (29^oE-41^o; 1^oS - 12^oS)

Land Frontiers:

To the North: Kenya and Uganda
To West: Burundi, Rwanda and Zaire
To South: Zambia, Malawi and Mozambique
To East: Indian Ocean

AREA OF MAINLAND

Land area 881,289 Sq.Km.
Water area (Inland) 61,495 Sq.Km.
Tanzania area 942,784 Sq.Km.

TANZANIA MAINLAND AREA BY REGIONS (SQ KM)

Total	942,784		
Arusha	84,567	Morogoro	70,799
Coast	32,407	Mwanza	35,248
Dodoma	41,311	Lindi	66,046
Iringa	58,936	D'Salaam	1,393
Kigoma	45,066	Rukwa	75,240
Kagera	39,627	Ruvuma	66,477
Kilimanjaro	13,309	Shinyanga	50,781
Mara	30,150	Singida	49,341
Mbeya	62,420	Tabora	76,151
Mtwara	16,707	Tanga	26,808

Population

TOTAL POPULATION AND LIFE EXPECTANCY FOR TANZANIA - BY REGIONS, 1967, 1978, 1988, 1996:

REGION	TOTAL POPULATION				LIFE EXP. 1988	
	1967 (No.)	1978 (No.)	1988 ('000)	1996** ('000)	M Yrs	W Yrs
Dodoma	709,380	972,005	1,234.9	1,472.5	57	58
Arusha	610,474	926,223	1,348.4	1,784.0	46	51
Kilimanjaro	652,722	902,437	1,106.0	1,703.5	50	50
Tanga	771,060	1,037,767	1,307.3	1,521.8	45	47
Morogoro	682,700	939,264	1,254.0	1,519.4	44	47
Coast	428,041	516,586	636.5	740.9	44	45
Dar es Salaam	356,286	843,090	1,357.6	1,945.7	47	49
Lindi	419,853	527,624	645.0	744.8	57	62
Mtwara	621,293	771,818	887.4	976.7	46	48
Ruvuma	395,447	561,575	781.4	1,001.3	46	48
Iringa	689,905	925,044	1,206.0	1,472.9	45	48
Mbeya	753,765	1,079,864	1,472.7	1,857.0	45	48
Singida	457,938	613,949	789.9	949.4	44	48
Tabora	502,068	817,907	1,033.8	1,232.6	46	50
Rukwa	276,091	451,897	693.3	954.7	44	47
Kigoma	473,443	648,941	857.8	1,047.6	48	50
Shinyanga	899,468	1,323,535	1,768.6	2,194.83	48	51
Kagera	658,712	1,009,767	1,358.8	1,659.5	54	55
Mwanza	1,055,883	1,443,379	1,874.4	2,270.9	53	54
Mara	544,125	723,827	968.6	1,202.0	48	51
Tanzania Mainland	11,958,654	17,036,499	22,582.4	28,252.2	49	51
Zanzibar North	56,360	77,017	97.1	119.0	46	47
Zanzibar South	39,087	51,749	70.2	91.8	45	50
Zanzibar Urban	95,047	142,041	208.4	290.4	46	52
Pemba	72,015	106,290	137.4	172.6	46	48
Pemba	92,306	99,014	127.7	160.4	45	50
Zanzibar Is.	354,815	476,111	640.7	834.2	46	49
Tanzania United Rep.	12,313,469	17,512,610	23,223.1	29,086.4	47	50

Note: The projections are based on the national Population Census of 1988, and the calculated growth rates since the 1978 census.

Source: Bureau of Statistics.

Land Use

	(Ha (millions))	Proportion %
Small holder cultivation	4.1	5
Large scale agriculture	1.1	1
Grazing Land	35.0	39
Forest and Wood Lands	44.0	50
Other Lands	4.4	5
Total	88.6	100

Arable Land:

Arable Land (Ha) 3,634,000

Lakes

Victoria	34,850 sq km
Tanganyika	13,350 sq km
Nyasa	5,600 sq km
Rukwa	2,850 sq km
Eyasi	1,050 sq km
Natron	900 sq km
Manyara	320 sq km

Mountain summits (metres above sea level)

Kilimanjaro	5,895
Meru	4,566

Climate

(a) Rainfall

Main rain season on the coast is between March and May and the second season is between October and December. Rainfall is well distributed throughout the year but there is a peak during March and May.

Average maximum temperature (degrees centigrade)

	Jan.	Apr.	July	October
Dar es Salaam	31.6	30.1	28.6	31.3
Arusha	28.9	25.3	21.1	27.3
Dodoma	31.4	28.4	26.0	30.2

Average minimum temperature (degrees centigrade)

	Jan.	Apr.	July	October
Dar es Salaam	23.3	22.9	18.3	31.3
Arusha	12.2	16.9	12.6	27.3
Dodoma	19.2	13.5	16.2	30.2

Gross Domestic Product at factor cost (billion Shs.) 1992.

At current price 688.0

At constant prices 32.2

GDP growth rate at 1976 prices 1985-92

3.69%

Per capita 27,355

At current price 27,355

At constant price 1,280

1.2 SOCIAL SERVICES

HEALTH FACILITIES

YEAR	HOSPITALS	RHC	DISPENSARIES
1960	98 22	975	
1980	149239	2,600	
1990	173276	3,014	

Education: Enrolment rates 1995 compared with other East Africa countries

COUNTRY	GROSS ENROLLMENT	
	PRIMARY	SECONDARY
KENYA	94	28
UGANDA	76	20
TANZANIA	67	13

NATIONAL PARKS

National Parks (area in sq km)

PARK	LOCATION AND PARTICULARS
<p>(i) SERENGETI NATIONAL PARK</p>	<p>LOCATION: At the border of Arusha & Mara Region, about 32 km from Arusha town</p> <p>AREA SIZE: 14,763 square km. It is the largest and oldest Park in Tanzania having been established under the British Colony in 1951. It contains the greatest and most spectacular concentration of plain animals left any where in Africa.</p> <p>MAJOR ATTRACTIONS: Wildebeest about 1.7 million, Lions 3,000. About 35 species of animals and 500 species of birds, Buffalos, Chetah, Leopards etc.</p>
<p>(ii) LAKE MANYARA NATIONAL PARK</p>	<p>LOCATION: Some 125 Kilometres South West of Arusha town. It was officially established and gazzetted as a National Park in 1960.</p> <p>AREA: Lake Manyara National Park covers a total area of 320 square kilometres, 230 kilometres constituting Lake Manyara itself.</p> <p>MAJOR ATTRACTIONS: The Rift Valley edge on the West with the vast lake underneath. Natural forest with many natural rivers and springs. Tree-climbing lions, various species of animals plus about 360 species of birds, Elephants, Hippos, Leopards, Baboons etc.</p>
<p>(iii) TARANGIRE NATIONAL PARK</p>	<p>LOCATION: South of Arusha town along the Dodoma Highway. It was established in 1970.</p> <p>AREA: Tarangire National Park covers some 2,600 Square kilometres.</p> <p>MAJOR ATTRACTIONS: Tree climbing pythons, zebra, kongoni, elephant, buffalo, waterbuck, gazettes and oryx.</p>

<p>(iv)ARUSHA NATIONAL PARK (MOMELA)</p>	<p><u>LOCATION:</u> The Park is located between Mount Meru and Mount Kilimanjaro. Formally Ngudoto National Park until 1967. Was commissioned as National Park in 1960.</p> <p><u>AREA:</u> The park covers some 137 square Kilometres.</p> <p><u>MAJOR ATTRACTIONS:</u> Ngurdoto Crater, Lake Momella, Mount Meru and the Natural Momela Forests. There are many species of Animals and birds. The most common being African elephant, colobus and velvet monkey, hippo, duicker and a number of bird species.</p>
<p>(v)KILIMANJARO NATIONAL PARK</p>	<p><u>LOCATION:</u> The Kilimanjaro National Park which derived its name from Mount Kilimanjaro is part and parcel of the Mountain. It was established in 1973.</p> <p><u>AREA:</u> The boundaries of the Park include the natural forest under and around the Mountain. It covers some 760 square Kilometres.</p> <p><u>MAJOR ATTRACTIONS:</u> Mount Kilimanjaro with its three peaks Shira (3,962 metres) Mawenzi and Kibo (5,149 and 5,895 metres respectively) above sea level form the largest part of the Park's attraction. There are also various species of Animals, plants and birds.</p>
<p>(vi)MIKUMI NATIONAL PARK</p>	<p><u>LOCATION:</u> It is situated some 216 km along the Dar - Zambia Highway. It was established in 1964.</p> <p><u>AREA:</u> Mikumi National Park which borders with Africa's largest Game reserve, the Selous is the third biggest National Park after Serengeti and Ruaha National Park and covers 3230 sq km.</p> <p><u>MAJOR ATTRACTIONS:</u> The plains surrounding River Mkata which are rich in flora and fauna are by themselves a wonderful scenarial. The common animals found in the park include zebra, buffalos, elephants, Hippos, lions and Impalas.</p>

<p>(vii)UDZUNGWA NATIONAL PARK</p>	<p><u>LOCATION:</u> This Park is located South of Mikumi National Park along the Mikumi-Ifakara Highway. The Park was established in 1992.</p> <p><u>AREA:</u> The Park which derives its identity from the famous Udzungwa mountain has an area of 1990 square kilometres.</p> <p><u>MAJOR ATTRACTIONS:</u> Its unique species of Fauna and Flora which called for its declaration as a National Park. The Udzungwa Mountains and Forests are a good source of Rivers and springs, one of them being the famous Kilombero River, which constitutes the essential part of the multi-hactoral its total Kilombero Sugar Plantations. Additional attractions: Lions, Buffalos, Giraffes etc.</p>
<p>(viii)RUAHA NATIONAL PARK</p>	<p><u>LOCATION:</u> The name Ruaha, is derived from the Hehe word "Luvaha" meaning a river.</p> <p><u>AREA:</u> Park covers an area of 12,950 square kilometres, the second largest in the country. Ruaha National Park which was established in 1964 is situated some 130 km west of Iringa town.</p> <p><u>MAJOR ATTRACTIONS:</u> The Ruaha River by itself is an attraction, leave alone some hundreds of species of Flora which surround it. Besides there are a lot of Crocodiles, Hippos, Elephants etc.</p>
<p>(ix) KATAVI NATIONAL PARK*</p>	<p><u>LOCATION:</u> It is located in Mpanda District, Rukwa Region. It was established in 1974.</p> <p><u>AREA:</u> The Katavi National Park which is about 40 kilometres South -East of Mpanda town covers an area of 2,253 square kilometres.</p> <p><u>MAJOR ATTRACTION:</u> Lakes Chala and Chada plus other springs and rivers whose waters feed into lake Rukwa constitute a unique environment. Animals in the park include zebra, sable, eland, leopard, buffalo, lion, antelops etc. Animals like, Buffalos, Elephants, Zebras and BushBucks are a good attraction to visitors.</p>

<p>(x)MAHALE NATIONAL PARK</p>	<p><u>LOCATION</u> Located some 120 south of Kigoma town along the shores of lake Tanganyika, Mahale National Park is yet another attraction in Tanzania's Natural Heritages.</p> <p><u>AREA:</u> Mahale nation Park has about 1,613 square kilometres and was gazzetted in 1948.</p> <p><u>MAJOR ATTRACTIONS:</u>Chimpanzees are a major attraction. Also there is a good number of monkey species including red colobus monkeys. It is estimated that there are 700 Chimpanzees in Mahale and 15 species of monkeys whose habits tally with those of the Chimps.</p>
<p>(xi) GOMBE NATIONAL PARK</p>	<p><u>LOCATION</u> Gombe National Park is situated 16 km north of Kigoma town in western Tanzania. It is a narrow strip of mountainous country bounded in the east by the eastern rift valley escarpment and by lake Tanganyika in the west</p> <p><u>AREA:</u> Covering some 52 square kilometres. National park, was commssioned in 1968.</p> <p><u>MAJOR ATTRACTIONS:</u>Ever green forests and primates. These include Chimpanzees, Baboons, blue monkey red tails and red colobus.</p>
<p>(xii) RUBONDO NATIONAL PARK</p>	<p><u>LOCATION:</u> The Park which form park of a number of archipelagos in Lake Victoria covers some 240 square Kilometres. it was established in 1977</p> <p><u>MAJOR ATTRACTIONS:</u> The Chimpanzees. But other attractions include, Hippos, Giraffes, and Elephants. the absence of man-eaters such as Lions & Leopards ensures a safe walk in Rubondo Park even some fishing activities with boats under Park wardens are carried out.</p>
<p>(xiii) NGORONGORO</p>	<p><u>LOCATION:</u> It is situated west of Arusha town some 230 kms.</p> <p><u>AREA:</u> The park covers 8320 sq km</p> <p><u>MAJOR ATTRACTION:</u> Wildebeest, Lions, Buffalos, Leopards, Variety of birds species, Giraffes, elephants etc</p>

