LOCATIONAL DEVELOPMENT PROFILE

MWINO LOCATION
WEST POKOT DISTRICT
KENYA

Regional Development Research
West Pokot / Elgeyo Marakwet
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0. INTRODUCTION AND SOURCES

This Locational Development Profile is part of a group of profiles about locations in West Pokot and Elgeyo Marakwet Districts. They give a summary of the history and situation of administration, population, physical geography, economy and social geography. The various profiles are written for people working in the Location and for government employees at the Divisional and District level.

The information presented will not be 100% complete nor 100% reliable. Readers are asked to use the text as a work edition and to make as many additions and corrections as they like. It will be very useful if you present your comments to the ASAL Programme Cordinator: P.O. Box 287 Kapenguria.

MWINO

Information about Mwino-location is rather meagre, one of the signs of relative neglect from government, missionary and academic circles, a neglect that is remarkable given the number of inhabitants, the potential and the beauty of the location.

In government publications (annual reports, development plans), information about Mwino has always been limited to a few lines here and there.

There is one missionary publication: Philip Price's "God in the Valley" (London 1970) written by a British Anglican missionary who worked in Tamkal at the end of the 1950's.

In 1961-62 Tamkal (more specifically the Korok of Tirtoi, Kamichich and Asar) was one of the case study areas for a multidisciplinary research centered around social-psychological research questions. A human geographer) Philip Porter and an anthropologist, Francis Conant, did most of the work on West Pokot. In various publications they referred to this research, headed by Robert Edgerton. (1).

Just north of Mwino, in Katuw, an American anthropologist, Elisabeth Meyerhoff, did an anthropological study at the end of the 1970's. Most of her findings will also be valid for the north-east of Mwino for that period.

We ourselves did a small household survey in Sept. and Dec. 1982 (43 households were interviewed by Rachel Andiema). In this profile you will find the results.

In Jan.-March 1984 Mwino was included in a research about traditional irrigation in Sigor Division by Richard Hogg (Pokot traditional irrigation and its future development, a report on traditional irrigation agriculture in West Pokot District, April 1984). The section on Mwino will be reprinted in this profile. A summary of his information on various furrows will be added.
1. THE AREA OF MWINO LOCATION

1.1. SITUATION

Mwino location is situated in the northern part of the Cherangani Mountains, cut into two halves by the valley of the Weiwei River. North of it are the foothills and plains of Weiwei Location. South of it the highlands of Lelan Location. The Sondang ridge in the West is the boundary with Batei Location and Lomut Location is the neighbour in the East. The location is rather small and very isolated. Although Kapenguria District Headquarters are only 43 kms. away in a bird's-eye view, a good car needs at least three hours to reach Tamkal via Sigor. Kokwotendwo can only be reached by very steep climbing, either from Paro or -more usually- from Wakorr. Also the southern part of the location needs some exhaustive mountaineering to reach it, walking from Tamkal. Although the Sigor-Tamkal road recently is upgraded by the Rural Access Roads Programme not many cars use it and public transport (matatu's for instance) is absent. See map 2 and the cross section on p.7 for some detail.

1.2. ADMINISTRATIVE HISTORY

The British colonial administration reached Mwino ('Minya and Keburo Location') before 1917, when the first Chief was appointed. In 1924 they already concluded that it was "one of the most backward and difficult locations to control". The example of a communal shamba where maize and beans were planted and the issue of free seed (1924-5) did not make a big impression and also hardly anybody was willing to be recruited as a labour migrant. When the administration collected their first systematic data on the area (1925), they counted ten 'villages' with about 260 households, 530 adults, 450 children, 2100 head of cattle and 3300 sheep and goats. They also found one irrigation furrow and the production of millet, sorghum and tobacco. Probably some exchange took place between the Mwino agriculturists and the plains people of Masol, Lomut and Weiwei. Within Mwino there must have been a lively exchange of women and agricultural produce, every household trying to benefit from the varying harvest times in the valley and higher in the mountains (from July in the Valley until January in the higher parts of Kokwotendwo).

In the 1930's the attitude of the people towards the government seems to have changed: in the archives we found that "the location
was always amongst the first to complete their tax payments" and the Chief was in high esteem since he "was keen on agricultural development" and he had an agricultural demonstration plot. By that time the people had adopted maize production and also sweet potatoes, cassava, bananas and vegetables started to be accepted by then.

Until the 1970's the Chief resided at Tamkal and he had four assistant Chiefs: at Kokwotendwo, at Kale, at Ptalam and at Kitoyo. In 1979 however the two latter sublocations were merged to form Ptalam Sublocation. Also the Location boundaries changed. (1) See map 1, below. All the time Tamkal was the Chiefs centre and recently its role as a 'development centre' was stressed when the new dispensary was located there.

For this Locational Profile we will use the boundaries as they were used during the 1979-Census. But the south-eastern boundary with Lelan Location was not clear and it seems that there is a long standing feud between the Lelan and Mwino Chiefs about it. However the area between the Census boundary and the Elgeyo Marakwet boundary is nearly empty.

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(1) Between 1969 and 1979 the northwestern 'offshoot' was given to Batei Location. In the 1950's an area south of it - Sondhang- was already included in Batei.

In 1983 - when boundaries were agreed for the September elections - the northwestern offshoot again was included in Mwino Location.

Map 1: Administrative boundaries Mwino Location

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1 = Kokwotendwo
2 = Kale
3 = Ptalam
4 = Kitoyo
5 = disputed with Lelan not included in 1969-census
1.3. NATURAL RESOURCES

Geology

The area is occupied by the oldest rocks found at the earth's surface all over the world: the Precambrium Basement System Rocks. The rocks are metamorphic: formed during a situation in which existing sedimentary rocks are changed, because of high temperatures, high pressures and chemically active fluids. This occurs during tectonical movements within the earth's crust. Metamorphic rocks have a relatively high resistance to erosion/denudation -more than their originating rocks- and are characterized by flowing layers. In Mwino-location several types of these metamorphic, foliated rocks are found, in approximately North-South oriented zones. They mainly differ in mineral composition. In the Western part -the high Sondang level-: granitoid gneisses, containing a lot of quartz which usually gives poor soils if weathered. In the Eastern part: metamorphic rocks -gneisses- with hornblende and biotite, which can give more fertile soils if weathered. After a long uneventful stage, new tectonical activity -in this case faulting- occurred in the Mid-Tertiary. In this area the North-South running Mwino fault, in the centre of the valley, is the most important and clear evidence. There are no mineral deposits found in the area which have a significant economic interest.

Relief

Mwino-location is situated in the Northern part of the Cherangani Hills. It comprises two Norht-South oriented mountain ranges, the Sondang range in the West and the Mt. Kaok range in the East. The ranges are separated from each other by a deep, narrow valley with steep valley slopes. The valley is incised by the Wei Wei rivers. At some places along the Wei Wei river a small flat zone of loose material is deposited by the river -alluvial deposits-. At most places however, the valley has no real valley floor. The highest top just outside the Location is Mt. Sondang -3210 m-, the lowest point is approximately 1100 m high - at the point where the Wei Wei river crosses the Northern boundary of the location. See also map 4 and the crossection on p.7.
Hydrology

The location comprises the major part of the upper catchment area of the Wei Wei river, which finally drains into Lake Turkana. In the mountains the rainfall is high and due to the good vegetation cover, water is infiltrated in and preserved by the soil easily. These are the reasons why the rivers receive and transport water all through the year -perennial rivers-.

On the high Sondang level, near Kokwotendwo, a very old irrigation system still exists -older than the eldestwazee-. The local people only use it for drinking water, because there is enough rain to grow their crops. The water is used for irrigation purposes however, on the steep valley slopes towards the Wei Wei river, and along the river.

Erosion

Erosion is very low until now, but conservation practises are recommended because the use of the soils is becoming more and more intensive, on the steeper (7° and more) slopes.

Soils

According to the "Exploratory Soil Map of Kenya, 1980", scale 1:1000,000 (Kenya Soil Survey) four soil-group-units can be distinguished. See map, page 7. The first symbol in the code stands for a certain agro-climatic zone, the second symbol gives the soil-group number (see below).

A descriptive characterization is given, for which also general literature applicable to Kenya as a whole, is used. It should be stated explicitly that this information is not based on a local survey and should be interpreted with care. The official classification (soil-group-names) used by the Kenya Soil Survey are added, in case someone wants more information.

Soils 1, 3, 6 and 10 occur in this area. The other numbers are found in other parts of West Pokot.

1: Soils developed in the mountainous area. The soils are well drained which means that water is removed from the soil readily but not rapidly. The soils commonly retain optimum amounts of moisture for plant growth after rains or addition of irrigation water. It is a complex of soils ranging from shallow (less than 50 cm. deep, can be a problem for deep rooting plants), rocky and stony (can cause problems while working on them with simple tools) to deep, non-rocky and non-stony soils.
The soils have a moderate to good fertility, but if they are regularly planted, they need additional fertilizers. Erosion susceptibility is low, but if cultivation is practised on steeper slopes (7° and more) conservation practises are recommended (contour ploughing, strip cropping etc.).

Classification: MFbc, chromic Cambisols—partly with lithic phase; with eutric Regosols and Rock outcrops.

3: Soils developed in the mountainous area. They are well drained, moderately deep—no restriction for plant roots—and they have an acid, humic topsoil. Acidity has a negative influence on plant growth. Natural fertility is rather low, fertilizers are very necessary including lime to neutralize the acidity. On the steeper slopes erosion can become a serious problem, in which case conservation practises will be necessary. Classification: MUbh, humic Cambisols, with dystric Regosols and Rock outcrops.

6. Soils developed on the footslopes (slope angles 1°-4°). The soils are well drained and very deep. The structure is rather loose. The natural fertility of these soils is in general rather low. Application of fertilizers is necessary for agricultural use. Erosion usually is no problem on these soils, for they are situated on very gentle slopes and they have a rather good infiltration capacity.

Classification: FULc, chromic Luvisols; with rhodic Ferralsols and Luvic/ferralic Arenosols.

10: Soils developed on the high Sondang level. Here we find a complex of two main soil-groups. 1): well drained, shallow, black to very dark brown, in places rocky soils with an acid, humic topsoil. This acidity has a negative influence of plant growth and the soils have a low natural fertility. Additional fertilizers (including lime) are necessary for cultivation practises. The soils are not very susceptible to erosion, though, again, conservation practises are recommended on the steeper slopes.

Classification: UuUu, Rankers.

2): well drained, moderately deep (50-80 cm), dark brown soils with a very thick acid, humic topsoil. Fertility- and erosion characteristics are the same as for the Rankers.

Classification: UuUbh, humic Cambisols.
Graph 1: Dispersion graph: rainfall for Tamkal, 1939-1938. Every dot corresponds with the rainfall figure in that month of a particular year. Figures in brackets indicate the number of years in which no rain fell in that month.

Graph 2: Shows the long-term mean for Tamkal, using yearly averages.
Climate

The climatic conditions in the location vary considerably, due to the great differences in altitude. There is only one rainfall station in the area: Tamkal, in the Mwino valley. Consequently the Tamkal figures are not representative for the whole location. Rainfall will for instance be higher in the mountains. Apart from the spatial variation, there is a high variability in rainfall at one place as well. From figure a and b one can read that the deviation from the mean figures is large (often more than 100%), both considering rainfall in one particular month and the yearly rainfall.

According to the Kenya Soil Survey system the location is covered by four agro-climatic zones: zone I, II, III and IV. We adjusted the schematical boundaries of the Agro-Climatic Zone Map to the more detailed boundaries of the Exploratory Soil Map of Kenya, both made by the Kenya Soil Survey. See map 3, page 7.

Table 1.

AGRO-CLIMATIC ZONE CHARACTERISTICS:

<table>
<thead>
<tr>
<th>Zone</th>
<th>$r/E_0$ ratio in %</th>
<th>Climatic designation</th>
<th>Mean annual temperature in °C</th>
<th>Climatic designation</th>
<th>Number of average growing days</th>
<th>Major limitations to maximum production in approximate order of importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>&gt; 80%</td>
<td>humid</td>
<td>&lt; 10°C</td>
<td>cold</td>
<td>365</td>
<td>fertility, farm management, drainage</td>
</tr>
<tr>
<td>II</td>
<td>65 - 80%</td>
<td>sub-humid</td>
<td>10 - 14°C</td>
<td>very cool to cool</td>
<td>290 - 365</td>
<td>fertility, farm management, drainage</td>
</tr>
<tr>
<td>III</td>
<td>50 - 65%</td>
<td>semi-humid</td>
<td>14 - 20°C</td>
<td>fairly cool to warm</td>
<td>235 - 290</td>
<td>fertility, farm management, rainfall</td>
</tr>
<tr>
<td>IV</td>
<td>40 - 50%</td>
<td>semi-humid to semi-arid</td>
<td>20 - 22°C</td>
<td>fairly warm</td>
<td>180 - 235</td>
<td>farm management, rainfall, fertility</td>
</tr>
</tbody>
</table>

$r = \text{rainfall}, E_0 = \text{potential evaporation}$

Yields in this area will be much lower than the potential yields due to unfavourable agro-climatic-, soil- and crop management conditions (they are far from optimal). Which of these conditions is the first limiting factor is shown in the last column of table 1 (above).
2. POPULATION

The population of Mwino has been rather stagnant until the 1970's. From 1930 onwards the population surplus went to European farms in Trans Nzoia. (In the 1950's the Colonial documents explicitly mention Mwino as one of the major suppliers of Pokot migrant labour). In the 1950's also some colonization of Sondhang plateau took place from Mwino.

From 1962 to 1969 the population growth in Mwino was the lowest in the whole District. In the Eastern Sublocations the population even decreased. In the District Annual Reports of that time the suggestion is given that the population pressure was very high there and that a lot of people migrated to the highlands around Kapenguria and to Lelan. But after 1969 this trend seems to end.

Table 2

<table>
<thead>
<tr>
<th></th>
<th>1962</th>
<th>1969</th>
<th>1979</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ptalam</td>
<td>1432</td>
<td>1181</td>
<td>2673 Ptalap*</td>
</tr>
<tr>
<td>Kitoyo</td>
<td>1221</td>
<td>1168</td>
<td></td>
</tr>
<tr>
<td>Kale</td>
<td>1003</td>
<td>1245</td>
<td>1833 Kale</td>
</tr>
<tr>
<td>Kokwotendwo</td>
<td>1700</td>
<td>1814</td>
<td>2651 Kokwotendwo*</td>
</tr>
<tr>
<td>Mwino totaal</td>
<td>5356</td>
<td>5408</td>
<td>7157 Mwino*</td>
</tr>
<tr>
<td>km² Mwino tot.</td>
<td>142</td>
<td>110</td>
<td></td>
</tr>
</tbody>
</table>

* = not possible to compare 1979 with 1969

Although the location was reduced in number of square kilometers and the area lost was densely populated, the growth in population between 1969 and 1979 still was considerable: 32% over 10 years. In Kale - the only sublocation were the boundaries stayed the same - the growth was 47%.

In all agegroups there is a female dominance except in the one of 50 years and above. The female dominance is very marked in the age-group 15-49. The male/female ratio for this group is 0.80. Male out-migration (to the road works camps?) could be an explanation for this phenomenon (see Graph 3, p.12 Population Pyramid Mwino 1979).

Mwino has always been one of the most densely populated locations in West Pokot. The density for the location is 65 persons per km² (as compared to West Pokot with 17 persons per km²).
Kokwotendwo has the highest density: 73 per km$^2$, Ptalam follows with 64 and Kale with 58 persons per km$^2$. In 1979, at the time of the census there were 1461 households in the location with on average 4.9 persons per household (West Pokot as a whole has 5.4).

Graph 3: Population pyramid Mwino 1979

- male surplus
- female surplus
3. ECONOMY AND ECONOMIC DEVELOPMENT

3.1. Some socio-economic characteristics

Within the traditional Pokot community, the Pokot living in Mwino probably were the most agricultural ones. With the use of traditional irrigation practices along the Weiwei River finger millet and sorghum were produced, supplemented with goats and hair sheep and with tobacco and honey. Tobacco and grains were bartered against goats with the plains people from Lomut, Weiwei and Masol. Within Mwino the people in the lower parts of the Valley had a range of economic and social relationships with the people in the higher parts of the area.

In 1961-62 (Edgerton p.84) sorghum and finger millet still were the major crops, maize being rather unpopular. Edgerton's team estimated 1.1 acres in crops per capita which gave only 412 kgs of edible food per capita; a very low output. There were 1.35 units of livestock per person. Cattle were in high esteem and Tamkal inhabitants considered themselves very poor compared to other agricultural Pokot elsewhere. Lack of cattle not only gave them a low social position in Pokot society but also a lack of bridewealth to acquire women which in turn limits crop production. A general feeling of frustration and self pity was the result as Edgerton c.s. observed (p.102): life was supposed to be better elsewhere, but there was nothing one could do: the observers found a kind of social malaise and the people were found to be very quarrelsome.

In 1982-3 opportunities had improved a lot: maize was accepted widely and food production must have been higher than observed in 1961-2, while there were also more people in the location (see 2). Job opportunities inside and outside the valley were better and gold in Weiwei and Sekerr was an important source of extra money income. The findings from our survey will give more detailed information.
3.2. AN ECONOMIC HOUSEHOLD PROFILE FOR MWINO (43 HOUSEHOLDS INTERVIEWED)

number of wives on the compound: 1.1
number of adults: 2.7
number of children under 15: 3.0
number of wives elsewhere: 0.3
number of visitors: 0.3

average number of persons in the household: 5.7

There were six female headed households in the interview group. In four of them the husband lived elsewhere most of the time. Two were widows. 28 men only had one wife, 10 men had two wives but some of them were elsewhere. Only two men had more than two wives (five each, but four elsewhere). In more than half of the cases both husband and wife were born in the surroundings. In the other cases almost always the man was locally born and the wife or wives (especially the co-wife) came from other parts of West Pokot: it is very remarkable that 10 out of 16 immigrated wives were born in Cheptulel Location, 3 were from Weiwei and one each from Masol, Chepareria and Mnagei.

There is a clear relationship between the age of the head of the household and some other social characteristics: an old household tends to be polygamous, bigger and more located in the higher areas of the mountain slope. From our data it seems that the inhabitants of the eastern, lower areas - the footslopes near the Paro-Tamkal road - are a younger group of colonists, with some specific characteristics. It is the only group out of which children are sent to secondary schools.

agriculture
All households were cultivators, 41 of them owned the land, 2 - men coming from elsewhere - borrowed it. The 43 households claimed 171 plots
out of which 131 currently used
out of which 34 irrigated (by 18 households)
only 5 households used casual farm labour
only one used a tractor
33 households bought maize seed
Production:
only maize: 8 households
only millet: 2 households
maize and millet: 31 households (18 with an additional short rain
harvest of sorghum)
maize and beans: 2
fruit: 3 (citrus, bananas, sugarcane)
harvest time: August-September in the valley
September-October on the mountain slope
November-January in Kokwortendwo
Total acreage in the long rain period: 1.3 per household
in the short rain period: 0.4 per household
(in acres = 0.4 ha)
There is a big difference between four spatial household clusters
within the interviews. Table 3 gives some details.

Table 3 Mwino household interviews

<table>
<thead>
<tr>
<th>Number of Households</th>
<th>Average number of Plots owned</th>
<th>Average number of Plots used</th>
<th>Total plots irrigated</th>
<th>Total first harvest acreage</th>
<th>Total second harvest acreage</th>
<th>Number of households with a harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>East-High</td>
<td>13</td>
<td>5.5</td>
<td>3.4</td>
<td>7 by 6 hh.</td>
<td>1.4</td>
<td>8 x 0.3 acre</td>
</tr>
<tr>
<td>East-Low</td>
<td>10</td>
<td>5.0</td>
<td>4.1</td>
<td>3 by 1 hh.</td>
<td>1.5</td>
<td>1 x 0.25 acre</td>
</tr>
<tr>
<td>West-Low</td>
<td>10</td>
<td>3.7</td>
<td>3.4</td>
<td>22 by 10 hh.</td>
<td>1.5</td>
<td>9 x 0.3 acre</td>
</tr>
<tr>
<td>Kokwortendwo</td>
<td>10</td>
<td>1.3</td>
<td>1.3</td>
<td>0</td>
<td>1.2</td>
<td>0</td>
</tr>
</tbody>
</table>

The not-irrigated plots are everywhere used for maize and millet,
with the exception of Kokwortendwo where it is only maize (and two
households also producing beans). In Kokwortendwo one household
produced some sugarcane and two households in the eastern valley
floor had a plot of land very near the river where they produced
citrus, sugarcane and bananas.

The figures above show that in Kokwortendwo the households have one
plot of between 0.5 and 1.5 acres without irrigation (there are
irrigation canals but they are only used for drinking water).
In the other clusters most households have a number of small
(0.50 acres) to very small (0.25 acres) patches of land; most
but not all of it is actually used for the production of maize
and millet.
People from the Eastern higher areas and from the Western lower areas partly own patches of land in the Valley floor area, where most of them use irrigation, using water from the Weiwei River. Older forms of irrigation - a form of water diversion from the fast running steams from the mountain - are no longer practised.

In 1982 a second harvest of sorghum was obtained, using irrigation too, on very tiny plots. But sorghum is not cultivated each and every year. It depends on the harvest expectations from the maize and millet crop.

Almost every household buys food, maizegrains or maizemeal. A minority also got some famine relief (15 households a total of 128 kgs of food aid in 1981-82). For most households the period from March to July is a difficult one: "hard work with an empty stomach". After the harvest however a lot of food is given away or bartered and we think that in production terms Mwino area is not a deficiency area. Due to storage problems and lack of individual savings in economic terms it is.

If we suppose an average need of 200 kgs of starchy food for an adult per year and of 150 kgs for an average child, our survey group needs 43,000 kgs of grain every year. The survey population spent 11,160 Shs on maize grains (for one Shilling they buy one kg. so it is a quarter of their needs). So about 32,000 kgs of grain consumed in the households were produced by the households themselves.

The total estimated acreage of all the 43 survey households was 65 acres, 70% maize, 20% millet and 10% sorghum. If we assume the same production quantity from an acre of maize, sorghum and millet the production has been 22,400 kgs of maize, 6,400 kgs of millet and 3,200 kgs of sorghum, with a productivity of between 5 and 6 bags per acre. The value of this subsistence part of production can be estimated at 48,000 Shs (1 kg of maize = 1 Sh; 1 kg of millet or sorghum = 2.7 Shs).

Again we say that we think the area is selfsufficient or even more in quantity terms. If that is true, a quarter or more of the harvest is given away or bartered away just after the harvest, probably especially maize. Also a considerable part of the millet harvest will still be used to make beer, during months of plenty. In later months the food stores are empty.
Per average household all this will mean: a value of 1100 Shs of food which is eaten within the household; at least a value of 280 Shs of food given or bartered away and a value of 260 Shs spent on food bought.

Livestock

23 households owned cattle: 8 head of cattle per cattle owning hh.
33 " goats: 11 " goats per goat " "
15 " sheep: 7 " sheep per sheep " "
26 " chicken: 5 " chicken per chicken owning hh.

The cattle produced about 510 liter of milk per year per cattle owning household (70% in the rainy season and 30% in the dry season). In 1982 one bull, 52 goats and sheep and 79 chicken were slaughtered and eaten.

13 Households owned 41 traditional beehives.

'Ownership' of cattle is a difficult concept. Some heads of households also regard the herd of father or brothers as theirs. Also many households are related to each other through 'tiliantan', the exchange of a bull for a cow with a right in the offspring of the cow for the one who gave the cow and a right of usufruct (milk) for the receiver of the cow. Part of the herd people 'own' can consist of tiliantan animals. Nine households stated explicitly that they had (at least) 26 related animals elsewhere (especially the households in the eastern clusters told this).

45% of the households however do not have any cattle. These are mostly the young households. Eight cattle owning households only have 1 to 4 head; six households have five or six head and nine households have ten head or more (the largest herd is 30 head of cattle). Part of the cattle owned is herded outside Mwino, often in Weiwei.

In East-High the number of households with cattle was highest (80%) and they also have a high average number of cattle (7.7). In Kokwotendwo it is lowest (30%) with only 5.3 number of cattle. The same can be said for sheep but for goats the differences between the clusters are negligible. Almost all the cattle owning households do get their cattle inoculated.

Although the milk production must be seen as a rough figure, obtained by asking the average milk production of the herd per day in the rainy and in the dry season, we found that there must be a big difference
in milk gift per cow between the eastern and the western clusters (80 liter per year versus 35 liter per year). The local value of milk is 2 Shs per 'treetop' (= 3 Shs per liter) which means that an average cattle owning household has an annual milk value -mainly for consumption in the homestead- of 1500 Shs. 28 Households produced meat by slaughtering goats and chicken (total value estimated at 8,000 Shs or almost 300 Shs for the households concerned in 1982). The total value of the livestock products for home consumption (43000 Shs) is almost as high as the total production value of home consumed maize, millet and sorghum, which we valued at 48000 Shs. Per household it means an average value of 1,100 Shs of crop produce and 1,000 Shs of livestock produce.

This finding shows the important role of livestock in the economy of the so-called agricultural Pokot.

**Income 1982**

The average cash income per household was 1450 Shs (42% of total cash and non-cash income). Eight types of income were found.

<table>
<thead>
<tr>
<th>Type of income</th>
<th>By number of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wage labour</td>
<td>27,000 Shs 6</td>
</tr>
<tr>
<td>(in Sekerr and Weiwei)</td>
<td>3 of them East Low</td>
</tr>
<tr>
<td>Gold panning</td>
<td>15,000 Shs 14</td>
</tr>
<tr>
<td>Selling Cattle</td>
<td>8,000 Shs 7</td>
</tr>
<tr>
<td>Selling goats or sheep</td>
<td>5,000 Shs 16</td>
</tr>
<tr>
<td>Selling maize and fruit</td>
<td>2,000 Shs 11</td>
</tr>
<tr>
<td>Selling beer or changaa</td>
<td>2,000 Shs at least 8</td>
</tr>
<tr>
<td>From relatives</td>
<td>2,000 Shs 7</td>
</tr>
<tr>
<td>Casual contracts</td>
<td>3 of them East High</td>
</tr>
</tbody>
</table>

One household was completely outside the money economy and four others were very marginally integrated (less than 100 Shs in the year before the interview, mostly earned by doing a 'local contract'). The other 38 households earned between 200 and 11,000 Shs in that year:

- 200-500 Shs : 10 households
- 500-1000 Shs : 11 households
- 1000-2000 Shs : 7 households
- 2000-4000 Shs : 7 households
- 4000 Shs or more: 3 households (resp. 4500, 8000, 11000 Shs).
The top incomes were earned by the six households with a permanent employee, by three households where a member found a lot of gold and by one household selling a lot of livestock. All of them were either in Kokwotentwo or in the East-Low cluster. The big gold money was only earned by households in Kokwotentwo and this might cause a gold rush (or it did already).

Expenditure 1982

The average expenditure per household was found to be 990 Shs in the year before the interview date. This average figure has been influenced by the fact that most of the savings of one of the richest households were stolen during the year under review. But also with this in mind we may safely conclude that the average household saves money.

One household did not spend a single Shilling. All the others did: all on household items (salt, sugar, soap); 39 on clothing, which seems to be almost completely accepted now; 38 on maize meal and other food and 33 on seeds and implements. Other items are only bought by a small minority: five households spent money on schooling of their children, five on the employment of casual labourers, three on the purchase of a goat and one each on a fundi, iron sheets for the house, tractor hire, a grinding mill and a radio. It is remarkable that in the least integrated clusters (East High and West Low) the majority of the interviewed households stated that they got some famine relief in 1981/82. But the quantities of food received were very small. In the other two clusters nobody received famine relief.

We will be more specific now on the average expenditure on the various items for the whole group and for the four clusters.

<table>
<thead>
<tr>
<th>Item</th>
<th>Total Group</th>
<th>East High</th>
<th>West Low</th>
<th>East Low</th>
<th>Kokwotentwo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing</td>
<td>280 (39)</td>
<td>160 (11)</td>
<td>190 (8)</td>
<td>440 (10)</td>
<td>370 (10)</td>
</tr>
<tr>
<td>Food</td>
<td>270 (38)</td>
<td>230 (11)</td>
<td>400 (10)</td>
<td>140 (7)</td>
<td>335 (10)</td>
</tr>
<tr>
<td>Household Items</td>
<td>90 (42)</td>
<td>80 (12)</td>
<td>90 (10)</td>
<td>95 (10)</td>
<td>90 (10)</td>
</tr>
<tr>
<td>Agr. Implements</td>
<td>75 (35)</td>
<td>50 (10)</td>
<td>95 (6)</td>
<td>75 (10)</td>
<td>85 (9)</td>
</tr>
<tr>
<td>Casuals</td>
<td>55 (5)</td>
<td>5 (1)</td>
<td>-</td>
<td>10 (2)</td>
<td>220 (2)</td>
</tr>
<tr>
<td>Seed</td>
<td>55 (33)</td>
<td>25 (7)</td>
<td>90 (8)</td>
<td>50 (10)</td>
<td>50 (8)</td>
</tr>
<tr>
<td>Schooling</td>
<td>55 (5)</td>
<td>0 (1)</td>
<td>-</td>
<td>230 (4)</td>
<td>-</td>
</tr>
<tr>
<td>Other</td>
<td>110 (6)</td>
<td>-</td>
<td>15 (1)</td>
<td>250 (4)</td>
<td>210 (3)</td>
</tr>
<tr>
<td>Total</td>
<td>990 (43)</td>
<td>550 (13)</td>
<td>880 (10)</td>
<td>1290 (10)</td>
<td>1360 (10)</td>
</tr>
</tbody>
</table>

Although the number of interviews was rather small and the household selection might have been biased, we think we may use the findings as interesting eye openers. First we see that there are big differences between the clusters. In total expenditure, but also in the kind of items bought.
In general clothing is the most important single item but looking at the four clusters we see that it is only top priority in the two more integrated clusters. In the other two clusters food is most important which points towards systematic food deficits (even in a good year like 1982). In East Low however the food deficit might be the least. In Kokwotendwo it is most probably related to the high number of people neglecting part of their shamba work in favour of gold panning elsewhere. The figures show us that most households buy (maize) seeds now, one bag (for one acre or a bit more) in the more integrated areas and only half a bag in East High. The figure for West Low is remarkably high (2 bags). Luxury items (and secondary schooling is one of them) are only bought in the more integrated areas and especially by the households with regular income from a permanent job.

3.3. The irrigation survey by Richard Hogg

The first part of 3.2. is a reprint of the Mwino part of Hoggs publication; the second part is a summary of his information on a number of irrigation furrows.
Case Studies

Mwino Location

The location covers an area of 110 km$^2$, and is divided into three sub-locations: Ptalam, Kale and Kokwatendo. On either side of the Marín (Wei-Wei) River which bisects the location are two north-south oriented mountain ranges, the Sondhang range in the west and the Mt. Kauk range in the east. Mt. Sondhang rises to 3210 metres (see Map 3).

Tamkal, which is the main trading centre of the location, has a long term mean monthly rainfall of 1349 mm. Rainfall is higher in the surrounding mountains. However, as one moves north along the Tamkal-Sigor road rainfall declines. Paro, just 4 km north of Tamkal is noticeably drier.

Maize, which is grown throughout the location, is the main crop. At higher altitudes beans, sukuma wiki, cabbages, and tobacco are also grown. At lower altitudes, where irrigation is more important, maize, sugar cane, cassava and bananas are grown. Finger millet, which is the second crop, is grown in the middle slopes.

In March farmers were just beginning to clear patches of forest in preparation for finger millet sowing in April (see Table 3). However, not everyone grows finger millet these days.

Sorghum is grown by very few farmers, and then mainly in the drier northern part of the location. In February, there were only about 7 acres under sorghum, which had been planted the previous September. When I asked people why they had given up planting sorghum they said maize yields were higher, and that nowadays children refused to eat sorghum, calling it 'sand posho'.

The main crops which are irrigated all the year round are sugar cane, cassava (in spite of cassava being a drought crop) bananas, and green vegetables (sukuma wiki and cabbages). Lemons and mangoes are grown near to water courses. Maize and finger millet are irrigated when there is insufficient rain.
Table 3  Agricultural Calendar (Millet, Maize, Sorghum)

<table>
<thead>
<tr>
<th></th>
<th>J</th>
<th>F</th>
<th>M</th>
<th>A</th>
<th>M</th>
<th>J</th>
<th>J</th>
<th>A</th>
<th>S</th>
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</thead>
<tbody>
<tr>
<td><strong>Finger Millet</strong></td>
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<tr>
<td><strong>Maize</strong>*</td>
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<td>M</td>
<td>A</td>
<td>M</td>
<td>J</td>
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</tr>
</tbody>
</table>

*Length of growing period varies depending on altitude:

- 1500 metres  6 months
- 1800 metres  7 months
- 2100 metres  8 months

<table>
<thead>
<tr>
<th><strong>Sorghum</strong>*</th>
<th>J</th>
<th>F</th>
<th>M</th>
<th>A</th>
<th>M</th>
<th>J</th>
<th>J</th>
<th>A</th>
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<td>Weeding</td>
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<td>x</td>
</tr>
<tr>
<td>Harvest</td>
<td></td>
<td>x</td>
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<tr>
<td>Rest</td>
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</tr>
</tbody>
</table>

*Sorghum is mainly a dry-season crop, but some farmers do plant sorghum during the rains as well.*
By all appearances the majority of Pokot around Tamkal are no longer interested in irrigation. Many of the furrows in the area, and there must be upwards of fifty of them, have either been abandoned or are only half used. The reasons Pokot give for this state of affairs are various:

1. There is more rain nowadays (this was said by at least three different informants)

2. People no longer grow sorghum (this was the most common response)

3. There are fewer people, i.e. people have moved up to the highlands around Kapenguria.

4. Many of the young men are away in wage employment or panning for gold.

5. Men are too busy drinking beer (this was said by a number of women)

6. Cross-gullying, landslides, erosion and floods have destroyed many of the furrows.

There are clearly a number of furrows - Paro, Ipot, Aimat - which have been abandoned because of natural calamities. Paro furrow, one of the longest and probably in the past one of the most important valley bottom furrows, has been out of use since the 1969 flood, when the Marina (Wei-Wei) River changed its course and part of the furrow’s bank collapsed near to its intake; Aimat furrow has been cut by soil erosion; Murel furrow is cut by seasonal streams; and Ipot furrow has been damaged by flood. Yet natural calamity is by no means the only or even the most important reason behind furrow abandonment. Many farmers, for example, had stopped using Paro furrow long before 1969.

Farmers appear to have lost the will and incentive to rehabilitate their own furrows. Often the 'problems' are far from insurmountable even given traditional technology and materials. However, most farmers would appear to have little incentive. They would rather have government do the work for them, or, at least be paid by government to do the work.

There are an increasing number of farmers in the Tamkal area who are growing 'cash' crops under irrigation - bananas, sugar cane, sukuma wiki and other a. Traders arrive from Kapenguria/Makutano every market day (Tuesdays) to buy
fruit and vegetables. If more furrows were operational more farmers might be encouraged to grow cash crops.

However, the chief constraint on the growth of market gardening is not the furrows, but the capacity of the market to absorb the extra-produce. At present 2-3 matatus come to Tamkal every market day. This number of vehicles is unlikely to increase even if the road is improved. Even with an improved road Tamkal produces too much of the same kind of produce as Sigor/Lomut/Chesager to warrant a large increase in market traffic. The only chance of substantially increasing this traffic is if Tamkal were to become a major centre of citrus fruit production. Only such specialization is likely to encourage more traders to come from Kapenguria, even Kitale.

Those keenest to rehabilitate the furrows are generally those with an eye to the commercial opportunities of cash cropping, especially fruit production. They are the younger and more educated men of the community. There are still many, probably the majority, who are indifferent. They harvest (in the wetter areas) sufficient maize to see themselves through to the next harvest, and see little need to become more deeply involved in the cash economy. When they need money e.g. for school fees for children, they sell livestock.

If, around Tamkal, the rehabilitation of furrows is closely linked to the growth of markets, this is not so clearly the case down-valley, where irrigation is more closely linked to increases in food production. In this part of the valley rainfall is that much more unpredictable. Also many of the farmers do not have plots in highland areas from which they can benefit. The rehabilitation of the Paro and Ipet furrows would therefore not only encourage market gardening but, even more important, increase basic food production in a food-deficit area. Rehabilitation would be especially worthwhile if farmers could be persuaded to either grow a second dry season maize crop or continue to grow sorghum after the Rains. This is clearly a task for local agricultural extension staff.
Summary of the furrows in Mwino, studied by Richard Hogg (see map)

<table>
<thead>
<tr>
<th>Stream</th>
<th>Furrow</th>
<th>Length</th>
<th>Situation 1984 (February)</th>
<th>Number of Users / Last Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chesala</td>
<td>Kaseretogho=27</td>
<td>N: 1 1/2 km</td>
<td>still in use</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>S: 1 km</td>
<td></td>
<td>cassava, maize, millet, vegetables</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Kaptengak=28</td>
<td>1 1/2 km</td>
<td>no longer used</td>
<td>1960's</td>
</tr>
<tr>
<td></td>
<td>Karapogho=29</td>
<td>N: 2-3 km</td>
<td>used: millet, maize, cassava, fruit, sugar</td>
<td>50 families</td>
</tr>
<tr>
<td></td>
<td>S: 1 1/2 km</td>
<td></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>Kapeyo</td>
<td>Chupogho=26</td>
<td>?</td>
<td>no longer used</td>
<td>4-5 families</td>
</tr>
<tr>
<td></td>
<td>Embakor=24</td>
<td>3 km</td>
<td>used first 200 mrs.</td>
<td>entire furrow: 1974</td>
</tr>
<tr>
<td></td>
<td>Atiamotu=23</td>
<td>½ km</td>
<td>used</td>
<td>5-6 fam.</td>
</tr>
<tr>
<td></td>
<td>Relapogho=21</td>
<td>2 km</td>
<td>not used</td>
<td>1965</td>
</tr>
<tr>
<td></td>
<td>Emporeperwo</td>
<td>½ km.</td>
<td>used</td>
<td>1-2 fam.</td>
</tr>
<tr>
<td></td>
<td>= 22</td>
<td></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>Emporuno</td>
<td>Kitapes=19</td>
<td>1-2 km</td>
<td>no longer used</td>
<td>1979</td>
</tr>
<tr>
<td></td>
<td>Ombotip=20</td>
<td>?</td>
<td>only first 50 meters used</td>
<td>few fam.</td>
</tr>
<tr>
<td></td>
<td>Omporuno=18</td>
<td>2-3 km</td>
<td>no longer used</td>
<td>1982-83</td>
</tr>
<tr>
<td></td>
<td>Emposukich=15</td>
<td>1 1/2 km</td>
<td>no longer used</td>
<td>1982</td>
</tr>
<tr>
<td></td>
<td>Kapelion=16</td>
<td>½ km.</td>
<td>no longer used</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Emparakut=14</td>
<td>1 1/2 km</td>
<td>no longer used</td>
<td>1981</td>
</tr>
<tr>
<td>Kale</td>
<td>Sindagh=11</td>
<td>2 km</td>
<td>used: 5 acres, bananas, sugar, lemons, cassava pawpaw, cabbage</td>
<td>10 families</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50-100 acres</td>
</tr>
<tr>
<td></td>
<td>Murel=17</td>
<td>4 km.</td>
<td>used</td>
<td>30 families</td>
</tr>
<tr>
<td></td>
<td>Ngoyomwo=25</td>
<td>2 1/2 km</td>
<td>used by a few families</td>
<td>300 acres</td>
</tr>
<tr>
<td></td>
<td>Mughyongwo=13</td>
<td>1-2 km</td>
<td>used</td>
<td>2-3 fam.</td>
</tr>
<tr>
<td></td>
<td>Ompogho=12</td>
<td>2 km</td>
<td>used</td>
<td>2-3 fam.</td>
</tr>
<tr>
<td>Weiwei</td>
<td>Paro=3</td>
<td>5 km</td>
<td>used 1 acre</td>
<td>most: 1969</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200 acres/300 families</td>
</tr>
<tr>
<td>Tororo</td>
<td>Soghoy=2</td>
<td>2 km.</td>
<td>used</td>
<td>2-3 fam.</td>
</tr>
<tr>
<td></td>
<td>Ipet=1</td>
<td>3 km</td>
<td>no longer used</td>
<td>1969</td>
</tr>
<tr>
<td></td>
<td>Sowokogho=8</td>
<td>2 km</td>
<td>50 acres maize</td>
<td>150 acres</td>
</tr>
<tr>
<td></td>
<td>Chesuriony=5</td>
<td>2-3 km</td>
<td>small area</td>
<td>6 families</td>
</tr>
<tr>
<td></td>
<td>Asaon=9</td>
<td>?</td>
<td>10 acres vegetables, cassava</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>Emkaghut</td>
<td>Chepalol=7</td>
<td>3-4 km.</td>
<td>used</td>
<td>10 fam.</td>
</tr>
<tr>
<td></td>
<td>Siorin=10</td>
<td>?</td>
<td>used</td>
<td>150 acres</td>
</tr>
<tr>
<td></td>
<td>Aimat=4</td>
<td>3-4 km.</td>
<td>only used for drinking water maize in June</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td>Psuyoy=6</td>
<td>1 km</td>
<td></td>
<td>?</td>
</tr>
<tr>
<td>Embosoku</td>
<td>Masita=30</td>
<td>?</td>
<td></td>
<td>?</td>
</tr>
</tbody>
</table>
From Hoggs findings we may conclude that in total he counted a minimum length of 57 km of furrows in Mwino location, but most of them were not or only partially used. Only seven furrows were used by more than 5 families per furrow, especially Karapogh, Murel, and Sirorin furrows. In February 1984 only 175 families were counted who used the irrigation furrows for agricultural purposes, a bit more than 10% of all families in Mwino. Together they probably used less than 70 ha of irrigated land. Hoggs estimated the potential area for irrigation for a number of furrows at 400 ha at least. We must stress however that the people also use the furrows for drinking water.

Hogg recommends that four furrows should be improved/rehabilitated during the 1984-85 plan period: Murel, Paro, Aimat and Ipet.

3.4. Outside intervention and response

The government or missions did not do much to encourage economic development in Mwino. But a few things are worth mentioning and some did have considerable effects.

During the 1920's the government issued maize seeds and during the 1930's two agricultural demonstration plots were started, one at Tamkal and one at Kokwotendwo. Cassava, sweet potatoes, bananas and citrus were stimulated and together with maize they are widely accepted now. A few people also accepted the cultivation of groundnuts, chillies, sugarcane, beans and tomatoes.

At the end of the 1950's Colonial attention grew. In 1956 there was one Agricultural Instructor and there were four Assistant Agricultural Instructors. In 1958 the Government also tried to destock the cattle; a quotient of 10% per year, or 280 head of cattle had to be sold and in 1958 219 head indeed were sold. At the end of Colonial times for the first time a resident missionary tried to stimulate fruit production.

After Independence both government and missionary attention diminished soon. Even in the Plans Mwino is mentioned only a few times.

In the Seven Year Agricultural Development Plan (1964-1970) a new agricultural demonstration plot for maize variety experiments was proposed at Kokwotendwo and the upgrading of local poultry (which
was becoming more popular since 1960) was envisaged. But nothing was
done. To open Mwino a road was proposed from Wakorr to Kokwotendwo
(planned for 1964, rated at 1750£) and from there to Kale (for 1965,
rated at 1000£).

In 1975 a harambee license was obtained for a cattle dip fund raising
at Tampal. But probably the harambee did not even start and in the
whole location there is not a single cattle dip now.

In 1975/6 the District Development Committee gave 19,575 Shs out of
the Rural Development Fund for Tampal Irrigation. In 1976 an area was
cleared and 5 kms of furrow dug to lead water into newly developed
plots. The project was completed before 1981.

In the District Development Plan 1979-1983 an investigation is proposed
into the possibilities of small scale irrigation assistance at Paro,
Mkel and Chemasas furrows, but nothing was done.

The only missionary activity in the economic field is the assistance
by the World Vision International in Paro. Among other things they
supplied a maize grinding mill there and they started a fruit tree
project (if marketing was not such a huge barrier, fruit production
for external markets could be a major source of income in the area;
locally a large number of local fruits and vegetables can be found
which are eaten by the people). The RCEA mission proposed to buy
school food (free lunches are given) locally in stead of in Kitale.
This could encourage commerical food production. One time they got
permission from the District Commissioner. After that he forbid it.
Also to us it seems worthwhile to reconsider this policy.

Market integration is very low in the Location. Most of the surplus
is still bartered for goats and only bananas and cassava are sold
to get money. There is not a single shop in the Location and the two
markets are very small. Tampal market every week only has some 30-50
women selling small amounts of produce (the market is supervised by
the County Council but the C.C. Cess in 1982 was only 152 Shs.....)
Kale market is even outside C.C. intervention.
4. SOCIAL AND INFRASTRUCTURAL HISTORY

4.1. OVERVIEW OF THE SERVICES IN 1983

<table>
<thead>
<tr>
<th>Place</th>
<th>admin.</th>
<th>comm.</th>
<th>education</th>
<th>health</th>
<th>church</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tamkal Ass.Ch.</td>
<td>Chief</td>
<td>market</td>
<td>primary CPK school with 7 teachers (p-7t) adult educ.: 1 part time teacher</td>
<td>dispensary &amp; mob. clinic (gov) &amp; mob. clinic (miss)</td>
<td>CPK</td>
<td>FGCK</td>
</tr>
<tr>
<td>Paro</td>
<td>-</td>
<td>maize grinder</td>
<td>p-7t, RCEA adult educ.: 1 full time teacher</td>
<td>-</td>
<td>RCEA</td>
<td>women group day care centre World Vision activities</td>
</tr>
<tr>
<td>Takar</td>
<td>-</td>
<td>-</td>
<td>p-1t, CPK</td>
<td>-</td>
<td></td>
<td>Luth. women group</td>
</tr>
<tr>
<td>Endow</td>
<td>-</td>
<td>-</td>
<td>p-2t, Luth self help adult educ.</td>
<td>-</td>
<td>Luth.</td>
<td>women group</td>
</tr>
<tr>
<td>Otiot</td>
<td>-</td>
<td>-</td>
<td>p-5t, DEB adult educ.: 1 part time teacher</td>
<td>mob.clin. (miss)</td>
<td></td>
<td>Luth.</td>
</tr>
<tr>
<td>Solion</td>
<td>-</td>
<td>-</td>
<td>p-2t., Luth.</td>
<td>mob.clin (miss)</td>
<td></td>
<td>Luth.</td>
</tr>
<tr>
<td>Kale Ass.Ch.</td>
<td>some market activ.</td>
<td>p-3t, CPK ad.ed.: part time teach</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Tororo</td>
<td>-</td>
<td>-</td>
<td>p-2t, RCEA ad.ed: part time teach</td>
<td>-</td>
<td>RCEA</td>
<td></td>
</tr>
<tr>
<td>Tosikirio</td>
<td>-</td>
<td>-</td>
<td>p-1t, CPK self help ad.educ.</td>
<td>-</td>
<td>CPK</td>
<td>Cath.</td>
</tr>
<tr>
<td>Kokwotendwo</td>
<td>Ass.Ch.</td>
<td>-</td>
<td>p-6t, CPK</td>
<td>-</td>
<td></td>
<td>CPK</td>
</tr>
<tr>
<td>Nyarkulian</td>
<td>-</td>
<td>-</td>
<td>p-1t, DEB ad.educ.: part time teacher</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>(Sondang)</td>
<td>-</td>
<td>-</td>
<td>p-2t, RCEA ad.ed.: part time teacher</td>
<td>mob.clin. (miss.) RCEA (FGCK)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- CPK = Church of the Province of Kenya (Anglican); FGCK = Full Gospel Church of Kenya; Luth. = Lutheran Church; Cath. = Roman Catholic Church
4.2. SOCIAL AND INFRASTRUCTURAL PLANS AND PLAN IMPLEMENTATION

Roads
In colonial times a road was constructed from Sigor via Tamkal further into the higher parts of the valley. This road needed a lot of maintenance, but many times no money was available. After 1967 the road deteriorated fast and in the District Development Plans both of 1974-78 and 1979-83 improvement was proposed as an urgent matter. Only in 1981 the road was indeed improved until Tamkal, by the Rural Access Roads Programme for which a number of local contract labourers were recruited. A maintenance team of twelve men work part time on the road now (annual wages: 26,000 Shs).

Chiefs house
In 1968 this was completed as a self help project.

Health
At the end of colonial times some government money was offered to the Anglican missionary working in Tamkal at that time to start a dispensary. But nothing happened.

In the District Development Plan 1974-78 again a dispensary is proposed for Tamkal. In 1976 and 1977 harambee licenses are obtained to get funds from all over Sigor Division (target: 9000 Shs) but without result. Again in the DDP 1979-83 the plan was proposed and in 1980 the plan was approved and funds were obtained from Netherlands Development Assistance (Shs 1,711,140). In November 1982 the new dispensary was opened.

For more information see 4.4.

Education
As far as we know only two schools received government donations: Tamkal (in 1975-76: 3000 Shs from the District Community Development Fund) and Kale (1979: 2462 Shs from the District Development Committee). For more information see 4.3.
4.3. EDUCATION

In Mwino there are 12 primary schools now. There are three old schools, one in Kokwotendwo, it is there since 1939 and it was the first school in the division. The school in Tamkal was there already in 1953, but we do not know in which year it started. Also of the school in Otioit we do not know the starting year but it was there in 1966 and already had 3 standards by then. The school in Paro probably started in 1977 but we only have data since 1980, the one in Kale started in 1978. The other 7 schools started in 1980 or later.

There are 5 schools sponsored by the Anglican Church (the Church of the Province of Kenya) including the two oldest schools. The school in Otioit is paid by the District Educational Board (DEB) and there is one other DEB-school. Besides these schools there are 3 Reformed Church of East Africa and 2 Lutheran schools. None of the schools is a boarding school.

The two oldest schools are complete primaries with Standard 1 to 7. Two other schools have Standard 1 to 6, one has Standard 1 to 4, the rest have Standard 1 to 2 or 1 to 3.

<table>
<thead>
<tr>
<th>year</th>
<th>no of schools</th>
<th>no of boys</th>
<th>no of girls</th>
<th>no of pupils</th>
<th>trained</th>
<th>untrained</th>
<th>total</th>
<th>pupils/teacher</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>3</td>
<td>203</td>
<td>39</td>
<td>242</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>35</td>
</tr>
<tr>
<td>1976</td>
<td>3</td>
<td>284</td>
<td>0</td>
<td>284</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td>26</td>
</tr>
<tr>
<td>1979</td>
<td>51)</td>
<td>466</td>
<td>42</td>
<td>508</td>
<td>10</td>
<td>6</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>1980</td>
<td>8</td>
<td>816</td>
<td>186</td>
<td>1002</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1981</td>
<td>9</td>
<td>6672)</td>
<td>195</td>
<td>863</td>
<td>13</td>
<td>19</td>
<td>32</td>
<td>27</td>
</tr>
<tr>
<td>1982</td>
<td>12</td>
<td>1061</td>
<td>305</td>
<td>1366</td>
<td>13</td>
<td>26</td>
<td>39</td>
<td>35</td>
</tr>
</tbody>
</table>

1) For one school in 1979 we do not have data.
2) The decrease in number of boys visiting schools in 1981 compared to 1980 is due to a decrease in two schools, in Otioit and Tamkal.

We do not know why this decrease took place.

The increase in number of schools, pupils and teachers since 1980 is enormous as is the case in most peripheral locations in West Pokot. The number of trained teachers in 1982 is low compared to the whole of West Pokot, 33% and 56% respectively.

Formal education of girls always was a rare phenomenon in Mwino. In 1969 13% of the eligible boys and 0% of the eligible girls was schooling according to our estimate.
Between 1970 and 1977 the number of girls schooling did not exceed 5. In 1979 the difference between the percentage of eligible boys and girls schooling was the highest for the whole district 45% and 4% respectively.

The growth in the number of pupils between 1979 and 1982 was 169%, 128% for boys and 624% for girls.
For 1982 we estimate the percentage of eligible boys and girls schooling at 93% and 26% respectively.

**Adult education** started late in the district, in 1976 it had not yet started. By 1981 it seemed rather well established with 12 centres and 191 male and 125 female pupils. In 1982 however 4 centres had stopped, and the number of pupils went down to 80 males and 37 females (no payment to teachers could be an explanation).
4.4. HEALTH

In 1982 a government dispensary was opened in Tamkal. It serves about 5000 people in the location within a radius of 6.4 km (outlined by the government as a reasonable distance to a static health facility).\(^1\) 4000 people in Mwino are outside this radius. But for many people even within the radius there are additional problems. Because of the enormous differences in height the distance in efforts can be much higher than the number of kilometers suggest: Tamkal Dispensary lies at about 1200 meters, the area it serves reaches till 3000 m. Besides this for people on the West bank of the Weiwei it is sometimes impossible to cross the river and so to reach Tamkal when the water is high.

In the location several places are visited by mobile clinics: between 1979 and 1982 Tamkal\(^2\) and in 1981 Paro by a mobile clinic from Sigor Health Centre. In 1981 and 1982 Chemulei/Otiot was visited by one of Sigor Mission and Sondang and Tamkal by one of the Full Gospel Church of Kenya (stationed in Kapenguria). Chemulei/Otiot and Sondang lie outside the location but partly serve people within the location. It seems that especially the people in the Western and Southern part of the location are underserved.

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1) In the first two months of its existence 1200 people visited the new dispensary.

2) For the mobile clinics we only have a few data. We know that in 1970 already a mobile clinic visited Tamkal.
4.5 **CHURCHES**

There are 5 denominations active in Mwino Location.

The Anglican church was already in the early thirties active in the area, although most of the activities at that time took place from the Bible Churchmen's Missionary Society (BCMS) Centre in Nasokol. At the moment they sponsor 5 primary schools with almost 600 pupils and they have three congregations with in total an average attendance of about 115 people. The (Anglican) World Vision sponsors parents of children in Paro, has a fruittree project and paid a poshomill.

The Reformed Church of East Africa (RCEA) in Amolem sponsors 3 primary schools with about 450 pupils. They have three congregations with together an attendance of about 110 people of which a bit less than half are over 15 years of age. They also sponsor private teachers.

The Lutherans sponsor 2 schools with 115 pupils. Besides that they have an evangelist and services in Endow with an average attendance of about 30 people with few adults among them.

The Full Gospel Churches of Kenya visit Sondang and Tamkal with a mobile clinic and hold services there at the same time. They have lay preachers in both places and 10 members in Tamkal.

The Roman Catholics have no schools in Mwino and only one congregation of 60 members.

If we look at the total attendance figures we must conclude that only 5% of the people older than five years old attend church services. Compared to the other Locations in West Pokot this is one of the lowest percentages. Especially the very meagre results of the CPK after fifty years of missionary activity are striking.

On the other hand Mwino Location was one of the strongest areas of the (forbidden) Dini Ya Msambwa/Yomut activities in the 1950's and again in the period 1964-67 when the religious prisoners were set free. Their 'anti-western' attitude probably had (and has?) deep effects e.g. in the reluctance to send children, especially girls, to schools.
5. MAIN DEVELOPMENT PROBLEMS

We have seen that subsistence production of food still is the dominant economic activity in Mwino Location. Agricultural productivity is remarkably low which might be explained by two factors for crop production: the population pressure causing a break with the necessary fallow periods and hence over-utilization of the land and secondly the fact that lots of labourtime are 'spoilt', because of long walking distances. With better seeds and better farm management higher yields per acre must be possible. With the introduction of fertilizer production might easily be doubled. An agricultural research and extension station or -to begin with- technical assistants could do a lot of useful work. Primary school teachers and school gardens could be important tools for upgrading the agricultural productivity.

Also on the side of livestock production the productivity still is very low. Cattle and goats are poor quality ones. Upgrading of sheep and goats could bring better food without introducing more animals.

Both crop and livestock policies should take into account that it is a dangerous area ecologically. Soil conservation measures, the restoration of soil fertility (animal manure for instance) and systems of zero grazing/browsing with fodder production are all measures which could probably feed a larger population without spoiling nature.

The major barrier for economic development is the difficulty to reach markets. The area of Kokwotendwo especially is so isolated that the market possibilities for maize and beans (and for products like potatoes, wool etc.) are very low now. A road linking Kokwotendwo with Wakorr and with Tamkal will be very expensive, but without it all economic development proposals directed at market integration will be unreal. For the Valley area the distance to markets is a prohibitive thing for its major potential: fruit. Some people already suggested a fruit factory in Tamkal, but without any real market outlets this will be a failure.

As long as the communication possibilities are that bad, government policy should confine itself to the upgrading of subsistence production. Especially it is recommended to look into the possibilities for better food storage facilities.
Although subsistence is still the dominant economic activity, and food marketing very marginal until now, money no longer is a marginal thing. Within Mwino some 70 people earn a salary. Most of them are teachers in primary schools and adult education classes but there are also people who are employed by churches, by the Rural Access Roads Programme and by the Ministry of Health. Also cash income enters the Location from labour migrants, working with the Marich Road Works Camp or the Sigor KVDA farm. Recently gold is an important source of money too for people who go panning at Weiwei mostly.

Using our interview results we conclude that for an average household 40% of total income (including all subsistence activities) is earned as cash income. Part of the food requirements is bought now and a lot of money is spent on clothing. Most of the money flows to outside areas again. A (cooperative) shop in the area could serve an important function. Children are sent to Wakorr now for a kilo of sugar; a 2½ hours walk from Kokwotendwo and back.

During our interviews we asked what kind of improvements the respondents wanted most. It was a time when the Tamkal dispensary was not yet opened so most people mentioned this as the top priority. People on the West bank however and especially the ones in Kokwotendwo wanted their own dispensary; Tamkal was too far and sometimes it was not possible to go there.

Many people outside Kokwotendwo mentioned improved irrigation as the major thing the government could do to improve the standard of living. They also see education as an important thing, not only because of education as such, but as an opportunity to earn money (school buildings, school food, labour contracts) and as a way to secure food for their children (continued food and milk at school is a very high priority; some also want schools to be changed in boarding schools).

Everybody from Kokwotendwo mentions a road as a necessary precondition for any improvement. But it is striking that the road is not so much seen as an outlet for their produce, but as a means to bring employment (road works and maintenance) and to bring tractors and matatu's to the area. Also in the valley a tractor service is mentioned by a number of the more progressive farmers.
Appendix

The anthropological survey of Elizabeth Meyerhoff in Katuw

Although Meyerhoff's survey was done in an area just North of Ptalam Sub-location, in Weiwei-Location, we have the feeling that this area has much in common with the northeast of Mwino. We used her typescript "The position of women in subsistence economy of the Pokot agricultural community", written in 1978 and describing the situation around 1977. This was a period in which the changes in the Pokot economy only started and most households were still very marginally integrated in the money economy. She did an in-depth survey of a small area and her findings can add some valuable nuance to our own survey results. We will especially give a summary of her economic data.

Crop cultivation and irrigation

Each family has tenure rights within or outside the korok, 2.5 acres on average in different ecozones, from the floor of the Weiwei River to the high hillslopes. Every year 0.75 - 1 acres are used for maize (by all households), 0.25 - 0.5 acres are used for fingermillet (by 70% of the households) and in dry years sorghum is cultivated as a short rain crop (less than 1 acre; 1/4 a type that takes only two or three months to harvest and 3/4 types that take five months to harvest). The actual use of land is not always on the fields which are owned by the household: half of the fields are 'begged'; between relatives this happens without any compensation, between non-relatives a token gift is necessary. In very rare cases land can be bought (1/4-1/2 acre for one young female goat which was, in 1977, the equivalent of about 600 Shs per ha.).

Maize is mainly cultivated on the valley floor. Each family cultivates two to three fields of maize per year, each field between 0.25 - 0.5 acres big. The same piece of land can be used three to four years and is left fallow one or two years afterwards. In the recent past the maize acreage in Katuw increased gradually and also the amount of labour and capital spent on maize. The labour calendar and the average labour time involved are given below. A small field (0.25 acre) can give a yield of 300-400 kgs of maize. An average family eats 20 kgs per week, so 1040 kgs per year. The problem is that the maize can only be stored for eight months and before the green maize from the next crop can be harvested, there are mostly seven weeks without maize from the own fields. Most people try to have a foothold in various ecozones to avoid this problem. Maize in the valley is ready in September; on the high plateaus of Kokwotendwo in December or January. When a family is nevertheless confronted with a maize shortage they sell a he-goat (for 40-60 kgs of
maize; we must remark that there must have been a considerable inflation at
the expense of the cultivators: in 1982 a goat sold for 100 or even 125 Shs and maize
was still about one Shilling per kg).

Fingermillet plots are used for two years and are left fallow for six to eight
years. They are situated at the often very steep hill slopes not far from the
homesteads. In the slack period before planting time after the second fingermillet
harvest an extended family clears a plot of three to four acres and each
household gets 0.25 to 0.5 acres. This usually gives 200 kgs of grains and
it is used for food and for beer. In this area it is not an exclusive women's
crop, although mostly women do the majority of the lighter tasks. For the
labour calendar the information can be found below.

Sorghum is only cultivated when the April–June rains were not good and when
people fear that the harvests of maize and millet are far from sufficient.
They use more than one variety to ensure a long harvesting period.

Irrigation

The irrigation system in Katuw is at least four generations old. Canals are
made and the river Weiwei is dammed just below small rapids. The Katuw canal
is 0.7 km long, 90 cm wide and 30 to 60 cm deep. Building and repair is
exclusively a men's job. Normally they repair and rebuild the canal in May
but in years with a lot of damage they start much earlier. In a normal year
it takes a group of 15-20 men about 12 days of hard work (170-220 working days).
To build a new canal even costs 500 working days per km. If a man is not
around to do the job it costs him a payment of one goat. (In the area more
south we were told that a complex system of water diversion canals owned by
a variety of clans were no longer maintained since about ten years because
more and more young men refused to work on it). The irrigated plots are
especially used for the cultivation of maize, sorghum, cassava and bananas.

The Korok community of men still plays a dominant role in deciding when irrigation
starts (as they also decide when sowing/broadcasting can start) and whose fields
are irrigated in which sequence. They also fine people who misuse the system,
and they manage the maintenance system. Both men and wives use irrigation and
women do have a separate right to request for water.
### Labour calendar and labour time

<table>
<thead>
<tr>
<th>Month</th>
<th>maize</th>
<th>fingermillet</th>
<th>sorghum</th>
<th>irrigation</th>
<th>other</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td></td>
<td></td>
<td></td>
<td>if large</td>
<td>building huts (m/w), water (w)</td>
</tr>
<tr>
<td>(dry)</td>
<td></td>
<td></td>
<td></td>
<td>damage:</td>
<td>start repair (m)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>water (w)</td>
</tr>
<tr>
<td>February</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>gathering</td>
</tr>
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<td>(dry)</td>
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<td></td>
<td></td>
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<td>insects</td>
</tr>
<tr>
<td>March</td>
<td></td>
<td></td>
<td></td>
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<td>rebuilding/</td>
</tr>
<tr>
<td>(dry)</td>
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<td></td>
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<td>repair canal (m)</td>
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<td>vegetables (w)</td>
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<tr>
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<td>August</td>
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<td>September</td>
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<td>November</td>
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<td>(dry)</td>
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</tr>
</tbody>
</table>

- Building huts (m/w), water (w)
- Gathering insects
- Rebuilding/repaired canal (m)
- Vegetables (w)
- Vegetable collection
- Irrigation
- Veg. try to find additional maize

Note: The table lists various activities associated with maize, fingermillet, and sorghum cultivation, as well as irrigation and other tasks such as building huts and gathering insects. Each month has specific tasks assigned, with some activities requiring additional labor in the next year.
Some tasks are in fact done the whole year: collection of vegetables (by women), but especially in the months before the harvest; collection of firewood (by women), of water (a heavy job, especially when the streams are dried up), fishing (by men), beekeeping (by men) and the animal husbandry (milking, esp. in the rainy seasons; looking for pasture especially in the dry seasons, especially by the men and boys).

The labour calendar shows that especially the year in which new finger millet plots are cleared are very busy ones. In those years only October and November can be regarded as slack months.

The Katuw labour calendar is valid for the communities on the middle and lower slopes of the valley. Higher in the mountains the harvests are much later and maize is more important. Also higher up in the valley (e.g. from Tamkal up-stream) the harvest period is later.

Livestock

In the Katuw community households with cattle are rare (and regarded as wealthy). More often households have an average of 25-30 goats and 10 sheep, that is: households which can be regarded as established, after eleven years of marriage or more and with two or three children alive. Goats are very important in the reproductive system of the population here. A female goat has an average alive offspring of seven or eight during her lifetime. If no calamities happen, an accumulated offspring of 30 can be regarded as normal (which is a very high rate of interest ...). Most of the male goats are used, sold or eaten. In times of food shortage they are sold or bartered for maize. Also labour payment, fines and ceremony gifts are paid in goats. In bridewealth arrangements goats are important too. In this area bridewealth is (or was in 1977) two cows and six goats, to be paid in a spread form: 30-40% straight away and 10-20% after child births. Compared with the other agricultural Pokot the bridewealth is rather low, mostly it is 3 or 4 cows and 30 goats and compared with pastoral Pokot it is extremely low (there it may be 20 head of cattle or more and 60 goats).

Money

Although less important compared to our findings, households did spend money. They were supposed to pay an area rate of 25 Shs, to pay fines in money and more and more people organizing work parties had to spend some money to pay the workers in beer. Also seeds and tools were bought. Those who sent their children to school (a small minority in 1977) had to spend 50 Shs on a school uniform and 40 Shs on school fees. Those who had cattle did spend a small amount
on treatment and salt. A number of household items were bought too: cooking pots, some cloths, blankets, beads, household tools, salt and fat. A 'monetarised' household could spend about 450 Shs according to Meyerhoff, the equivalent of nine male goats or 800 kgs of maize.