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Locational development profile for Kipkomo Location, West Pokot District

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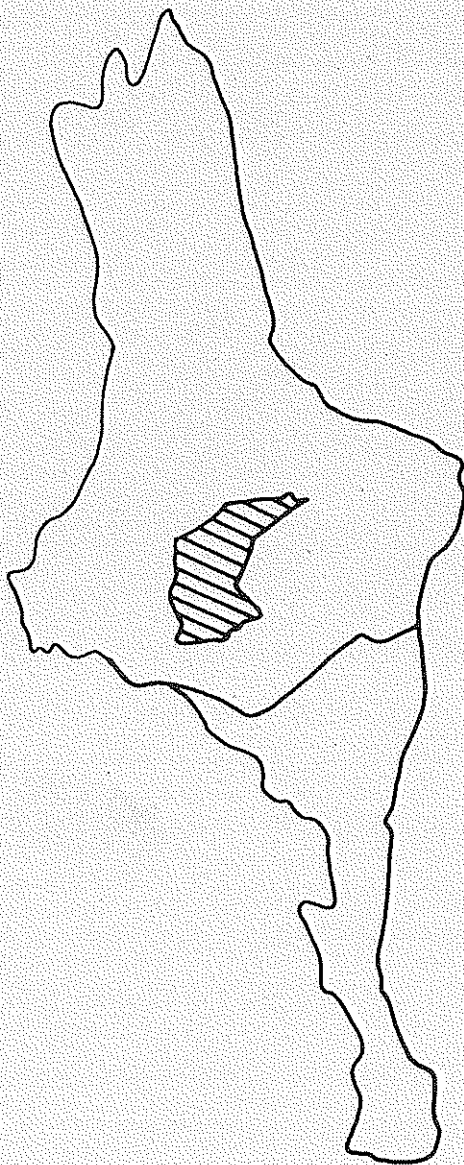
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LOCATIONAL DEVELOPMENT PROFILE



KIPKOMO LOCATION

WEST POKOT DISTRICT

KENYA

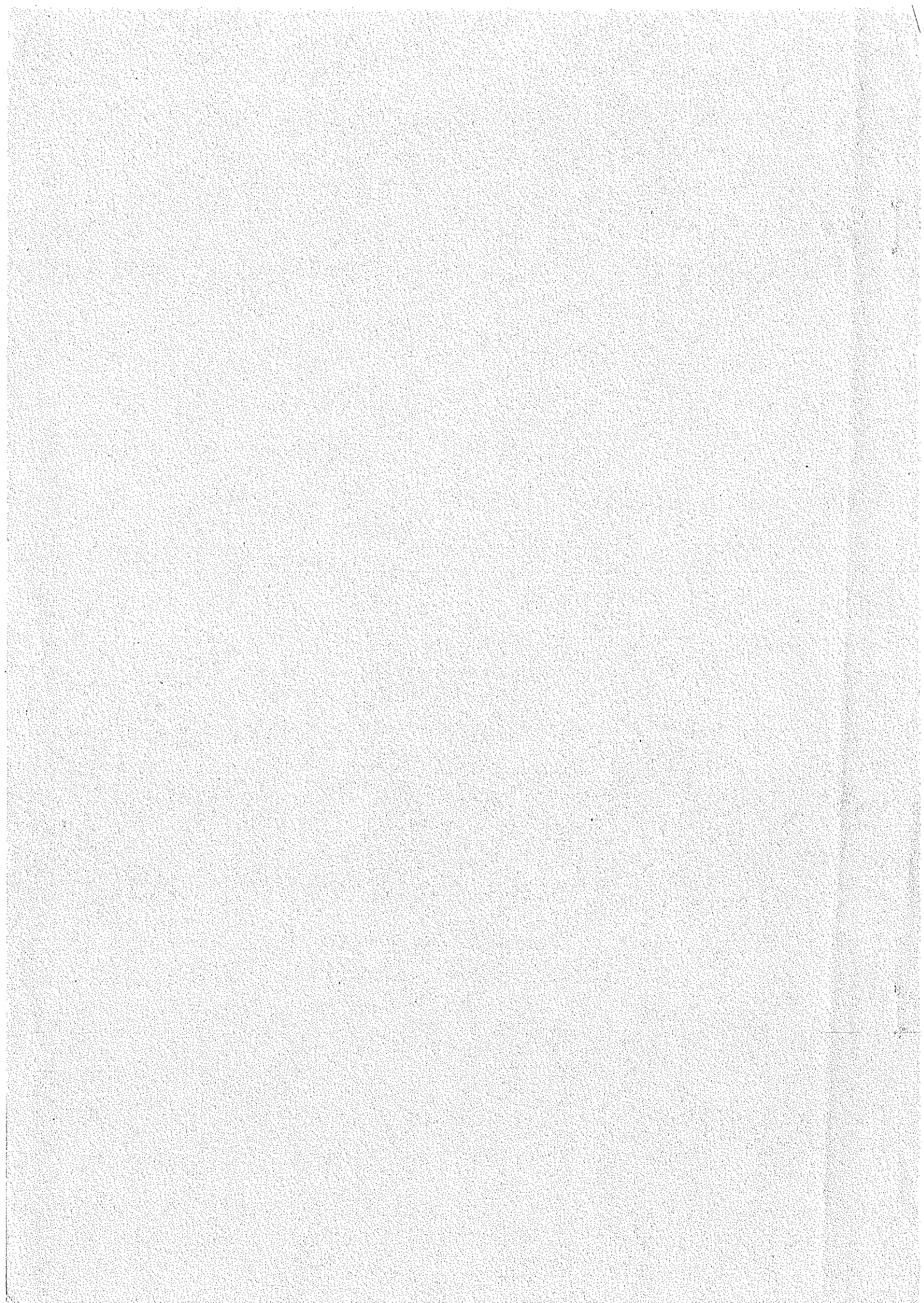
Regional Development Research
West Pokot/Elgeyo Marakwet
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December 1986



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0. INTRODUCTION AND SOURCES

0.1 Introduction

This Locational Development Profile is part of a group of profiles about locations in West Pokot and Elgeyo Marakwet. They give a summary of the history and situation of the administration, physical geography, population, economy and human geography of a location. The various profiles are written for the people working in the location, for government employees at divisional and district level and for school teachers.

The information offered here will not be 100% reliable nor 100% complete. The reader is asked to send any additions and/or corrections to the ASAL Programme Coordinator (P.O.Box 287 Kapenguria) in order to update next editions of this Profile.

I would like to thank all the people who gave their support, time and friendship. My special thanks go to Romanus Partany Chizupo and his family, to Benson Kipchumba Katon who helped in vary many ways, to mr.Nabibia for his wise advises, to Huub Hendrix and Martin Amoke for their support in West Pokot and to Ton Dietz as my supervisor. I also like to thank all the government employees working Chepareria ,especially the DO mr. Kimoto, all the schoolheads and schoolteachers and the Chief of Kipkomo mr. Ambrose and his wife. Last but not least I like to thank my colleage Marjo Galle, for the good cooperation we had before, during and after the fieldwork.

Bert Vermaat

0.2 Sources

We used three types of sources to write this profile. Our first source is our own visit to the area in the first half of 1986. We interviewed local informants, like the heads of the various departments of Chepareria division, the Chief, religious leaders etc. Also, 90 households were questioned by secondary schoolleavers, trained and assisted by us and Romanus Chizupo, who has a long experience with this work in West Pokot. 30 of the questionnaires were done in Chepareria, 30 in Chepkopegh and 30 in Chesera (figure 0.1 and table 0.1). The motivation for this stratified sample was to cover the various groups living in the location.

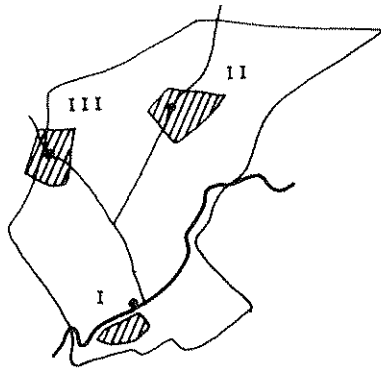


Figure 0.1 The three areas of interviewing

In Kipkomo we roughly distinguished three groups; first the modern mixed farmers around Chepareria, second the semi-nomadic pastoralists around Chepkopegh and third the semi-nomadic pastoralists, who recently started with cultivation on the riverbanks of the Chesera river (see also chapter 4). In this profile we will refer to these groups with I, II, III respectively. We selected the households which were interviewed at random. Mostly men were interviewed, because it was impossible to get a woman to do the interviews and it was very difficult to interview the women.

Table 0.1 Questionnaires done in Kipkomo in April 1986

group	Chepareria I	Chepkopegh II	Chesera III
number of interviewed households	30	30	30
characteristics of interviewed person:			
male	30	25	29
female		5	1
head	30	29	28
non-head		1	1
?			1

Secondly, we used (unpublished) data about all the topics. The District Annual Reports 1914-84, the District Development Plans of 1974-78, 1979-83 and 1984-88 and the Annex 1984-85 and 1986-88 to the West Pokot District Development Plan 1984-88 were used. We also used the files of the various departments at the Divisional Office in Chepareria.

Thirdly, we used various articles and books listed below. In these books and articles, Kipkomo has never been specifically studied with exception of Yadeta's book.

- Chaundy G.H.; Primitive agricultural methods of West Suk tribe and some improvements, 1939
- Chaundy G.H.; The agricultural education of a primitive tribe: the West Suk of Kenya, 1943
- Dietz T., A. van Haastrecht and M. Schomaker; Locational Development Profiles (several), 1983
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- Exploratory Soil and Agro-Climatic Zone Map of Kenya; Kenya Soil Survey, Nairobi, 1984
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- Widstrand C.G.; On Pokot, group ranches, livestock marketing, pastoral values, planners and a variety of topics vaguely related, Kapenguria, 1972
- Yadeta G.; Dynamic processes of development in marginal areas, Lund, Sweden, 1985

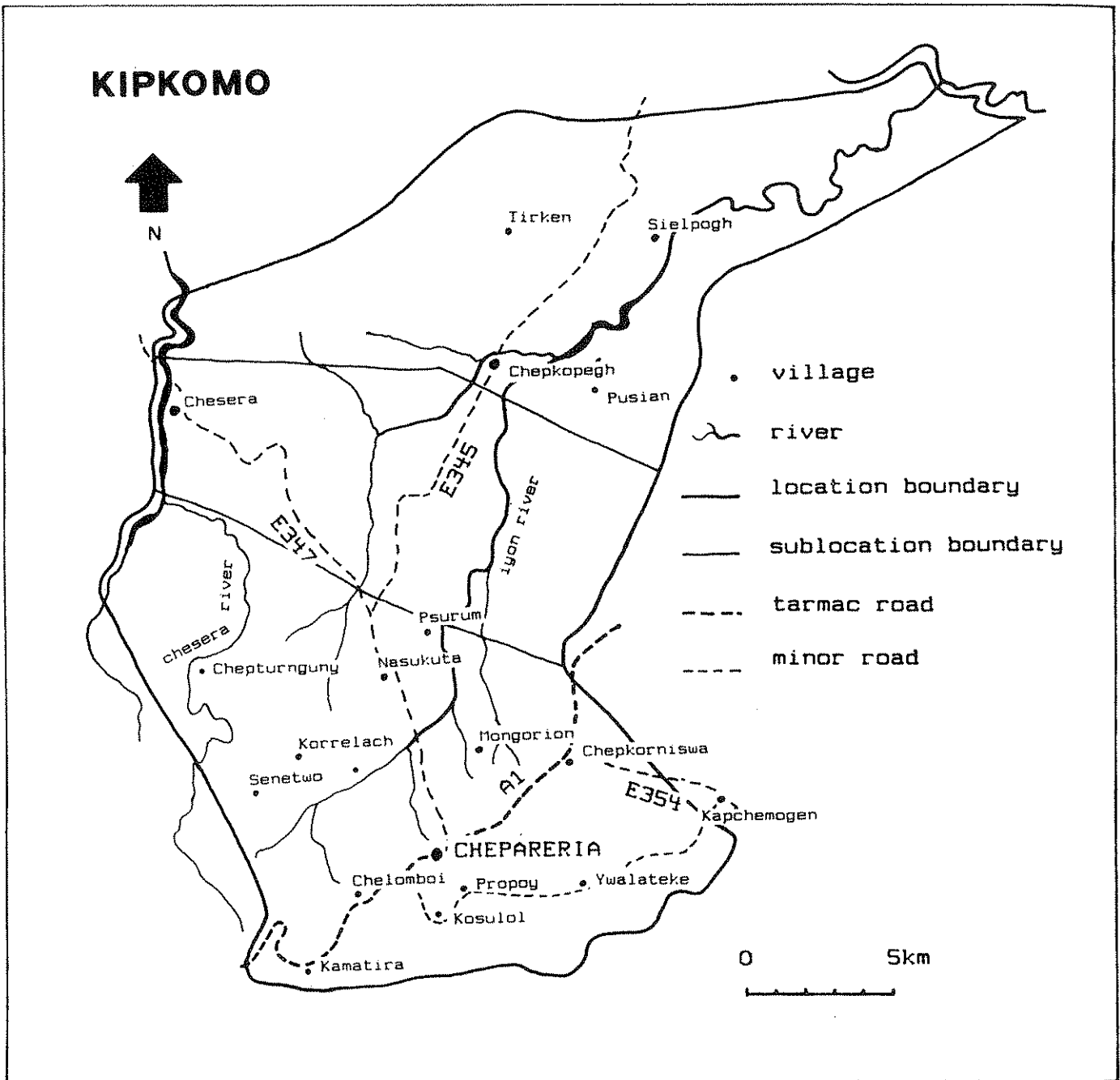


Figure 1.1 A map of the area

1 THE AREA OF KIPKOMO LOCATION

1.1 Situation

Kipkomo is centrally situated in the district of West Pokot. Before 1979 this location (about 490 km²) was part of Kapenguria Division. Now it belongs to Chepareria Division.

To the North, mountains form the border with Sook Location. The eastern border with Batei Location follows the mountains, in the plain it is a straight line running between Kipkomo and the Murubus group ranch. The southern borders with Lelan, Central and Mnagei Location are mountains too. To the West natural borders enclose Kipkomo: mountain ridges in the South and the river Chesera in the North.

The southern part of Kipkomo is less isolated than the northern part. The road from Kapenguria to Chepareria already dates from 1923, making Chepareria sublocation the easiest accessible part of Kipkomo, especially after the tarmacking in 1983. The other connections are minor roads although some of them have been recently upgraded.

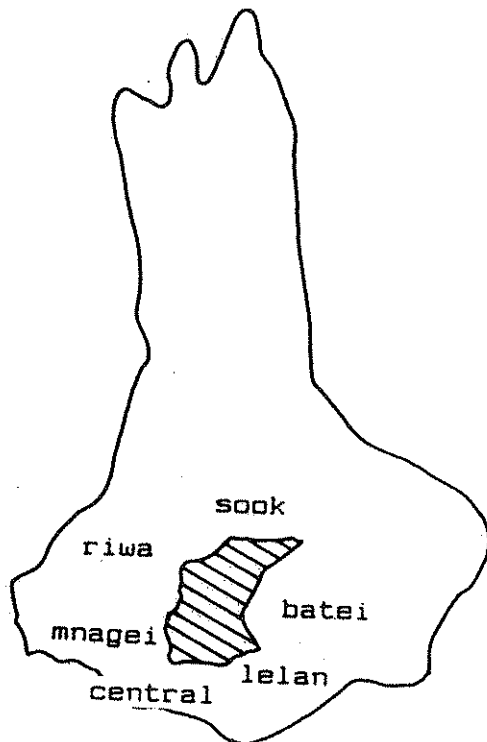


Figure 1.2 Kipkomo within West Pokot District

1.2 Administrative history

This area has already been inhabited for a long time. It probably was a safer place than other parts of the Pokot area, where Pokot were frequently attacked from several sides. Traditionally private ownership of land did not exist. Sedentary agriculture and semi-pastoral nomadism were functioning side by side. Both systems had a strongly decentralized organization. The Pokot society was divided in many small subunits. Nomadic subunits utilized series of substations, sedentary subunits used one station the year over. The supreme authority was formed by the 'Kokwas', councils of elders.

Colonial administration was established during the nineteen twenties. The British administration slowly eroded the old system and introduced a new system of authority different from the traditional as well as from the English system. It was a hierarchical system with chiefs at the local level. The first chief was appointed in 1917.

The colonial government started with taxation in 1923. In Kipkomo they taxed 1068 huts and 108 polls (poll means an adult unmarried man, a status also taxed by the British). This taxation also resulted in the first quantitative data of Kipkomo Location. The administration counted: 929 men, 1061 women, 1657 children, 22498 cattle, and 18760 sheep and goats. The data on cattle are very unreliable because Pokot people always give lower numbers than they really own. Labour recruitment started in 1925 (73 men; 15 of them worked on the Uasin Gishu railway).

During the thirties Chaundi, a teacher at Kapenguria Government African School who tried to provide the Pokot with new agricultural methods, started demonstration plots. The Chepareria plot was a banana plantation (started in 1938).

It was only in the fifties that the colonial administration got interested in changing agricultural circumstances. Two main topics in their policy were private ownership and land adjudication. But this policy was very vague in marginal areas. Officially spoken, the pastoral people were in a very uncertain position with regard to land tenure. Nevertheless the English started with a grazing scheme in Kipkomo in 1956. In the post-colonial time the Kenyan government started with land adjudication in the marginal areas. Furthermore the grazing schemes were renewed as part of a group ranche approach that also included facilities for the group ranche members. The policy after Independence was more 'standard of living' oriented in stead of the natural resource conservation policy of the British.

The finishing of the Tarmac road in 1983 had also a big impact on Kipkomo (see 4.5), which also meant a big increase of governmental influence. There was also a road camp during the activities on the road. The location and sublocation boundaries changed frequently. The 1979 boundaries were completely different from those in 1969. Thus comparison between several statistical data is very difficult. In 1983 once more new boundaries were made. Figure 1.3 gives an overview of these changes.

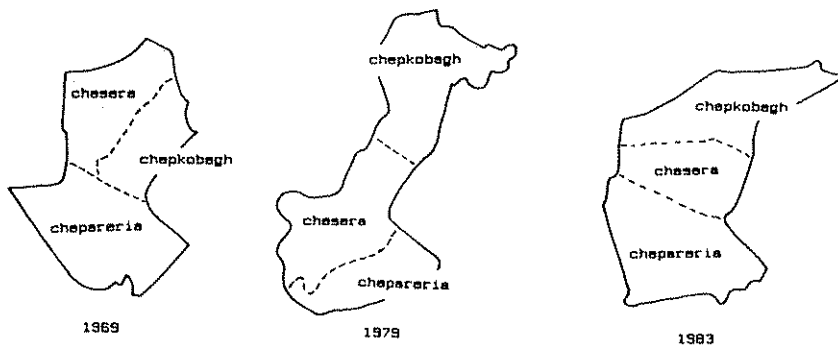


Figure 1.3 Administrative boundaries of Kipkomo location and its sublocations

2 NATURAL RESOURCES

2.1 Geology

The area is occupied by the oldest rocks found at the earth's surface all over the world: the Precambrium Basement System Rock. These rocks are metamorphic: formed during a situation in which existing rocks are changed because of high temperatures, high pressures and chemically active fluids. This occurs during tectonical movements within the earth's crust. These metamorphic rocks have a relatively high resistance to erosion/denudation (more than their originating rocks) and can be characterized visually by flowing layers. The geological map hardly gives any differentiation in mineral composition. In the zone from NW to SE the rocks contain hornblende. The rocks in the NE and the SW mainly contain biotite. In the hills of Pkopoch and Mnagei, and in the area South of Chepareria quartzites and granitoid gneisses can be found. Along the Chesera river loose material has been deposited during periods of flooding (alluvial deposits). In the annual reports nothing is ever mentioned about mineral deposits of significant economic interest.

2.2 Relief

The major part of the Kipkomo location is situated on a vast old peneplain with an average altitude between 4000-5000 ft a.s.l. (1 ft= 0.305 meter). This peneplain is the result of long lasting denudation/erosion processes. The plain is divided in two pieces by a hill side from N to S. The West side of it is a low escarpment (figure 2.1 and 2.2). In the West and the South footslopes have been formed along Pkopoch, Mnagei and Cherangani Hills. In the North the Tamogh hills and in the East Morobus and the Samor Hills can be found. Figure 2.2 and 2.3 show a schematic cross section.

2.3 Hydrology

The two most important rivers of Kipkomo Location are the Chesera and the Iyon. The Chesera river belongs to the Suam catchment area. The Iyon flows into the Muruny which meets the Suam in the Turkwell river. Both rivers finally drain into Lake Turkana. The Chesera and the Iyon are seasonal rivers (in this area this means that they contain water when it is raining and several hours after the rain has stopped). They can cause serious flooding. This is due to the high run-off percentage/low retention rate caused by a scarce vegetation cover and often severe erosion.

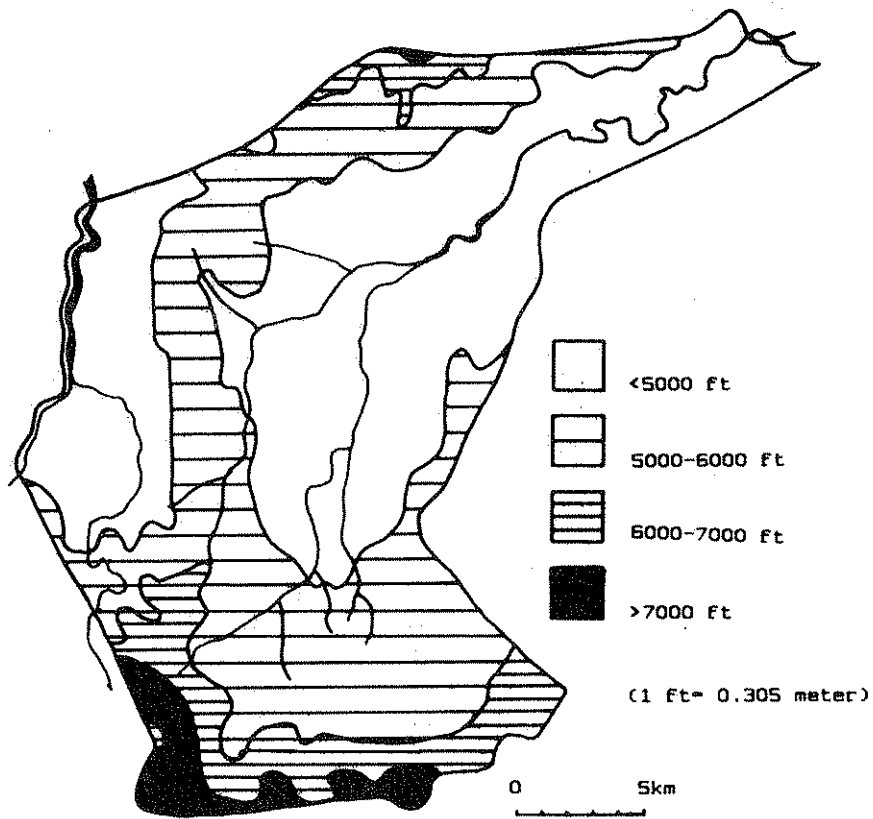


Figure 2.1 Altitude map

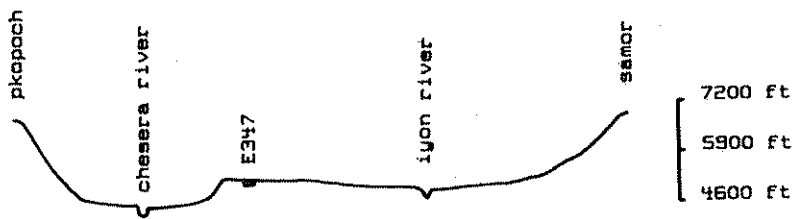


Figure 2.2 W-E cross section

2.4 Erosion

Figure 2.4 gives a rough indication of the actual erosion status in the area (Landsat Interpretation). It is clear that erosion is a severe problem. Especially in the northern part of the location, huge gully systems have been formed in the gently sloping areas.

2.5 Vegetation

In general it can be stated that the natural vegetation has been damaged at many places. These areas often correspond with heavily eroded surfaces. Often grass cover (perennial or seasonal) is poor, so all that is left for livestock is the acacia spec. bush/shrub.

2.6 Soils

Following the Exploratory Soil Map of Kenya, 1980 (scale 1:1 million) from the Kenya Soil Survey, 4 soil groups occur in the area (see figure 2.6). The first symbol in the code stands for a certain agro-climatic zone (paragraph 2.7), the second symbol gives the soil group number (see below). Within one mapping unit different soil groups can be found locally. A descriptive characterization is given below, for which also general literature is used, applicable to Kenya as a whole. The official classification (soil group code), also used by the Kenya Soil Survey, is added, in case someone wants more information. The given soil depth refers to the effective soil depth for plant roots. Soil nr. 3, 8, 20, 24 occur in this area. The other numbers are found elsewhere in West Pokot or Elgeyo Marakwet.

3 Soils developed in the mountainous areas. These are somewhat excessively drained, which means that water is removed from the soil rapidly. The amount of water in the soil available for plant growth can become a problem. The soils are shallow (less than 50 cm): this is usually a problem for plant roots. The soils are rocky and stony: this can cause difficulties while working on them with simple tools. The soils are young, little developed. The natural fertility is moderately good (mainly depending on the mineral composition of the parent material). Sufficient fallow periods are required in order not to impoverish the soils. The soils themselves are not very susceptible to erosion, but on sloping areas (more than 7%) conservation practices are recommended (strip cropping, contour ploughing, bench terracing etc..). Classification: Mube.

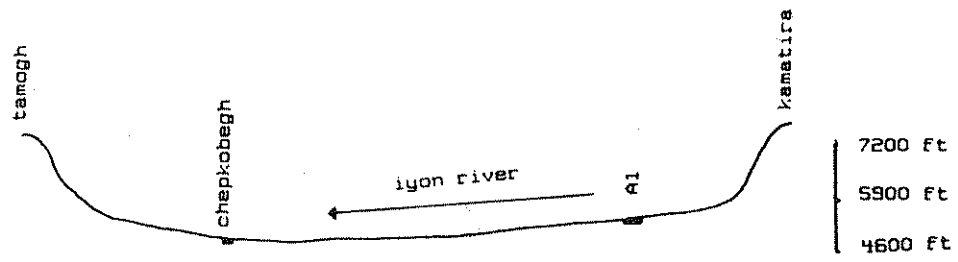


Figure 2.3 N-S cross section

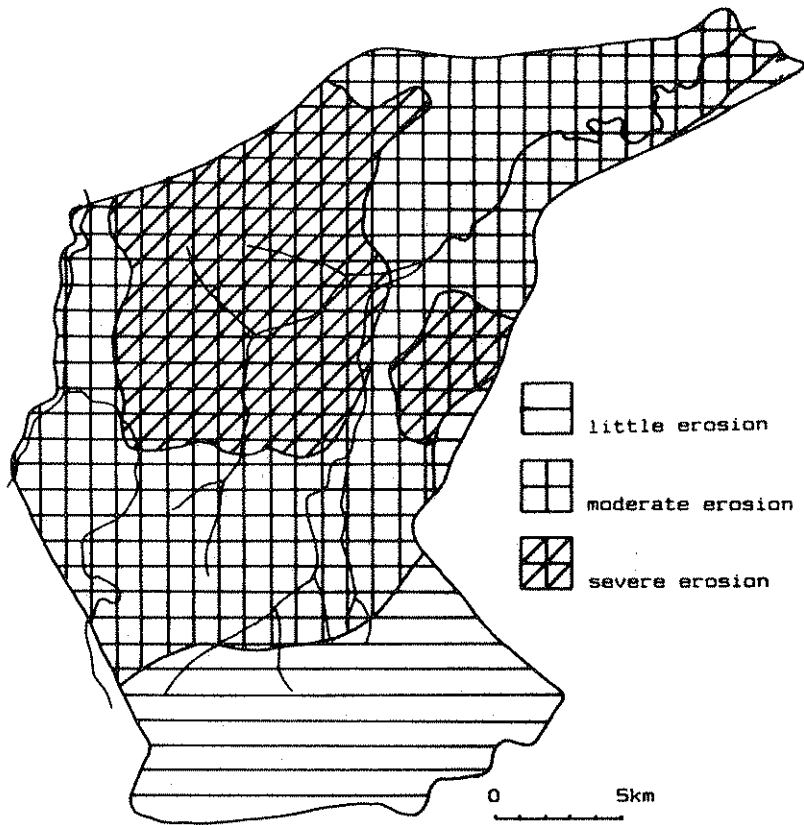


Figure 2.4 The actual erosion status

8 Soils developed on footslopes (slope angles 1-4 degree, 1.7-7%). The soils are well drained which means that water is removed from the soil readily but not rapidly. These soils are commonly able to retain optimum amounts of moisture for plant growth after rains or addition of irrigation water. The soils are very deep (more than 120 cm). The structure is rather loose. Natural fertility is moderate (provided there are sufficient fallow periods). Erosion can be a problem on these surfaces, especially when the vegetation cover is poor. Classification: FULc.

20 Soils developed on the peneplain. They are well drained, which means that water is removed from the soil slowly enough to keep it wet for significant periods (shortage of oxygen?). The soils are moderately deep (50-80 cm) on the convex. The concave slope parts bordering streams are deep (80-120 cm) on the flatter and slightly convex interfluves. They can be sandy-clay to clay. In some cases a stone-line of 10-50 cm can give problems to cultivation. Natural fertility is moderately low (long fallow periods are required). The top soil easily forms a strong sealing (thin hard impermeable layer) after heavy rains. This leads to severe run-off and consequently to severe soil erosion on slopes of even a slight slope angle. Classification: ULFLc.

24 Alluvial soils on the flat area along the larger rivers. They are well to imperfectly drained, very deep and they show stratification due to the sedimentation processes (finer and coarser silt/sand is deposited in the layers on top of each other by the flooding river). The soils are calcareous and have moderately good soil fertility (new fresh material is accumulated regularly). The fallow periods on these soils can be rather short. Erosion is no problem, flooding may damage young plants. Classification: AAjc.

2.7 Climate

The ecological potential depends, apart from soil- and relief characteristics and erosion status, largely on the prevailing climatic conditions; particularly on the annual and seasonal balance between rainfall and evaporation (the latter is mainly determined by temperature and turbulence). Unfortunately there is only one climatological station (only rainfall data) in the south of the location (Chepareria). The long term rainfall mean for this station is 1050 mm per year (figure 2.5). This is a high figure but due to the high temperatures the amount of available water will be much lower.

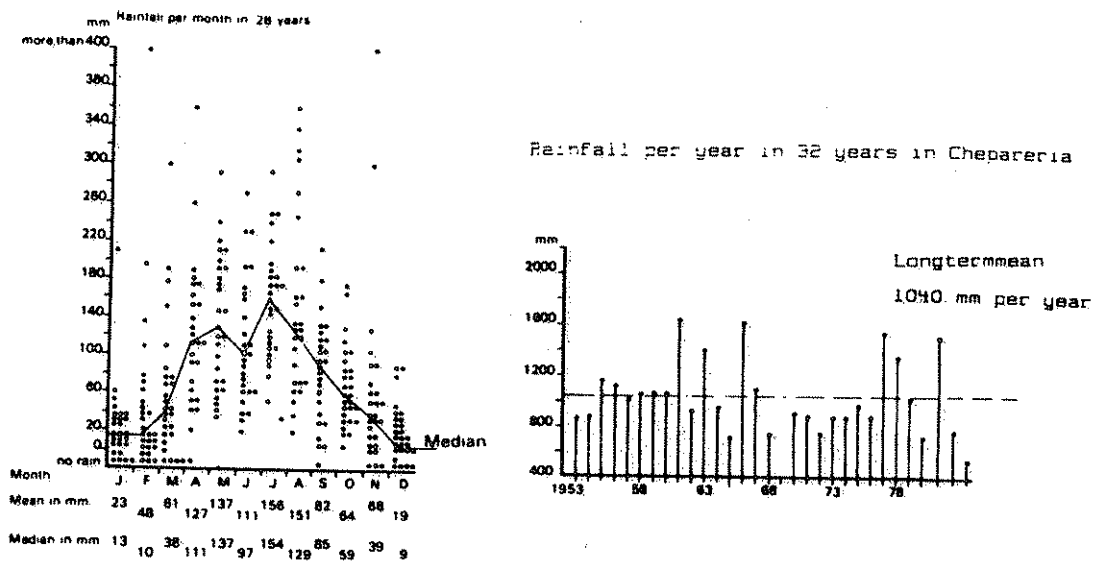


Figure 2.5 Rainfall data for the Chepareria station

The monthly variation for a range of 25 years is also shown in Figure 2.5. Annual rainfall reliability is low. Also the distribution within one year can vary considerable: the peaks can easily be in March and July or in May and September.

According to the Agro-Climatic Zone Map of Kenya, the location is mainly situated in the semi-humid to semi-arid zone IV. A minor part in the north and a part in the south are classified as Zone III. The schematic (and theoretic) boundaries of this map have been adapted to the more detailed boundaries of the soil map (see figure 2.6). General characteristic of the agro-climatic zones are listed below (table 2.1).

Table 2.1 Agro-climatic zones in Kipkomo

	zone III	zone IV
rainfall/potential evaporation in %	50-65%	40-50%
climatic designation	semi-humid	semi-humid to semi-arid
mean annual temperature	14-20 C	20-22 C
number of average growing days	235-290	180-235
major limitation to maximum production	1 fertility 2 farm management 3 rainfall	1 farm management 2 rainfall 3 fertility

2.8 Suitability of the soil and agro-climatic zone units for agricultural activities

Using the information of the Combined Soil- and Agro-Climatic Zone Map of Kenya Soil Survey (figure 2.6) and the Farm Management Handbook (MoA part II, 1983) we made an evaluation of the various mapping units with respect to their suitability for agricultural use. Considerable variation may occur within the units as they are derived from the 1:1 million soil map.

III 3 and IV 3: This mountainous area is not really suitable for arable farming or livestock keeping. In zone IV no livestock should be kept because of the high erosion hazard on the steep slopes. In zone III this should not be done on the steeper slopes. Some cattle and goats/sheep might not be too dangerous, but stocking rates must be kept very low. Locally some more flat surfaces may occur, where some arable farming may be practiced (drought resistant varieties), with better results in zone III.

But conservation measures are very important: strip cropping, bench terracing, avoidance of bare surfaces and trampling and zero-tillage are profitable (though tillage improves the soil-structure it also increases erosion rates). If all these management improvements are applied the units become more suitable for arable farming.

III 8 and IV 8: These footslopes are only moderately suitable for arable farming, due to the erosion hazard and the soil characteristics. Locally erosion has gone very far; these badlands cannot be used anymore. Cultivated crops must be drought resistant, especially in zone IV. Good management (see above) would make the area more suitable.

Provided that a good livestock management is practiced (correct ratio's, enough drinking places/dips, spread over the area, sufficient rest periods to restore the vegetation cover) the area is suitable for extensive grazing.

III 20 and IV 20: These gently sloping peneplains are not or only moderately suitable for rainfed arable farming with a traditional technology, depending on the erosion status of the surface. Heavily eroded areas cannot be cultivated while in less/not eroded areas drought resistant crops could be cultivated. Bare surfaces should be avoided because of the risk of surface sealing (soil is sandy-clay to clay). Wind erosion of the topsoil exists in the dry season (more important in zone IV).

The soil fertility is moderate to sufficient, fallow periods are necessary. Ecological degradation could be reduced with careful livestock management. Only then the area would be suitable for extensive grazing.

IV 24: Along the Chesera river rainfed farming is fairly well possible though again drought and high temperature resistant crops should be cultivated. Flooding may occasionally cause problems, though it has advantages too: fresh material is deposited. In this unit higher yields are possible in comparison with the other soils in the same agro-climatic zone.

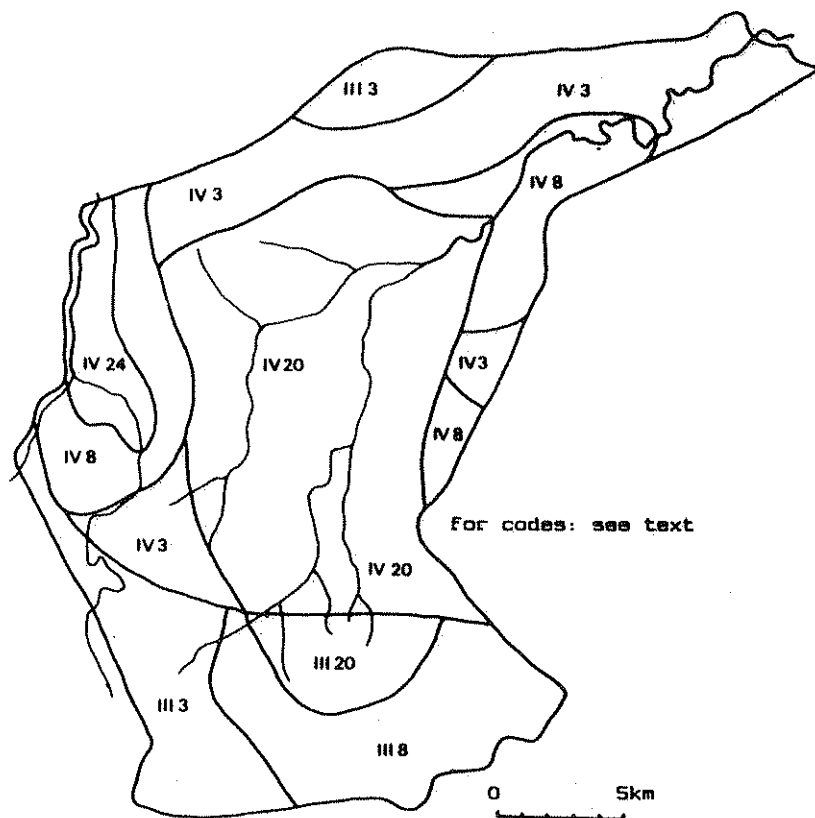


Figure 2.6 The combined soil- and agro-climatic zone map

3 THE POPULATION

3.1 Population development

In this section we present the figures of the various censuses in Kipkomo. A comparison between census years is difficult because the administrative boundaries have been subject to drastic changes (figure 3.1). It is possible to give the development until 1979. Before 1948 the data are based upon taxation and after this year upon censuses. We must stress the fact that neither the two methods nor the data are completely reliable. The summary of the data (table 3.1) should be regarded with this in mind.

Table 3.1. The population of Kipkomo between 1923 and 1979

year	males	females	children	total pop.
1926	987	1120	1624	3731
1942				2951
1947				3153
1948	1179	983	1102	3164
1962	1472	1821	3156	6449
1969	2148	1964	4263	8375
1979	3548	3845	7235	14628

** the figures of 1926 are an average of the years 1923, 1924, 1925 and 1926.

We see a stable population from 1926 to 1948. After this year the growth is rapid. The increase after 1962 is even higher but probably the figure of 1948 is too low. In spite of the incomparability of the census data of 1969 and 1979 we are strongly inclined to conclude that the population density has increased. This dramatic increase of the total population cannot be attributed to the change of boundaries only, because of three reasons. Firstly the southern part of Kipkomo around the A1 and Chepareria already was the most densely populated area before the boundary corrections. Secondly, the boundaries in this part of the location were not changed that much between 1969 and 1979. Lastly, immigration into the area did not increase that much. Therefore population increase is mainly caused by natural growth (estimated to be 4.5%).

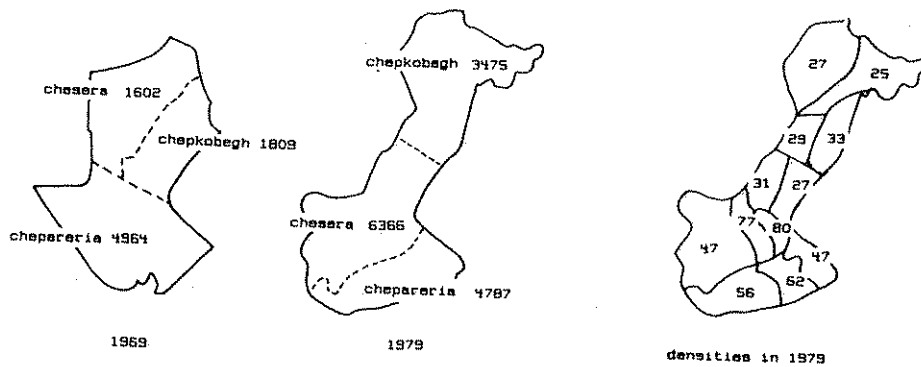


Figure 3.1 The population per sublocation for two years and the population densities per enumeration area for 1979

3.2 Population characteristics

A population growth around 4.5% is very high, which can cause problems in this already quite densely populated area. Such a fast growth means a very young population. From 1962 onwards the share of children has always been 50% (in 1979 it was 49%). The shape of the population pyramid (1979) clearly illustrates this phenomenon (fig.3.2).

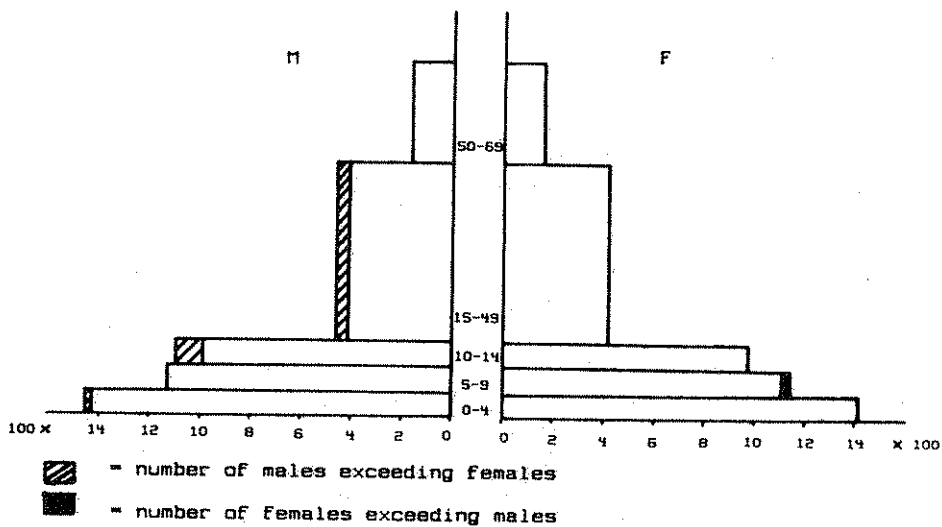


Figure 3.2 The population pyramid of kipkomo, 1979

3.3 The questionnaires

In this paragraph we will describe the population characteristics of the groups I, II, III (see 0.2). We firstly have to define the term household. It is possible to do this on the level of the man (extended family) or on the level of the wife (when the man is married to more wives she forms a subunit in the extended family together with her children). We decided to interview on the level of the man because of the practical problems of interviewing women. So the household consists of a man, his wife or wives and the children of his wife or wives. Visitors are included because often they stay long and often they are relatives (parents etc...). The household is an extended family and the person who was interviewed was asked to include all members when answering a question.

Table 3.2. The household characteristics of the three groups

group	I	II	III
average household size	13.1	9.7	8.6
average number of wives	1.9	1.9	1.6
average number of boys	5.0	3.3	2.9
girls	5.1	2.9	2.5
children	10.1	6.2	5.4
average number of visitors	0.1	1.0	0.8

8.6
4
29.0
6.2

Table 3.2 gives an overview of the characteristics. The average size of a household in group I is higher than in the other groups (the distribution is given in figure 3.3). This is due to the higher number of children, which in turn is possibly due to the better food situation and a different mentality towards hygienic measures.

The average number of wives married to a man is the same in group I and II. It is lower in group III. In all three places most of the wives live together in the same place. The number of visitors is very low in group I compared to II and III.

Table 3.3. The average difference in age between men and wife/wives in the three groups (valid cases between brackets)

group	I	II	III
first wife	7.4(30)	9.2(24)	9.9(28)
second	17.0(18)	18.6(18)	20.3(11)
third	20.8 (5)	37.0 (2)	32.0 (5)
fourth	27.7 (3)	31.0 (1)	

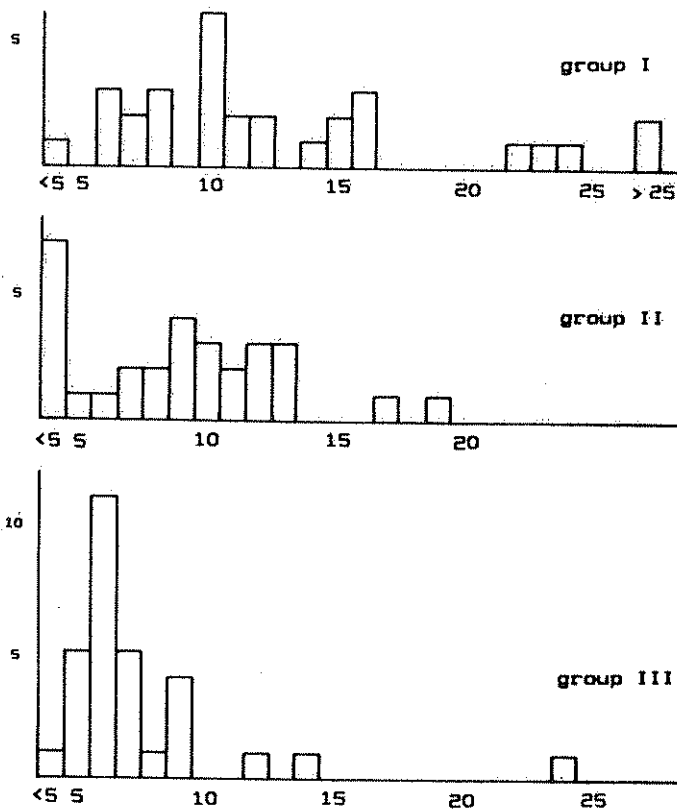


Figure 3.3 The distribution of the household sizes

Of the 82 interviewed men 41 had more than one wife (1 widower, 7 widows). The maximum number of wives in group I was 4, group II 4 and in group III 3. Table 3.3 which shows the average difference in age between man and wife or wives.

Table 3.4. Place of birth of interviewed people

group	I	II	III
locally	7	5	22
else in Kipkomo	11	16	3
total in Kipkomo	18	21	25
within West Pokot	11	9	4
outside the district	1		
?			1

When we look at table 3.4 we see that for all three groups most of the people did not migrate or only migrated within the location. Group I has the highest number of people coming from outside the location. Almost nobody is coming from outside the district. We also asked the people where they lived between now and when they were born and this showed the same picture.

Table 3.5. Year of settling in current place of residence

group	I	II	III
-49	1	2	1
1950-59	6	4	2
1960-69	9	8	2
1970-79	6	2	
1980-86		5	2
?	1		

Table 3.5 shows in which year the people moved to their current place of residence. In the sixties we see the highest figure. While we should keep the small numbers of migrating people in mind, we will shortly discuss their reasons for migration. These were mostly economic like searching for pasture. Two people of group II told that they were forced to move by the colonial rulers. Almost nobody said they moved because of safety reasons (ngoroko's or wild animals).

3.4 Some cultural-economic characteristics

This paragraph is a rough extract of several sources of information. We are aware of the incompleteness of this section, and will gratefully welcome any correction or addition.

Since long, part of the Pokot are semi-nomadic pastoralists. They herd cattle, sheep and goats in the low lying plains. The other Pokot practice subsistence farming on the mountain slopes which receive more rain than the plains. These two groups are not mutually exclusive and several intermediate forms exist. Until halfway in the sixties the Kipkomo people were mostly pastoralists. Until that time the area was covered with pastures during the wet season instead of the trees and bush one can observe nowadays especially around Chepareria. In the second half of the sixties cultivation of crops was increasingly taken at hand. Now, a new type of cultivator is evolving, which can be called a modern mixed farmer. These farmers are mainly producing for the market and they are using non-traditional methods.

In spite of the differences between pastoralists and cultivators the Pokot see themselves as a unity, one tribe with several clans. The ideal of every Pokot, also the cultivators, is to keep animals. For the Chepareria cultivators cattle is becoming less important, for example not all the surplus is invested in animals. A specifically Pokot cultural-economical system is the so called 'Tilia'. It strengthens a network of relations through exchanges of a special type of loan. One person gives a cow for a steer which he will use for a feast. The receiver of the cow must return several calves of that cow and he also has to return the animal when the donor loses his animals. Thus the receiver is the usufructuary. This system has several goals: quick access to a steer, spreading of risk (diseases, raids) and wealth, and economic and political stability. The traditional political system of the Pokot consisted of decentralised 'kokwas' (councils of elders). The men have a revolving age-set system which consists of five groups.

Women have limited power. They cannot be member of a kokwa so if they want to have influence this can only be achieved indirectly. On the other side women have economic power. Part of the stock is their property and it is traditionally their duty to work on the plots. They have not such a complicated age-set system as men but they are also initiated. This happens before they marry.

Most literature considers the Pokot as conservative and difficult to influence. Around Chepareria however changes were and are very fast.

4 ECONOMIC HISTORY: INFLUENCES AND REACTIONS

4.1 Until 1950

The first years of colonial rule the British had no interest in West Pokot from an agricultural point of view. The traditional way of life was influenced only slightly. Around 1923 the Kipkomo Pokot were almost purely pastoral and they had only very small plots with fingermillet.

The amount of stock in several years is given in table 4.1. Again these data are rough indications.

Table 4.1 Stocknumbers in three years, Kipkomo

	cattle	sheep & goats	donkeys
1927	29932	44310	2121
1942/43	10940	11351	
1948	5637	5297	9

The decrease of stock between 1927 and 1942/43 can partly be attributed to a stock sale held in 1941. Over 3000 head of cattle were sold to the army. In 1943 a government safari diary reported a degradation of the grazing land, which can also be part of the explanation. As we mentioned before crop cultivation scarcely existed in this location. This changed a bit when a banana plantation was started in Chepareria in 1938. The next year people asked for a plot with a large variety of crops (Chaundi, 1943). Chaundi was very optimistic about these kind of plots but in 1953 Schneider wrote that only the introduction of maize was a success and that the demonstration plots had not been increased.

4.2 1950-1963

During the fifties the attitude of the British towards agriculture in Kenya changed. This was also the case for West Pokot. The administrators were aware of the severe erosion and degradation. They started grazing schemes, extended demonstration plots and supported small holders with new farming techniques and marketing.

Around 1952 there was a big demand for land around Chepareria. People settled without local authorization according to the annual reports. The reaction of the British was: stimulation of smallholders, extension of demonstration and experimental plots and sending staff (A.R.1956). Until 1959 the official reports mentioned good results around Chepareria. But local informants told us these things happened on a very small scale. After 1959 the annual reports did not mention anything on this topic.

We can discern two governmental reactions against land degradation and erosion through overgrazing. The first was reforestation which happened at Kamatira, along the descend to Chepareria (1955-1956).

The second reaction concerned the pastoralists and consisted of two elements. The first element was destocking through stock sales and stock quotas. The sales happened in Chepareria in 1952, 1955 and 1956. The Kipkomo quota in 1956 was 100 heads of cattle. The people did not like this measure and started to split up there herds in order to frustrate control (A.R. 1958). The second element in this policy was to develop a rotational grazing system in grazing schemes. In Kipkomo two schemes were started, the Kipkomo and the Chesera grazing schemes.

In 1956 the Kipkomo grazing scheme was planned on 17200 ha. Three watertanks were built. An assistant agricultural officer and a grazing guard were posted in Chepareria. They rebranded the cattle. In 1957 the committee of elders and the guard were still ineffective. One tank was successful, the other two were not filled with water yet. Some cattle got diseased (E.C.F.) and even died so the Government started spraying in 1985. The committee encountered considerable grass poaching and much in and out movement of other people. This was the result of the excellent recovery of the grass. According to the official reports the scheme was accepted fairly well in 1959. It is difficult to say something about stocknumbers in this period. Table 4.2 shows the problem. We cannot explain the increasing number of stockowners and the decreasing heads of stock.

Table 4.2 Stockowners and stocknumbers in the Kipkomo grazing scheme

	stock owners	cattle	goats & sheep	SU *	SU/owner
1957	136	3454	3167	2920	21
1958	176	2194	4416	2198	12
1959	221			3077	14

* one Stock Unit equals 1.4 average zebu cattle or 7 average goats or sheep

In 1957 the plan of the Chesera grazing scheme was started. This scheme of 9200 ha was situated in 3 locations which meant a lot of administrative trouble. It had to be effectual in 1959. The data about the number of stock are of no use because they changed with thousands. This is not strange because the cattle of the scheme was not branded yet and there was much in and out movement. Later also a scheme somewhere in the Lyon valley was planned but this never started.

4.3 1963-1969

About crop cultivation during this period we do not know much. As mentioned before, till the beginning of the sixties most of Kipkomo was used as pasture for livestock but this started to change. The called modern mixed farmers of today started with cultivation in those years. The grazing schemes seemed to have worked when there was enough rain. But 1965 and 1968 were very dry. These years the Kipkomo grazing scheme was out of control. The herdsmen tried to infiltrate other schemes especially in Batei. The Chesera grazing scheme was also more or less out of control. This area was infiltrated by Karapokot. The next year both schemes had no grazing reserve left. The Kipkomo people started illegal grazing in Chesera and the Chesera people went into the Pkopoch hills. Nothing is mentioned about numbers and losses of cattle in these years.

4.4 1969-1975

A lot changed in this period. In 1969 the Government started with a Special Rural Development Plan (SRDP) in Kapenguria Division (Kipkomo was still part of this Division). General aims in this project were: A. encouraging production and sales of beef-cattle, B. developing agriculture and dairying. The Kipkomo area also got attention. The specific plans for Kipkomo were:

- modernization of the Nasukuta Holding Ground (480ha) (fencing, water supply, dips, grazing guards...),
- construction of a stock route from Nasukuta via Chepareria to Mwisho Farm in Trans Nzoia,
- construction of a borehole in Chepkopegh and dips in every sublocation,
- stimulation of dairying around Chepareria (this sub-plan encompassed 500 cows),
- stimulation of crop cultivation,
- stimulation of small scale irrigation in Kapchemogen.

In reality the plan was started in 1971. The LMD staff (Livestock Management Division) vaccinated the stock in Nasukuta Holding Ground in 1973. The next year they had organizational problems. The Holding Ground was deserted by the staff as a result of misunderstandings between them and the people around. Another problem was the large illegal stock export to Elgeyo Marakwet instead of legal export via Mwisho Farm. The Holding ground never became a success. The Pokot were no commercial beef producers, and a real export was never realized because of the quarantine imposed on the district for most of the period.

The Kipkomo and Chesera grazing schemes were changed into group ranches. The situation of these ranches in 1973 was: Chesera 9200 ha and 132 stockowners; Kipkomo 17250 ha and 372 stockowners.

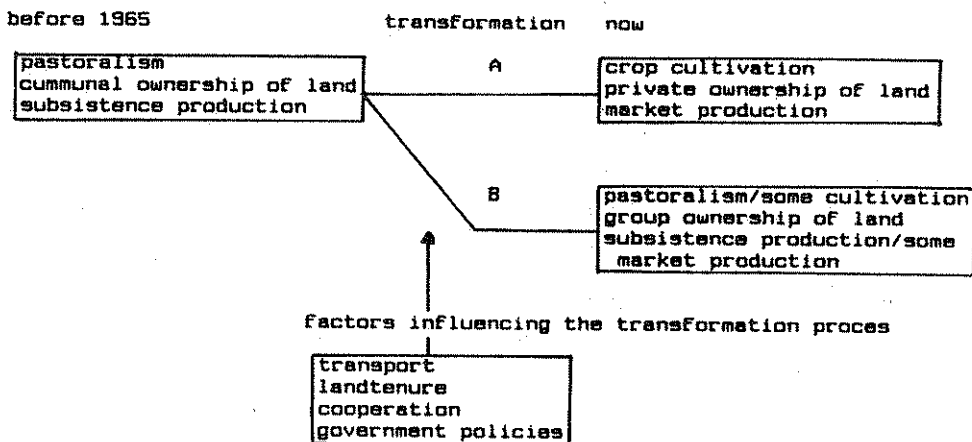
In 1973 the group ranch members were successfully practicing a two paddock rotational system of grazing. No four paddock rotational system was used because there was too much stock in the group ranches. In the Chesera group ranch the recording of claimants was nearly completed. The Kipkomo group ranch was planned to be included in this phase. Erosion, denudation and increase of human population were still the main problems. The problems met with the dips were difficult transportation of the building materials and shortage of water for dipping.

We know less about the fate of SRDP with respect to crop cultivation. The reports focus on the topic of stockholding. We only know that a 2 ha demonstration plot was started at Chepareria during this period as a stimulus for crop cultivation.

4.5 1975-1986

During this period Kipkomo has been showing more signs of market integration, with Chepareria as the centre of the process. Of course it started earlier but during this period the changes were going more rapidly. The results of this ongoing transformation are different for the several areas. Figure 4.1 shows it in a diagram. The development in Chepareria followed path A. The development in Chepkopegh and Chesera followed path B. Until now the development in the last two areas was more or less the same, but the future outcome can be different depending on the importance of crop cultivation in their local economy.

Figure 4.1. Economic change in Kipkomo



Below we will discuss some factors that are influencing or stimulating the transformation. Realizing the complexity of the process we restricted ourselves to the most evident factors; (1) the completion of the A1, (2) land adjudication, (3) cooperation and (4) policy implementation of the Ministry of Agriculture and Livestock Development.

Firstly, the completion of the A1 tarmac road has very much speeded up the already started process of transformation. On the production side we see some fundamental changes. Around the time maize was introduced, farmers cultivated it mainly for home consumption. This changed slowly and people started to sell it. Market production as production goal gained importance but transportation to the Cereal Board was always a problem. This was solved when the A1 was ready. Nowadays we can conclude: the main goal of agriculture around Chepareria is market production. Maize is the most important product but also the sale of goats and chicken rose. Keen traders are coming down to buy these products on the market for the relatively low prices. The production also changed in a technical way, because other as well as more production goods became available (hybrid maize, fertilizer, iron tools). The consumer-side is also affected. Second-hand clothes, bread, milk and newspapers became available and people started to buy them. For example traditional clothes were normal before the road was finished. But now everybody is wearing modern clothes around Chepareria. The influence of the road is not only restricted to Chepareria. At other places along the road small centres appear (Chepkorniswa), but also more remote areas change. Chepkopegh for example is becoming an important goat market. Goat-traders from as far as Nairobi are visiting this centre. Nevertheless the impact in these areas is less and different.

Secondly, the process of transferring from traditional ownership of land to modern freehold or leasehold, i.e. land adjudication is affecting the transformation. It started in 1976 and is now in the final stage. Most of the Chepareria sublocation is reserved for modern freeholding. Half of this area is finalized, the other part is nearly finalized (figure 4.2). This change is fundamental. Before, nobody owned land; the council of elders decided in disputes and about new settlers. Any surplus was invested in cattle. Nowadays people can obtain land by buying it, so land is now a marketable good.

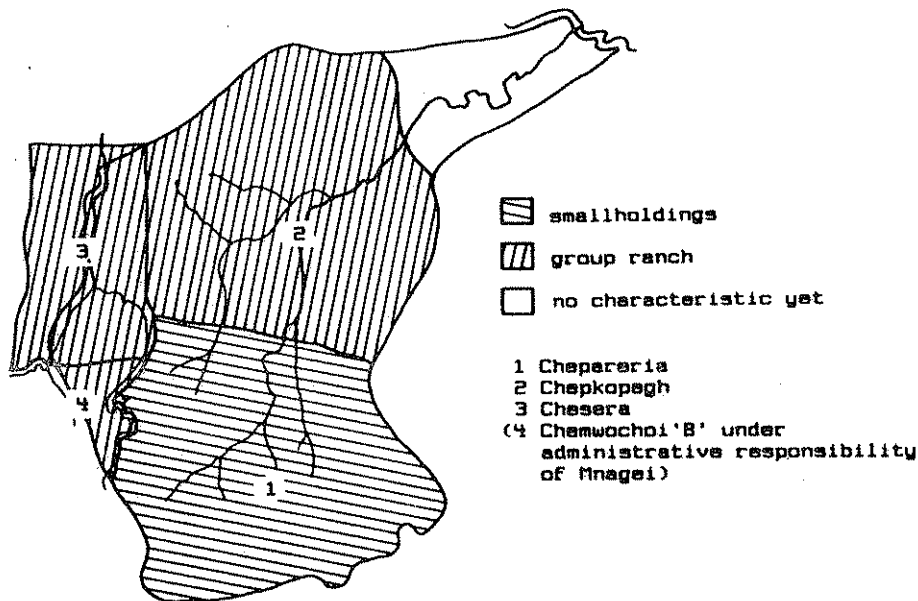


Figure 4.2 Adjudication sections in Kipkomo

This also means that people have easier access to credits because the land is functioning as a guarantee. Compared to other parts of Kipkomo, people living around Chepareria are investing their surplus relatively more in land. Animals are becoming less important as a means of insurance for the uncertain future. Thus the transformation in Chepareria roughly shows 3 changes: (a) from communal ownership to private ownership of land, (b) from animal husbandry to crop cultivation and (c) from subsistence to market oriented agriculture (figure 4.1).

The remaining part of Kipkomo is developing differently. The formal part of the implementation of the group ranches, i.e. the marking out is finalized for the Chesera group ranch and nearly finalized for the Kipkomo (also called Chepkopegh) group ranch. So in those areas land did not get another function in the economy, it did not become a marketable good. People are still investing their surplus in animals to bring about a safer future. Cultivation of maize, millet and sorghum for subsistence already existed in Chepkopegh for some time because it is very difficult to survive on animals alone in this area. But because of the drought and the bad soils of this area there is not a big chance that crop cultivation will become more important than stock keeping. People living in this area acquire cash money by selling goats.

In Chesera, crop cultivation only started recently (around 1981/1982). It still happens on a very small scale, a pastoralist does not change quickly.

The crop yields are high compared to Chepkopegh due to the more fertile soil along the river (see 2.8. and 4.6). Thus there are possibilities for crop cultivation. For Kipkomo without Chepareria we can conclude that the transformation is only partial. The area became part of the money economy but land tenure did not really change, cultivation is acquiring some importance in the production but cattle are still most important.

Thirdly, the topic of cooperation between farmers should be dealt with. As mentioned before the farmers of Chepareria started to produce for the market and they were able to obtain credit from banks because of their privately owned land. In order to organize this they founded the Chepareria Farmers Cooperative Society Ltd (CFCS) in 1979. This organization became an important link between the farmers and the Cereal Board. All the members sell their maize and receive the money via the CFCS. They also buy production goods like seeds, fertilizer and tools via the cooperative. Apart from this it also became an important link between them and the Integrated Agricultural Development Program (IADP). They acquired loans for private and cooperative investments. We shall give a short history. The Society was founded in 1979 and in this year it got a loan of 64000 ksh from IADP for 50 members to develop their farms. The loan was repaid in 1981. Beside this loan, the IADP gave a grant to build a store. In 1980 the number of members grew to 100 and they got an IADP loan of 108500 ksh as starting money. They used it as starting capital (to buy seeds, fertilizers) and for investments like a tractor and a cattle dip. The repayment took more time but in 1982 they repaid 84000 ksh. Because of the drought of 1984 they could not repay the rest of the loan (24500 ksh). Although 1985 was a good year (15000 bags of maize and 3000 bags of beans were sold via the CFCS) the restitution was still impossible because the payment of the Cereal Board was delayed till May 1986. At that time there were 207 members. All are living around Chepareria and are practicing modern agricultural methods. Two of their main problems are solved: transport by the A1 and dipping by themselves. The risk of dry years will not easily be solved. In 1986 they were busy buying a new tractor. They wanted to get it via the IADP but they have to pay 40% (76000 ksh) themselves. IADP will give a grant of 60% of it. In April 1986 they collected only 10500 ksh and the deadline was posed on June 1986. The CFCS is also cooperating with the Ministry of Agriculture with the introduction of rotation between maize/beans and sunflower.

Cooperation is nothing new in the Pokot society but the commercial base is new. The relative success is most probably due to the fact that the people of Chepareria see the use of it. This is in contrast to the cooperation between the members of the group ranches. Until now, group ranches have only been successful in years with enough rain. At the moment they exist only formally and most pastoralists do not change their pattern of migration to the West in the dry season. They cannot stay on the ranch because there is no grass enough. So their movements are quite understandable and logical.

Lastly we will discuss the influence of the Ministry of Agriculture and Livestock Development (MoALD) on the transformation. Of course this influence is not restricted to this last period, it started much earlier, but now their policy is more intense and more staff is available (for Kipkomo 5 Technical Assistants, 2 Range assistants, 2 Animal Health Assistants, 2 Junior Technical Assistants and 1 Junior Range Assistant). In Chepareria there was a long tradition of one central demonstration plot. In 1984 MoALD changed its system and started working together with the CFCS via decentralized plots of 0.25 acre each. These plots are situated on the farms of selected farmers. In 1986 there were 5 sections, with in each section around 45 selected farmers (figure 4.3).

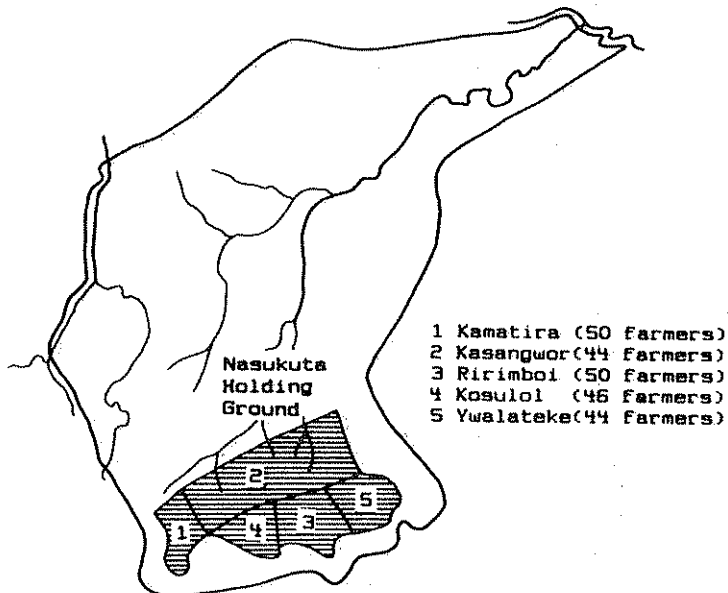


Figure 4.3 The 5 demonstration plot sections

Experiments are done on these plots to show the farmer and his neighbours the results of better farming methods. Up to 1986 maize and beans were the most important crops. In 1987 MoALD will start with sunflower and cotton. Sunflower was tried before but was no success because of transportation problems. Now East African Industries will come to collect it. The selected farmers are also shown how to take measures against erosion (cut offs, fanya yiuu, stone terraces and grass strips). There is also a plan to start a Farmers Training Centre in Chepareria. A site is already available. On the group ranches the Ministry wants to introduce cotton.

With respect to the pastoralist several things were done, but mostly with little success. The group ranches never became a success. The Nasukuta Holding Ground has never been utilized since completion many years ago. The almost permanent quarantine of the district has contributed to this fact. Now the Ministry concentrates on disease control and it is starting up a new project on the Holding Ground in cooperation with ASAL. This project is an animal exchange program. Animals of higher quality (in several ways) are introduced and people can exchange their males animals or impregnate their females animals. It will be started with goats and sheep and in future it will be extended with bulls. The influence of MoALD on the transformation is most clearly recognizable in the Chepareria sublocation.

Taking an overview we see two main groups. Firstly, the modern mixed farmers around Chepareria, and secondly the mainly traditional pastoralists in the northern part of Kipkomo, with the people of Chesera in a better position, because of the better opportunities with respect to crop cultivation. In the next section the results of Yadeta's research will be presented.

4.6 Yadeta's research

In this section the book of G. Yadeta 'Dynamic processes of development in marginal areas' will be discussed. This research, which took place in 1979, is as far as we know the first study ever done in Kipkomo. The book contains a theoretical part and a casestudy. We will give a short summary of the theoretical part. Yadeta formulates the aim of this study as follows: 'the objective of this study is to depict the constraints and opportunities which prevail in marginal areas while people endeavour to intensify their activities and change the quality of their life under the continuous growth of population pressure' (Yadeta, p.7, 1985).

From this aim he constructs a theoretical and conceptual framework which is a combination of Hagerstrands Time-Geography Model and Population-Linked Theory (mainly based on D.B.Grigg 1980)(Yadeta, p.17-18, 1985). In this framework and therefore in his casestudy the core of the analyses is formed by three constraints which concern (a) the internal farm organisation and performance, (b) the rules of land tenure and (c) the structure of incentives.

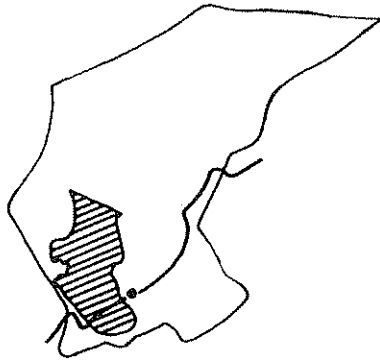


Figure 4.4 Yadeta's research area

The second part i.e. the case study is structured as follows: the first three chapters give information on the technical socio-ecological environment, the next chapter deals with the farm resources and in the last three chapters the management system is examined in relation to the three constraints. In this case study a comparison is made between the Kongolai group ranch (Riwa) and a section of 96 square km in Kipkomo (see fig. 4.4). This section was divided during his survey in two parts. In the southern part all land was privately owned. The northern part was still County Council Trust Land (in 1986 this part was also privately owned). In the scope of this profile we will only deal with the Kipkomo section. In this section the household survey of Yadeta took place concerning 103 households (30% sample).

In his conclusion he roughly states that because of population pressure the people started with crop cultivation. The integration between livestock rearing and cultivation is different in the three areas (Kongolai group ranch, Kipkomo trust and Kipkomo privately owned land) because of different circumstances with regard to the three constraints, especially the land tenure system. He states that private ownership of land is necessary in order to pay for the innovations and in order to continue the intensification process (Yadeta, p.179, 1985).

Reading his book and comparing it with our own investigations we can make some remarks. Firstly some general remarks about the presentation. Almost all tables and figures lack absolute figures which makes control or comparison difficult. Also mistakes in tables or figures make them difficult to understand. Because of this we can make a comparison between his and our data for only few items (table 4.3).

Table 4.3 A comparison between several data of Yadeta's and our household survey

average household size	Yadeta's 6.8	our 13.1
composition of herd (%)		
cattle	81.6	66.9
sheep	6.7	12.9
goats	10.8	20.2
average cultivated area (acres)	3.2	6.9

Three differences are significant. Between the average household sizes we see a big gap. In our opinion Yadeta's figure is too low. According to him the total number of people living in this area (96 sq.km) is 2311, which means a density of 23.9 persons per sq.km. The enumeration areas (of the 1979 census) in which his research took place show densities of 47 and 56 persons per sq.km.

Another significant difference is the share of goats in the total herd. His lower figure is possible due to the goats' disease which struck West Pokot in 1979.

The last difference is between Yadetas and our average cultivated acreage. This can be a result of a bias in our smaller sample or of the growing importance of crop cultivation in the years between his and our survey.

The second remark concerns the population densities used in his book. In his computation of the densities of 1969 and 1979 he uses the same amount of sq.km. As we stated before, this is doubtful because of major boundary changes. Beside this he always refers to the overall density of the whole location (31 sq.km). For his area this is too low as we mentioned before.

The third remark concerns his starting point of one eco-climatic zone in the Kipkomo section. Yadeta is using the classification of Pratt and Gwynne (1977). In this profile we used the more recent agro-climatic zone classification of the Kenya Soil Survey which cuts his area in two pieces. 46 % (65 questionnaires) of his area belongs to a more fertile zone (III) with a higher rainfall evaporation ratio.

This means at least that Yadeta's study area is more diverse in terms of climatic characteristics, which can affect his rather pessimistic estimate of the carrying capacity.

In his computation of the carrying capacity there are two aspects unclear. The number of stock units required to support one human being is fixed on 3.5, but where this figure is derived from is unclear. The other aspect concerns stock units. Pratt and Gwynne use two stock units (one equivalent to 300 kg and one equivalent to 450 kg). According to our information the 300 kg stock unit is used in relation to the carrying capacity, but Yadeta is using the 450 kg stock unit throughout his book. With those two things in mind Yadeta's computations become difficult to interpret. This has consequences for his conclusion that the area is overstocked and overpopulated.

Lastly there is another remarkable point. According to Yadeta a lot of differences between farmers of the trust land and the privately owned land are explained by the difference in land tenure system. But the boundary between these two areas is almost the same as the boundary between the two agro-climatic zones of the Kenya Soil Survey. This means that the agro-climatic factor

also can be important in the explanation of the differences between these two groups of farmers. Finally we can state that it is a pity that we could not use his data in combination with our own results to get a more dynamic view of the ongoing processes in this location.

4.7 The questionnaires

In this section we will offer the results of our household survey about the economic situation of the three groups we distinguished in paragraph 0.2. We will describe and compare the groups on three main topics, i.e. agriculture, livestock and income/expenditure.

4.7.1 Agriculture

In this section we will discuss the following characteristics: acreage, yields, yield per acre, land tenure and some related aspects.

The first question is, how many acres are cultivated with what kind of crop.

Figure 4.5 shows the acreage per household for every crop (the computation is as follows: we divided the total cultivated acreage for a particular crop by the number of households who are cultivating it).

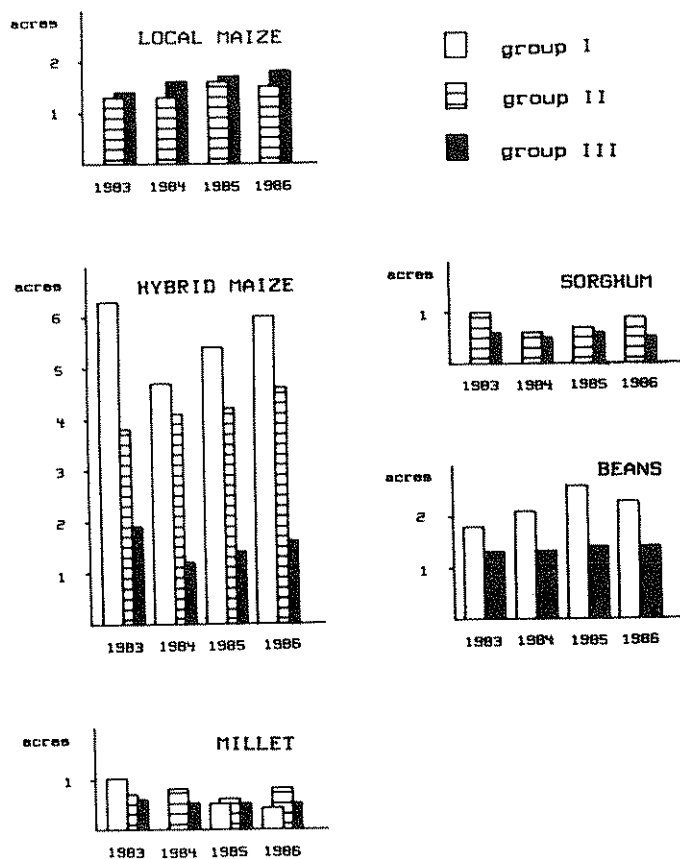


Figure 4.5 The acreage under cultivation per household for 5 crops and for 4 years

Group I does not cultivate local maize. Hybrid maize is the most important crop and its importance is still rising (the high score in 1983 is due to the response of some rich farmers only). Sorghum and millet are of no, respectively minor importance. Beans are quite important and mostly intercropped with hybrid maize. The acreage does not really change through the years. Not shown because of minor importance is the cultivation of vegetables (only in group I).

In group II local maize as well as hybrid maize is cultivated, but the area with hybrid maize is the biggest and increasing. Sorghum and millet are relatively more important compared to group I. Neither beans nor vegetables are cultivated.

The acreage of local maize and hybrid maize is rising in group III (the high score of hybrid maize in 1983 is due to the donation of seeds by missionaries). Sorghum and millet are relatively important. Quite a lot of acres are used for beans.

When we look at figure 4.6 we see a big difference between the groups in total cultivated area per household.

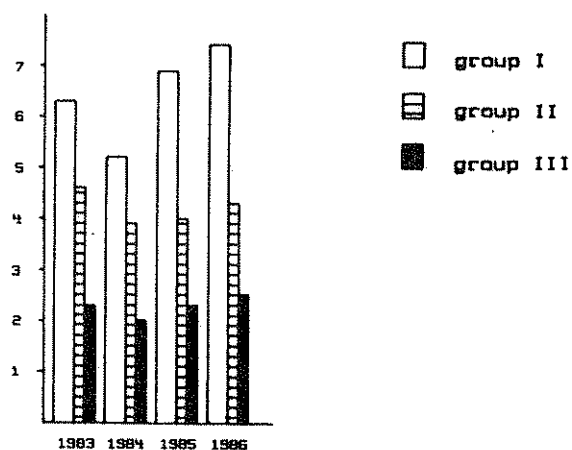


Figure 4.6 The total cultivated area per household for 4 years

Table 4.4 The number of households cultivating a particular of crop in 1986

group	I	II	III
local maize		19	12
hybrid maize	30	14	18
sorghum		24	12
millet	6	26	11
beans	15		4

Table 4.4 gives an impression about how many households are cultivating a particular crop and figure 4.7 (next page) gives the distribution of the households by the cultivated acreage (1985).

Further, we compare the yields in kg per household. Figure 4.8 (page 38) shows it for 5 crops in 3 years (for the computation we followed the same procedure as for acreage). The big producers of hybrid maize are found in group I. Besides, the impact of the drought of 1984 is outstanding except on one point. The yields of group III did not drop that much compared to the two other groups. A possible explanation is the fact that these people started with cultivation around 1981/82. Therefore the low yields of 1983 can be due to the inexperience of these people with crop cultivation.

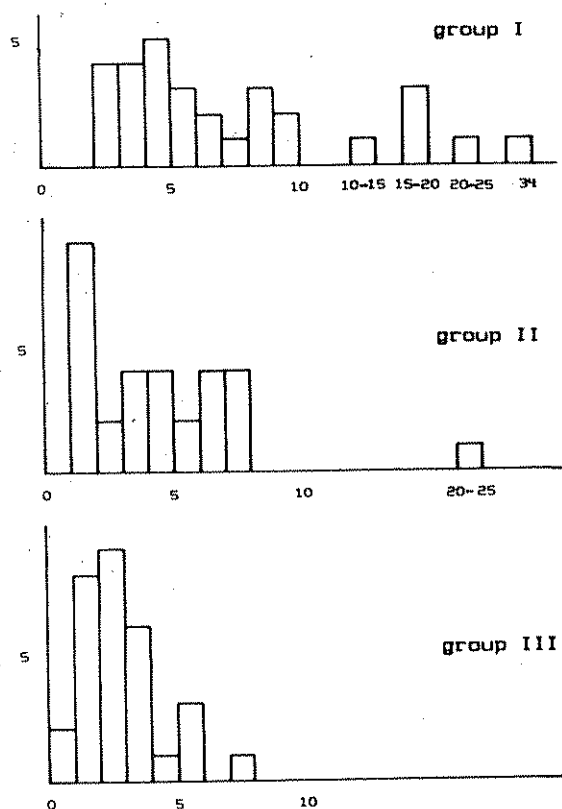


Figure 4.7 The distribution of households by cultivated acreage (acres) in 1985

Table 4.5 gives the figures of the total annual production and need of grains per household (the need is based on 200 kg grain per adult per year and 100 kg grain per child per year). When we compare these data we can conclude that even in 1984 there was no problem with respect to the food security for group I. For group III and particularly group II it is the other way around. In this relatively small area of one location big differences in food security are possible.

Table 4.5 The annual production and need of grain in kg per average household

group	production			need
	1983	1984	1985	
I	6804	2582	8697	1613
II	1139	0	2360	1326
III	1001	550	1514	1183

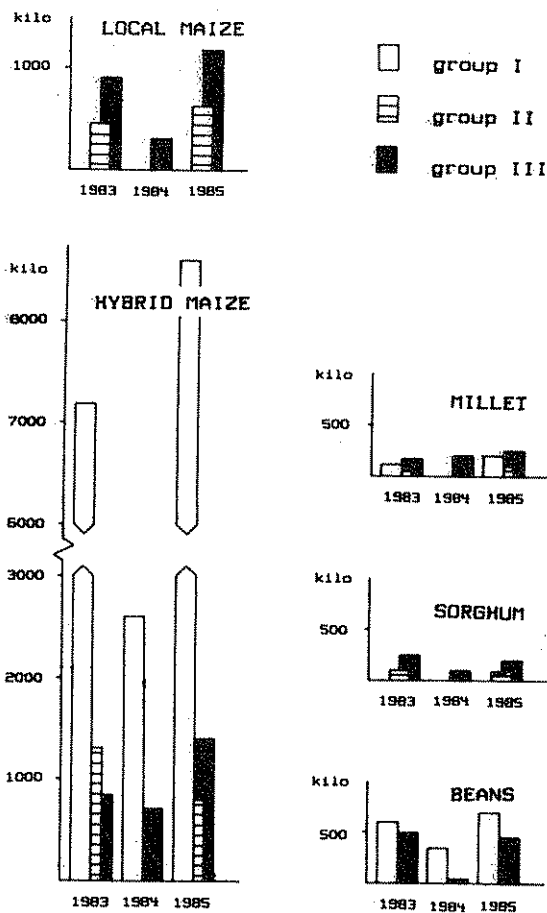


Figure 4.8 The yield per household, for 5 crops and for 3 years

When the figures about acreage and yields are combined, it is possible to get an impression about the production per acre (figure 4.9). Big differences between the groups can be seen for every crop. Group I has the highest score for hybrid maize and millet. Especially between this group and group II big differences exist. The good yields of group I are explained by their relatively good farming methods and the moderate to good fertility of the soil. The high yields of group III are due to the high fertility of the soil along the river and not to the farming practices. The area of group II is not really suitable for crop cultivation (see 2.8.).

Finally we discuss the remaining characteristics. In group I all land is privately owned. Twenty households of group II are members of the Kipkomo/Chepkopegh group ranch. The other ten have access to land via the traditional way (kokwa). All households of group III are members of the Chesera group ranch.

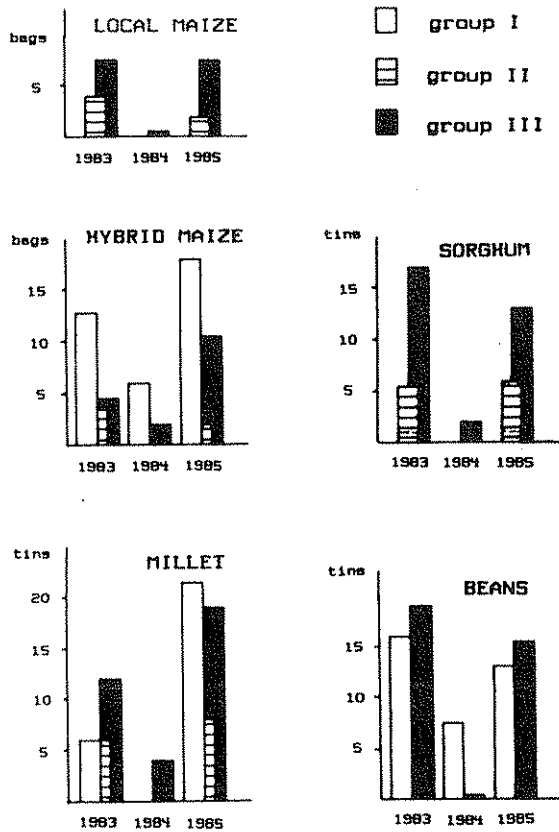


Figure 4.9 The yield per acre, for 5 crops in 3 years (maize and hybrid maize in bags of 90 kg, sorghum, millet and beans in tins of 20 kg)

In group II and III nobody sold his maize, so we can conclude that these groups produce for home consumption. The total amount of hybrid maize of group I that was sold was 1555 bags (28 households) in 1985, which means an average of 55.5 bags or 10000 ksh per household. 2899 bags were produced, thus in 1985 54% was produced for the market.

Table 4.6 The distribution of households over the number of plots claimed in 1986

group	plots				
	1	2	3	4	5
I	16	11	1		1
II	14	9	1	1	
III	26				

Table 4.6 shows how many plots people claim and table 4.7 shows how many people use modern production goods. Twenty eight households of group I are using fertilizers and we were interested for what reason. There are two answers possible. Firstly, they use it in order to increase their yields. Secondly, they have to use it because the soil is becoming exhausted. We did not get a clear answer.

table 4.7 The number of households using modern production goods

group	fertilizer	insecticides	bought seeds
I	28	5	29
II			17
III			19

4.7.2 Livestock

This section will give information about the different quantities of animals, Stock Units (SU), Standard Stock Units (SSU), about seasonal migration, trade with animals and treatment against diseases. The numbers of livestock are based on management. So the household is seen as the usufructuary, and not as the owner (Tilia is not important from this point of view). Figure 4.10 shows the number of 4 types of animals per household (computed as before, i.e. the total amount of one type of animal divided by the amount of households keeping this particular type of animal). For the first two groups the data of 1986 are lower than the year before. Perhaps the data are obscured by the typical taboo upon telling the real amount of animals possessed. Why group III forms an exception we do not know (possibly the bias is overshadowed by a relatively high increase). Nevertheless the lower number of group I and II cannot be a decrease because the year 1985 was a very good year. We tried to reduce taboo bias as much as possible through employing local Pokot for asking these questions. We checked in the field and compared with other data. Our conclusion is: especially the data of 1985 are quite reliable. Apart from this the data of group I for 1983 are too low due to a low response. We observe that group I has the lowest score for every type of animal. Group II has, apart from 1986, most of the small stock and group III has most of the cattle. The impact of the drought of 1984 is different for every group. When we want to examine this impact we have to concentrate on the difference between 1984-85 instead of 1983-84.

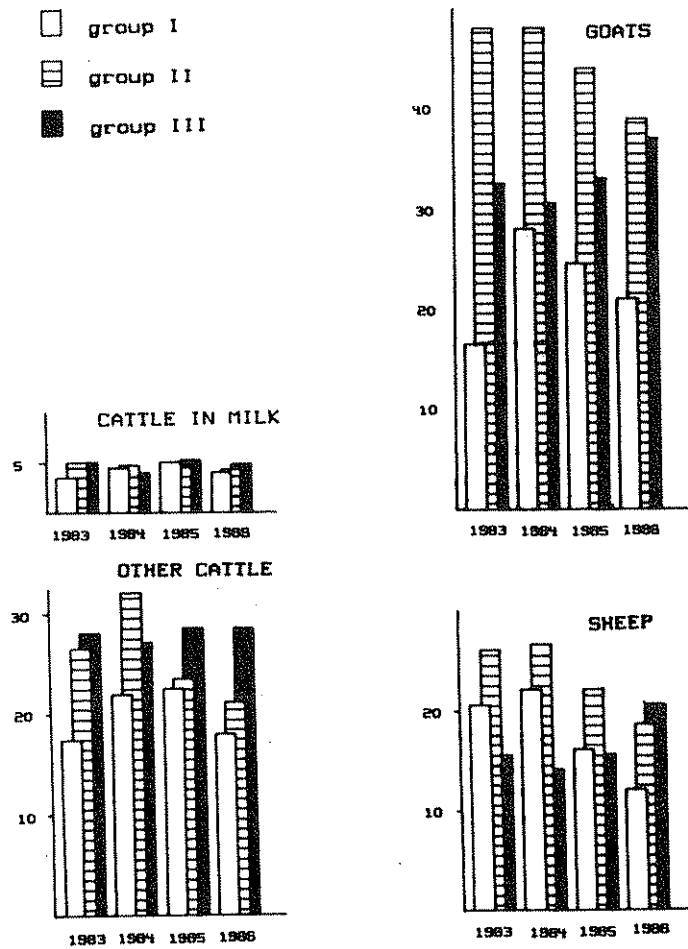


Figure 4.10 The number of animals per household, for 4 types of animals and for 4 years

Most animals can survive a dry season. But when the rain season is skipped and the dry season is twice as long more animals will die. Group I lost a bit of cattle in milk and a lot of other cattle and small stock. Also for the animals of group II this was a bad year. With group III something strange happened; the number of animals went up. We have no explanation for this.

There are two ways to compare the groups with an aggregate standard for animals. We present both standards here because we think this is not the place for discussion about the quality of these standards. The first standard is the Stock Unit (SU) which is equal to 1.4 Zebu average cattle or 7 average goats/sheep. The second is the Standard Stock Unit (SSU) which is equal to 1 average Zebu cattle, 3 average goats or 5 average sheep.

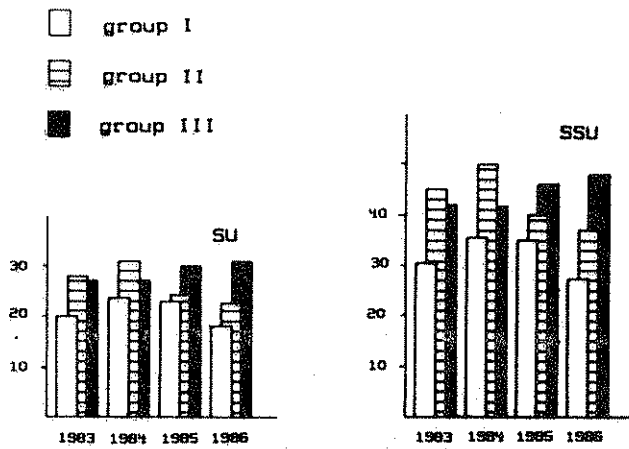


Figure 4.11 The number of SU's and SSU's per household for 3 years .

Figure 4.11 is giving the results. The smaller number of animals of group I is much clearer now. For group II as well as group III animals are more important, group III is richer with respect to animals.

Finally some remarks about donkeys and chicken should be made. Only 3 households of group III keep donkeys (4 each). The figures about chicken are: group I 25 households with an average of 16 chicken, group II 5 households with an average of 6 chicken, group III 11 households with an average of 7 chicken.

An important topic is seasonal migration with the animals during the dry season. Figure 4.12 shows the destination of this migration in the dry season. All households in group I stay at home throughout the year. Two households have animals at Mwisho Farm in Trans Nzoia. All households in group II and III return to Kipkomo in the wet season.

We also asked the people about the number of animals, sold and bought. The figures about animals which were purchased, were not reliable because it turned out to be a very difficult question to answer. Table 4.8 gives the total number of animals sold in 1985.

Table 4.8 The total number of animals sold in 1985

group	goats	cattle
I	249	
II	156	40
III	224	

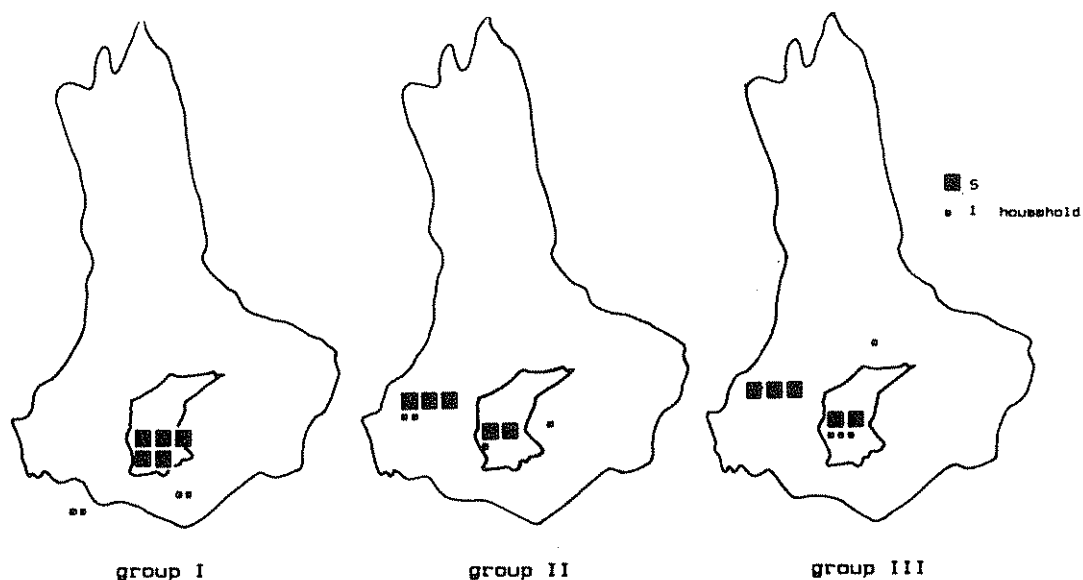


Figure 4.11 Destination of seasonal migration with animals (1986)

The last topic is about what people do against diseases. In group I 28 households are dipping their animals frequently. Inoculation is also very common. In group II only two households dipped their animals in 1985. In 1985 inoculation was done by 26 households. Fifteen households of group III dipped their animals in 1984. But a lot of animals are cleaned by hand by the women. Only 4 households inoculated their animals once.

4.7.3 The value of the agricultural production

In this section we present the total value of the agricultural production for every group. The computation is as follows:

A. total milk production:

$$\begin{aligned} & \text{nr. of cattle in milk} * 300 \text{ l. (prod. per year)} = a \\ & \text{nr. of goats} * 50\% (\% \text{ of milk producing goats} \\ & \quad * 25 \text{ l. (prod. per year)} = b \end{aligned}$$

$$(a + b) * 3\text{ksh (price of 1 l. milk)} = A$$

B. total meat production:

nr. of cattle * 10% (annual offtake) * 125 kg (meat) = d
 nr. of goats * 30% * 20 kg = e
 nr. of sheep * 30% * 20 kg = f

d * 1000 ksh (price of an old cow) = g
 e * 175 ksh (price of an average goat) = h
 f * 175 ksh (price of an average sheep) = i

$$g + h + i = B$$

C. total skin production:

nr. of cattle * 10% (annual offtake) * 50 ksh (price) = j
 nr. of goats * 30% * 10 ksh = k
 nr. of sheep * 30% * 10 ksh = l

$$j + k + l = C$$

D. total crop production:

prod. of local maize in bags * 175 ksh (price) = m
 hybrid maize in bags * 175 ksh = n
 sorghum in kg * 5 ksh = o
 millet in kg * 5 ksh = p
 beans in kg * 5 ksh = q

$$m + n + o + p + q = D$$

E. total value of the agricultural production:

$$A + B + C + D = E$$

The results for the three groups are presented in table 4.9. Group I has the highest value in 1985. This is due to crop cultivation. The difference between group II and III is explained by a difference in the value of crop cultivation as well as the value of milk production. Comparing these figures we must have in mind the fact that the average household size of group I is much higher (see table 3.2). Looking at the percentages (between brackets) it is clear that in Group I the agricultural value is mainly formed in crop production and in the two other groups in animal production.

Table 4.9 The value in ksh of the agricultural production for the three groups (percentage between brackets)

	I	II	III
A. milk	4346 (16%)	3713 (32%)	5376 (37%)
B. meat	4197 (15%)	5350 (46%)	5377 (37%)
C. skins	221 (1%)	290 (3%)	284 (2%)
D. crops	18697 (68%)	2166 (19%)	3351 (23%)
E. total	27461 (100%)	11519 (100%)	14388 (100%)

4.7.4 Income and expenditure

This last section will give a financial representation of the three groups. Both topics will be discussed separately. At the end we will try to compare the level of prosperity of the three groups.

Firstly, we will discuss the distribution of income over the several sources (table 4.10). The table is based on the average income per household. The number of households who are contributing to a source is given between brackets. Especially for group II and III the source 'paid job' is biased. This source has a high share in the total income but is only caused by a few people. The high percentage of the source 'other or unaccounted' in group I is due to a matatu owner who did not want to tell his income from the matatu but who gave his total income easily.

The overall picture is clear; in group I money is earned with the sale of maize, in group II and III with the sale of animals. Most money is earned in group I, least in group III. To get an impression of the distribution we put all the total incomes an ascending row. In table 4.10, A is giving the fifth income and B is giving the twentyfifth income.

Table 4.10 The percentual distribution of income over several sources (1985)

source	I	II	III
maize sold	49 (28)	0 (0)	0 (0)
animals sold	7 (25)	68 (25)	72 (29)
paid job	30 (13)	13 (2)	20 (1)
honey	1 (4)	0 (1)	1 (2)
charcoal	0 (2)	0 (0)	0 (0)
beverages	0 (0)	1 (4)	1 (3)
handicrafts	0 (1)	1 (7)	0 (1)
gold panning	0 (0)	8 (4)	1 (1)
from relatives	1 (5)	0 (2)	2 (4)
other or unaccounted	13	8	2
total	101	99	99
average income per household	19934 ksh	4373 ksh	1566 ksh
A fifth income	5000 ksh	2000 ksh	870 ksh
B twentyfifth income	30000 ksh	8000 ksh	2320 ksh

Secondly, expenditure is given in table 4.11. The clearest contrast is in the distribution as a whole, group II and III spend half of their money on grains, while group I has a variety of items to buy.

All three groups spend almost equal proportions on general household expenses, on harambee and on clothes. Differences in expenditure are on energy, casual labour and school-fees.

Table 4.11 The percentual distribution of expenditure over several items (1985)

item	I	II	III
grain	0 (1)	56 (29)	42 (29)
milk/meat	13 (29)	1 (9)	0 (2)
general household exp.	18 (30)	12 (30)	11 (29)
harambee	6 (30)	7 (28)	6 (30)
clothes	16 (30)	16 (30)	17 (29)
energy	6 (26)	0 (1)	1 (5)
transport	5 (27)	3 (23)	2 (7)
casual labour	8 (22)	0 (0)	0 (0)
school	19 (24)	4 (13)	3 (16)
other or unaccounted	8 (17)	0 (1)	18 (29)
total	99	99	100
average expenditure per household	8586 ksh	4130 ksh	1355 ksh
A fifth exp.	3360 ksh	950 ksh	780 ksh
B twentyfifth exp.	11150 ksh	7140 ksh	1930 ksh

The difference on energy is caused by the fact that the njiko is generally accepted in the area of group I. The people of group I have to buy charcoal while the people of the other two groups still cook on open fires of wood.

The contrast on casual labour is partly explained by the kind of house the people live in. The people of group II and III are moving pastoralists, so they will never invest a lot in one house. They construct their simple and cheap manyatta's themselves. The people of group I are permanent residents and they invest more money in their house. These houses are often more advanced and builded by a mason and a carpenter, which are paid on casual labour basis.

The big difference in percentage spent on school-fees is quite logical when we know that more children in group I are going to secondary schools.

The high percentage of 'other or unaccounted' for group III is due to the mixture of this item with the item 'household' by the interviewers.

To get an impression about the distribution we did the same for expenditure as for income. So A is the fifth and B the twentyfifth expenditure.

When we make a comparison between the total average incomes and the total average expenditures, we cannot neglect the big difference between income and expenditure for group I. We know three things which can explain the difference. There is the matatu owner who is biasing the picture. Secondly, saving of money on a bank happens in this area. Thirdly, the people in this group still get money from the Cereal Board (this money is earned and thus booked as income in 1985 but not yet paid and therefore unusable). Perhaps there is also money spent on items we did not ask for, like luxury goods.

For group II income almost equals expenditure, so we probably covered all sources and items. Saving on a bank does not happen in this area, saving happens in animals. In group III there is a difference we cannot explain. We think we covered everything but income is still higher than expenditure and saving on a bank does not occur in this area.

We will finally attempt to compare the wealth of the three groups. We constructed a wealth variable which is a computation of total income, the total value of animals and for group I the value of the total acreage of cultivated land. The value of an average cow is 1500 ksh, the value of an average goat or sheep 150 ksh. The value of one acre in Chepareria is rising, but we took the price of June 1986 which is 2500 ksh. We decided to use the amount of cultivated land instead of the amount of claimed land because this is the best and so the highest valued land. Table 4.12 gives the figures on this variable for an average household. We know our variable is arbitrary but it is an attempt to lessen the impression income is making.

Table 4.12 The wealth of an average household per group (1985)

I	79518 ksh
II	43868 ksh
III	55324 ksh

The combination of capital goods and income gives a different picture compared to income alone. The gap between the cultivators of group I and the pastoralists of group II and III is less. Apart from this the score of group III is higher than the score of group II, which is due to the higher amount of livestock owned.

4.8 Urgent needs

In this section we give a selection from all the remarks the people made when they were interviewed. Apart from the fact that everybody wants a tarmac road, a dispensary or a school next door there were also some more easily solvable problems, which mostly affected the agricultural production. We will mention them below per area.

Around Chepareria two problems were mentioned very often. Firstly, when the wet season starts a lot of people have to wait until a tractor is available for ploughing their plot. This is a quite important bottle neck because the quicker people can plant the higher the yields. An idea of the manager of the village polytechnic was to introduce the ox-plough. Positive points are: the low price, widespread availability, local producible and use of animal energy. But there is one problem: they cannot get somebody who can teach them how to train the oxen. Perhaps CFCS and MoALD can work together on this point. The other point was that everybody said that they had to sell the harvest immediately. They cannot store for some time in order to spread the risk of drought or to wait for higher prices. This can be solved individually by investing in a dry store but also via the CFCS by constructing a central store for all the members.

In Kapchemogen people are becoming more and more cultivators but without knowing good agricultural methods. They are aware of their shortcomings and already asked relatives and friend for information. Perhaps an Agricultural Officer can give some assistance here.

For Chepkopegh the goat market is gaining importance. If people can be organised, the construction of a goat dip, collective sale of goats to traders, wild animals and other problems will be easier to handle. Especially on these points the people can be supported. Other points like crop cultivation will be more difficult because of the harsh environment.

In Chesera the people asked for support on two points. They want to learn better farming methods. When we look at the yield per acre and how they practice agriculture it is clear that the yields can be improved if the people really want it. The second point is the wild animals.