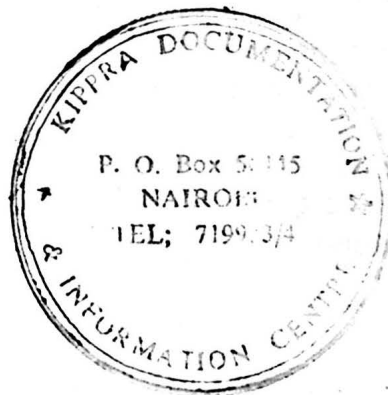


TANA RIVER
DISTRICT DEVELOPMENT PLAN
1994-96



FOREWORD

This District Development Plan was prepared by the District Departmental Heads of various ministries under the co-ordination of the District Commissioner assisted by the members of the District Planning Unit. The plan drafts were discussed by members of the District Executive Committee and approved by the District Development Committee.

Rural Planning Department of the Office of the Vice President and Ministry of Planning and National Development provided overall guidance through seminars, formulation of the guidelines and was also responsible for editing and publication of the plan.

The Plan is divided into five chapters.

Chapter One: Provides background information on the district's natural and human resource base and potential.

Chapter Two: Provides a portrait of the people of the district, the way they earn their livelihood, and their standard of living. It presents social and economic levels of the district.

Chapter Three: Presents the major development constraints and the district's strategy for dealing with them in the 1994-96 plan period.

Chapter Four: Provides a situation analysis of HIV/AIDS of the District

Chapter Five: Lists in order of priority for each sector major projects and programmes which the DDC wishes to implement during the 1994-96 plan period.

Selection and prioritization of projects and programmes was the responsibility of the DDC. The drafting of the plan was guided by the Sessional Paper No. 1 of 1986 and other relevant national and sectoral policy documents.

Rural Planning Department
Office of the Vice President and Ministry of Planning and National Development

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LOCATION OF THE DISTRICT



CHAPTER ONE

DISTRICT PROFILE

PHYSICAL DESCRIPTION

Location and Size

Tana River District is one of the six districts that constitute Coast Province, and is the largest, with an area of 38,694 sq.km. The district borders, Kitui District to the West, Mwingi to the north-west, Garissa to the east, Meru and Isiolo to the north, Lamu to the south-east, Kilifi to the south and the Indian Ocean. From north to south the district stretches from the Equator to Latitude 3° south. From west to east it is located between Longitudes 38° 30' East and 40° 15' East. The position of Tana River District in relation to the neighbouring districts and in Kenya is depicted in Map 1. Table 1.1 shows the division of the district's total area by administrative divisions.

Table 1.1

Area of the District By Division

Division	Area (Sq. Km)
Bangale	3,123
Bura	5,235
Galole	12,646
Garsen	12,649
Madogo	5,041
Total	38,694

Source: District Commissioner's Office, Hola.

Topography and Geology

Tana River District is an undulating plain with River Tana, which flows from Meru in the north and enters the Indian Ocean, and ephemeral water courses which traverse the vast semi-arid hinterland from Kitui and Mwingi Districts, as the main physical features.

The plain is, interrupted at a few places most noticeably at Minjila, Bilbil and Madogo, making these areas the highest points in the district. The land in Tana River District generally slopes south-east-wards with an altitude that range between 0 - 200m above sea level.

River Tana runs along the entire eastern boundary of the district and is the major source of water for human consumption, livestock, wildlife and agricultural use.

The river traverses the expansive coastal hinterland and, as it starts to meander in its lower course, forms a large basin whose width ranges between 2km and 42 km. Towards its mouth, between Mnazini and the Indian Ocean, the river creates an extensive delta that is characterized by wetlands.

Because of the flatness of the areas through which Tana River passes and the loose nature of the soils, it is not possible to use any section of Tana River for hydro-electric power generation in Tana River District. Upstream of the river, hydro-electric power dams have been constructed in Embu District and this contributes to the largest proportion of power generated in the country.

The Tana Delta and its wetland areas have their origins from the seasonal floods which cause the formation of new river channels due to impeded drainage, leaving behind cut-off levees, ox-bow lakes and several other permanent water bodies and swamps. In the course of time, this continuous process has seen the formation of a flood plain covered by luxuriant grass, numerous patches of riverine forest, woodlands and bushes. Thus, with its rich alluvial soil, a dynamic equilibrium of water and vegetation, coupled with an interface with the sea, the Tana Delta is a singular topographical feature, not only of Tana River District, but also of Kenya. The delta presents great potential for the development of the district; it is a natural habitat for an enormously diverse fauna and flora; it provides a fall-back grazing area during the dry seasons; and its waters are used for agriculture and fishing.

The seasonal rivers in Tana River District are found in the area west of River Tana, stretching from Garissa to Garsen. Popularly known as 'lagas', these rivers flow in a west to east direction from Kitui, Makueni and Mwingi Districts, eventually draining into River Tana.

The hydrology and physiography of the lagas are typical of the inland basins in that they have large catchment areas with a well developed network of tributaries which join the main water courses along the pediments before reaching the plains.

Due to impeded drainage, the lagas are prone to over-flowing their banks during the rainy seasons (April-May and October-November) and they may have water in them for several kilometres across. Like the Tana, the laga system enables the pastoralists' herds and flocks to utilize the vast arid and semi-arid expanses of Tana-River District, for the basins are better ecological areas where it is normally possible for livestock and wildlife to survive during the dry seasons. The lagas also affect road transportation because they often cut off the main trunk road in the rainy season, making most parts of the district inaccessible.

The absence of rock outcrops in most parts of the district prevent a direct observation of rock formations which are covered by the old fluvio-alluvial sediments, by recent alluvial cover and by wind-blown sand.

The few outcrops observed between Odoganda and Odowani, along laga Kokani, and some loose stones near Chifiri and near Dukanotu, in Bura Division, indicate that gypsum is the main rock and may extend over large areas.

The numerous depressions that give the plain its undulating feature, are probably of tectonic origin due to faults. In addition, there are depressions of Karstic origin and these may indicate that the rock underlying the thin sandy superficial cover may be water bearing limestone or gypsum, or a combination of the two. There is some evidence that these rocks may have been subject to intense stratification, most probably during the pluvial time, and are now recharged during rainy season.

At the Coast there are no coral reefs due to the influence of the fresh water discharged into the sea as the River Tana enters into the Indian Ocean. Instead, there are unstable sand dunes created by the backlash of the seawater during high tides as well as by the push of the river water during low tides.

Climate

Most of Tana River District is hot and dry, except for the area along the Indian Ocean where it is normally hot and humid with little variations in temperature. The average annual temperature is above 25° centigrade and may sometimes rise above 30° centigrade.

In Tana River District, rainfall is generally low, bimodal and erratic, with the mean annual range of between 300mm and 500mm. The rainfall is determined by the monsoonal air currents of the Indian Ocean and convection over the hot, dry hinterland. The wind patterns are influenced by the movement of the Inter-Tropical Convergence Zone (ITCZ) and the east trade winds (April-October). The latter winds have a much greater impact on the coastal region including the whole of Tana River District, bringing more clouds, winds and heavier rainfall. During the influence of north-east trade winds, the situation is reversed, although rainfall is relatively higher along the southern part of the district which borders the Indian Ocean. The coastal belt receives a rainfall of 750-1250mm annually. A very narrow band around Kipini and Chara receives rainfall of between 1,200 to 1,500mm annually. It has to be noted that the rainfall is very variable and unreliable.

The long rains occur in April and May, whereas the short rains occur in October and November. In the hinterland of Tana River District, rainfall is very unreliable. This area is only suitable for use as rangelands. In contrast, in the areas near the coast, especially around Kipini, there tends to be rainfall every month. However, the rainfall is only sufficient for reliable annual crop production during the long rains. Thus, it is much better suited to perennial rather than annual crop production because of seasonal variation in rainfall.

Table 1.2

Monthly Rainfall During 1988-91 (in mm)

Month	Long-term Monthly Mean	1988	1989	1990	1991
January	96.7	81.0	43.8	120.0	10.5
February	3.2	8.0	22.2	82.0	-
March	50.0	126.1	57.0	129.0	32.8
April	64.0	57.0	106.0	143.5	70.0
May	50.0	8.1	48.0	74.1	77.4
June	54.0	33.9	-	25.6	27.5
July	20.5	2.8	0.6	4.5	239.0
August	9.6	1.8	-	-	-
September	42.6	25.5	54.7	-	-
October	84.0	3.1	265.4	7.9	-
November	28.5	76.6	97.3	14.5	-
December	68.0	72.0	102.5	112.0	-
Mean Annual Rainfall	40.9	58.8	53.2	38.0	-

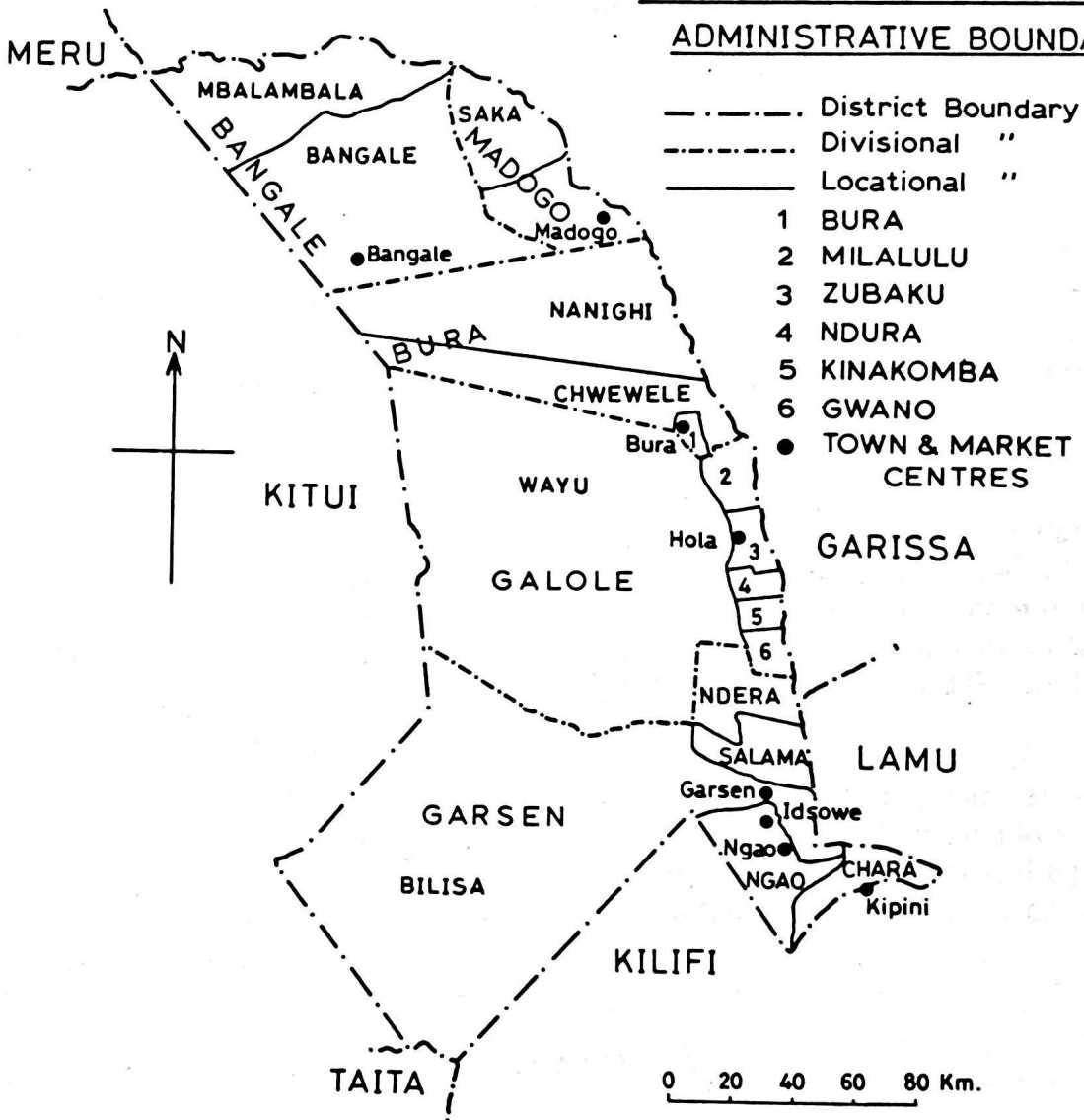
Source: District Agricultural Office, HOLA

ADMINISTRATIVE AND POLITICAL UNITS

For administrative purposes, the district is divided into 5 divisions, 21 locations and 47 sub-locations. Table 1.3 presents a summary of the number of locations and sub locations by division. Compared to 1989, the number of the divisions and locations in the district have increased from 4 to 5 and 18 to 21, respectively, whereas the number of sub-locations has risen to 47. The newly created division is Bangale, which was carved out of Madogo Division. In addition, the number of locations have increased from 18 in 1991 to 21 following the creation of one location in Garsen Division and two locations in Galole.

TANA RIVER DISTRICT

ADMINISTRATIVE BOUNDARIES



- 1 BURA
- 2 MILALULU
- 3 ZUBAKU
- 4 NDURA
- 5 KINAKOMBA
- 6 GWANO
- TOWN & MARKET CENTRES

0 20 40 60 80 Km.

Table 1.3

Administrative Units by Division

Division	No. of Locations	No. of Sub-locations
Bangale	2	5
Bura	3	8
Galole	8	16
Garsen	6	13
Madogo	2	5
Total	21	47

Source: District Commissioner's Office, Hola.

There are two parliamentary constituencies in Tana River District, namely Galole and Garsen. In relation to the boundaries of administrative units, Galole constituency comprises Bangale, Madogo, Bura Divisions and 2 locations (Zubaki and Milalulu) in Galole Division, while Garsen constituency consists of the whole of Garsen Division and 4 locations (Wayu, Ndura, Kinakomba and Gwano) in Galole Division.

Tana River District has only one local authority, that is Tana River County Council, which covers the whole district. Altogether, the increase in the number of locations from 18 to 21 took place after 1992 General Elections, the number of wards has remained 18. This is because the boundaries of wards coincide with locational boundaries.

DEMOGRAPHIC AND SETTLEMENT PATTERNS

Population Size

The projected population of Tana River District was 174,153 in 1993, representing an increase of 46.9% from a total of 92,401 people recorded in the 1979 National Census. According to the Economic Survey, 1991, the annual growth rate of the population of the district was 3.38% between 1979 and 1989.

The projected population for 1994 is 180,039 or an increase of 48% over the 1979 population. In 1996, the population is projected to be 192,416, this represents an increase of 51.9% over the 1979 population. This means that over the last 15 years, the population has doubled.

Structure

Table 1.4 shows the projected population growth in Tana River District for 1993 to by age cohort, while Table 1.5 presents age/sex projections.

Table 1.4

District Population Projections by Age Cohorts

Age Cohorts	1979	1993	1994	1996
0-4	16,918	31,908	32,986	35,253
5-9	15,230	28,724	29,695	31,736
10-14	11,809	22,272	23,025	24,607
15-19	10,237	19,307	19,960	21,332
20-24	8,212	15,488	16,011	17,112
25-29	6,669	12,464	12,885	13,771
30-34	5,337	10,066	10,406	11,121
35-39	3,874	7,306	7,553	8,072
40-44	3,644	6,873	7,105	7,594
45-49	2,636	4,971	5,139	5,493
50-54	2,321	4,377	4,525	4,836
55-59	1,473	2,778	2,872	3,070
60-64	1,377	2,597	2,685	2,870
65-69	971	1,830	1,892	2,022
70-74	766	1,444	1,493	1,596
75+	927	1,748	1,807	1,931
Total	92,401	174,153	180,039	192,416

Source: Central Bureau of Statistics, 1979 National Census

* Annual growth rate for 1993-1996 is taken as 3.38% which is given in the Economic Survey, 1992.

Two important features of the demographic structure of the population of Tana River District can be calculated from Table 1.4. For one, it can be shown that 0-14 age groups is about 48% of the adult population. For another, the proportion of the people aged 59 years and above to the total population is 4.4%.

The demographic structure of Tana River District is, therefore, typical of young, rapidly growing populations, and this has significant implications for the development process in the district. With an annual population growth rate of 3.38% and 48% of the population falling in the 0-14 age group, it means that increasing expenditure outlays at both the household and public levels would be required, particularly in the education and health sectors.

Moreover, and equally important, the incidence of this burden on the district's adult population becomes even greater considering the fact that 4.4% of the total population of Tana River District consists of people aged 59 years and above whose contribution toward the sustenance of the young population is negligible.

Therefore, the active segment of the population is up against a dependency ratio of 1:1.09, i.e. 109 people depend on 100 people for food, medical care, etc. This dependency, coupled with the tendency of young, educated people to move out of the district to urban areas in search of better employment, reduces the capacity of the local population to participate in development, especially with respect to initiating self-help projects on the harambee spirit.

As regards the gender composition of the population of Tana River District, Table 1.5 shows that there are in the district about 102 males for every 100 females. Compared to the ratios provided in 1989-93 District Development Plan, the sex ratio has remained more or less the same. Projections over the current plan period indicate that this will continue until 1996.

Table 1.5

Age/Sex Projections

Age Cohorts	1979		1993		1994		1996	
	M	F	M	F	M	F	M	F
0-4	8612	8306	16242	15366	16791	16195	17359	16742
5-9	7616	7614	14364	14361	14849	14846	15351	15348
10-14	6288	5521	11859	10413	12260	10765	12674	11129
15-19	5132	5105	9679	9829	10006	9954	10344	10290
20-24	3928	4284	7408	8080	7658	8353	7945	8635
25-29	3115	3494	5874	6589	6073	6812	6278	7042
30-34	2510	2827	4734	5331	4894	5512	5059	5698
35-39	1949	1925	3676	3630	3800	3753	3928	3880
40-44	1849	1779	3483	3389	3601	3504	3723	3622
45-49	1411	1225	2661	2310	2751	2388	2844	2467
50-54	1124	1197	2119	2258	2191	2334	2265	2413
55-59	844	629	1592	1158	1646	1226	1702	1267
60-64	728	649	1374	1186	1420	1265	1468	1308
65-69	598	373	1127	1224	1165	727	1204	756
70-74	411	355	775	703	801	692	828	715
75+	499	428	941	807	973	834	1006	862
Total	46647	45754	87908	86245	90879	89160	93978	9217

Source: Central Bureau of Statistics, 1979 National Census

Arguably, the lower ratio of males to the female population for 15-34 age group (100:103 in 1993, for example) could be explicable in terms of the tendency in rural areas for more males than females to migrate to urban centres in search of employment in the modern sector of the economy.

Even without any statistical evidence on which to found this argument, for the case of Tana River District, the absence of any major, medium and small-scale industries within the district should suffice to sustain this proposition. This means that the incidence of dependency falls largely on women because of their relatively larger numbers in the 15-59 age group, which represents the productive segment of the population.

Owing to differences in the needs of specific sections of the population and to the demand structure that such needs engender, the relative sizes of certain sections of the population of Tana River District (such as the size of primary and secondary school age populations), the size of female reproductive age and the size of the labour force) will continue to have influence over the pattern of expenditure outlays on development programmes in the district during the development plan period.

Population projections on these selected age groups are shown in Table 1.6, where it can be seen that the potential primary school enrolment in Tana River District (projected) increases from 43,482 in 1993 to 48,041 in 1996. Increase in the number of school going children will create demand for additional facilities and teachers in primary schools. Similarly, the growth of the potential secondary school enrolment will create demand for additional facilities at the secondary level of education.

To cater for this increasing demand for educational services, the Government will face increasing expenditure on teachers' salaries, while parents, on the other hand, will have to face ever increasing costs of education.

Table 1.6 further shows that the number of females of reproductive age in Tana River District will increase from 41,834 in 1993 to 46,221 in 1996. This growth will render it necessary to expand maternal and child health care in the district.

Table 1.6

Population Projections on Selected Age Groups

Age Group	1979		1993		1994		1996	
	M	F	M	F	M	F	M	F
6-13 (Primary)	11001	10453	22414	21068	23617	21780	24764	23277
14-17 (Secondary)	4772	3785	8981	7961	9285	8230	9722	8796
15-49 (Female)	-	21584	-	41834	-	43248	-	46221
15-59 (Labour Force)	21860	22488	44831	45267	46346	46797	48532	50014

Source: Kenya Population Census 1979, Central Bureau of Statistics

As regards employment, Table 1.6 shows that the labour force, represented by the 15-59 age group, will grow from 93,143 people in 1994 to 98,546 in 1996. But few employment opportunities exist in Tana River District outside primary production, so the vast proportion of the district's labour force will continue to be engaged in agricultural and livestock production. For this reason it is important that required facilities in these sectors be increased during the current plan period with a view to raising their labour absorptive capacities. To achieve this important development objective, it will be necessary to make the requisite inputs for production easily accessible to farmers at affordable prices and also to intensify extension services.

Distribution and Density

Population density is still quite low in Tana River District as a whole. An estimate of population density is presented in Table 1.8, while Tables 1.7 and 1.9 show population distribution by division, and composition and the number of households, respectively.

Table 1.7

Population Projections by Division

Division	1979	1993	1994	1996
Bangale	3781	6441	6659	7106
Bura	10096	34166	35320	37737
Galole	32863	55908	57798	61761
Garsen	31891	54206	56038	59933
Madogo	13770	23432	24224	25879
Total	92401	174,153	180,039	192,416

Source: Central Bureau of Statistics 1979 National Census

As can be seen from Table 1.7, there was an increase in population since the 1979 census in all the divisions in Tana River District. Though this is largely accounted for by natural growth, net immigration, especially in Bura Division, also account for part of the population growth in the district, as people from outside the district settled at Bura Irrigation and Settlement Project in 1985 either as tenant farmers or petty traders.

With regard to population distribution and density, however, there are variations across the divisions with Galole Division having the highest number of people, while Bangale Division is the least populous. Between them, Galole and Garsen Divisions account for over 60% of the total population of Tana River District, a fact that should be attributed to such better opportunities for agricultural

and livestock production as presented by the flood plains of River Tana as well as the Tana Delta. In addition, Hola, the district headquarters, and Garsen, the second largest centre, are located in Galole and Garsen Divisions, respectively.

Table 1.8

Population Density by Division (Persons per Sq. km)

Division	Area	1979	1993	1994	1996
Bangale	3123	2	2	2	2
Bura	5235	2	7	7	7
Galole	12646	2	4	5	5
Garsen	12649	3	6	6	7
Madogo	5041	3	5	5	5

Source: Central Bureau of Statistics 1979 National Census

As service centres where major economic transactions are conducted, the location of Hola and Garsen has had great influence on the pattern of settlement in the two divisions and, therefore, on the population distribution. In contrast, the low population density in Bangale division relative to the rest of the district is attributed to difficulties in communication between the division and service centres. Besides, the nomadic way of life of the pastoralists who inhabit the division does not lend itself conducive to the emergence of viable trading centres that would have the effect of attracting permanent settlements such as those found around Madogo, Bura, Hola and Garsen. This situation has been further aggravated by concern about security caused by sporadic attacks of local population by armed bandits.

Table 1.9

Population Projection by Division and Sex, 1993-1996

Division	House Hold	1979		1993		1994		1996	
		M	F	M	F	M		M	F
Bangale	652	1930	1851	3277	3164	3388	3271	3504	3602
Bura	2271	6954	6816	17513	16653	18105	17215	18722	19015
Galole	6046	16491	16372	28000	27908	28946	28852	29933	31828
Garsen	5608	16086	15805	27311	26895	28234	28234	29197	30736
Madogo	2295	6952	6818	11828	11604	11996	12228	12639	13240

Source: Central Bureau of Statistics 1979 National Census

Despite the tendency of people in Tana River District to settle within the vicinity of market centres, urbanization process in the district has proceeded at a rather low pace; and this is borne out by the fact that none of the major market centres -including Hola, the district headquarters - has hardly grown over the years to an extent that it can be considered for upgrading to even an urban council status.

The major market centres namely: Garsen, Hola, Bura and Madogo are located along road B8, the chief link of the district with the rest of the country. Indeed, all the other minor roads in the district eventually join this main road. In terms of their potential for further population growth, virtually all the market centres in the district hold out bright prospects, but Hola, Bura and Garsen show a relatively faster increase in the number of inhabitants as does Madogo, the latter due largely to the influence of Garissa town.

When the proposed tarmacking of Road B8 is ultimately implemented, it is envisaged that Hola and Bura will see a much faster physical expansion due to increased accessibility. On the other hand, the present activities at Garsen market centre might naturally tend to shift to Minjila and Idsowe areas at the junction of roads B8 and C112, a development which could culminate in a decline and eventual collapse of Garsen as a service centre. Indeed, the re-location to Minjila of the health centre at Garsen and the siting of National Cereal and Produce Board's depot at the same place are pointers towards this direction. Moreover, prospective investors are already showing interest in setting up business premises in the Idsowe - Minjila area in order to take advantage of the proposed tarmac road and the siting of TARDA's Lower Tana regional headquarters in the vicinity of the area.

As a result of these two developments, the population of the Minjila-Idsowe area is bound to increase enormously, which makes the area an ideal place for the establishment of an RTPC. Facilities and services to be provided at this centre would also benefit residents of the proposed Witu Settlement Scheme, the establishment of which has already been set in motion under the German Assisted Settlement Programme (GASP) that operates under the auspices of the Ministry of Lands, Housing and Physical Planning, which covers Tana River and Lamu Districts.

Migration

Internal migration is common in Tana River District because a large segment of the resident population comprises of pastoralists who move across the divisions in a seasonal cycle. During the wet season, the pastoralists spread throughout the district. And during the dry season, they gravitate toward the southern part of the district (Garsen Division), to the delta of River Tana, to the riverine forest and to the major lagas in search of water and pasture. There is also migration into the district by herdsmen from Garissa district in North Eastern Province who migrate during the dry season to graze their animals in Tana River District and return to their home district when the drought is over.

In 1991 and 1992, there was an influx of pastoralists into the delta of River Tana, while the presence of large herds of camels and cattle and flocks of small stock in Bura Division attested to the immigration into the district of pastoralists from North Eastern Province. Movements such as these sometimes involve whole families and animals in tens of thousands.

As mentioned in the 1984-88 and 1989-93 District Development Plans, the introduction of Bura Irrigation Settlement Scheme in 1985 resulted in an influx of people from outside the district who either came as tenant farmers or migrated to the scheme to provide manual labour for picking cotton. Some of these immigrants have since permanently settled in Tana River District, and perhaps the greatest impact of their presence on socio-economic life outside the scheme is the emergence of thriving off-farm income generating activities at Hola, Bura and Madogo. However, the rate of immigration of people from outside into the district, either to work as labourers or settle in the irrigation schemes at Hola and Bura, may well be on a downward course. At Hola Irrigation Scheme, all agricultural activities have ceased because of the collapse, in 1989, of the pumping station which was caused by a change of the course of Tana River at Bura. There has been a decrease in hectareage under irrigation due to continual financial distress that the Bura Irrigation Scheme Project has had to contend with in the recent past years.

These two factors explain the apparent movement of tenants out of the schemes, with some of them leaving Tana River District altogether to other parts of the country.

As has already been mentioned, part of the Witu forest will be opened up for agricultural production through the establishment of a settlement scheme, which is expected to be ready for occupation in late 1995. For this reason, it is envisaged that people from other parts of the district will immigrate into the area thus causing the population of Garsen to increase at a rate much higher than the district's average annual population growth rate. The Lower Tana Irrigation Project currently under implementation by TARDA will also have the effect of attracting people to Garsen division.

ECONOMIC POTENTIAL

Lands and soil

Almost the whole of Tana River District falls within Ranching Zone L6, except the flood plain of River Tana and the high rainfall area near the Coast which fall under L3 to L5, which receives a mean annual rainfall of between 900-1100 mm. Within these zones, however, large stretches of soils are suitable for agricultural production due to seasonal flooding.

It should be noted that agro-ecological zones L3, L4 and L5 cover only 4% of the districts total area of 38,694 km² and all of them lie within Garsen Division.

Though there are areas falling within these agro-ecological zones that are suitable for agricultural production, much of the land here has not been put to economically productive use and is largely under natural forest which is infested with tse-tse fly. The remainder of the district is ranching zone.

Table 1.10 presents a summary of Districts ecological zones and the district's production potential.

Table 1.10

Agro-Ecological Zones

Agro-Ecological Zone/Potential	Altitude in metres	Annual Mean Rainfall (in mm)	Annual Mean Temperature °C
L3 Coconut-Cassava	3-10	1000-1100	26.5
L4 C/nut-Cassava Zone	1-50	800-1030	26.3
L5 L/Land L/Stock & Millet	1-60	520-900	26.0
L6 L/Land Ranching	20-100	420-640	16.1-28

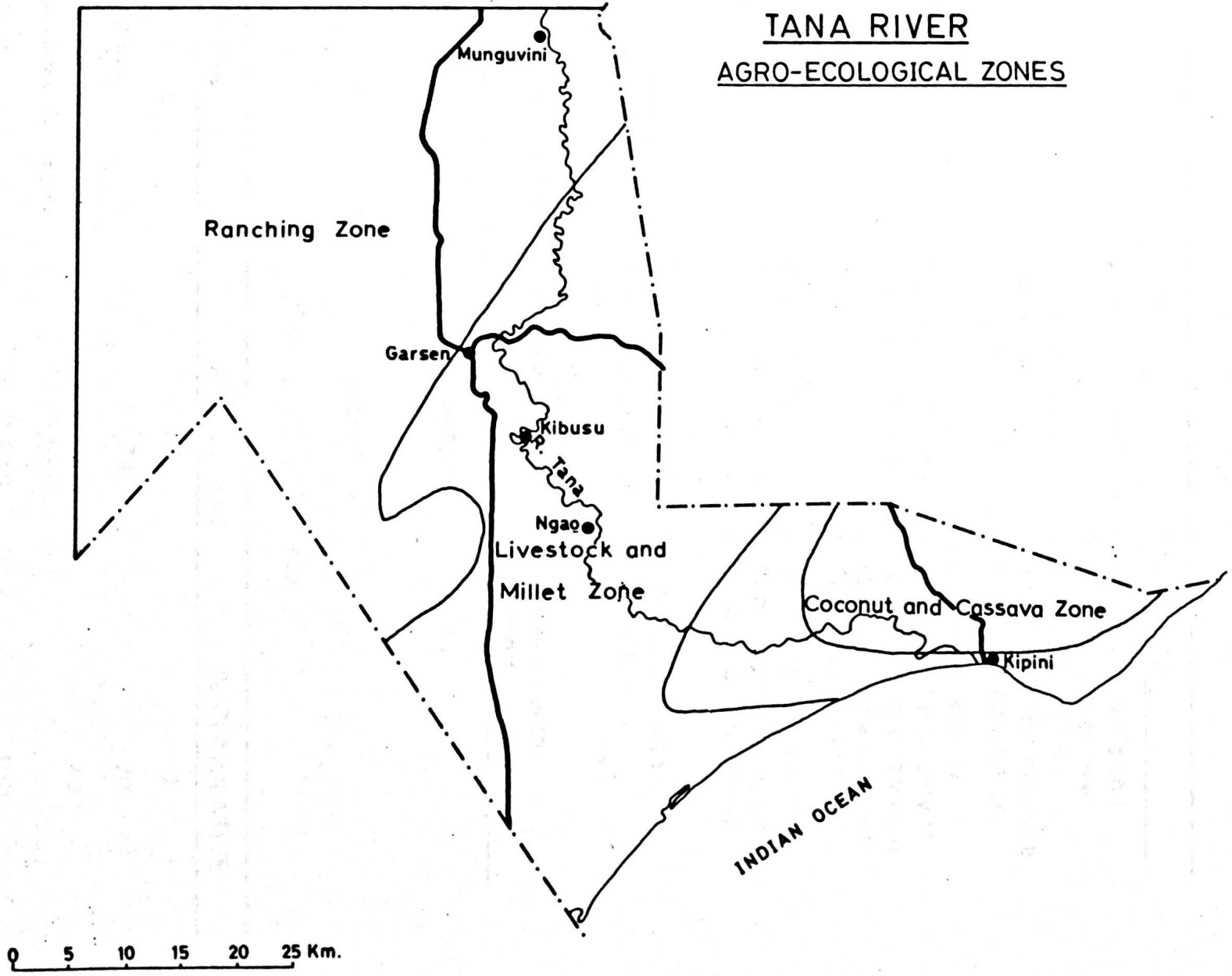
Source: Farm Management Handbook of Kenya, 1983.

Most of the soils in Tana River District, particularly in the hinterland area are of low to moderate fertility. High fertility soils tend to be associated with the accumulation of silt or clay in the natural depression and the flood plain of River Tana and are often imperfectly drained.

Through seasonal flooding, the River Tana and the lagas systems have a marked influence on the soils in the district. The Tana system is characterized by a flood plain to the eastern bank of the river, while flood prone areas are also associated with the seasonal tributaries (the lagas), which flow from the west. Soils in these flood plains have high clay and silt contents. Some areas of the main flood plain to the east of river Tana and in the delta are suitable for agricultural production.

The main characteristics of the soils in Tana River District in terms of fertility is summarized in Table 1.11 while Table 1.12 presents major land uses.

SOUTH-EASTERN
TANA RIVER
AGRO-ECOLOGICAL ZONES



0 5 10 15 20 25 Km.

INDIAN OCEAN

Table 1.11

Soil Types By Location

Soil Type	Location	Soil Fertility
Flood plain and swamp soils	Along the river Tana flood plain, widening towards the delta as well as along the lagas	Fertile alluvial soils and frequent floods of river gives the plain great potential for flood moisture and irrigated agriculture.
Sand Dunes (Coastal Sands)	Along the Coast, broken only by the rivers distribution	Soils are excessively drained and the fertility is very low. Crop cultivation possible with manure and fertilizer supplementation.
Plains (Hinterland)	Covering the Coastal plains, river terraces and alluvial fans	Moderate to low fertility with potential for irrigated agriculture and ranching.
Mangrove Swamp Soils	Along the Coast at the mouth of river Tana	Poorly drained with very low fertility
Coastal Beach Ridges	Along the Coast	Well drained with moderate to low fertility

Source: District Development Plan, 1989-93

Table 1.12

Major Land Use By Area

Land Use	Area (sq. km)	% CUMULATIVE
Agriculture	239	1
Range Land	27,048	70
National Parks, Forest and Game Reserves	3,589	79
Others	7,818	100

Source: District Development Plans, Coast ASAL Development Project Appraisal Report, 1990.

In agro-ecological zones L3 and L4, mainly tree crops and annual crops are grown. In contrast, the only intensive areas of cropping in zone L5 and L6 occur in the flood plains of the river Tana and in or near the beds of the lagas.

The agro-ecological zone L6 covering the area that lies to the west of the River Tana, stretching from Garissa to Garsen, is a traditional grazing area. However, wells dug in the beds of the seasonal streams have enabled permanent settlements to evolve around the lagas. Little cultivation is done, but there is now a considerable area of crop grown, with maize and cow peas as the chief crops. These areas have fertile soils and, therefore, present prime land for crop development on a group basis. Such development could involve improved husbandry and a distribution network of water points which would meet the water requirements for both crop and livestock production, to avoid environmental degradation due to overgrazing.

Traditional clan-based grazing patterns recognized the differing contribution of particular ecological zones in the form of yield of graze or browse ranging from place to place, and from season to season. But the setting aside of land for game park, commercial ranching and large scale irrigation development, encroaches on to formerly better watered grazing areas capable of supplying the essential needs of lactating stock for succulent green fodder. This change in land usage has been exacerbated by flood control measures on river Tana which has reduced the former periodic flooding with the loss of their water and fertile silt burden.

Land ownership in Tana River District falls under the following categories: Government Land, Trust Land and Free Holdings. It should be noted that since land adjudication has not been undertaken in the district, the preponderant proportion is owned by the Government. Thus, of the district's total area of 38,694 Km², trust land and free-holdings account for only 20.2%. The rest is designated as Government Land of which 34.4%, 53.98% and 11.62% are alienated, unalienated, forest and Game Reserves, respectively.

Most of the land designated as Trust Land is held under customary tenure and its allocation is determined by clan elders and the local administration officials. As can be seen from Table 1.13, farm holdings by tillage farmers, are invariably small, with about 60% of the households having holdings under 5 acres.

Table 1.13

Farm Holding Size

<u>Holding Size (Acres)</u>	<u>% Cumulative</u>
0.1 - 1.9	14.6
2.0 - 2.9	26.3
3.0 - 3.9	39.3
4.0 - 4.9	59.6
5.0 - 6.9	72.0
7.0 - 9.9	80.2
10 - 19.9	92.5
20+	100.0

Source: Coast ASAL Development Project, Appraisal Report, 1990.

The size of holding is limited by the relative scarcity of agricultural land and the absence of animal traction as well as by the heavy concentration of farming on the narrow strip of the river bank benefiting from seasonal flooding.

Water Resources

The principal surface water source in Tana River District is the River Tana. The lagas are also important surface water source, but they are ephemeral streams except when there are prolonged rains.

Ground water has not been fully explored, though preliminary surveys indicate that there are bright prospects for shallow ground water development in the numerous natural depressions, in alluvial deposits along the riverine belts and in the sand dunes along the Coast. But, as mentioned under Topography and Geology sub-section in Chapter One, ground water in River Tana District may be of poor quality due to the high solubility of gypsum. Also, as the sediments in the western side of the district belong mainly to Karoo sequence known to supply marginal or salty water, it is expected that, as the ground water movement is from west to east towards the River Tana, most of the ground water in the hinter-land areas will be of poor quality. Indeed, records of boreholes drilled in the district confirm that ground water is either saline or of marginal quality in 9 out of 21 boreholes. This, however, does not exclude the possibility that in certain areas conditions may be favourable for finding ground water of acceptable quality. The most promising areas for ground water development are the narrow alluvial belt along the bank of River Tana and the alluvial deposits of the major lagas.

Rain water is also an important source of water for both human and livestock use in areas where surface dams and water pans have been dug. With the exception of a few places such as Hola, Ngao and Madogo, where there are treated piped water supplies, the vast majority of the population in Tana River District consume raw untreated water. It should be noted in this regard that water obtained from stagnant sources such as pans and surface dams are of rather poor quality because the same watering points also serve livestock and wildlife.

Access to water resources depends on how far away from the river the human settlements are located; indeed, this is an important determinant of the pattern of settlement in the district. In this respect, those who live close to permanent water sources, for instance, along River Tana, have easy access to water. But people living far away from the river have problems of water shortage. Like rainfall, availability of water in the drier areas of Tana River District is seasonal, variable and unreliable. During the rainy season, water is found almost everywhere in the district, but during the dry season only the beds of the lagas and the Tana River have reliable water. Water resources in the district, particularly the waters of River Tana and the lagas, could be harnessed for both large and minor irrigation schemes. With regard to large irrigation schemes, the waters of River Tana are already being utilized for irrigation at Bura Irrigation Settlement Project and at Hola Irrigation Scheme, although the latter facility has stalled since 1989 due to a change in the course of the river. In addition, a major irrigation project is being established by TARDA in the lower course of River Tana.

Besides these large irrigation facilities there are a number of minor irrigation schemes that have been set up to harness the water of river Tana for agricultural production, and there is scope for further exploitation of this potential.

Forestry

Thick forests cover in Tana River District occurs only within the narrow belt of the flood plain of River Tana and in the coastal strip, where riverine and lowland moist forests, respectively, are found. The rest of the district is covered by the lowland savannah, with shrubs, thickets and grassland as the predominant types of vegetation.

In both the riverine and lowland moist forests in Tana River District, there are vestiges of the African Tropical Rain Forest still remaining in Kenya. These forests are rich in hardwood species and in plant diversity.

Along with these types of natural forests, the mangrove forests are another significant and distinctive resource in Tana River District. Mangroves are basically estuarine, thriving as they do in areas where sea-water and fresh-water from the Tana Delta have an interface, and where the impact from strong oceanic waves is minimal. These conditions obtain at the mouth of River Tana and the surrounding areas.

With regard to ownership, only Kipini forest and the mangrove forests are gazetted as forest Reserves and are, therefore, managed by the Forest Department. In contrast, the riverine forest is not gazetted, though it belongs to the Government. This is only because land in the areas occupied by the forest falls under trust-land and Government land categories of landownership. However, the area covered by forests in the district is not known for sure because it has not been surveyed.

Unlike some districts where there are thriving commercial activities on forest, products such as timber poles, woodfuel, etc., commercial exploitation of forests in the district is minimal. It involves isolated incidents of illegal felling and sawing of the hardwood species for timber and cutting of mangrove trees for poles respectively, both of which are in high demand in Mombasa and Malindi.

Apart from being a source of natural products, mangrove forest's ecosystems yield large amounts of fish, crabs, prawns and oysters. They are also very important as an indispensable nursery ground for numerous marine species of commercial and touristic value. They form a natural filter maintaining the clarity of near shore water, and provide a home for migratory birds and other wildlife.

There are few exotic trees in Tana River District of which the most important is Juriflora/Prosobis, locally known as 'Mathenge'. This tree has some unique characteristics which enables it to survive in all parts of the district. It is highly drought resistant, adaptive to different agro-ecological zones and spread very fast, with water and animals as the main dispersion agents for its seeds.

However, there are two contending views on the economic importance of Mathenge. On the one hand, the presence of this tree is seen as a boon to the district, as it provides a source of valuable products such as fuelwood and charcoal and building materials. Moreover, its seed-pods are used for fodder during the dry seasons. On the other hand, because of its rapid spread, vicious thorns and tendency to colonize as well as encroach on to farms, farmers have begun to see Mathenge as a terrible weed. This view is particularly strong among tenant farmers at the Bura Irrigation Settlement Project.

From the preliminary results of research carried out at Bura Fuelwood Project, there is strong evidence that Mathenge has enormous potential as a source of fuelwood and charcoal, if it could be grown on a commercial basis.

Wildlife

Throughout its length and breadth, the district boasts of endowment with an enormously rich wildlife. In terms of diversity, the district has a lot to offer because River Tana and its thick belt of primeval riverine forest provides a habitat for various species of wildlife which depend on the river water and the surrounding vegetation.

To conserve this natural heritage, there have been founded in Tana River District, the Tana Primate Reserve and Kora National Game Park. In addition, there is a proposal to set up a National Park in the Wetland area of Tana Delta.

With its picturesque gallery forest, the Tana Primate Reserve is a home to the Tana Mangabey and Red Crested-Colubus monkey - the two species of monkeys that are not found anywhere else in the world. In the wetlands, one finds a diverse bird-life as well as wild animals such as hippopotamuses which inhabit River Tana and the deltaic lake that constitutes the wetland.

Away from the River Tana system, there are also found various species of animals and birds. Of the birds, ostriches and guinea fowls are the most commonly seen along the roads. Among animals, gazelles, antelopes, zebras, cheetahs and buffaloes are found in parts of the district.

Thus, the presence of a diverse wildlife in Tana River District represents an economic potential, especially for the development of tourism as both Tana Primate Reserve and Kora National Park are important tourist attractions, while River Tana and the Wetland area present opportunities for commercial crocodile farming. Indeed, the latter potential is already being tapped by hoteliers based in Kilifi and Mombasa districts, but in a manner that does not benefit the people of Tana River District.

Despite the importance as an economic potential, the presence of certain kinds of wildlife, particularly that of the baboon, the crocodile and the hippopotamus pose a problem to the local population. A ubiquitous sight all over the district, the baboon is quite a nuisance to farmers, as hoards of them invade farms and feed on both cereals and fruit crops. Hippopotamuses and buffaloes also cause extensive damage to crops, while crocodiles often attack people who go to the river either to draw water or to fish. Thus, most of the complaints against wildlife are cases involving attacks by crocodile or hippos and destruction of crops by baboons.

Commercial Minerals and Materials

Few mineral resources exist in Tana River District, with building sand, brown ballast (i.e. naturally well washed quartz pebbles), salt and some deposits of gypsum as the only commercial minerals present in the district. Of these resources, the former two are available in abundance, and they are being commercially exploited by building contractors who operate both within and from outside the district.

Sand of good quality is harvested along most of the seasonal water courses, while brown ballast is obtained at Nanighi in Bura Division. Some deposits of gypsum are also found at Nanighi, but so far no exploration has been undertaken to determine its quality and viability for commercial exploitation.

This mineral is of industrial application in cement manufacturing. It acts as an additive for cement retardation time setting.

The presence of gypsum in Tana River District is of particular importance because the rocks that bear the mineral are similar in their geological formation to those that bear limestone. This possibility should be explored.

Sea salt is extracted by the Tana Salt Company from the tidal lands on the shoreline that lies to the south-east of the district. The raw salt is hauled to Mombasa for crushing, refining and packaging for the market.

Tourist Attractions

Tourism has a potential base in Tana River District due to the presence of various species of wildlife. In addition, the district has important tourist attractions such as Tana Primate Reserve, the Tana River Delta and Kora National Game Park.

The Tana Primate Reserve is a singularly important tourist attraction because one of the principal reasons for establishing the reserve was to protect two endangered rare primates the Tana Mangabey and the Red-crested Colobus monkey. The reserve is also important for its plant diversity and rich bird-life.

The Tana River Delta is largely an undisturbed wetland area, located mainly south-west of Kipini at the mouth of River Tana, with a unique fresh and sea water interface. The Tana Delta has a very high bio-diversity and is a haven for thousands of migratory birds and many other species of wildlife. This area has been earmarked for development into a National Park. The objectives of the proposed National Park are, among other things, to preserve and maintain the ecosystem plus ecological features, and to encourage public understanding, appreciation and enjoyment of this natural resource, which is also a promising tourist attraction.

Kora National Game Park is located in the northern part of the district and borders Meru and Isiolo districts. The Park is equally rich in wildlife, and Kenya Wildlife Services has already drawn up plans for its development, and for improving the security situation.

The tourist potential in Tana River District has not been tapped mainly due to lack of physical infrastructure. However, with the increasing trend toward luxury tented camps in more remote areas of the coast, the Tana delta has begun to attract tourists in small numbers. There are many areas north of Tana where such camps could be developed once the security situation improves.

SUPPORTING DEVELOPMENT INSTITUTIONS

Under the District Focus Strategy, the principal development institution is the District Development Committee (DDC). The DDC has several sub-committees, which include development committees set up at each level of the district administrative structure, special purpose development-related committees/boards established either by Acts of Parliament or by administrative decision, and which operate under the auspices of a particular Ministry represented in the district.

In addition, there are institutions such as local authorities, regional development authorities, parastatals and non-governmental organizations, which relate to the DDC through the DEC - the main technical sub-committee of the DDC.

This institutional set-up plays a crucial role in planning and implementing rural development activities in the District. This section presents an overview of the most important supporting development institutions in Tana River District.

DDC and its sub-Committees

The District Development Committee is the foundation of the decentralized rural development strategy and its specific functions are to:

- Review on-going progress of all rural development activities carried out in the District to ensure that projects are rapidly implemented and that completed projects and existing infrastructure are effectively operated and maintained.
- Consider new proposals submitted through the DEC by any of its sub-committee.
- Establish priorities for future projects in the three year District Development Plan.
- Approve the district annual submissions of project proposals to the ministries in the annual Annex to the District Development Plan; and
- Review and approve all project proposals of local authorities, parastatals, regional development authorities and NGOs operating in the district. This responsibility is carried out through a process which includes regular meetings at the district, divisional, locational and sub-locational levels.

Technical support for the DDC, including the preparation of development plans and management and implementing of projects, is provided by the District Executive Committee (DEC). The DEC also helps to promote the inter-ministerial co-ordination of development activities in the district.

The DEC draws technical support from the District Planning Unit (DPU), which serves as a secretariat for day-to-day co-ordination of planning and implementation work, including such technical activities as costing of projects, preparation of bills of quantities, planning provision for land acquisition for projects, and technical appraisal of project proposals.

Tana River District Executive Committee meets monthly to deliberate on various agenda presented to it by Divisional Development Committees (DvDCs) or by any of its sub-committees.

The DvDCs have the responsibility of assembling initial project ideas, sorting them out according to the local priorities and forwarding them to the DEC for a more formal review and assessment before the proposals are submitted to the DDC for endorsement and recommendation to the respective relevant authorities. i.e. ministerial, parastatals or NGOs. The DDCs are expected to meet at least four times a year.

The Tana River District Development Committee held a total of 18 meetings between 1989 and 1992 - an average of about five meetings per year, with the range of attendance of between 30 and 48 members. Although the DDC meetings are planned and scheduled on an annual basis, and dates for the quarterly meetings are always communicated to members well in advance, attendance, by members of parliament and parastatal organizations has been poor. For example, in 1992, four meetings of the DDC were held of which only two were attended by a member of parliament. Indeed, this must be regarded as a major shortcoming of the Tana River District Development Committee, because it encumbers the effectiveness of the DDC in promoting increased local participation in the development process. Consequently, it has become a tendency that whatever recommendations are made by the DEC have almost always been endorsed by the DDC without further considerations.

During the period under review the average length of the DDC meetings was four hours, while the range of the number of items on the agenda, including formalities such as matters arising and confirmation of previous minutes was between 6 and 9. Agenda for the DDC meetings are supposed to contain only matters that have been reviewed by the DEC and appropriate recommendations made on them. However, in Tana River District, there have been cases where the DDC has had under consideration, applications for private investment without formal appraisal reports on the proposed projects having been presented to the DEC for review. Yet some of the proposals have significant bearing on the use of the District's two basic resources - land and wildlife.

Since the DDC is enjoined to view the district as an economic unit, approval of projects whose technical aspects have not been reviewed by the DEC might have the effect of hampering the DDC's capacity to plan for proper utilization of the district's available resources.

As regards implementation of publicly funded projects, however, Tana River District has the necessary capacity to enable it execute most of the district specific development projects. The deployment to the district of technical officers is one indicator of this capacity. Other indicators include successful implementation of various projects over the last four years and close supervision of on-going development projects.

The Tana River District Executive Committee holds monthly meetings, and between 1989 and 1992 a total of 56 meetings were held instead of the expected 60. For the better part of this period the DEC was, in essence, the DDC, for there was hardly any difference in substance between their deliberations and recommendations. Attendance at the DEC was good throughout the period under review. Of the 56 meetings that were convened between 1989 and 1992, the poorest attendance was 30 out of the total of 50.

Agenda for the DEC meetings either comes from the DvDCs as recommendation to the DDC, or are brought up by the special purpose DDC sub-committees as well as by the secretariat. The DEC secretariat often draws up its own agenda because neither of the two sources can generate sufficient items for the purpose of the monthly DEC meetings. Moreover, most of the agenda originating from the latter source, as those submitted by the special purpose development related DDC sub-committees, invariably deal with more complicated questions of planning and co-ordination of development activities.

During the DEC meeting a disproportionately greater part of the time is taken up by discussions of progress reports on project implementation. Contentious items are assigned to small, ad-hoc sub-committees for study, following which the DEC considers the issues and technicalities involved and make recommendations to the DDC. This process has not only improved the efficiency of both the DEC and the DDC meetings, but also facilitated identification of problems which affect implementation of development projects as well as finding solutions to them.

At the beginning of the period under review, Tana River District had four DvDCs namely; Garsen, Galole, Bura, and Madogo. However, the number of these committees has been increased to five following the creation of Bangale Division which was carved out of Madogo Division.

Though the DvDCs are active and hold their meetings quarterly, they do not prepare the required documentation to support project proposals, rather, the project proposals are contained in the letters forwarding minutes of the DvDCs meeting at which such projects were identified, discussed and prioritized. The DvDC project proposals to the DEC are not quite different in substance from the initial project ideas forwarded from the LDCs.

In comparison to the DvDCs, LDCs and SLDCs in Tana River District are rather weak, a fact that may be attributed to low level of literacy of their members as well as to the general lack of awareness of the important role that these community level development committees can play.

Technical representation in these committees is equally low, and this problem is more pronounced in the locations inhabited by pastoralists. Because of these constraints, most LDCs and SLDCs in Tana River District fail in two of their most important functions, namely; to broaden the base of rural development and encourage local initiative in order to improve problem identification, resource mobilization and to monitor the implementation of development programmes in their respective areas.

District Tender Board: The DTB has the responsibility of procuring goods and services required for implementing development projects in the District. The Board is served by a secretariat headed by the District Supplies Officer, who is responsible for preparing documents for procurement of goods and services submitted by Departments.

The Tana River District Tender Board secretariat is operational, but its number of staff falls below the approved establishment for the secretariat and supporting personnel. Also, the secretariat does not have adequate office accommodation, nor does it have basic equipment such as typewriters and a duplicating machine, which are so fundamental to its effective operations. In spite of these constraints, the secretariat has performed well in assisting departments to identify sources of goods and services, and preparing documents for presentation to the DTB for adjudication.

The Tana River DTB meets on average, twice every month to ensure that there are no undue delays in procuring goods and services required by various departments. In exercising its functions, the DTB has had to contend with the problem of goods not being delivered promptly because sources of supplies are rather distant from Tana River District. It should be noted, in this regard, that few suppliers in Mombasa and Nairobi are willing to bid for tenders from Tana River District, especially in instances where the supplier is expected to deliver the goods quoted for. For this reason, the DTB has tended to rely on the few merchants operating in the district with the result that most of the bids are not as competitive as would have been in the case where there are many bidders. The effectiveness of the DTB has been further encumbered by frequent request for price increases, which, suppliers argue, are occasioned by factors such as inflation, depreciation of the Kenya Shilling, and increased cost of transport due to poor road conditions during rainy seasons.

With regard to tendering for district specific building construction projects, the DTB is similarly burdened with the disadvantage of having to rely on a rather limited number of contractors. However, execution of contracts have been carried out strictly in accordance with the laid down procedures.

Given that procurement ceilings for the DTBs were set about six years ago and having regard to increases in the cost of implementing projects that have occurred since then, the ceilings stipulated in the "Blue Book" ought to be revised upwards, to improve the operations and effectiveness of the DTB.

District Agricultural Committee (D.A.C.): The D.A.C. is established by the Agricultural Act (Cap.318 Laws of Kenya). In sections 22 through 28 of the Act are stipulated the composition, functions and operation of the DAC, including the powers of the DAC, the size of its membership and appointment of sub-committees. However, with the introduction of the District Focus Strategy for Development and the changes in the structure of government organization that have taken place since the publication in 1980 of the Revised Edition of the Agricultural Act, membership of the DAC has been expanded to include officers and bodies that are not stipulated in Section 22(e) through 22(g).

In compliance with the legal requirement, the DAC convenes its meetings at least once in every quarter and this has been the case in Tana River District. Attendance is ever good, with well over three quarters of the total membership present at every meeting.

During the period under review the DAC dealt with several and various matters in relation to its powers and duties. High on the Committee's agenda was case of land adjudication in order to change land tenure system in the district from communal ownership to private holdings with registered title deeds. Other issues that the DAC dealt with include cases involving claims for compensation in respect of damage to crops and for loss of human life caused by wildlife, conditions and utilization of livestock marketing facilities such as auction rings and holding grounds, streamlining of crop and livestock marketing arrangements to protect farmers from exploitation by unscrupulous dealers, and management of ranches which are faced with the problems of loan repayments and low stocking rates relative to available pasture.

While the DAC did organize scheduled livestock market days in Bangale Division, where exploitation by dealers was most rampant, the problem of land demarcation is yet to be resolved as the Provincial Agricultural Board has not acted upon the recommendations of the DAC. In the area of control of animal diseases, the DAC has registered tremendous progress in establishing cattle dips and crushes and in organizing routine vaccination campaigns, but it is hampered by poor access roads and insecurity.

In addition, following recommendations by the DAC, Minor Irrigation Schemes have been set up at Mulanjo in Bangale Division, and at Rhoka and Laza, both of which are located in Galole Division. However, the performance of the DAC in the area of training has always been lacklustre, due to inadequate funding for organizing tours as well as for conducting educational seminars and workshops for its members.

The major assignment to be pursued with great vigour is the issue of prevailing low co-operative movement in the area of crops (mangoes, cotton, rice etc.) and livestock produce (hides/ skins, cattle and goats). There is over exploitation in this market by the middlemen. The DAC plans to oversee this through mass mobilization and training of farmers.

District Water Board: The District Water Board is established under the Ministry of Water Development to manage existing facilities in the District and also to advise the DDC on utilization and conservation of water resources.

The Board has authority to review user charges in the water sector to enable the DDC determine the level of cost-recovery to raise revenue for operation and maintenance of gazetted water supplies. Such rates are recommended to the DDC for endorsement, following which they are forwarded to the Minister for Water Development for gazette. For community based piped water schemes, the role of the Board is limited to advising and providing technical support to management committees, as responsibilities for operation and maintenance of non-gazetted water facilities is borne directly by the beneficiaries. The District Water Board also has powers to consider application from prospective water undertakers and makes recommendations to the Ministry.

The Tana River District Water Board has met only once since it was formed in 1991. The Board has reviewed the operations of Gazetted Water Supplies and found out that the unit cost of production is about Kshs. 11.60 per m³ of water, while the rate for consumer is Kshs. 3.10 for the same quantity. The difference is met by the Government. This runs counter to the concept of cost-recovery which has been introduced in the water sector, and the Board has not come up with clear recommendations on how this anomaly can be corrected. For this reason and coupled with the fact that demand for water has outstripped the production capacities of the existing water supplies at Hola and Ngao, water shortage is now a big problem at the District Headquarters as well as in Ngao - Tarasaa areas.

As regards cost-recovery in the water sector, it should be recognized that access to water, being a basic need, cannot be exclusively restricted to the ability to pay. The District Water Board is aware of this reality and has shown restraint in recommending measures which would have the effect of denying people access to water.

District Environmental Conservation Committee: The purpose of the Committee is to ensure that the local environment is protected and conserved. Concern for environmental conservation stems from a recognition of the link between sustainable development and continued availability of both renewable and non-renewable resources which are part and parcel of the environment. Therefore, incorporating measures aimed at environmental conservation into the designs for development projects is an important element of the planning process, for it is only by ensuring that development activities are environmental friendly that the goal of rural development can be achieved without undue damage to the resource base upon which this development is dependent.

The Tana River District Environmental Conservation Committee has the responsibilities for carrying out environmental impact assessment of major development projects, identifying incidents of environmental degradation due to natural causes, advising the DDC on appropriate remedial conservation measures,

and sensitizing the local population to the negative effects of certain production systems on the environment in general and the district's resource base in particular.

The Tana River District Environmental Conservation Committee dealt with many cases of protection and conservation of the environment during the 1989 - 93 Plan period. For example, the committee closely collaborated with environmental conservation bodies such as East Africa Wildlife Society, National Museums of Kenya and Kenya Wildlife Services, with a view to having the wetlands in the Tana Delta preserved and gazetted as a national park. Along with this, the committee identified the need for preserving patches of the riverine forest on the flood plain of River Tana, which are perhaps the only remaining vestiges of the African Tropical Rain Forest in East Africa.

These two features of Tana River District support a unique bio-diversity that needs to be preserved for development of the country and as a heritage to mankind. To this end, the District Environmental Conservation Committee drew up a comprehensive document known as "District Specific Environmental Action Plan", which was submitted to the Ministry of Reclamation and Development of Arid, Semi-Arid and Wastelands for incorporation into the national environmental action plan for the arid and semi-arid areas being drawn up by the Ministry in collaboration with the World Bank. Furthermore, the committee worked together with Kenya Wildlife Services in preparing a work plan for the development of Tana Primate Reserve.

District Education Board: The D.E.B. is established by the Education Act (Cap 211, Laws of Kenya) and has responsibility for managing all activities in the education sector in the District, including determining the need for establishing new primary schools and secondary schools, and for physical development. The board executes this responsibility through its meetings, which are convened three times in every year and are scheduled to synchronize with the school term.

During the period under review the D.E.B. managed to convene all its scheduled meetings, which were all well attended. At the D.E.B. meetings, greatest concern was expressed about the continued poor performance by schools in the national examinations. For a long time Tana River District has been in the second last position in the ranking of districts by performance in K.P.C.E. examinations.

To address this problem the D.E.B. has deliberately sought to ensure that staffing in primary schools is done in a way that brings about balanced distribution of teachers by grade. Having regard to the provision of physical facilities, however, the board has not been effective in sensitizing primary school committees and their P.T.As to the importance of having good physical facilities as a first step toward improving the quality of education in the District.

However, at the secondary school level, the D.E.B. has been very keen on encouraging boards of governors and their respective P.T.As to participate more actively in the development of boarding and tuition facilities through cost-sharing. In this connection, it is worthy of note that the D.E.B. has always been prompt in considering and forwarding to the DDC for endorsement applications by boards of governors for charging extra school fees as one way of raising funds for capital development. Such applications have always received the blessing of the DDC following which they have been forwarded to the Ministry of Education for final approval.

Due to dearth of funds, the D.E.B. has not been quite supportive of P.T.As efforts by providing development grants to supplement funds raised on harambee basis or through charging extra fees. For most part of the 1989 -93 plan period Tana River District's annual allocation for capital development in secondary schools was only Kshs. 200,000/=, which becomes too thinly spread to be development effective when divided among 12 (twelve) schools.

District Famine Relief Committee: Tana River District is a net food-deficit area, with acute food shortages occurring during periods of prolonged drought or of seasonal flooding. For this reason, famine relief committees have been set up at the locational, divisional and district levels to monitor the food security situation in the district and reports to the National Famine Relief Secretariat in the Office of the President, any incidents of famine resulting from either of these two natural calamities.

While the committee meets at least once every month, its divisional and locational sub-committees are expected to convene fortnightly and weekly meetings, respectively. However, the frequency of these meetings are always increased during periods of emergency.

During the period under review, the District Famine Relief Committee intervened to save people from starvation due to acute food shortages that were occasioned by the serious floods of 1989. Again, in 1991 the committee came to the rescue of famine victims when a prolonged drought followed by the heavy rains and floods caused widespread famine in the district.

In addition to distributing free food to relieve people of the ravages of famine, the committee provides both logistical and material support to the victims to enable them revert to their normal production systems. This takes the form of free distribution of farm inputs such as seeds and fertilizers and drugs for more intensified vaccination campaigns to forestall possible outbreak of epidemic animal diseases.

The Tana River District Famine Relief Committee has the capacity to carry out these activities as evidenced by its success in monitoring food security situations and quick responses to appeal for relief from sections of the local population cut off from supplies during the rainy seasons, when most parts of the district are inaccessible due to poor transmissibility.

District Joint Loan Board: The purpose of the scheme is to provide a credit facility to business people and artisans whose credit worthiness does not meet the standards set by commercial banks and other financial institutions. The main objective of Joint Loan Board, therefore, is to provide this category of people with an opportunity to engage in commercial activities in the rural areas.

In the 1989-93 plan period Tana River District Joint Loan Board remained dormant, following a general suspension of further disbursement of grants to Joint Loan Boards by the Ministry of Commerce. However, when it was operational the Tana River District Joint Loan Board was up against the problem of low loan repayments; at the moment about 60% of the loans disbursed in the period prior to the suspension of the grants has not been recovered. Another problem with Joint Loans Board is that there were no proper accounting and audit systems to safe-guard against abuse of the scheme.

Project Steering Committee (PSC): This is a sub-committee of the District Executive Committee (DEC) responsible for implementation of IFAD funded Coast ASAL Development Project (CADP). The PSC meets at least once in two months; special PSC meetings are convened when necessary.

The responsibilities of the PSC are:-

- Coordinate project activities throughout the District and to ensure that they are fully integrated into the development programmes and budget of the participating ministries.
- Review and consider technically all proposed projects for Coast ASAL Programme.
- Ensure that project development comply with borrowers policy for their respective sector and are consistent with the target and objectives of the Project.

The Committee reviews the following reports:-

- Monitoring, Evaluation and Supervision Reports from participating Ministries/Agencies.
- Integrated multidisciplinary periodical reports from the CMDU.

It also approves the following:

- Annual workplan/Budget and submit to the District process for review and approval i.e. DEC and DDC.
- Extension workplan submitted by CMDU.

Deliberate on general matters affecting effective implementation of the Programme and recommend solution to the National Project Steering Committee.

The PSC of Tana River District was formed in financial year 1991/92, the first ASAL Project Year. The Committee has been effectively responsible for implementation of the project in the District. It has so far coordinated activities in line with programme guidelines of the implementing sectors.

Annual Workplan/Budget for 1991/92 and 1992/93 have been technically reviewed and deliberated by the committee for further action by the DEC and DDC.

The Committee has also reviewed quarterly Community Mobilization and Development Unit (CMDU) reports and other sub-projects proposed for the ASAL Project in the District.

The Committee is still young and for the period that it has been in operation it has faced the problem of irregularity of meetings. The meetings are sometimes not held in the dates set aside due to the absence of the Chairman or members arising from other activities in the district.

There should be a provision for an alternate Chairman to chair the meetings incase the chairman is absent. This will ensure that meetings are held always as required. The Alternate Chairman should be preferably a member of the Project Steering Committee (PSC).

The representation of the community to be coopted to PSC to enable the committee establish a dialogue and get regular feed back from the beneficiary community.

District Planning Unit

Ideally, the DPU is expected to serve as a secretariat to the DEC for day-to-day co-ordination of planning and implementation work. However, in Tana River District the DPU has not been executing its responsibilities in an effective manner, since its operations are limited by a number of factors.

The most exacting constraint facing the DPU is shortage of personnel, coupled by the fact that there is a rather high turnover of the key members of the Unit due to transfers. For example, neither a Valuer nor a Quantity Surveyor has ever been posted to Tana River District and it was not until late 1992 when a Physical Planner was posted to the district for the first time. For the most part of the 1989 - 93 plan period, such technical services as assisting departments with the costing of projects and preparations of bills of quantities, were provided by an Assistant Quantity Surveyor.

The Offices of the District Development Officer (DDO) and District Statistics Officer (DSO) also suffered from the problem of inadequate staff. For about one and half years now there has been no ADDO in Tana River District and the number of supporting staff has also gone down following the transfer of one of the clerical Officers to another Ministry. As for the District Statistical Office, it should be noted that the District Statistics Officer, who also covers Lamu District, does not have any statistical assistants.

In 1992, however, the DPU received a boost through the posting to Tana River District of a Programme Officer for the Coast ASAL Development Project and of a Physical Planner. With this increase in the number of its key members, Tana River District Planning Unit has now become operational.

DIDC: Though a District Information and Documentation Centre (DIDC) has been established in Tana River District, the Centre has not been quite useful in providing information particularly to individuals and organizations involved in planning development activities in the District, nor has it served well members of the DDC and other development committees who come to it for information. This is mainly because operations of the DIDC are limited by the following factors:-

The DIDC is housed in an old, small wooden room which does not have adequate space for reading, or displaying of charts on development activities.

Of the two clerks who were trained in documentation at the Kenya Polytechnic in 1989, one has since left on a Ministerial transfer, following promotion from a Higher Clerical Officer to Senior Clerical Officer. The remaining one cannot cope with the volume of work, given that the officer also works as the DDO's clerk for day to day office work.

The DIDC lacks equipment such as computer and typewriters which are so vital for processing raw data for presentation in a format that can be easily used by members of the DDC and other development committees.

Most of the literature available at the DIDC are on general subjects such as economics, case studies of development projects etc, which are of relevance and utility only to discerning students of development economics, and not to those who are in search of facts about Tana River District.

Despite the limitations enumerated above, there is a keen interest in the DIDC as indicated by the number of people (especially students on research assignments) who visit the DIDC to look for information particularly on Tana River District.

Local Authorities

There is only one local authority - the Tana River County Council. The Council (TRCC) has 18 electoral wards, each representing an administrative

location. Like other local authorities of its category, the major function of the TRCC is to plan for and build physical infrastructure in the urban and market centres in the District.

Provision of physical infrastructure such as market buildings, roads, water, sewerage, etc., in the urban and market centres is fundamental to the implementation of the rural-urban balance strategy. These centres are the suppliers of agricultural inputs and the points for collection and distribution of agricultural outputs. They also serve as the site provision of non-agricultural goods and services demanded by the rural population. In addition, the TRCC is responsible for plot allocation in the trading and market centres, as well as for licensing of retail traders and collecting revenues. The council is also responsible for the development and management of game reserves that may be established in the district.

TRCC has not been able to execute most of its responsibilities because of lack of funds. The council has a rather narrow revenue base, and this problem has been exacerbated by the fact that the council no longer collects cess from cotton sales following the collapse in 1989, of the Hola Irrigation Scheme. Most of the revenue collected by the council is now taken up by loan repayments and salaries.

These financial constraints make the TRCC unable to build markets at major trading centres such as Garsen, Tarasaa, Wanje, Madogo and Bangale. At Hola, the existing market which was built over a decade ago is now too small to accommodate the ever increasing number of traders. Consequently, most traders, especially dealers in farm produce, sell their wares from grass-thatched stalls which have been constructed at the site of the market. The TRCC has not been able to provide for the sanitation needs at the centre by building pit latrines; not even at Hola, the District Headquarters. It has, however, been able to arrange for the physical planning in Hola and Garsen. The Council has also managed to continue successfully with its function of plot allocations.

Voluntary Agencies

There are very few NGOs in Tana River District. Both the Catholic Mission and African Inland Church have for a long time been the main voluntary development agencies, but other agencies such as Young Women Christian Association (YWCA), Kenya Water For Health Organization (KWAHO), World Vision and Care International have now started to operate in the district.

KWAHO and World Vision have projects in water and education sectors, respectively, and all their projects are located in Garsen Division, while the activities of Care International are limited only to organizing transportation (and supervising distribution) of famine relief food on behalf of World Food Programme. The Catholic Mission and the African Inland Church supplement the efforts of the Ministry of Health in providing health services and have also established pre-

primary units at some of the main centres in the District such as Hola, Bura and Garsen.

YWCA runs a community centre at Minjila, located 7 Km south of Garsen. Apart from training through workshops and seminars for women groups, the centre also has field staff who provide extension services for income generating activities initiated by YWCA. The Community centre at Minjila has conference and seminar facilities which have been used by the DDC and some of its sub-committees such as the Coast ASAL Project Steering Committee, in conducting training courses for divisional and locational extension workers and local leaders.

Other voluntary community development activities such as running of pre-primary and nursery schools are carried out by the churches.

Harambee Movement

Although the harambee movement is generally recognized in Tana River District as a vehicle for resource mobilization, it has not resulted in substantial development in the fields of social welfare and service facilities such as schools, dispensaries etc

There appears to be a pervasive negative attitude towards harambee contributions. For example, with regard to raising funds for further education overseas, the popular view is that students who did not perform well enough to qualify for admission to the local universities do not merit university education and therefore ought not to be assisted on harambee basis.

As regards harambee contributions for capital expenditure, particularly in secondary schools, the response has not been quite good as evidenced by rather poor turn-out at fund raising functions as well as the amounts of money raised. Consequently, most of the projects which were initiated on harambee basis have stalled. Yet, ironically, the delay in completing projects started on harambee basis is probably the main reason for people not wanting to participate in harambee functions.

Despite these shortcomings, the harambee movement has potential in Tana River District and could result in substantial development of physical facilities in secondary schools, if only the local population could be persuaded to change their attitude and begin to see it as a source of funds for rural development.

To this end, the local leadership, particularly politicians and "Wazee wa Gasa" should deliberately go out of their way to sensitize the local population to the importance of the harambee movement.

Regional Authorities and Other Major Parastatals

The Tana and Athi Rivers Development Authority (TARDA) is the only regional authority operating now in Tana River District. It is also expected that Coast Development Authority (CDA) will also undertake development activities in the district once the authority becomes operational.

TARDA is involved in implementing a giant irrigation project for rice production in the lower part of River Tana. During most of the 1989-93, however, TARDA's activities in Tana River District were concentrated on data collection and the carrying out of feasibility studies to determine the potential areas for its investment. However, Tana River District Development Committee has not been involved in the planning of Development projects started by TARDA for implementation in the district. This is because all the plans are drawn up at the authority's Headquarters in Nairobi in total disregard to the guidelines on the District Focus Strategy. For example, TARDA has failed severally to submit to the DDC its section of the Annual Annex to the District Development Plan. For this reason, the DDC is not in a position to monitor the implementation of TARDA's development activities in the District.

Of the major parastatals, only National Irrigation Board (NIB) has been operating in Tana River District. Involvement of NIB in the district dates back to 1959 when Hola Irrigation Scheme was established. The scheme was established to grow cotton as the main crop though tenant farmers were also allowed to grow food crops during the off season. Hola Irrigation Scheme was successful and supported thriving commercial activities until 1989 when it collapsed following a change in the course of river Tana which left the pumping station by about 3 km. When it was operational, the Scheme enabled NIB to collaborate with national research institutions such as KEFRI and KARI both of which opened liaison offices at Hola. The presence of technical expertise at the NIB research station was a great advantage to the DDC as far as planning of minor irrigation projects is concerned.

Although not a parastatal, the National Youth Service and Bura Irrigation and Settlement Project (BISP) deserve special mention.

National Youth Service (NYS) has been present in Tana River District since mid-seventies, when its staff and trainees were deployed to the district to construct the Bura-Hola-Garsen road (B8). Since then the NYS has remained in the district and with its heavy equipment, it has been of great assistance to the DDC in construction works such as digging of pans. In addition NYS has been facilitating the work of the District Famine Relief Committee by transporting food and water to the areas hit by drought and famine.

Though operating under the auspices of the Ministry of Regional Development, Bura Irrigation Settlement Project (BISP) is run as an autonomous unit. It has a General Manager and its own technical as well as administrative personnel.

The BISP has a research station and wealth of experience in running irrigation systems. The DDC has often drawn from the experience of technical officers at BISP when planning for minor irrigation projects in the district.

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CHAPTER TWO

SOCIO-ECONOMIC PROFILE

The economy of Tana River District is essentially subsistence, with agriculture and livestock keeping as the major economic activities. Because of the subsistence living of the populace, commerce and other off-farm enterprises are still of a rather rudimentary nature, and mainly involve petty retail trade in consumable household goods and hawking of small quantities of farm produce which takes place at the trading centres.

PRIMARY PRODUCTION

As has already been mentioned above and despite the inauspicious conditions, crop farming and livestock production are still the leading sectors in primary production.

Agricultural production in the district occurs within the flood plain of the River Tana, where periodic floods make suitable conditions for crop farming, and also along the coast, where rainfed crop farming is possible. In addition, some cropping is undertaken on minor irrigation schemes and also at Bura Irrigation and Settlement Project (BISP). Pastoralism is the predominant mode of livestock production and is practised in the rangeland that makes up the vast proportion of the total land area of the district, as well as in the riverine area and in the Tana Delta. Other primary production activities such as forestry and fishing are of little importance at present, for they have not evolved to provide a living for a significant number of the district's population.

Agricultural Production

Agricultural production in Tana River District occurs in typically small-farm holdings, with about 60% the total holdings falling below 0.5 ha. Most of the holdings are in Garsen and Galole Divisions, as very little farming takes place in the other divisions, except in Bura Division where BISP has been an area of agricultural activity. There are hardly any variations, especially with regard to the combination of farm enterprise because along the river Tana nearly all farmers grow maize, cow peas, green grams, bananas and mangoes. While the cereals, pulses and bananas are grown principally for food, mangoes are cultivated as a cash crop.

Table 2.1 presents the small-farm sector in Tana River District, and it can be seen that Garsen Division has the largest farm area in the district, i.e 225Km² out of the district's total farm area of about 380 km². It can also be seen from the table that there are only three cash crops grown in the district, viz: cotton, mangoes, and coconuts. However, cotton production has stopped because of the reasons explained below and this leaves only mangoes and coconuts as the main cash crops. Of these two, the latter is relatively more important, as it is grown in three out of the five divisions in the district.

Table 2.1.

Small Farm Sector

Division	Farm Area Sq. Km	Rural HH	HH per Sq. Km.	Small-Holdings (Number)	Main Food Produce	Main Cash Crops	%HH with High Value Cash Crops	(Number) Members Producers co-ops
Garsen	225	8677	39	3,338	Bananas Cow peas Green grams Rice Maize Cassava	Cotton Mangoes Coconuts	15%	971
Galole	86	7165	83	2,873	Bananas Cow peas Green-grams Rice Maize	Cotton Mangoes	12%	650
Bura	41	5162	126	4,977	Maize Green-grams Cow Peas Bananas	Cotton Mangoes	5%	510
Madogo	21	2052	82	401	Bananas Cow peas Green-grams	NIL	NIL	90
Bangale	3	1169	390	10	NIL	NIL	NIL	NIL

Source: District Agricultural Office, Hola

With regard to food crops, Table 2.1 shows that the staple food stuffs, i.e. maize, bananas, rice and the pulses are grown in all the divisions except in Bangale. Rice production has declined over the last three years owing to lack of floods, and maize has not been doing well either for the same reason. Pulses, on the other hand, have registered good yields, but total production has declined due to reduced acreage. This leaves bananas as the most important food crop grown in Tana River District at present.

Irrigation agriculture is an important component of the small farm sector of Tana River District, despite the fact that all irrigation schemes in the district are faced with various problems at the moment. There are two types of irrigation schemes in the district; large schemes and minor irrigation schemes.

There are two large irrigation schemes and are located in Bura (B.I.S.P) and Galole (Hola Irrigation Scheme) Divisions. The minor irrigation schemes are found along the River Tana in all the divisions except Bangale. However, Galole and Garsen Divisions have the majority of these schemes. Distribution of the irrigation schemes is shown in Table 2.2.

Distribution of Irrigation Schemes

Division	1 Large Schemes	2 Minor Schemes	3 Hectarage (1 + 2)	4 No.of Farmers	5 No.of Beneficiaries (1 + 2)
Garsen	-	3	110	275	1,850
Galole	1	4	1,121	975	5,850
Bura	1	1	2,525	2,200	13,200
Madogo	-	3	65	179	1,074
Bangale	-	-	-	-	-

Source:District Agricultural Office, Hola

The acreage under irrigation agriculture is high in Bura and Galole divisions compared to other division because of Bura Irrigation and Settlement Project and Hola Irrigation Scheme. With regard to enterprise combination for the schemes, it should be noted that, while minor irrigation schemes have maize, rice and vegetables as the main crops, cotton is the chief crop in the large schemes, but maize and pulses, such as cow peas, beans and green grams as well as vegetables are also grown on the large schemes as food crops, but only during the off-season for cotton growing.

In addition to the existing irrigation schemes, irrigation agriculture in Tana River District is being expanded. Tana and Athi Rivers Development Authority (TARDA) is currently undertaking a giant irrigation project in Garsen Division which plans to bring a total of 11,000 ha under rice production. Also, there are proposals for opening new minor irrigation schemes and these will result in 329 ha being brought under irrigation agriculture to benefit about 600 farmers. The new irrigation schemes will be located in Bura, Galole, Garsen and Madogo Divisions.

Table 2.3 presents production trends, for major crops currently being grown in Tana River District, and it can be seen that the yields of maize and rice have tremendously declined between 1989 and 1992. For instance, in 1989, the recorded harvest for maize was 4072 tons compared to 1352.5 tons in 1992, while the figures for the decrease in rice production over the same time-span is from 2138 tons to 468 tons. In contrast, production of bananas and mangoes has been on the increase, while that of vegetables has remained more or less the same.

Table 2.3

Major Crop Production Trend, 1989-92 (Tons)

YEAR		Maize	Rice	Cow peas	Green- grams	Bananas	Mangoes	Vege- tables
1989	Target (Ha)	4200	1069	336	1500	-	-	200
	Yield/ha	1.0	2.0	0.5	0.5	-	15	30
	Ha achieved	4072	1069	336.1	501.1	-	-	80.6
	Production (Tons)	4072	2138	168.05	250.55	-	-	2418
1990	Target (Ha)	5040	1752	585	1000	-	-	243
	Yield/ha	1.0	0.2	0.8	0.8	11	15	15
	Ha achieved	1719.7	964	229	438.1	615	600	1213
	Production (Tons)	1719.7	1928	183.2	350.48	6765	9000	1819.5
1991	Target (ha)	5120	1752	507	1049	-	-	199
	Yield/ha Est.	1.0	2.4	0.6	0.75	13	15	20
	Ha achieved	1921.6	357.5	320.7	365.5	650	650	124.8
	Production (Tons)	1921.6	760.2	192.42	274.1	8450	9750	2496
1992	Target Ha	4011	758	635	1261	-	-	225
	Yield/ha est.	1.0	2.0	0.8	0.8	10	15	20
	Ha achieved	1352.5	234	154	263	822.5	672	129
	Production (Tons)	1352.5	468	123.2	210.4	8525	10050	2580

Source: District Agricultural Office, Hola

Livestock Production

Livestock production in Tana River District is practised both as organized commercial ranches and as traditional pastoralism although the latter mode is the most predominant. Pastoralism provides a livelihood for between 9,000 and 10,000 households who live in the hinterland to the west of the Tana River and move with their herds during the rains to the south during the dry season in search of pasture and water. The animals are kept traditionally for milk production to meet subsistence requirements. Surplus milk is sometimes sold to local townships and to the riverine communities, few of whom own cattle. Sheep and goats are kept in combination with cattle (immature and mature males are sold when cash is needed) and provide a subsidiary source of income.

Pastoralists have traditional ways of alleviating risk from disease, drought and theft. Owners split their herds into several groups which are grazed and managed jointly with other herds whilst they allow other cattle to join the portion of the group which is retained. As part of this arrangement animals are loaned to relatives who have insufficient animals to be viable, to assist them in building up their stock. This system has begun to break down, however, leading to an

increase in the number of families who have opted to practice agriculture or seek off-farm employment.

In addition, all large herds irrespective of livestock type are split into two groups. The first group, called 'Manyatta herd' usually consists of lactating cattle or camels, grazes on pastures around the settlements (up to 15 km for cattle and up to 20 km for camels). The other group consists mainly of 'dry' animals and grazes on pastures far from the settlements. The dry herds are usually larger than the manyatta ones, but the ratio between them is variable and generally depends on the families livestock wealth. The smaller the total family herd the higher the proportion of the total kept in manyatta. The determining factor appears to be the size of the family as enough lactating animals (livestock wealth permitting) must be kept at the manyatta to supply milk to the family.

Typically, families split during the rainy season; the able bodied men and boys move with the herds, leaving women, children and old men behind in the dry-season manyattas. Traditionally, men are responsible for herding and women are responsible for tasks such as fetching water for human and animals, construction and repair of huts and other domestic chores.

Table 2.4
Livestock Production

Division	Area in Sq. km.	Rural HH	HH per Sq. Km.	Main Livestock Reared	Major Livestock Produce	%HH with High Value Cattle
Garsen	12,646	4,719	0.4	Cattle, Sheep & Goats Donkeys	Meat, Milk H/Skins Ghee	NIL
Galole	12,649	4,863	0.4	Cattle, Sheep & Goats Donkeys	Same as above	Same as above
Bura	5,235	2,037	0.4	Cattle, Sheep & Goats Donkeys Camels	Same as above	Same as above
Madogo	5,041	3,242	0.6	Cattle, Sheep & Goats Camels Donkeys	Same as above	Same as above
Bangale	3,123	534	0.2	Cattle, Sheep & Goats Camels Donkeys	Same as above	Same as above

Source: District Livestock Production Office, HOLA.

As Table 2.4 indicates, livestock production is widely practiced in all the five divisions Tana River District, with cattle, goats, sheep and camels as the main types of livestock reared and major livestock products are meat, milk, hides and skins, and ghee. Though it is difficult to provide any accurate figures on the distribution of livestock among the five divisions because of seasonal movements of livestock observations indicate that, Garsen and Garga Divisions tend to have more cattle than the remaining three divisions, while Bura Division has more of the small stock. Camels and donkeys are found mainly in Bangale and Madoga Divisions. Tables 2.5 and 2.6 show the distribution of livestock species in Tana River District by division in 1991 and the number of animals that were sold or slaughtered in the district as well as other livestock products, respectively.

Table 2.5

Livestock Production and Distribution, 1991

Division	Cattle	Sheep	Goats	Camels	Donkeys	Fabrics	Chicken	Swine
Bangale	53,820	37,324	27,475	5,418	3,472	-	-	-
Bura	80,00	185,000	280,000	2,400	2,500	-	300	-
Gelole	89,204	35,000	35,000	107	1,500	150	-	-
Garsen	332,415	18,242	24,122	-	802	-	28,080	-
Madoga	49,580	27,475	51,525	7,481	2,728	-	-	-
Total	585,119	263,242	418,112	15,407	11,002	150	28,390	-

Source: District Livestock Production Office, Hoia

Key: (-) Means no figure available.

While Table 2.5 presents the stock of animals, Table 2.6 indicates the annual flow of livestock production and is, therefore, of greater importance particularly in regard to computation of income accruing to stock owners in the district. Looking at the figures for 1991 in the two tables, it can be seen that out of a population of 585,119 heads of cattle only 25,599 and 2,122 were sold outside the district and slaughtered locally, respectively, or 4.4% and 0.4 percentage points for sales to other districts and local sales for slaughter. The corresponding figures for small stock are 1.1 and 0.72 percentage points for sales outside for sales of sheep and goats.

Table 2.6

Sales of Livestock and other Livestock Products, 1989-92

Year	Livestock Production				Other Livestock production							
	Cattle (No.)		Goats/sheep (No.)		Camels/Donkeys (No.)		Hides (kg)	Skins (pieces) (kg)	Milk (litres)	Poultry No.	Gheey	Honey (litre)
	1	2	1	2	1	2*						
1989	24,359	3,420	2,637	6,493	49*	-	7,4854	28,334	-	-	-	-
1990	30,949	2,433	678	6,061	-	-	4,407	49,373	-	-	-	-
1991	25,599	2,122	7,683	5,054	-	-	2,750	18,766	-	-	-	-
1992	13,241	3,964	10,901	8,393	486	10	6,761	34,427	367,700	-	5,875	9,297

Source: District Livestock Development Office, Hols: Annual Reports, 1989-92

Key: 1 = Slaughtered in the district
 2 = Sold outside the district
 * Refers to camels only
 - Means figures not available

Apart from traditional pastoralism, there are in Tana River District six ranches, of which two are privately owned and the rest belong to co-operative societies. Table 2.7 shows the distribution of the existing and proposed ranches and proposed grazing blocks in the district by acreage and membership.

Table 2.7

Ranches and Grazing Blocks by Size and Membership

Division	Name of Ranch or Grazing Block	Area (Ha)	Membership
Garsen	1. Galana Ranch (Private)	377,964	1
	2. Idasa-Godana (Co-op)	51,000	100
	3. Wachu Ranch (Co-op)	32,000	80
	4. Kitangale Ranch (Co-op)	20,000	50
	5. Giritu Ranch	42,000	345
	6. Haganda Ranch	12,000	50
	7. Kondertu Ranch	20,000	Proposed
	8. Dalu Ranch	6,800	"
	9. Jembe Ranch	5,000	"
Galole	1. Mpongwe Ranch	40,000	Proposed
	2. Wayu Ranch	60,000	"
Bura	1. Nanighi Ranch (Grazing Block)	314,090	Proposed
Madogo	1. Saka Grazing Block	328,200	Proposed
	2. Anole Grazing Block	360,180	"
Bangale	1. Mbalambala (Grazing Block)	168,350	Proposed

Source: District Livestock Production Office, Hola

Much of what has occurred on the socio-economic scene in Tana River District since the last District Development Plan was written allows for the conclusion to be drawn that the district has experienced an overall decline in its major economic activities during the 1989-93, plan period.

In 1989, Hola Irrigation Scheme (HIS) around which much of the economic activities (on-and-off-farm) had centred for three decades collapsed, following a change of the course of river Tana that saw the river leave the intake by 3 km. Attempts to revive the scheme has foundered against the lack of funds and the

farm areas have since reverted to bush. With its total area of 972 ha, HIS was supporting 634 farm - families who were growing cotton, as the chief crop, maize, pulses and vegetable as food crops. Also, in the same year, Bura Irrigation and Settlement Project (BISP) began to have problems with cotton production - only four years since it started operating in 1985. Since then the problems at BISP have increased, so much so that the project is now faced with imminent collapse. BISP was planned to cover 6,700 ha of which only 2,500 ha. had been developed by 1985 and some 2,300 farmers were settled.

Consequent upon the collapse of HIS and with the imminent grinding to a halt of BISP, cotton production in Tana River District has stalled completely and this has resulted in contraction of the local economy. In this regard, it should be noted that cotton industry in Tana River District had many linkages with the other sectors, particularly with off-farm activities such as commerce and trade which depended on it.

The fate of the minor irrigation schemes in the district is not any good either, as all of them are facing problems, including lack of commitment on the part of farmers, poor management by officials of the schemes, and lack of funds for the purchases of farm inputs as well as for operation and maintenance. As a result of these, some of the schemes have run aground, while others are operating with as high as over 50% excess capacity.

For the traditional flood-fed agriculture and livestock production also, the 1989-93 DDP period was not an auspicious one. Reduction in (and sometimes total failure of) annual flood brought about a decline of agricultural production the riverine areas, where residual moisture is needed for crop farming. On the other hand, the prolonged drought which started in Tana River in 1990 and continued till 1992 saw an enormous reduction in the fortunes of pastoralists, who lost large numbers of heads of cattle as well as flocks of small-stock.

For example, Table 2.3 shows that the acreage under cereal crops and pulses continuously declined through the 1989-93 period, while Table 2.6 also reflects a similar trend for the sale of cattle in the district. Thus, between 1991 and 1992, agricultural production in Tana River District declined by about 5.5 percentage points and livestock production by 29.9 percent.

Due to these adverse conditions, the vast majority of the population of Tana River District has been undergoing particularly difficult times over the last three years. Especially exacting are the problems of food availability and the lack of source of income; and the resultant suffering has only been mitigated through distribution of relief food by the Government.

Other Primary Production Activities

Mention has already been made of the little role that primary production activities such as fishing and forestry play in the economic livelihood of the people of Tana River District, particularly as regards employment and generation of

income. But it should be noted that these activities are still very important at the subsistence level. For example, fish is a source of protein for the riverine communities and the inhabitants of the coastal areas, while fuelwood supplies the energy requirements for virtually the entire population of Tana River District. What is interesting in these two sectors, therefore, is their having not been integrated into the cash economy.

Fisheries

Fisheries is still largely undeveloped in Tana River District, despite the fact that the district has 75 km of coast line as well as the fresh water of the River Tana and its wetland areas both of which present good potential for this industry. A matter of considerable interest in this regard is that fishing along the River Tana is almost exclusively for subsistence and, apparently, is considered to be a pass-time activity for young boys. Yet, fish is an important element in the diet of the riverine communities, who are the majority of fish eaters in the district.

However, there is some commercial fishing in Garsen Division, where both marine and fresh water fishing occur. With regard to the latter, most of the fishing takes place off-shore, which means that this economic activity has little impact on the district's economy as all the fish caught is sold outside the district. The former type of fishery activity is based on the ox-bow lakes created by the meandering and periodic over-flow of the River Tana. It is from these grounds that most of the fish sold in the local markets in the district is obtained.

While modern and sophisticated fishing gear are used for commercial marine fishing, the gear whose usage is applied in the ox-bow lakes and on the River Tana are rudimentary, consisting, as they do, of hand line gill nets and locally made traps. Because of this limitation the number of people who earn a living from fishing are only about 300 in the whole district and the annual quantity of fish caught ranges between 195,000 kg. and 400,000 kg.

More than two-thirds of the fish produced in Tana River District is sold locally, mainly by hawkers, the majority of whom are women, while the rest is sold to the neighbouring districts of Kilifi and Lamu as well as in Mombasa. Table 2.8 shows the quantity and value of fish produced in Tana River District between 1988 and 1992.

Table 2.8

Quantity and Value of Fish Produced Between 1988-1992

Year	Quantity (Kg.)	Value (Kshs)
1988	194,142	1,418,459.00
1989	374,022	4,932,927.00
1990	368,216	2,834,370.00
1991	416,859	3,688,558.00
1992	397,944	3,044,725.00

Source: District Fisheries Office, Hola

Table 2.8 shows that fishing has good prospects for income generation, considering that income that accrued to some 280 fishermen and about 131 fish traders in 1992, for example was KShs.3,044,725, giving an annual per capita of KShs.7,232 for those engaged in the fishing industry. This is quite a good amount of money in an area like Tana River district where many people live in abject poverty.

Forestry

Forestry and agro-forestry are not practised in Tana River District on a commercial basis, and economic activities that are based on forest products are limited to collecting dead wood from the riverine forest and from along the lagas for use as fuelwood as well as for sale. Building poles are also obtained from the same sources and are used for house construction and sale. These activities are fashioned around a gender division of labour, whereby collecting of fuelwood is a chore for women, while obtaining building materials irrespective of the purpose is the responsibility of men. Among the pastoralists, however, the two tasks are undertaken by women.

But along the coast, where there are mangrove forests, and also within the Witu forest there is scope for commercial exploitation of forest products (i.e. cutting of mangrove poles and saving of indigenous trees for hardwood), yet this activity has been banned on account of environmental preservation. In the future, however, some controlled felling of mangrove poles might be allowed when the forest has regenerated well enough to allay the present fear that further exploitation of the trees could result in their going into extinction.

Another activity that is based on forest products is charcoal production. This takes place within 15-20 km of the main trading centres such as Garsen, Hola, Bura and Madogo, where the market for charcoal exists.

Though production is low at present, there is every likelihood that more people will in future take to charcoal burning as a way of earning a living because of frequent failures and loss of livestock that has occurred in Tana River District in recent times. Indeed, in Modogo division some destitute pastoralists have started burning charcoal which they take to Garissa town for sale. In the course of time this activity will spread to other parts of the district where the existing communication facilities allow for transportation of charcoal to the markets.

COMMERCE, TRADE, MANUFACTURING AND OTHER SERVICES

Few households in Tana River District depend on commerce and trade and fewer still on manufacturing for their livelihood. This is because the economy of the district is largely a subsistence one, a feature that manifests itself in the form of lack of strong linkage between the primary production activities and off-farm activities. The process that makes for lack of linkage works out in the following manner: first and foremost, the primary production sectors are to a large extent independent of the market place in the sense that few if any farmers purchase farm inputs from the market centres. Thus the preponderance of subsistence agricultural production have the effect of inhibiting the process of exchange, for example, between pastoralists and agriculturalists and, therefore, also of monetarization of the local economy. Consequently, employment and income opportunities from off-farm activities are rather limited in Tana River District. Secondly, commerce and trade in the district is further impeded by the fallacy of composition that characterises agricultural production as well a livestock production, as all the farmers grow the same type of crops and pastoralists keep the same type of animals.

Therefore, the existing relation of productions between the primary producers in the agricultural and livestock production are not conducive to the emergence and growth of commerce and trade as vibrant economic activities that could spur other off-farm activities. As a result, commerce and trade in Tana River District is limited to only a few centres and revolves around centres which also serve as the administrative centres. Commercial activities in these centres revolve around petty retail trades in both manufactured house consumer goods and agricultural produce that is brought into the district from outside. It is these activities that pass for informal activities in Tana River District, as other informal enterprises such as shoe making and repairing, tool making, tailoring, posho milling are conspicuously absent in most centres. In fact, it is only in Garsen, Hola and Bura that there are noticeable informal activities, but few of them are based on what is produced locally using the district's own available resources.

This means that the vast proportion of income accruing to the residents of Tana River District who depend on primary production activities for their livelihood

is expended on 'imported' consumer goods. It also means that there is little investment in these sectors; and that general retail trade and catering constitute the bulk of business activities, as Table 2.9 on licensed trades indicates.

Table 2.9

Trade Licences by Category and Division

Division	Category						
	B ¹	B ²	B ³	B ⁴	B ⁵	B ⁶	B ⁷
Garsen	4	23	1	184	5	Nil	Nil
Galole	6	29	2	284	7	1	Nil
Bura	3	12	Nil	83	5	Nil	Nil
Madogo	1	11	Nil	63	3	Nil	Nil
Bangale	1	2	Nil	13	Nil	Nil	Nil

Source: District Trade Development Office, Hola

- Key: B₁ - whole sale
 B₂ - catering
 B₃ - garages
 B₄ - retail trade
 B₅ - miscellaneous occupation
 B₆ - manufacturing
 B₇ - distributor

It is evident from the Table 2.9 that commercial activities in Tana River District are concentrated in Garsen and Galole Divisions, and that of all categories of trade, retail is the most prevalent. It should be noted that, though retail trade and miscellaneous occupations are categorised separately, in fact, the two sometimes take place in the same premises and the dividing line between them is therefore murky. Also worthy of note is the fact that about half of the licensed retail trade takes place in kiosks which sell all types of goods, ranging from vegetables to second hand clothes, grains, etc.

Table 2.10

Trend of Trade Licences, 1988- 1992

YEAR	CATEGORY						
	B1	B2	B3	B4	B5	B6	B7
1988	16	49	1	342	12	-	-
1989	23	48	3	472	23	1	-
1990	10	49	1	264	12	-	-
1991	16	78	2	497	27	-	-
1992	16	58	2	347	11	-	3

Source: District Trade Development Office, Hoha.

Table 2.10 shows that there is no definite trend in the number of trades registered in the district between 1988 and 1992, but it does indicate that over this period retail trade business increased from 264 in 1990 to 474 in 1991, but declined to 347 in 1992. One conclusion that can be drawn from the table is that retail trade is not a stable activity; and in fact, observation indicates that most of these activities are often set up by those who seek to take advantage in particular of shortages of essential commodities, which are frequent in the district.

Apart from retail trade and hawking of vegetables, bananas, mangoes and staple food stuffs, there is trade in baskets and mats albeit to a rather limited extent because it is the artisans themselves who engage in the sale, which depends on orders placed earlier.

EMPLOYMENT

The activities discussed above are indicative of the types of employment that sustain the population of Tana River District. Since commercial/business, informal and private as well as public sector activities are limited in the district, the majority of the population is engaged in subsistence agriculture and pastoral livestock keeping.

Labour force

The 1989-93 District Development Plan for Tana River District estimated the labour force to be 76,789 in 1987, using a growth rate of 4.8%. According to the Economic Survey of 1991, the intercensal growth rate of the population of Tana River District is 3.38 percentage points. Therefore, this plan assumes that the labour force of Tana River District is also growing at more or less the same rate as that of the population from which it is drawn. Applying the growth rate of 3.38% to the 1989 census figures which gave the size the labour force for Tana River District at 40, 800, it is estimated that the potential labour force in the district has since increased to 82,890 in 1993; this is projected to grow to 99,546 in 1996, an increase of 20%.

But it should be noted that figures for the labour force in Tana River District that reckon in only the 15-59 age group certainly under-estimates the size of the labour force, for there is substantial participation of the under - 15 year olds in the pastoral areas. Even in the riverine agricultural communities, child labour is substantially utilized during the mango harvesting season which is a rather labour intensive exercise. Thus, child labour force is important in the district particularly in the primary production activities where children participate either in herding of small stock and fodder gathering around the manyattas or in picking and packaging of mangoes as well as scaring off baboons from maize gardens. In addition, girls under 15 years of age participate in domestic chores such as drawing water and gathering fuelwood.

Distribution of Labour

The 1989-93 DDP estimated that about 90% of the labour force in Tana River was engaged in subsistence agriculture and pastoral livestock production. The plan also recognised the minimal role being played then by commercial and informal enterprises in the increasing employment opportunities, but was nonetheless optimistic about their growth, as it envisaged that irrigation agriculture in particular would expand to bring about a significant increase in informal sector activities. As explained in the primary production section, this development has not occurred; so, not much has changed in the structure of the economy of the district to fundamentally alter the distribution of the labour force across occupations.

This means that in the foreseeable future the majority of the population will be engaged in agriculture and livestock production, while informal sector activities will expand and absorb labour at increasing rates only if there is a shift in primary production towards producing for the market. This implies a structural change which it is not reasonable to expect to occur during the period of the present DDP. Also, for the foreseeable future the public sector will continue to account for a disproportionately higher proportion of wage employment in the district because most employees are engaged in civil service, teaching and employment in parastatals and local authority.

Against the background of the foregoing, Table 2.11 presents the employment profile of Tana River District.

Table 2.11

Employment Profile of the District

	1993	1994	1996
Labour Force	82,890	85,691	99,546
<u>Agricultural Labour</u>			
Small Farm	39,398	40,189	46,189
Large Farm*	3,375	3,443	3,992
Pastoral	36,369	37,099	43,015
Migrant/Seasonal	-	-	-
<u>Other Rural Self-employment</u>			
Fishing	280	395	530
<u>Wage Employment</u>			
Public Sector	2,639	3,180	3,650
Private Sector	5	38	60
<u>Urban Self-employment</u>			
Commercial/Business	450	490	675
Informal Sector	654	857	1,025

* Ranches and Grazing Blocks

Source: District Development Office, Hola

It can be seen from Table 2.11 that employment outside the primary production sectors account for a very low proportion of the labour force. For instance, out of the estimated figure of 82,890 for 1993, only 3,748 or 4.9% was accounted for by wage employment and employment in commercial/business sectors. Estimates for 1994 and 1996 also show similarly low levels of employment in these two sectors. Though these figures are not quite accurate, as they are based on rough estimates, they still present a fair reflection of distribution of labour in the district.

This means that agriculture and livestock production will continue to be the most important absorber of labour in the district, accounting for over 90% of the labour force throughout the 1994-1996 plan period. In order for these sectors to play this crucial role, it would be necessary to raise both farm productivity as well as incomes as one way of up-lifting the standard of living of those engaged in primary production.

There used to be migrant/seasonal labour in the district at the time when there was cotton growing at Hola and Bura irrigation schemes. However, these activities have since stopped, following the collapse of the former irrigation and the end of cotton growing at Bura because of financial problems that BISP is currently facing. In future, however, migrant/seasonal labour might become significant once again when the two schemes are revived, and when Tana Delta Irrigation Project becomes operational.

Conditions of Employment

Conditions of employment vary in accordance with the nature of activities that a particular type of employment entails. In the primary production sectors in Tana River District, for example, hardship is a general characteristic of conditions of employment.

Agricultural production in the district is seasonal because most of it occur during the periods of long rains when activities such as land clearing and preparation have to be done and also during harvesting; the inter-seasonal period is characterised by open, under-employment. Employment in the livestock production sector is also determined by seasonal variations in the availability of water and pasture, which, in turn, determine the degree of hardships as well as the division of labour at the household level.

During the dry seasons, the pastoralist household's activities centre on gathering fodder and drawing water for the 'Manyatta herd' and this seems to occupy particularly women and children. Gathering fodder is a time-consuming and difficult task, considering that one has to wander about for several hours in scorching heat in order to collect a head-load of twigs, and pods. Equally taxing is the exercise of drawing water as this sometimes involves walking long distances.

With regard to the conditions under which both rural and urban labour works, it should be noted that wage labour in Tana River District is biased towards men partly because of the relative low level of education of women in the district and partly because religious/traditional practices that do not favour the idea of women going into wage employment. Wages in the business/commercial sectors are generally lower than the minimum set by the Government for the rural area. Housing conditions are also poor and here matters are further worsened by lack of sanitary facilities at the places of residence

Under-employment is widespread in Tana River District and takes place in all the sectors. In the primary production sectors, sharing of the available work among members of the household is the general practice irrespective of the volume of work relative to the people available. In this regard, it is particularly interesting to note that (for the pastoralists) men tend to remain idle most of the time as the tasks of herding animals is considered by tradition to be the responsibility of young men, women and children. In view of this quite a good proportion of the men population in the pastoralist communities are openly unemployed. Another area where under-employment can be easily seen is the informal retail and hawking

activities. Here three or more people manning a single small kiosk is a common occurrence.

Those in wage employment as well as people who are engaged in commerce and trade are similarly faced with hardship, particularly the lack of transport to the main centres during the rainy seasons. Road transport in Tana River District gets utterly impaired during heavy rains as a result of which supplies of goods run out. At such times traders resort to overcharging consumers as one way of recouping high transport expenses. One other bad condition of employment for this category of people is the poor and inadequate housing and sanitation at the trading centres in the district.

SOCIAL AND ECONOMIC INFRASTRUCTURE

Generally, social and economic infrastructure in Tana River District is inadequate and unevenly distributed in that most of them are located within 20km or so of the western bank of River Tana. This is because the majority of permanently settled population is found on the banks of River Tana. The hinterland of the district is therefore, poorly provided with all types of social infrastructure including health facilities, schools and roads.

Health Facilities

Table 2.12 indicates the type of facilities that exist in the district and Map 4 shows their spatial distribution.

Table 2.12

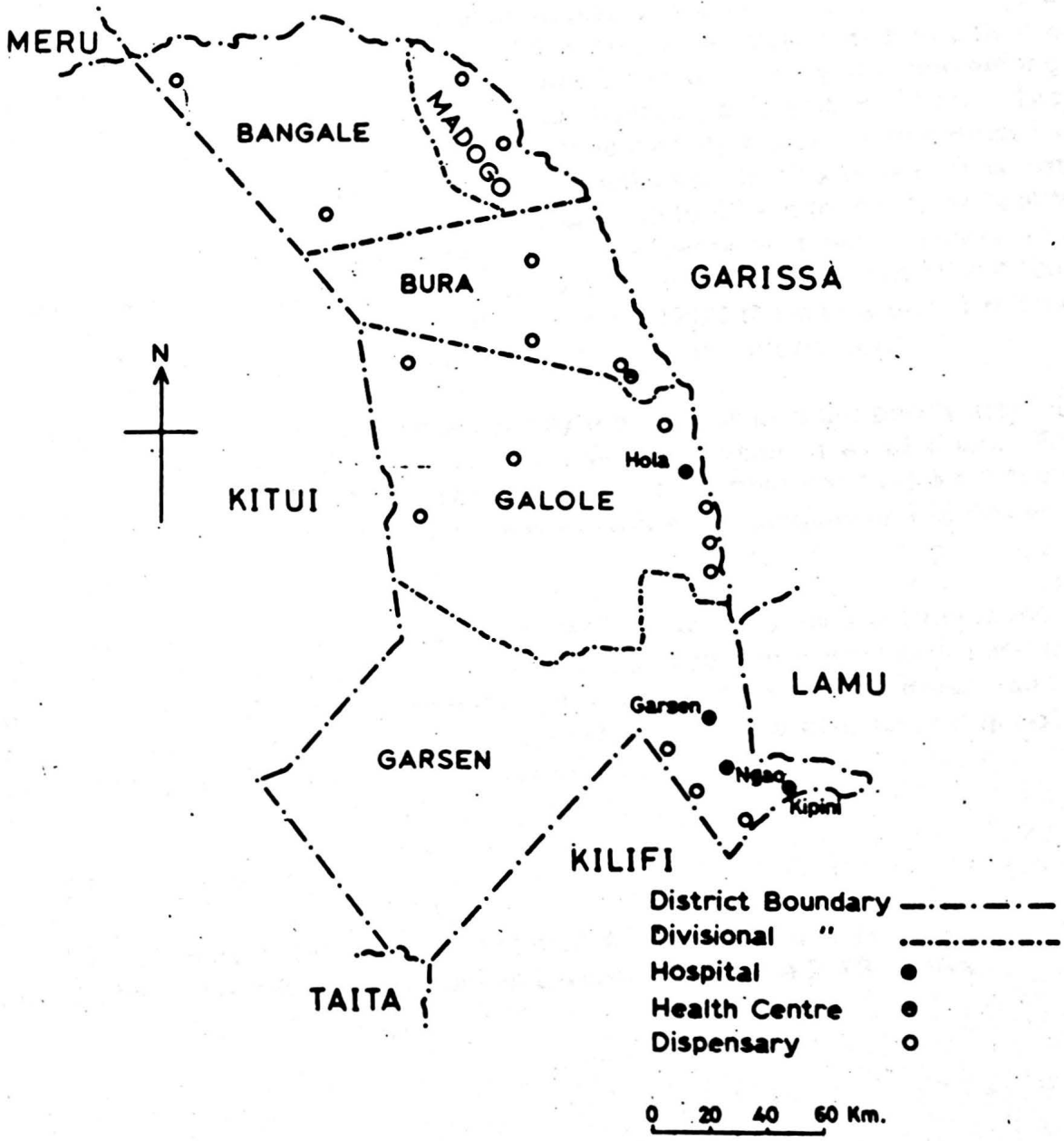
Distribution of Health Facilities, 1993

Division	Type of Facility				Sponsor		
	Hosp.	Health	Disp.	Clin.	GOK	NGO	Private
Bangale	-	-	1	-	1	-	-
Bura	-	1	10	-	6	4	-
Galole	1	-	14	2	7	6	3
Madogo	-	1	2	-	3	-	-
Garsen	1	2	8	1	7	1	1

Source: Medical Office of Health, Hola

The district hospital is at Hola in Galole Division and the sub-district hospital at Ngao in Garsen Division. Apart from Bangale Division, which does not have a health centre, the remaining four divisions have one health centre each. And as

TANA RIVER DISTRICT
HEALTH FACILITIES



Map 4 indicates, both Garsen and Galole divisions are better covered by health facilities than are Bura and Madogo, while Bangale has only two dispensaries. There was no significant increase in the number of health facilities in Tana River District in the period between 1987 and 1992 as only three dispensaries were established (one each in Garsen, Bura and Bangale divisions).

Most of the health facilities are not well utilized because there is a tendency among the majority of the local population to resort to traditional herbal medicine as a first measure of curing diseases, and it is only when this fails that patients are taken to the local health facilities. This practice is particularly common among the pastoralist communities with regard to diseases afflicting children. The problem of low utilization is further compounded by long distances that must be covered in order to reach the nearest health facilities. In this regard, it is not unusual for people to travel on foot for as long as up to 40 km to reach the health facility that is nearest to their settlements. Furthermore, health centres and hospitals lack adequate staff, for example, the approved establishment for medical doctors for Tana River District is 3, but up to early 1993 there was only 1 doctor based at Hola, while Ngao hospital does not have a resident doctor.

Even the health centres and especially the dispensaries are poorly staffed. In addition, there is lack of essential equipment and water in all of them. For example, Ngao hospital which has a capacity of 70 beds does not have a mortuary because of lack of electrical power, while Hola with a bed capacity of 180 has only 2 doctors at the moment.

However, the situation at the health facilities in Tana River District is much better in respect of supply of drugs, for all the health centres, dispensaries and the two hospitals are well provided with most types of commonly used drugs, making the district one of the few in the country where shortage of medicine is not a problem hindering the delivery of medical services.

Educational Facilities

Like the health facilities, educational facilities in Tana River District are concentrated in both Galole and Garsen Divisions, as Table 2.13 shows.

Table 2.13.

Educational Facilities in the District

Division	Type of Institution			
	Primary	Secondary	Youth Polytechnic	Pre-Primary
Galole	39	5	2	18
Garsen	43	4	2	28
Bura	19	1	1	11
Madogo	9	1	-	8
Bangale	2	-	-	-
Total	112	11	5	65

Source: District Education Office, Hola

Table 2.13 further indicates that Bangale Division has a relative lack of educational facilities and this is due to low demand for education in the area because the division is almost wholly inhabited by pastoralists who are not keen on sending their children to school. With regard to Bura Division, nearly all the schools are to be found at the Bura Irrigation and Settlement Scheme, as elsewhere in the division the situation is not any different from that at Madogo and Bangale Divisions.

Education facilities in the district are generally under-utilized, especially with respect to teachers because of low enrolment in the higher classes of primary education and secondary schools. At both levels of education, poor and inadequate physical facilities mean that the existing schools are not properly utilized. In this connection, not even in a single primary school in the district are there the required equipment for the teaching of subjects which are mandatory for pupils entering themselves for KPCE examinations. Similarly, secondary schools are generally ill-equipped; in fact, only about 4 of them are well established by the standards for Tana River District. Consequently, the outcome of the education system in the district is the poorest in the whole country.

Roads

Tana River District has a total length of road net work of 1,054.6 km, consisting of classes A through E, of which bitumen, gravel and earth surface cover 148.7 km, 72.3 km and 910.1 km, respectively. The distribution of the road network in the district is in Table 2.14

Table 2.14

Classification and Distribution of Road Network

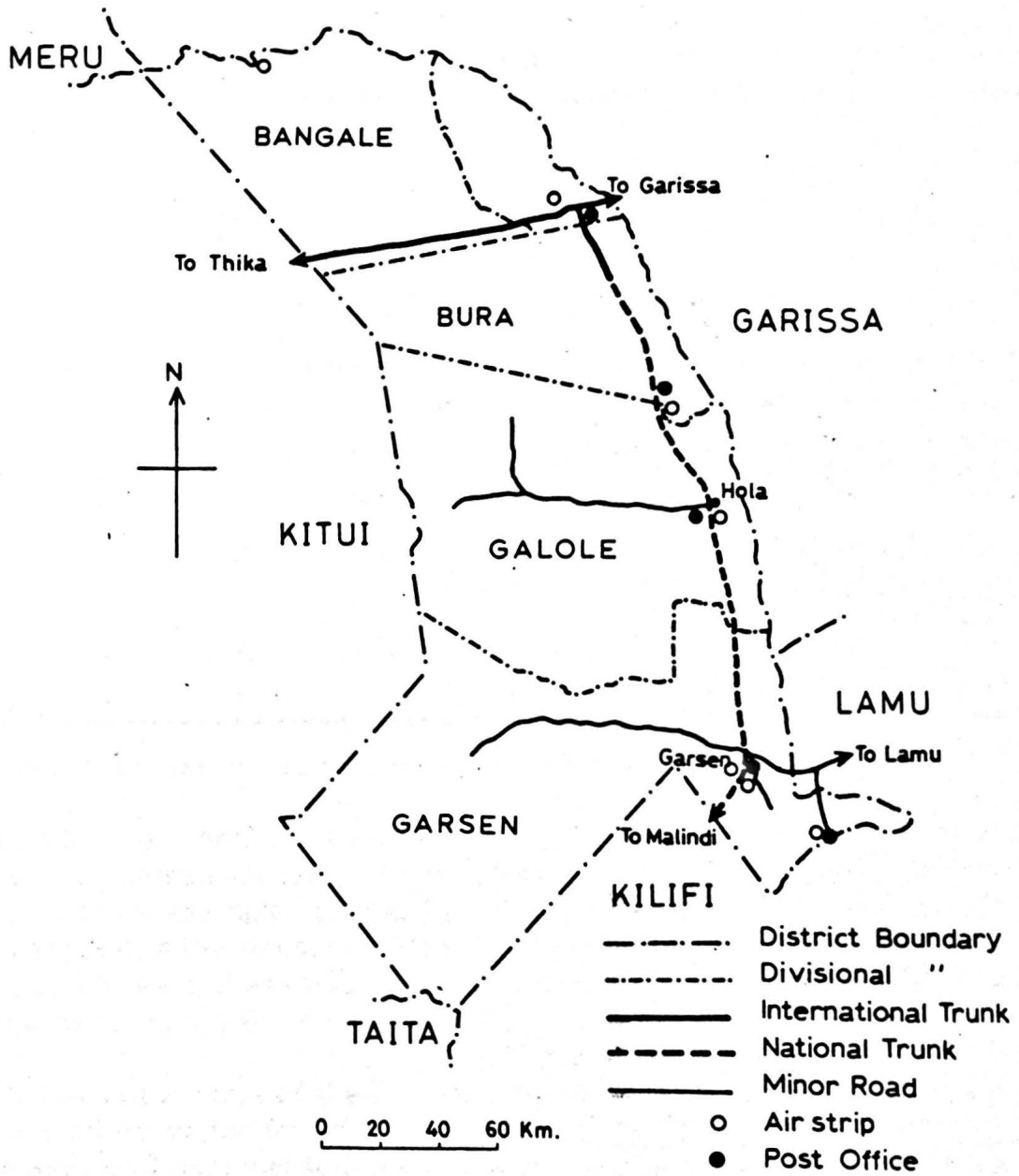
Division	Class	Distance (km)
Garsen	B	192.1
	C	18.5
	D	35.6
	E	156.1
Galole	B	50.0
	E	274.1
Bura	B	50
	E	18.5
	A	23.7
Madogo	B	74.5
	C	83.0
Bangale	A	81.5

Source: District Public Works Office, Hola

Of a total length of 1,057.6 km, about 726.6km, or 80% is in Garsen and Galole Divisions, which means that the two divisions are better served than the others. In a matter of fact, the road network in Garsen Division is the best, because there are a total of eleven separate roads of class E and six of class D all of which join the national trunk road (B8), which is the main transport link between the district and other parts of the country (see Map 5). Despite this there are still parts of Garsen Division which are inaccessible and can only be reached by boat.

During the 1989-93 plan period no new roads were opened in the district. Thus, the general picture is that the road network in Tana River District is still poor because large areas of the district are not covered, hence travelling within the district is very difficult. Besides, the condition of the roads are poor as most of them become impassable during the rainy seasons. With regard to utilization, it should be noted that roads of class A,B,and C are heavily used, and roads of class E and D are used only lightly, This is because Roads A3, B8 and C112 are very important in the district as they link Tana River District and North Eastern Province to Nairobi, Mombasa and Lamu, respectively. The other class of roads are actually feeder roads of B8 and lead either to the sparsely populated hinter-land or to similarly less densely populated areas along the river Tana. As the popular means of transport to the latter two areas are usually by bicycles, beasts of burden, or on foot, these roads cannot be as heavily utilized as roads B8,C112 and A3.

TANA RIVER DISTRICT COMMUNICATIONS



Water Supplies

Water facilities are the most lacking type of infrastructure in all the divisions in Tana River District. Since most parts of the district is dry, lack of adequate water supply is the major constraint for economic and social development. The problem is particularly acute in the hinter-land, where people have to wander about with their livestock in search of water. The result is that large areas become overgrazed, with a reduction in ground cover and greater run-off, leading to reduced infiltration and consequently to insufficient moisture.

The majority of the population in Tana River District depends on River Tana, which is the most reliable and permanent source of water. Others depend on seasonal lagas, traditional hand dug wells, reservoirs and dams for their water requirements, both for domestic use and for livestock.

Table 2.15

Water Facilities in the District

Division	Type of Water Facility					Maintaining Agency		
	Piped	Bore-hole	Well	Dam	Reservoir	GOK	Comm.	Private
Garsen	4	5	41	1	-	3	41	1
Galole	2	6	42	1	2	1	48	2
Bura	1	2	3	1	4	1	11	-
Madogo	1	4	6	-	-	-	10	-
Bangale	1	1	1	-	2	-	4	-

Source: District Infrastructure inventory and Coast ASAL Appraisal Report

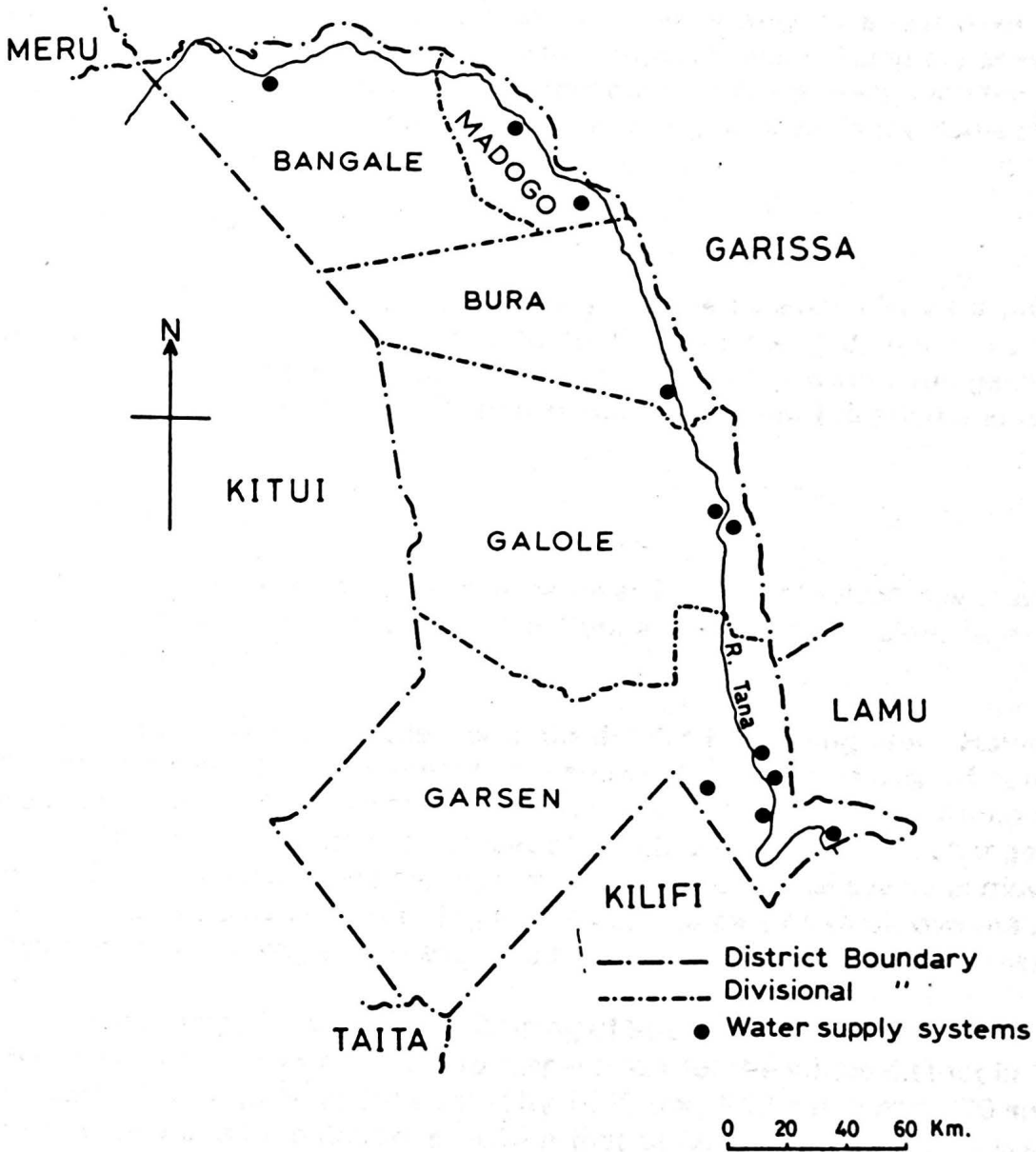
Table 2.15 presents the major types of water facilities in Tana River District, It indicates that Garsen and Galole Divisions have the largest number of boreholes and wells, with for example, 41 and 42 out of the 95 of the latter being located in Garsen and Galole Divisions, respectively. But intra-divisional distribution of the wells and boreholes in these two divisions is such that most of them are located at the villages along the River Tana.

Consequently, parts of the divisions which are distant from River Tana are poorly covered by water facilities such as wells and boreholes and, therefore, depend mainly on traditional sources of water, i.e..lagas, water holes and natural depressions in the intra-laga areas.

All the water facilities are heavily utilized and the piped water supply schemes at Hola and Ngao are over-utilized because their planned capacities are now exceeded by present demand. For example, Hola Water Supply has a

TANA RIVER DISTRICT

WATER FACILITIES



production capacity of only 1,200 m³ of treated water per day, yet the demand now stands at about 3,000m³. Also over-utilized are the reservoirs, dams and water pans. While dams and reservoirs may have water in them for several months, pans and natural depressions have water only for a few weeks after the rains. Therefore, lack of adequate water supply in the ensuing dry season makes people and livestock to move to the larger dams and reservoirs, with the result that the areas around the water points become overgrazed while the dams themselves get silted up very fast.

Electricity

Tana River District does not enjoy the use of electricity as a public utility because it has not been connected to the national grid, nor does it have a generator run by the KP & LC. The only places with privately run generators are Hola Irrigation Scheme, Hola District Hospital and Bura Irrigation and Settlement Scheme.

Cattle Dips

There are 14 cattle dips in Tana River District, of which seven are located in Garsen Division, five in Galole while Bura and Madogo Divisions have one each. Bangale has none.

Up to 1990, most cattle dips in the district were being used. However, with the decision by the government to devolve the responsibility of running and maintaining these facilities to the communities who use them, utilization of cattle dips in Tana River District has virtually stopped. Even prior to this change in policy, only a few cattle dips were being utilized partly because of seasonal movement of livestock and partly because of ignorance on the part of stock owners about the importance of dipping as a preventive measure against tick borne diseases.

According to past records, dipping of both cattle and small-stock reached a record high of 70,183 and 12,196 respectively for the whole district in 1979 and thereafter began to peter out so that by 1990 only 889 cattle and 660 small-stock were dipped in all the divisions. Given that utilization of cattle dips was already low at a time when the service was highly subsidized from the government budget, there does not seem to be good prospects for it now when livestock owners are expected to provide it from their own resources.

Co-operatives

Co-operative societies in Tana River District are categorized in Table 2.16, and as can be seen, there are producer co-operatives for the cotton, fisheries, livestock, cereals and multipurpose. However, cotton production stopped in 1989, so the cotton-based co-operative societies, particularly the one in Galole Division, are now more or less dormant.

Table 2.16

Category of Co-operative Societies (by types)

Division	Category of Cooperatives Society						
	Sacco	Cotton	Fisheries	Livestock	Cereals Multipurpose	Consumer	Horticultural
Garsen	1	-	2	1	4	1	-
Galole	3	1	-	1	-	1	1
Bura	2	1	-	1	2	-	-
Madogo	-	-	1	-	-	-	-
Bangale	-	-	-	1	-	-	-

Source: District Co-operative Development Office, Hola

Apart from the district-based SACCOs, most of the co-operative societies in Tana River are weak as they have low share capital and annual turn-overs; few are in operation and some are dormant. This might be attributed to the subsistence nature of production in these two sectors of the economy of Tana River District, and also to the fact that private dealers still dominate the marketing of valuable cash crops such as mangoes which should have been the base for a vibrant co-operative society for horticultural crops.

Table 2.17 shows the performance of co-operative societies in Tana River District for the year 1992. Two conclusions can be drawn from the table: first, it is evident that the co-operative movement in the district is still weak as only 3,788 people were participating as members. Secondly, the table indicates that producer co-operatives are very weak compared with SACCOs and consumer co-operative societies. For example, of the 3,788 co-operators in the district more than 60% are from SACCO based societies.

Table 2.17

Cooperative Societies by Share Capital and Turnover, 1992

Name	Membership	Share Capital (KShs.'000)	Turn-over (KShs.'000')	Remarks
1. Ida-sa-Godana	101	65	13.448	No cattle sales during the year
2. Kipini FCS	108	2.135	92.466	Performances satisfactory
3. Tana Teach Sacco	1174	412.173	1,730.344	Going on well
4. Umodza SACCO	52	1,350.520	4.200	Sufferers from loan defaults
5. Madogo Cattle Traders	67	35.500	Nil	Dormant
6. Bura FCS	514	59.250	-	No cotton sales in 1992
7. Bura Workers Sacco	223	1,848.595	152.199	Fair performance
8. Hola Irr.FCS	634	408.000	Nil	Dormant
9. Chana Maro SACCO	51	523.185	23.00	Operating
10.Tana Fruits	200	13.000	-	Dormant
11.Hola Rural SACCO	198	74.885	-	Dormant
12.Bura Rural SACCO	220	27.000	-	Dormant
13.Tana Teacher Consumers	246	1,230.000	3,190.257	Doing well
Total	3,788	20,619.243	6,043.914	

Source: District Co-operative Office, Hola

Other Marketing Facilities

The major market centres are at Hola, Garsen, Bura, Madogo and Bangale which are also the administrative centres (refer to Map 3). Away from these centres, there are no well established markets particularly in areas far in the hinterland of the district. Cereals and produce stores are located at Bura, Garsen(NCPB) and also at Hola. It is important to note in this regard that, since Tana River district is generally a food deficit area, the NCPB facilities are established to store cereals and pulses that are brought into the district for sale.

There are no periodic market days in the district and, therefore, everyday is a market day. Also, there are no fenced areas in the places indicated in Table 2.18, except in Bura and Hola where there is a fenced-off market area and a shade with stalls, respectively. Because of the lack of these facilities, business at the market centres take place in make-shift, temporary and grass-thatched structures and on verandas of shops, as well as under the eaves of private dwelling places.

With regard to livestock marketing facilities, it can be seen from Table 2.18

that there are twelve auction rings/holding grounds of which ten are located in Garsen Division. Of these, six are situated on privately own ranches.

Table 2.18

Types of Marketing Facility

Division	Type Marketing Facility		General Marketing	Auction Ring
	Cereals	Produce Store		
Galole	2		1	1
Garsen	1		1	10
Bura	3		1	-
Madogo	-		1	-
Bangale	-		-	1

Source: District Livestock Production Office, Hola.

The busiest market centres are Hola, Bura, Garsen and Madogo, and this is evidenced by the mushrooming of temporary kiosks and stands found in these places. At Hola, for example, the market shade owned by the county council cannot accommodate even one-tenth of the number of people who would like to have stalls there. This is an indicator of over-utilization of and demand for a better marketing facility.

Banks and Credit Facilities

Tana River District is served by only one commercial bank, the Kenya Commercial Bank, which is located at Hola, the district headquarters, and runs a mobile unit for Bura Division due to the large community at Bura Irrigation and Settlement Project. Residents of Garsen, Madogo and Bangale Divisions go to Malindi and Garissa, respectively for banking services. Sources of credit in the district include the Kenya Commercial Bank, AFC (located at Garsen) SACCOs and hire purchase facilities (located at Hola). There is also informal credit which takes place among private individuals as well as the issue of private merchants keeping money for other people, thus, in effect, acting as receptacles for savings. The latter practice is prevalent among the pastoralist and businessmen of Arab-descent with the farmer as the customer.

Generally, utilization of the banking and credit facilities is low as the AFC extends credit only to private ranches who have acquired land title deeds. Similarly, bank credit is not available to the majority of people, particularly the small business people and informal sector operators, because of the lack of collateral security and the rather risky nature of this category of economic activities. This leaves the District Joint Loans Board and Rural Enterprise Fund as

the only source of credit open to small business. However, the former source has almost dried up, following the suspension in 1990 of further disbursement from the Joint Loans Board.

WELFARE INDICES

Incomes

Components of Income

In Tana River District, incomes of the population accrue from crops and livestock produced, both for consumption and for sale, as well as from cash earned from wage employment and self-employment. Of these four sources, it is income earned from the agricultural and livestock production sectors that provide a means of livelihood for the majority of the population. However, because of the subsistence living of the people, much of what is produced, particularly in the agricultural sector, goes into on-farm consumption. This is particularly true in the case of cereals, pulses and bananas which are the staple food stuffs for the farming community in Tana River District. As regards livestock production, on-farm consumption similarly accounts for a high proportion of what is produced, mostly of milk and ghee.

Agricultural/Livestock Production values

Although agricultural and livestock production are the two principal sources of income for the people of Tana River District, estimating the values in the two sectors is fraught with difficulty on account of the on-farm consumption that is not recorded. However, Tables 2.19 and 2.20 present estimated values of production for the 1989-92 period for both agriculture as well as livestock, respectively.

Table 2.19

**Estimated value * of Selected Agricultural Commodities
1989-92 (KShs.Million)**

Crop	1989		1990		1991		1992	
	Out-put	Marketed	Out-put	Marketed	Out-put	Marketed	Out-put	Marketed
Bananas	26.550	5.311	48.708	9.741	60.840	12.168	61.380	12.2
Mangoes	74.250	44.550	81.000	48.600	87.750	52.650	90.450	54.2
Cow peas	1.681	0.168	1.832	0.183	1.924	0.192	1.232	0.1
Green grams	3.510	0.705	4.906	0.981	3.837	0.767	2.946	0.5
Maize	28.500	1.430	12.038	0.602	13.451	0.673	9.467	0.4
Rice	25.656	1.282	23.136	1.157	9.122	0.465	5.616	0.2
Vegetables	35.545	28.436	26.747	21.397	36.691	29.353	37.926	30.34
Total	195.692	81.882	198.367	82.661	213.615	96.259	209.017	98.36

Source: Annual Reports, District Agricultural Office, Hola
*Estimated using 1989 constant market prices.

Table 2.20

Estimated value¹ of Marketed Livestock Produce 1989-92 (KShs.Million)

1.Livestock	1989		1990		1991		1992	
	Exported*	Slaughtered ⁺	Exported	Slaughtered	Exported	Slaughtered	Exported	Slaughtered
Cattle	85.267	10.260	108.426	7.299	89.597	6.366	46.344	11.892
Shoats ²	1.187	2.273	0.305	2.121	3.457	1.769	4.905	2.938
Camel	0.343	-	-	-	-	-	3.402	0.07
2. Other Products								
Ghee	-	-	-	-	-	-	0.352	-
Milk	-	-	-	-	-	-	2.942	-
Honey	-	-	-	-	-	-	0.558	-
Hides	0.224	-	0.132	-	0.085	-	0.203	-
Skins	1.133	-	1.175	-	1.751	-	1.378	-
Total (1 + 2)	100.687		119.458		102.025		74.984	

Source: Annual Reports, District Livestock Production Office, Hola.

Notes: 1: Value estimated at 1989 constant market price

2: Shoats refer to sheep and goats

*: Livestock transported out of the district for sale

+ : Livestock slaughtered at butcheries within the district

While Table 2.19 provides figures on the estimated total out-put and market output for each crop, Table 2.20 only shows marketed number of animals (for sale and slaughter) and quantities of other livestock products. Strictly speaking, separation of what goes into on-farm consumption from what is marketed out of total production is necessary for both agricultural and livestock production, but is not done for the latter because of dearth of data on which to base even an educated guess. Therefore figures in Table 2.20 obviously under-estimate the values of livestock production in Tana River District but, nevertheless, indicate the order of magnitude of cash earnings of livestock keepers.

As regards income earned from crop production, it can be seen on Table 2.19 that the proportion of bananas, cereals and pulses that is marketed is rather low compared with the corresponding figures for the value of output of mangoes, and vegetables. Also, it can be seen that, of the total output of mangoes only about 60% is marketed. This is because of the high post-harvest loss of the crop, which cumulatively amounted to about KShs.133.8 million between 1989 and 1992.

In Table 2.20 it can be seen that most of the income accrue from the sale of cattle to other districts. But it should be noted here that figures presented in the table underestimated the value of cattle sold outside Tana River District because there are many incidents of unrecorded stock movements to destinations such Malindi and Kilifi where the animals are finally sold for slaughter.

As regards welfare, it can be seen that earnings from marketed agricultural output increased in the cases of mangoes, bananas, and vegetables, but declined in the case of cereals. For the livestock production sector, however, earnings from the sale of animals and other livestock products increased by 15.2% between 1989 and 1990, but declined by 19.9 and 29.8 percentage points in 1991 and 1992, respectively.

Indeed, the last two years of the 1989-93 plan period was particularly difficult for the segment of the population of Tana River District that depends on agricultural/livestock production because of drought, and it can be concluded that incomes from the two sectors declined, with livestock production registering the highest rate of decrease.

Wage Earnings

Incomes from wage earnings in Tana River District accrue mainly to public sector employees of whom the majority are teachers and civil servants. According to 1990 Statistical Abstract, total income from wage earning for the period between 1988 and 1990 is as presented in Table 2.21.

Table 2.21

Wage Earnings, 1988-1990

Earnings (Kshs. Million)		
1988	1989	1990
85,002	84,054	79,500

Source: District Development Office, Hola.

As wage earnings in Tana River District only come from public sector employment the level of incomes from this source is a function of government wage policy and varies, depending on the number of public servants deployed to the district. However, it is anticipated that when the TARDA Irrigation Scheme becomes operational, the level of wage employment as well as incomes earned