

Commission on Nomadic Peoples

“Household Viability and Change among the Tugens. A Case Study of Household Resource Allocation in the Semi-arid Baringo District”

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Household Viability and Change among the Tugens

A case study of household resource allocation in the semi-arid Baringo District

*Pål Vedeld**

Introduction

Kenya's semi-arid areas occupy about 53,000 square kilometers or 9 per cent of Kenya's total land area (Senga, 1976). The semi-arid districts in Kenya include Baringo, Kajiado, Machakos, West Pokot, Laikipia, Kitui, Samburu, parts of Embu and the coastal humid lowlands.

In the past, the semi-arid areas were inhabited by pastoral tribes such as the Maasai, the Tugen and the Samburu (von Kaufmann, 1976). These tribes were mainly pastoralists. Limited cultivation of finger millet, sorghum and maize was undertaken by the Tugen of Baringo District. There are reports of Tugens trading in grains to exchange for animal products with neighbouring Maasai and Turkana (Little, 1983). In recent years, crop production and various off-farm activities have complemented livestock as a means of survival and livelihood.

Baringo District suffers from low and erratic rainfall, which in periods causes hardships for producers who depend mainly on livestock and dry-land grain production for their livelihood. Baringo's history is full of reports of such hardships as cited by Little (1985); "an overgrazing end-point" (Brown, 1963), "an ecological emergency area" (Republic of Kenya, 1974), "the agricultural slums of Kenya" (Maher, 1937) and "an embarrassment to Kenya" (Republic of Kenya, 1966)".

Development Trend of the Semi-Arid Area

Important factors which have influenced the development trend of the semi-arid areas of Kenya beginning from 1900 are: 1)

the white settlement in Kenya Highlands, 2) the population increase in the African "reserves" beginning in the 1920s and 3) the land tenure system and land distribution. The establishment of a cash economy necessitated the alienation of the Kenyan Highlands, then popularly known as the "White Highlands". This alienated land was part of the dispersal grazing land of the pastoral tribes. The white settlement disrupted the pastoral production system which had stabilized over a long period of time (Ogendo, 1976 and Mbithi and Barnes, 1975). By the 1940s the African "reserves" were overpopulated and overstocked (Mbithi et al, 1975) through "natural" population growth and in-migration, conditions which necessitated the colonial government to review their agricultural policies on soil conservation, population resettlement and destocking (Mbithi et al, 1975 and Raikes, 1981). On the other hand, the people in the African "reserves" were marginalized by regulations such as increased taxes, reduced food production by removal of male labour and prohibition of livestock sales through quarantines. A labour market developed where families became dependent on hiring male labour to the settler farmers in order to meet both the obligations of the colonial rule and those of the family. Smith (1976) states that "... it must be recalled that crop production in indigenous agricultural systems was extremely labour intensive in two senses. There were very few capital resources being used as aids to production.... Second, many of the food crops, such as millet and maize grown in Kenya required relatively large labour inputs with marked seasonal labour requirements for planting and harvesting.... a re-

duction in labour supply (caused by outside pressures), thus threatening the well-being and indeed the survival of the family."

Land Tenure Policies

A plan to privatize land in rural Kenya was presented as part of the five-year "Swynnerton Plan" of 1954 which, as a government programme, was intended to intensify and develop the African agriculture in Kenya. The arguments for privatization of land ownership were that the household would be able to support its family by producing enough farm products. Mbithi and Barnes (1975) quote the Swynnerton Plan; "... the producer will support his family at a level, taking into account prerequisites derived from the farm, comparable with other occupations". Behind this was also the assumption that privatization would reduce the perceived "tragedy of the commons" (Hardins, 1968); that communally controlled resources are assumed to be managed as open-access resources causing environmentally and economically unsound management of the resources.

Even in the high rainfall areas, with a potential for agricultural production, Helen (1977) quoting Fliedner associated the success of the programme with those households "who have attained proficiency in other callings, such as teaching, trading or administration". In parts of Baringo and Laikipia districts, the land units registered to individual family ownership have presented problems. Land was adjudicated in the 1970s and all households allocated between 30 and 50 hectares. Land is subdivided through sales and inheritance.

The present land inheritance must be seen in relation to the traditional system of livestock inheritance among the Tugens. The Tugens did not have any system of land inheritance, as land was operated communally. Members of a clan or a sub-tribe were responsible for controlling grazing. The sons of a household were, by customary right, entitled to their fathers herd. The sons would be entitled to a share of the herd, especially for payment of brideprices and they would also receive a "subsistence herd".

Today the Tugens have been settled through the land reform. The traditional lives-

tock inheritance right has been replaced by a land inheritance right. This is partly a result of livestock herds reportedly becoming smaller; too small to be regarded as dependable wealth. It may also be a result of land becoming the main source of livelihood in the area and increased pressures caused by population growth and other pressure factors.

The majority of households are unable to meet their costs of living through their land-use based activities alone. The land holding size per household is reduced to a level which inhibits pure livestock-agriculture strategies as a means of survival and livelihood. Off-farm diversification of household resources is required.

The Kenyan land tenure reform, as contained in the Swynnerton plan of 1954, was not suitable for the semi-arid areas. The flexibility required in time and space by a pastoral or livestock based production system is often seriously hampered and often reduced by land privatization, thus reducing the total productivity of the areas in question.

Noticeable examples of the programmes which have had little success are the group ranch adjudication and registration of groups of up to 30 families in Narok and Kajiado districts. The intention of the project was to reduce the assumed consequences caused by overstocking. The project implementation approached this concept by commercializing the herds as well as by allocating grazing quotas. The project suffered set-backs because of the differences in priorities between the implementers and the ranchers (Aboud, 1982). Another example is the resettlement of the former "white settler" livestock ranches in Nakuru and Laikipia districts by smallholders.

Models for agricultural change

An important debate is to what extent a peasant household may be able to achieve simple reproduction outside the dominant mode of production. We will claim that this is an empirical question to what extent a peasant form of production may actually persist within a dominant mode of production and to what extent peasants are able to disengage from the market in times of hardship.

It will lead us too far to start an elaborate analysis of various positions on this topic.

Ellis (1987) draws up this classical discussion where he claims that certain schools of rather orthodox marxist economist on the one hand and more institutional economists and Chayanov oriented economists on the other hand hold rather opposing views concerning the sustainability of peasant farms.

The first group will describe a situation where the peasants, through a social differentiation process, will disintegrate into two classes; one of rural wage labourers and the other of capitalist farmers. This will take place for various reasons: there is private property of land; there is differential adaption of improved cultivation practices by the individual farmers, we find enforced abandonment of their holdings by peasants unable to compete in the market as compared with the more advanced producers; there is foreclosure by creditors on farmers in debt and there is increasing wage employment by well-to-do farmers. Furthermore, some schools will, according to Ellis (1987), claim that this is not only an inevitable but also a necessary process in order to make a proper contribution to economic growth - and to create a more efficient and market oriented agricultural system to provide the non-farming sector with cheap food, raw materials and labour. We can call this perspective the *differentiation* approach. Among more recent Marxist thinkers these views are modified and partly altered.

Opposing this view is a more institutional school of thought where family farm production, of which peasants comprise a major type, possess an internal logic which permits it to resist the pressures of capitalist production relations, and thus to reproduce itself indefinitely. We may call this perspective the *consolidation* approach. Ellis (1987), here, lists arguments in favour of this view; the control of the means of production, especially land, enables peasants to maintain simple reproduction; there is a social norm in peasant societies towards reciprocity rather than individual profit maximization; demographic factors such as land subdivision by inheritance counteract concentration of land in a few hands - land is not subject to "investment saving strategies"; peasants overcome market pressures by intensifying their labour input - increa-

sing their self-exploitation; natural/technical factors prevent larger capital investment on farms - not attractive as investment objects; the peasant form of production is flexible and allows for off-farm employment in periods. A main thesis of this approach is that peasants are not profit maximizers, but rather have simple reproduction as the main aim of production, and as such there is little or no capital accumulation.

To fill out the picture of theories in this respect, there are theorists claiming that lack of motivation is not necessarily the cause for lack of accumulation, but rather that the market economy pushes many peasants back into simple reproduction strategies as potential surplus is appropriated by the larger system. This takes place through rents, price squeezes and taxes. Also, in many cases this is steered not by markets alone, but also by state interventions based on the need to extract surplus. Furthermore, innovations outside the peasant economy may reduce the prices of commodities produced by peasants. The peasants either have to work more, or receive lower income. Bernstein (1986) calls this the "simple reproduction squeeze". To offset this, peasants may try to increase productivity or lower the costs of production. Peasants purported superior efficiency may therefore be a result of these external pressures and not necessarily an inherent capability (Ellis, 1987).

Marxist approaches stress social contexts and development or changes through contradictions and conflicts. The village life is, for instance, not dominated by social harmony and egalitarian households helping each other. This opposes a neoclassical approach with a more predominant atomistic point of departure and a rather evolutionary oriented harmony-model. Ellis (1987) states that "the incompatibility of the theories resides not so much in disagreement about the mechanics of the working of the market economy, but in the meaning attached to this working. And here, the Marxian emphasis on the social nature of all productive activity, on contradiction, and on social change differs greatly from the neoclassical preoccupation with the nuts and bolts of individual economic decision making". Following this, neoclassical and

Marxist economists may agree on the direction of change for the peasant producers operating in a larger context of market relations; that the dominant direction is one of differentiation and concentration of the means of production on fewer hands. This may be so irrespective of the driving forces behind such changes being viewed differently, as well as the (Ellis) "meaning" of these mechanisms.

It seems obvious that households with better access to resources will to varying degrees be able to produce beyond simple reproduction levels. Furthermore, households at different stages of the demographic cycle will, of course, have different access to resources, in particular labour, but also the motivation for such production levels will vary over the demographic cycle.

To sum up; changes in a peasant society are determined by the interplay of the above mentioned forces. In some areas we will see that disintegration and differentiation prevail, whereas stability and consolidation are found in other areas. The differentiation - consolidation dichotomy presented above will probably be more of a continuum than always one or the other. Also, the strength of various forces will vary over time and one may see that communities undergoing a differentiation or consolidation process under certain conditions may reverse this under altered preconditions. For Kenya, however, with the country's strong emphasis on export production, coupled with a historically unprecedented population growth, it is difficult to see how in the longer run one can avoid stronger differentiation structures and processes.

Household level resource allocation

Coming down to household level investigations, the decision-making and actions are determined as we have discussed by both external forces and internal relations. The households material access to resources, its endowments (Sen, 1981), includes basically land, labour and livestock.

From its endowments, the household will allocate resources to various activities to meet the needs of the household. Since both the resource base and the human capabilities of the households vary, it is obvi-

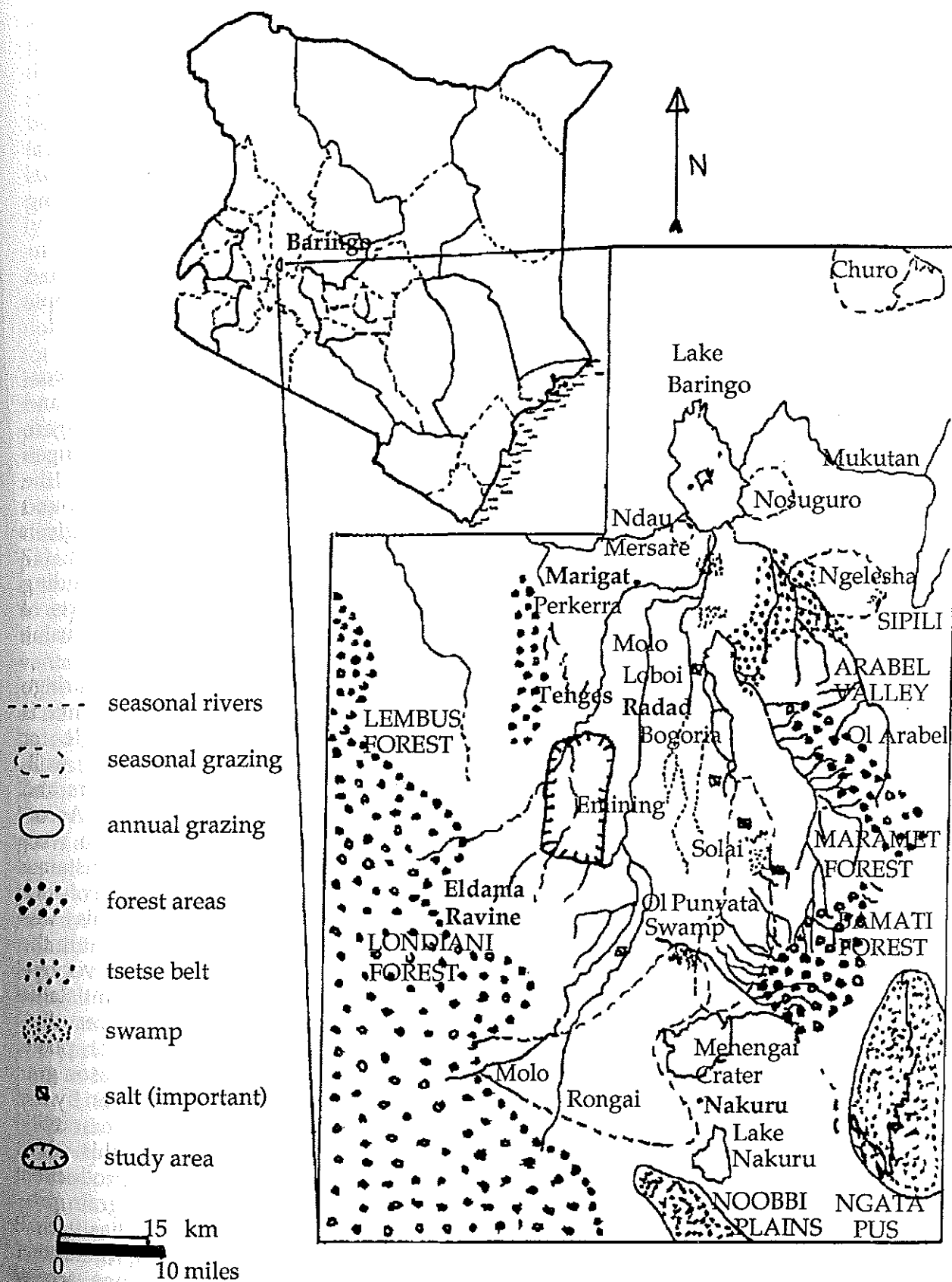
ous that the Gross Output Value (the total values produced in a year by the household) of the individual household will vary. The aspiration or motivation will also be household specific in terms of what objectives are pursued; subsistence food production, cash crop production surpluses, future generation considerations, individual or social aims of production, risk avoidance and the tradeoff between production and leisure of labour - the drudgery of labour. The household, as such, also contains a lot of differing interests; from the book-loving man and the beer-drinking wife to the bicycle wanting daughter.

The households are also faced with a number of physical constraints on their productive activities such as land quality, climatic vagaries, livestock diseases, labour availability in different seasons and access to capital and credit. Furthermore, market relations often reflected in low farm-gate prices and the bad performance of marketing systems for inputs and output are important bottlenecks when cash crop production is considered by the individual household.

This complexity of household internal dynamics in the interplay with strong outside pressures requires simplification to identify key factors and key processes governing household resource use.

The Study Area

The study was undertaken in South Baringo, in Pokor/Kebe and Kakimor locations, within Baringo District. The study area is situated 5 kilometres north of the equator, on the main road between Nakuru and Marigat, near Lake Baringo. The study area includes parts of the former Esageri Farms block. The study area covers approximately 245 sq.km. or about 2.3% of the District. The average annual rainfall at Emining, within the study area, is 940 mm and erratic. The distribution of rainfall is unimodal, with 5-6 months of dry weather. Situated around 1600 m. above sea level the area is sometimes called the Tugen Plateau, sloping downwards to the Perkerra River to the west and tilting towards the Laikipia Escarpment to the east. The ground is covered with small stones and rocks on raised sites making agricultural production difficult. The type of vegetation



Map 1. Location of study area, Baringo District, Kenya

can be described as *Albizia* woodland of various types. Brown soils prevail, with pockets of black cotton soils found in moister sites.

The people of the study area are Tugens. There are, according to Anderson (1985), about 135,000 Tugens in Kenya of which one third live on the plains, and the rest mostly in the Tugen Hills. According to Kenya National Census, the population of the two locations was approximately 19,000 in 1979, equivalent to 23 persons per sq.kilometre in Pokor/Keben and 41 in Kakimor. A projection of the population up to 1988 with a 4 % annual increase, would indicate a 40% population increase since 1979. The Tugens belong to the Kalenjins, a group comprising the Nandi, the Kipsigis, the Kengo, the Marakwet and the Pokot. We may further differentiate between the North Tugens, or Arror, and the South Tugens, or the Samorr.

Going back to the last century, the Tugen plains were mainly occupied by Maasais who used the plains for seasonal grazing as part of a wider pastoral system. With the outbreak of rinderpest and smallpox, the Maasais gradually withdrew from the plains, and after 1915 following colonial interventions they were more or less removed from the plains. Part of the Tugens staying in the Tugens Hills started to gradually move down into the plains, according to Anderson (1982). Before 1900, the Tugens were a hill people, subsisting on a mixed economy of mainly agricultural production but also some livestock production. The Tugens competed partly with the Il Chamus in parts of the plains for the control of water and pasture resources.

According to Anderson, the Tugens have strong cultural values in favour of livestock raising compared to agricultural and will, if given the chance, prefer livestock to agriculture. According to one of Anderson's informants (1982) about the choice between staying in the hills or becoming pastoral in the plains and selecting the latter; "It was a move any man might make".

Apart from such motives, Anderson gives the following line of arguing for the move to the plains;

1. The Maasais withdrew for various rea-

sons as earlier mentioned.

2. The Tugens had withdrawn to the hills during the rinderpest outbreak and were not severely hit by the pest.

3. The population in the hills had increased substantially both through "natural growth" and through an influx of refugees following the Ilkoip wars, both creating pressures on land in the hills.

4. The hills experienced droughts around 1897 (the Hunger of Chemngal) and people went down to the plains looking for food.

In our study area, southern Tugens occupied the plains between the Pekerra and Molo rivers, including also the Esageri, Emining and Mogotio rivers. The Tugen expansion eastwards was stopped by the European settlements that started around 1903 when the Lembu Forest was given concession. By 1907, 250,000 acres (47 farms) were allotted to farmers, including the wetter eastern and southern parts of Baringo, reducing substantially the value of the remaining pastures.

This started the "Range war" in Baringo which according to some informants is going on even today. The struggle for water and grass gave way to a well-documented conflict between settlers and the Tugens (see Anderson, 1982). According to him, the plains of Baringo were simply not productive enough to sustain a large human population and their livestock throughout the whole year. This was mainly because the grass - abundant in the flush after the rainy season - is not very resistant to grazing and their nutrient status falls rapidly when the rains are over - leaving a tough, wiry and fibrous plant. When, in addition, the best dry season grazing areas were taken for cultivation by the settlers, the conflicts increased markedly by the 1920s and 1930s. Leaving this aside, the Tugens maintained a mixed production system including livestock and grain production. The emphasis of each has varied over time according to changing frame conditions such as climatic conditions, access to water and grass, marketing conditions and options etc. As described by Anderson, the Tugens may be considered adaptive;" .. a common and accepted strategy of survi-

val in the Rift Valley; no group could afford to be isolationist, and the more adaptable a group was, the more successful it was likely to be. Thus, the expansion of the Il Chamus and Tugen into the pastoral sector after 1900 was a strategy that involved a series of transitions with which they were quite familiar. In moving to the lowlands, the Tugen were simply adapting to meet an opportunity that had not previously existed; the Maasai having restricted the amount of pasture available for Tugen use. Furthermore, the openness of Tugen society allowed the units of political organisation that had operated in the hills - the territorial groupings based on clan affinity known as *pororosiek* - to be quickly replaced by new amalgamations of clans on the plains. This permitted territorial expansion to occur with the minimum of social upheaval. Far from being stagnant or conservative in their outlook, the Tugens and Il Chamus were dynamic communities, prepared to accommodate their changing circumstances, and to adopt readily in order to exploit the opportunities offered within the Baringo environment to their full advantage".

The Tugens on the plains have undergone a transition from a mode of subsistence based on grain production to a mode of subsistence based on livestock (crosses of Zebu cattle, with Friesian, Ayrshire and Guernsey etc. and East African types of goats and sheep). Sorghum and millet have been the main crops cultivated. Maize was introduced after 1918 and has gradually become the main staple produced. This transition can, in part, be attributed to the labour requirements in maize production being lower than for sorghum and millet. Cultivation was less important in the inter-war period and, in general, grain production was less important between 1900 - 1940 than it is today. According to Anderson (1982), the acreages of cultivation were particularly small between 1900 - 1940 when the stock numbers were on the rise.

Adjudication and registration of land in South Baringo was undertaken in the early 1970s. During the demarcation, each family was allocated between 30 and 50 hectares of land.

Emining is the main marketing and administration centre in the study area and is

the administration centre for Pokor/Keben Kwen. Emining is linked to Nakuru by public *matatus* (taxis) as well as regular bus traffic.

The Study

In order to understand development in the Baringo area, a macro-level knowledge of driving forces and frame conditions facing producers in the area must be coupled with a firm understanding of household resource allocation; of perceptions of driving forces and the actual choices of action found at the household level.

In this study, the main emphasis is on household resource use and how households with different resource endowments adapt to and also create changes. This may provide a basis for the understanding of how different socioeconomic groups fare in the process of economic change and may also give an understanding of land use and possible environmental repercussions on human welfare. Such understanding is essential for the construction of intelligible planning.

Results

Household resource endowments

The distribution of land between households in the study area is rather skewed. As we recall, at the time of demarcation the households were given around 30 - 50 ha each. The average is now down to 17 ha, but with around 70% of the households having farm sizes less than the average. Furthermore, 16% of the households control 33% of the total land. The span in farm sizes lies between 3 and 57 ha among landowners.

As previously mentioned, people keep cattle, sheep and goats in the area. 42% of the households hold only 17% of the livestock reported in the sample while the upper 10 % of the households control 23% of the livestock.

Although the data has been controlled through discussions with various officials and reported statistics, there obviously remains a substantial uncertainty related to these figures. They do, however, indicate a trend of a rather marked difference in access to livestock resources.

The population structure in our study area indicates a rather high dependency

(producer/consumer) ratio. There are very few elderly people. The average household includes 8.8 members of which more than half are dependents (ratio 1:1.2), if the working group is defined as being between 15 and 50 years. The contribution by people above 50 years may in many cases however be substantial, but dependent on health condition.

The fourth main resource of the people in the area lies in the off-farm options for employment. We shall return to this in "Resource input".

Household resource allocation

Resource input

As discussed under the title "Household level resource allocation", the actual resource allocation of the households may be perceived as the complex interplay between its resource endowments, physical constraints and market constraints upon production and the aspirations and motivations of the individual household as well as social related values pertaining to production and output distribution.

Livestock is the main source of livelihood in the area with 93% of the households reported owning livestock. Animals are kept for meat and milk. Milk is both sold locally and to the Kenya Cooperative Creameries (KCC). Cows are kept and off-springs are often sold at the time of breeding. Cows are usually culled after 7 years of production, depending on their body condition. This production system, described by Stotz (1983), is called "Dairy Cattle Milk Production System (System 2)". Some invest in fattening steers, where the steers are bought in April (in the rains) and kept for 6 months up to when fodder becomes scarce. Sheep and goats are kept for meat for the consumption of the households themselves and for sale. The average household in the total sample control about 12.5 L.U. of which around 65% is cattle and 35% sheep and goats. If we compare this to 1930, the Tugens according to Anderson (1982) kept an average of 12 head of cattle and 55-60 goats or around 29 L.U. per household of 5 persons. We know, of course, little about the production per L.U. at that time and also the extent of other activities such as trading and grain production, so a straightforward comparison may prove difficult.

The role of goats is one of particular interest. The goats are, of course, well adapted to the hardships of semi-arid areas and manage and even thrive under very harsh conditions. According to Anderson (1982), the Tugens see goats as a form of reserve wealth, both as a store of food and as items of exchange; "Goats are traditionally a food to us. If you wished to buy a cow from the Somali, or some grain from a neighbour, then you would give out your goats...Goats were our store; Goats were our food... Goats are the reason most Tugens have survived. It is even how they have bought their cows". The rapid breeding of goats makes stock rebuilding rather easy. The conversion of goats into cattle after crises is of crucial importance to understand. It is important under crises to increase stocks of goats. According to Anderson, these dynamics can be read from the district statistics (to the extent the figures are reliable). In 1936 the ratio between goats and livestock in L.U.-terms were 30% cattle and 70% goats. Three years later the relationship was reversed. In 1988 the relationship was 66% cattle to 34% goats and sheep (This is based on our sample data).

The production output from livestock is difficult to assess. In this study, due to limited time, experience figures (Stotz, 1983) have been used to assess annual production. This omits the opportunity to assess inter-household differences concerning the actual annual growth in production for individual households and properties explaining such variations. The sizes of herds still vary between households as well as the reported sales, which are reflected in the Gross Output Value calculations.

According to Pratt et al (1977) and McDowell (1983), a potential stocking rate of 8 hectares per Tropical Livestock Unit is recommended (T.L.U.) for this area. (Anderson suggests a somewhat lower carrying capacity of about "1 beast to every 12 acre", which should give around 3 ha per L.U.). On average, 90% of the land in the study area is allocated for livestock. For the average sample farm this is about 15 hectares and about 16 hectares for the households keeping cattle giving an average stocking rate of 1.2 hectares/L.U.. The range of land allocated for livestock is 55 hectares. Many farmers do, however, pur-

chase feed and use maize stalks for their animals and thus offset to some extent this rough optimal stocking rate figure. Nonetheless, the study area is heavily overgrazed, with bush encroachment and denudation in open areas. Present vegetation, such as the dominant *Pennisetum* species are low in nutritive value.

Most households in the sample (99%) cultivate grains, particularly maize and beans, where maize is partly sold. To a lesser extent, finger millet, sorghum and groundnuts, cow peas and potatoes are cultivated for domestic use. Beans are in some cases intercropped with maize, making yield figures per land unit difficult to assess. The average cultivated area is 2 hectares per farm and constitute some 12% of the total area. Of this, 4% of the households cultivate 14% of the acreage. The range in cultivated area is from 0-12 hectares.

A substantial part of the households (67%) reported being involved in off-farm activities such as paid labour or various off-farm activities such as kiosk keeping, *mattatu* -business, casual work, trading, charcoal production, etc.

An attempt to assess the labour input in these various activities was in the study. The limited scope of time for the study precluded detailed hour registrations for various tasks. The livestock figures are based on Stotz (1983), whose study of labour requirements in livestock production is from South Baringo. The crop production figures are based on Hunt (1976) whose study is from a similar semi-arid area, and where some correction is made for differences in management concerning weeding and fencing intensity. Off-farm salaried employment is based on normal working hours in the public sector, and the off-farm informal activities are based on the figures given by respondents.

Livestock production is the most labour consuming activity for the average household. We found that the average household, controlling 5.3 producer units, would annually work 1,225 hours per producer unit, which may not seem very high. Such figures are not very informative for understanding scarcity of labour and bottleneck periods as labour may still be scarce in peak periods of the year. This apart, they may still indicate where the main labour

resources are put in. The figures for the various activities on general time requirements are based on various assumptions that may not hold true for this area. The calculation of producer units are also encumbered with uncertainties and may disguise temporal absence from home, schooling, disabilities etc.

Resource output

The output from the various income-generating activities is calculated from reported access to resources and presented in Table 1. These are gross figures where costs are not included. Consequently, any comparison between different activities based on these figures must be undertaken with care, as the costs vary with the different activities.

The livestock figures are calculated by using the average farm gate prices reported in sample. The annual production figures are based on Stotz (1983) concerning stock growth and on sample material concerning herd size and composition. The figures are gross, and do not reflect the costs involved in production.

The crop figures are based on the 1987 reported yields for the fields. The yields in 1987 were rather low with an average yield of 10 bags (90 kg.) per hectare. In a good year, expected yields were reported to be around 25 bags. In such semi-arid areas, the production output is of course encumbered with a high risk of crop failure and low yields, and the reported 1987 yield may therefore be a rather "good" average impression of the output level from crop production. The prices for maize is fixed by the government at 220.9 K.Sh. per 90 kg. bag. The price for beans was deducted from reported sales and set at 350 K.Sh. per 90 kg. bag. As mentioned earlier, maize and beans are sometimes intercropped, which makes an average yield output per hectare difficult to find. The estimated average Gross Output Value per hectare was 2,734 K.Sh. for maize and beans combined. The yields for food crops were difficult to obtain as many of these crops are harvested green and yields are not registered by the households. In relation to maize and beans, the output is considered negligible for most households in the calculation of Gross Output Value.

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Table 1. Annual Gross Output Values (GOV) for reported income-generating activities in Pokor/Kebeu Kwen and Kakimor, Kenya 1988

Activity	#Households involved	Gross Output Value(GOV)**	Average GOV for involved HH**	Average GOV for all HH **	% of total GOV
Livestock	134	2,699,258	20,144	18,876	60.0
Crop production	142	333,760	2,350	2,334	7.4
Salary employment	24	236,262	9,844	1,652	5.3
Non-farm activities	72	1,228,650	17,065	8,592	27.3
All	(143)*	4,497,930	-	31,453	100

* All hh. participate in at least one of these activities. One household did not report all data

** All figures in K.Sh. 1987

For salary employment and off-farm activities, reported gross earnings were used.

From Table 1, we see that livestock is the dominant source of livelihood in the area. More than 54% of the households reported selling livestock to get cash. For cash sales, meat and milk constitute the most important sources. Sheep and goats are also frequently sold. For the 99 households holding sheep and goats, 43 reported sales at an average of K.Sh. 1,046 per annum.

Crop production is mainly maize and beans. Approximately 41% of the households reported selling crops to acquire cash, although most farmers initially would state that crop production was meant for their own consumption. It seems that people will sell crop produce in times of hardship.

A substantial part of the Gross Output Value (27.3%) comes from off-farm activities. Many heads of households are "all-around agents" running small businesses like kiosks, *matatus*, grainmills, butcheries etc. Many of these employ landless and poor people. Others are self-employed and undertake crafts such as shoe repairing, tailoring, charcoal production etc. The costs of running such activities is difficult to assess as the activities themselves are so varied.

The formal sector includes employment in civil service and in parastatals, but constitutes only 5.3% to the reported Gross Output Value. We will return to the comparison of different production activities at

household level later.

Input-output relations

It is difficult to prove, or to investigate, if present household resource use is efficient in an economic sense. There are many reasons for this. The scope of the study, constraints faced by individual households and the uncertainties attached to much of the data, can hardly be said to justify such an elaborate type of analysis. Nonetheless, we shall still try to look briefly at the return to land and labour to get an impression of livestock-agriculture profit relations. This requires an assessment of the costs involved in the two activities in addition to the output figures. If we study Table 2, we see that the figures indicate a gross higher return per hectare for agriculture than for livestock, and even if we deduct the production costs excluding labour costs we see that crop production gives a higher return per hectare. If we also deduct the costs of labour at a price of K.Sh. 1.5 /hour, we see that the return per hectare is less from crop production than from livestock. This indicates that the relative profitability of the two activities may actually depend on the opportunity cost of labour - to the extent that such conclusion may be drawn from this data.

According to these figures, agriculture has

Table 2. Return to labour for livestock and agriculture in Pokor Keben Kwen and Kakimor, Kenya 1988. *

	Livestock	Agriculture
Gross Output Value	2,699,258.0	333,760.0
#L.U./#Ha	1,802.3	2,84.6
Gross Output Value/unit	1,482.7	2734.0 **
Costs per unit	849.0	1,600.5 ***
Net margin/unit	634.0	1,133.5
Labour requirement/unit	303.0	640.0 ****
Return to labour/hour	2.1	1.8
Net margin/ha (excl. labour cost)	761.0	1,133.5
Net margin/ha (incl. labour cost)	306.0	173.5

*The calculated Gross Output Value of livestock is based on figures from Stotz (1983) for cattle and smallstock. The Gross Output Value for the individual heads of livestock is converted to livestock units (See Appendix 1). Since all herds include both livestock and smallstock, the figures are weighed by the relative distribution of the two in the sample. There is 66% livestock and 34% smallstock in the average livestock herd. To compute the Gross Output Value, the relative value of each was included to find the average value of a livestock unit specific for our sample. This value was then multiplied by the total number of L.U. in our sample, to find the Gross Output Value. The same was done for the costs to find the relevant weighted costs for a L.U. in our herd sample.

** Some of the land is intercropped maize and beans. The gross return is estimated.

*** Stotz (1983) is used as own data is not available.

**** Hunt (1976) investigated the labour requirement per unit of land under agricultural production. We have used her material as own data is not available.

a low return to labour, but the return per hectare excluding labour costs is higher than for livestock. It may be that households with little access to capital and land relative to labour could, from a cash income increase point of view, devote more time to crop production. We shall return to this in "Discussion and Conclusion". To assess the average net return from off-farm activities for the salary work is simple, but for the bulk of off-farm activities, the costs involved are very difficult to assess. In the study, we were not able to register these costs, even when a rough estimate of labour input was established. It still seems reasonable to assume that, on average, the costs involved in off-farm activities are not very different from livestock or crop production.

Household Gross Output Value Distribution and sources of variation

As we have seen, the resource endowment is unevenly distributed between households. In Table 3 below we have computed the Gross Output Value for households ac-

ording to different levels of output.

We see from Table 3 that 13% of the households hold 42.8% of reported Gross Output Value in the study area. At the other extreme, the lower 17% control only 3% of reported Gross Output Value. The reported range in GOV was between K.Sh. 400 and K.Sh. 384,264 per annum. Thus, the one most-producing household receives almost 10% of the reported GOV. This one household had a tractor for hire and operated a *matatu* transport vehicle. The returns from these activities accounted for 93% of total GOV from that household.

We categorized the households in three groups according to levels of gross output values and in Table 4 we see a distribution of resources according to these three categories. We see that the well-to-do households have totally greater access to all resources and also set in more labour resources in off-farm activities.

To weight these values to find the relevant significance of each activity for the different groups we must convert the different items to monetary terms (see Table 5).

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Table 3. *Distribution of Gross Output Value among households in Pokor/Keben Kwen and Kakimor, Kenya 1988.*

Output level (K.Sh.1987)	GOV of total sample	% of HH of sample	% GOV of total sample	Average GOV for each group
0-5000	30,357	7	0.7	3,026
5 -10000	102,561	10	2.3	7,326
10-20000	544,921	26	12.3	14,728
20-30000	868,960	24	19.6	25,558
30-40000	990,307	20	22.3	34,149
>40000	1,896,406	13	42.8	99,811
All	4,433,512	100	100	30,768

Table 4. *Resource Endowment in Different Socio-Economic Groups in Pokor/Keben Kwen and Kakimor, Kenya 1988.*

Source of Gross Output Value	Resource Endowments		
	Below 10000 K.Sh.	10-24000 K.Sh.	Above 24000 K.Sh.
Land owned (ha)	13.0 (22%)	17.7 (46%)	19.6 (32%)
Cultivated area (ha)	1.3 (18%)	2.0 (45%)	2.5 (36%)
Livestock owned (L.U.)	5.3 (12%)	12.1 (43%)	19.9 (45%)
Non-farm (man-days)	122.0 (4%)	299.0 (15%)	2,644.0 (81%)
# of HH in each group	39.0 (27.5%)	63.0 (44.4%)	40.0 (28.2%)

Table 5. *Relative importance of economic activities for various socioeconomic groups in Pokor/Keben Kwen and Kakimor, Kenya 1988.**

Source of Income (Net margin)	Resource Output		
	Below 10,000 K.Sh.	10-24,000 K.Sh.	Above 24,000 K.Sh.
Agriculture	1,474 (24%)	2,301 (18%)	2,834 (7%)
Livestock	3,360 (55%)	7,671 (59%)	12,617 (29%)
Non-farm (mandays)	1,281 (21%)	3,140 (24%)	27,762 (64%)
All	6,115 (100%)	13,112 (101%)	43,213 (100%)

* All figures are taken from Tables 2 and 4. The productive resources in Table 4 controlled by the different groups (average) is multiplied with average net margin figures (return to labour not deducted) in Table 2. For non-farm activities, 10.5 K.Sh. per day is used for all three groups even if this may underestimate the values created in the well-to-do households for this activity

From Table 5, we see that, relatively speaking, the low-income group has a stronger emphasis on agriculture than the other two groups. Also, off-farm employment is the activity with least importance for these households. One could intuitively assume that this group would have a strategy of taking on off-farm employment when available, to add to their income. The picture is somewhat more complex.

On the one hand, off-farm employment is difficult to get. Households with little reported off-farm employment may be un-

willing to report such employment, as working for others may not have a high status compared to being self-employed. According to Anderson (1982), the Tugens would consider wage labour a "last resort, a function of desperation for the poverty stricken at time of severe hardship, or a short-term means of raising small amounts of cash to purchase stock or grain or to meet annual tax demands". It may also be that only well-off households are able to get off-farm employment. Such data is also encumbered with substantial uncertainties concerning

recalling what is done and by whom etc. Another explanation may be that these households utilize most of their labour on their own farms and cannot afford to take away labour from these activities, thus reducing their self-sufficiency in food production. Both explanations probably have their merits - for different households. Our own data indicates that from ten recorded key production related activities in the household, 73% are undertaken by the households themselves, 24% by hired labour and 3% by communal "self-help" groups (*Kibagege*). If we study this for our three socio-economic groups, we find that among the 44 (out of 144) households that hire more than 40% of their total labour input requirement, only 9% of these come from the low-income group. This finding is corroborated by data on off-farm employment in that among the 73 households having at least one member in off-farm employment, 68% of these come from the well-to-do group. More elaborate field investigations would be needed to reveal these contexts thoroughly.

The well-to-do households have a substantial part of their Gross Output Value recorded in off-farm activities, which may indicate that this is considered to be the most profitable strategy, even if access is difficult. Land-holdings in the area are not very large and it seems likely that livestock production above a certain limit is inhibited by lack of available land. The dominant production is meat, which in this area is produced foremost through grazing. Access to labour may be an additional constraint to increased livestock production above a certain limit as labour may be given priority to uses other than agriculture. We shall return to this in the next chapter.

Discussion and Conclusion

Household diversification

We have discussed the complex interplay between the household's access to resources, physical constraints upon production, market access and the household's aspirations and motivations. These factors must be viewed together in order to understand

patterns of diversification and why different households adapt in different ways (see Figure 1). On a general level, climatic uncertainties and macro-economic disincentives form important key frame conditions for the households. The low and erratic rainfall imposes hardships upon the production systems and is also important in the formation of farmers' attitudes towards risk aversion and uncertainties linked to production. The macro-economic incentives have, according to Little (1983), altered the profitability relationship between various activities. He especially discusses the hardships imposed by a worsened ratio between increasing commodity prices (and also input prices) and decreasing livestock prices as a reason for increased crop production in semi-arid areas.

He further reports increasing areas under export cash crop production in Southern Baringo. Some people in the area reported leasing their land to sisal plantation production, but the scope of such production, according to our experience was not on the level indicated by Little.

The population growth in Kenya is substantial, reported to be among the highest in the world with more than 4% per annum. The youthful population structure in the study area may indicate a strong population growth.

Land was adjudicated in the early 1970s and was allotted in holdings ranging from 30 hectares to a maximum of 50 ha. At the time of the study (1988), the reported average holding was down to 17 hectares, with more than 70% of the households below this average. Only one household was reported to hold more than 50 hectares. It seems fair to assume that few households actually have increased their holding sizes since adjudication. The traditional inheritance system where land is divided between the sons furthers land subdivision, and the present distribution of land may be interpreted as the first-generation pattern after the adjudication. It was said by informants that ratification of land sales and land subdivision was increasingly being undertaken below recommended holder levels. Prices of land and incidence of hiring land was not explicitly investigated in our work. The general tendency of land prices in Kenya was and still is sharply in-

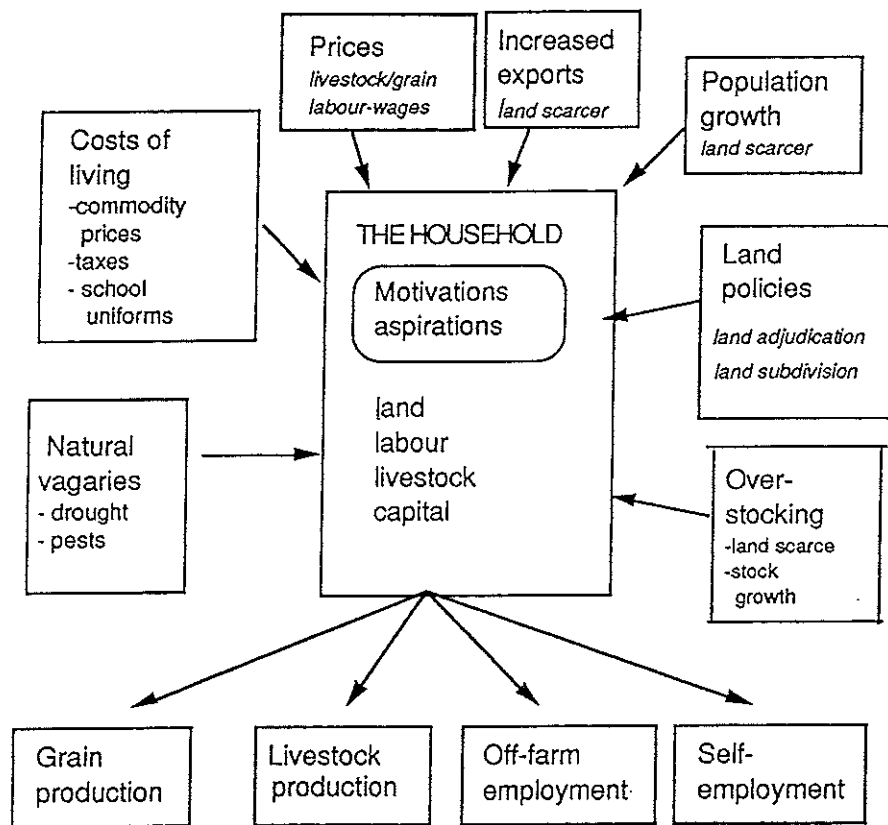


Figure 1. *Diversification Processes*

creasing, especially in high rainfall - high potential areas.

The adjudication of land is seen, by many, as an important strategy to overcome "the tragedy of the commons" problems (Hardin, 1968). It is however, widely accepted that while this may prove a good strategy in high potential areas, it may not solve important problems in semi-arid areas. The loss of flexibility in space and time imposed by rigid adjudication, may actually reduce the total viability for people involved in more communal-like management systems. The increasing scarcity of land will also physically limit the number of livestock that a household may be able to keep on the farm. Overgrazing is reported to be common, with soil erosion and increased vulnerability for termite destruction in the remaining pastures. Especially smaller holdings will be constrained in this respect. The number of animals one may physically hold on the farm may actually be so low that the herd in the long run considering socio-economic pressures for cash income, may not be viable. The costs of rebuilding herds may be too large for

other than well-to-do households.

The above outlined scenario may contribute to explain the present adaption found among Tugens in the study area. The reduced viability of a livestock-based system may force people over to other activities. As land becomes scarcer, an investment strategy in livestock above a certain limit is no longer viable even if cash may be available for some households. We have seen that the present stocking rates, on average, well exceed recommended stocking rates, and profitability per livestock unit will go down as fodder purchases increases.

Still, of our total computed Gross Output Value, around 60% of the output is reported derived from livestock. Rather than a breakdown we see diversification in a system under stress.

The surprisingly high grain production in a semi-arid area must be understood in this context. Some 8% of the Gross Output Value is derived from crop production. People produce grains such as maize and beans and even potatoes in an area where soils and climate are agronomically best suited for livestock production and pastu-

re. As we have seen, crop production is labour intensive, especially in peak periods and competes with livestock for labour and for land. This may help to explain why crop production is undertaken up to a certain level. The social aspects of livestock herds as the principal measure of wealth and status in the Tugen society is also important in this respect. Little (1983) finds for the neighbouring Il Chamus that crop production is more an additional activity and does not reduce the livestock number, but must be seen in a risk aversion strategy context, which seems likely also for the people in our area.

However, both livestock and crop production require cash outlays. Livestock production is labour demanding and it also requires cash for purchase of medicines, fencing, dry season fodder etc. Crop production in the area require cash for tractor plowing undertaken by most as the soils are very hard to dig. Fertilizer, hybrid seeds and pesticides are used by many. Much of this also requires cash outlays in terms of transport from Nakuru, some 60 km away.

Since a substantial part of this production is consumed and does not generate cash incomes, the cash has to be aquired through other sources than the farm. Credit is difficult to get, especially in semi-arid areas, and imposes risks as failure to pay may result in forced liquidization of assets such as land or livestock. Off-farm activities must be seen in a broad context where these factors play a significant role. Acquisition of cash to improve livestock and agricultural production performance is important. Furthermore, it may be viewed as a strategy for risk-spreading. The profitability of off-farm employment in terms of return to labour is varied and depending on the type of activity. Casual work may not be as profitable as livestock or crop production. An assessment is made in Table 5 where we see that the return per hour in agriculture and livestock production is likely to be higher than K.Sh. 1.5, the normal- and minimum payment for casual work or piecework for others in the area. Other types of off-farm employment may have a much higher return to labour per hour. Also - the opportunity cost of labour varies greatly between households, and it

may be that the marginal return to labour in households with low resource endowments makes an engagement in casual work a lucrative business.

Household differentiation and social change

It is difficult to predict - especially about the future

Piet Hein

The discussion, here, will relate to the discussion in section 1.3 where we tried to outline different views on processes of change and directions of change in agrarian communities.

In that section we set up two schools of thought for agricultural and social change:

1. A differentiation approach claiming that such agrarian modes of production are not sustainable and cannot withdraw from the market in times of hardship. The conditions were as follows: there is private ownership of land, there is differential adoption of improved technology, some households have to abandon their holdings in the competition, farmers loose assets through debt and we see increasing wage employment.

In the study area there is private ownership of land. There is differential adoption of improved technology in that richer household can afford to use fertilizer, pesticides and hire tractors to a greater extent than can poorer households. The study does not show that people have to sell assets to cover debt. Rather, we see that people avoid taking loans. Increasing wage employment is found among richer households and not so much among poorer households in our studies. This does not "fit in" with the differentiation approach, as poorer people according to this approach should increasingly be forced to sell their labour on the market. But we do see a higher level of use of hired labour among well-to-do households concerning farm related activities.

2. The consolidation approach will claim that the control of land enables continued simple reproduction, profit-maximizing is not the main norm for production, land subdivision through inheritance counteracts concentration of land, land is not sub-

ject to investment saving strategies, labour use is intensified by self-exploitation, large capital investment on farms is not attractive as an investment object, off-farm employment is possible and the main norm is simple reproduction.

People are surviving in the study area, so simple reproduction is accomplished in one sense. The large incidence of off-farm labour indicates that the families are not living off their farms alone. To what extent the farmers are profit-maximizers is difficult to determine from our data. The data indicates that crop production is not very profitable compared to off-farm employment, but the complexity of choices and constraints faced by the individual households makes it difficult to present a clear conclusion in this matter. It seems reasonable to assume that the area is undergoing land subdivision, and that this is mainly caused by population growth and customary inheritance of land. This is seen through the marked drop in average holdings from 30-50 hectares 15 years ago to 17 ha per household today (1988). This also indicates that land is not accumulated among the richer households as only one household was recorded having more than 50 hectares. It seems more reasonable to say that investments now follow two options, livestock and trading. These matters are, however, rather difficult to assess through regular questioning.

Our data says little about to what extent people work more than they did previously. Intuitively, crop production seems to have been increased over recent years, but no records of this were kept. If this is the case, labour input in the households may have increased slightly. Off-farm employment is possible and we see most households involved in such activities. The return to labour through off-farm activities depends on qualifications of the manpower offered as well as the capital available for investments in self-employment strategies. From our data, it is not possible to say whether the norm of the households is simple reproduction, but as we see from our results the degree of market involvement, at least for parts of the households, is substantial.

The data we have collected lacks over time comparisons and as such forms a

meagre base for strong conclusions about aspects related to actual processes of change. There are still some aspects that may be held up in relation to the discussion above.

We see from Table 5 that there is a substantial difference in the patterns of diversification found among groups with different reported Gross Output Values. For the households below 10,000 K.Sh. we see that agriculture relatively speaking constitutes an important part of the Gross Output Value (24%) as compared with the more well-to-do households. The reported income from off-farm activities is, relatively speaking, very low (21%). These households have a rather limited access to cash incomes. This makes them particularly vulnerable to climatic uncertainties. The result from lack of cash access, as reported by Little (1983) for the neighbouring Il Chamus, is that low-income households have problems in stock rebuilding after major losses in stocks. Losses are reported to be up to 40% in periods of serious drought. In such periods, the stocks may be so low that no natural regrowth is possible with the existing socioeconomic pressures imposed on the households. Such households are caught in a "vicious downward spiral" where short-term strategies including the sale of capital assets such as land or livestock becomes the only alternative for survival. Little (1983) shows for the Il Chamus that reported annual sales from poorer households may reach up to 18% of stocks, which is on the upper limit in relation to a sustainable herd size in this production system. The sales are enhanced by various price and tax squeezes where the farmers have to work more for less- "the simple reproduction squeeze"- as previously mentioned.

For poor households, crop production may be seen as a way of reducing cash outlays to purchase grains as a strategy for simple reproduction according to Little (1983). Even if the figures are very uncertain, it may be that the lower output per hour, but higher output per hectare in crop production compared to livestock production is an indicator of poor households being willing to increase labour input (increased self-exploitation of labour) to secure output. This does not imply that

they want to do this, rather it may be that they have no better, or other option.

On the other hand, there are the well-to-do households. The striking difference is that all economic activities are on a higher level, particularly off-farm employment (64% of reported Gross Output Value). This indicates a much stronger possibility of rebuilding stocks after periods of drought, and in general more capital providing more secure and higher output from their agriculture and livestock production. Following Little (1983), the well-to-do households among the Il-Chamus only sell 7% of their stocks annually.

These households also produce grains and at higher absolute levels than poorer households. This grain production may be seen as a strategy to support livestock production and does not reduce stocks of livestock according to Little (1983). We have seen that the average size of holdings is declining; an indication of increasing land scarcity. Less land per household prevents the build-up of large herds and large scale agriculture beyond a certain limit, even if capital should be available for investment. A further study of land sales and prices of land purchases and leasing in the study area could strengthen the validity of this point.

Agropastorals and the State

This study has not explicitly dealt with the role of the state in relation to adaptations among the Tugens. There are still some brief points to be made in the context of the state as an actor in Baringo.

Land control and land transactions are, of course, not new to Baringo. Around 1905, colonial authorities started to manipulate land rights and shift area controls between different groups. The Maasais were more or less shifted to Reserve Areas through interventions by the colonial authorities. With the settlers started a new period of land deprivation, where the Tugens and the Il Chamus were shifted or removed from the best grazing and watered lands of Baringo and this land given to settlers. Internal pressures and severe ecological and accompanying economic problems, resulted in "range wars" and "trespassing problems and colonial land policies involved shifting around of both settlers and Tugens up to

the 1950s. Formal land demarcation after Independence was started in the early 70s in the study area as part of following up the Swynnerton plan and successive policies by the state. While the formal demarcation has been carried out, the implementation in terms of private control and exclusiveness to the resources has not come that far in the area. Livestock is still reported to be grazed rather freely in major parts of the area, but trespassing is creating tensions- as "the range war is still going on" (Anderson, 1982).

Apart from the political intentions behind privatization of land, one objective was to reduce the pressure for overgrazing and degradation. The effects of the privatization for the study area in relation to human welfare and environmental degradation are rather more complex and involve partly counteracting processes and effects.

The privatization may reduce the "open-access" syndrome to the extent one may agree to that it was there, and it is postulated through the "tragedy of the commons" theory that with individual responsibility and control, the owner will not undermine his own means of production and create a sustainable management system for his resources. In practice, a different scenario may be just as plausible. The poorer groups, with access to little land, will have no alternative but to mine the land as short-term strategies for survival through overgrazing and land-overutilization. The richer groups may mine the land for short-term profits not being mainly dependent on the land and often operating as absentee-owners from Nairobi (as claimed for instance by Little, 1985 for the Il Chamus). Again, we have seen that land is scarce and that well-to-do bureaucrats, politicians and others invest in livestock, but only up to a certain level. Beyond that level, investments are ploughed back into other sectors often outside agricultural production. *So, the legal actions through land demarcation and the inheritance system prevents land concentration and rather promotes land dispersion actually constrains the "natural market drive" for concentration, accumulation and may in fact slow down or even stop processes of differentiation.*

From a social benefit point of view it seems reasonable to assume that the values

created in such semi-arid areas are likely to be higher in a communal, non-exclusive land use system than a privatized, exclusive system. The flexibility required in time and space for extensive livestock grazing systems are constrained by privatization. As we have stated for our area, the people have not adopted the full private system for land use, maybe because it does not gain people neither individually nor socially.

General market forces allowed to operate by the state of course have direction in their impacts. Livestock - grain price relations give, as we have discussed, different motivations for poor and well-to-do households. Poor households produce relatively more grains. This may be a sign of what Hyden terms the "economy of affection" (1985) where he describes African peasant households withdrawing from the market in times of hardship ("the exit option"); they produce food crops at high risk and low returns rather than going to the market. The options for crop cultivation may be enhanced by privatization of land and, as such, may actually prevent extraction of surplus from groups of rural producers. *From the state's point of view, such mechanisms of dual contrasting adaptations between the rich and the poor pose a constraint to maximizing extraction of surplus.*

To what extent G. Hydens "economy of affection" is valid as a general statement of African peasantries is beyond the scope of this paper. Two points seems to be relevant to make: one is that the thesis can hardly seem to be valid as a general rule, but must be investigated in a local context; the other is that as we believe we see here, that market involvement or market withdrawal is not necessarily a dichotomy, but more like a continuum in the society since different groups tend to react differently to the same altered frame conditions partly because they are in rather different positions in relation to their endowments - their resource access - and, of course, partly because people are different in regard to norms, motivations and actions.

The differencing diversification processes among different socio-economic groups make the following scenario plausible.

The well-to-do family farm is viable over some time in the area in the sense that the household will not loose control over its fixed assets, such as land and livestock. It is, however, dependent on support from off-farm activities to reduce the problem of variable income from agriculture and livestock. The land tenure system, with particular respect to the inheritance of land, effectively blocks a major agricultural change towards large land holdings and large scale agriculture. There are strong social values attached to land inheritance. All Kenyans (men) should own land, and no father will leave sons without land. There are systems of control for land transaction were the sons can stop their father from selling land. Still, in the longer run, land subdivision will make land holdings so small that off-farm activities will form the bulk of a family's Gross Output Value, even more pronounced than today.

One scenario for less well-off households is that they cannot, in the long run, remain viable in the sense that they manage to maintain control over their holdings and assets, and that they will become rural workers or contributors to increasing town in-migration. Another scenario also found in other African countries, is that even if we see that the farm sizes are going down and we see that the incomes from outside agriculture through wage labour and self-employment increase in importance, we still find that people stay on their land. Examples from, for instance Rwanda, where landlessness is practically non-existent, even in areas of extremely high population densities (up to 450 people per sq.km.) and where off-farm employment is scarce, can help underline this. (IBRD, 1990).

In the short run, at least, I tend to lean on the latter approach or scenario. To support this further, I think the transaction rights pertaining to land transfers prevent investment strategies in land. Furthermore, even if families do not own land, they are still given land to cultivate through systems of extended families (gifts and loans). The role of off-farm activities is also crucial. For most households, we see that off-farm acti-

vities is gaining momentum as the key source of livelihood for the families and over time with increasing land subdivision through inheritance, it is easy to predict that agriculture will/must become more marginal for most households as the key source for survival and livelihood in the future.

We do not see a classical differentiation process taking place in the area. Land subdivision through inheritance prevents investments in land and livestock above a certain limit for the well-to-do households. It is more likely that investments will take place in the self-employment sector than in agriculture. As land subdivision continues and if the population growth is maintained at its present level, less well-off households will, to an increasing extent, be dependent on off-farm incomes.

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Notes

- * This work is based on the fieldwork carried out by Frank W. Lusenaka in the fulfillment of his M.Sc. degree in Natural Resource Management, at NORAGRIC, AUN. As his supervisor, I have a joint publication with Frank around the same topics in press at Noragric. The conclusions drawn in this paper, are however rather distant from the work of his thesis, and there has not been

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time to discuss these with him. Therefore, while not neglecting his major empirical contributions, it does not seem fair to make him responsible for this use of the data.

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