

Irrigation and the Socio-Economic System
of the Soninke in the Bakel Region
(Senegal River Valley)

by

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Preface

The Soninke of Senegal are principally found along the Senegal River, between Balou, above Bakel and Waounde, midway between Matam and Bakel.

In this zone there are two geopolitical groups, the Haire and the Goye, which historically belonged to a larger entity, the Gadyaga, which have their own social and economic organization; this distinguishes them clearly from the zones where the Halpulaaren are settled in the northwest (the Fouta) or in the south (Boundou) and make them resemble more the Mauritanian Guidimakha or the regions populated by the Soninke in Mali.

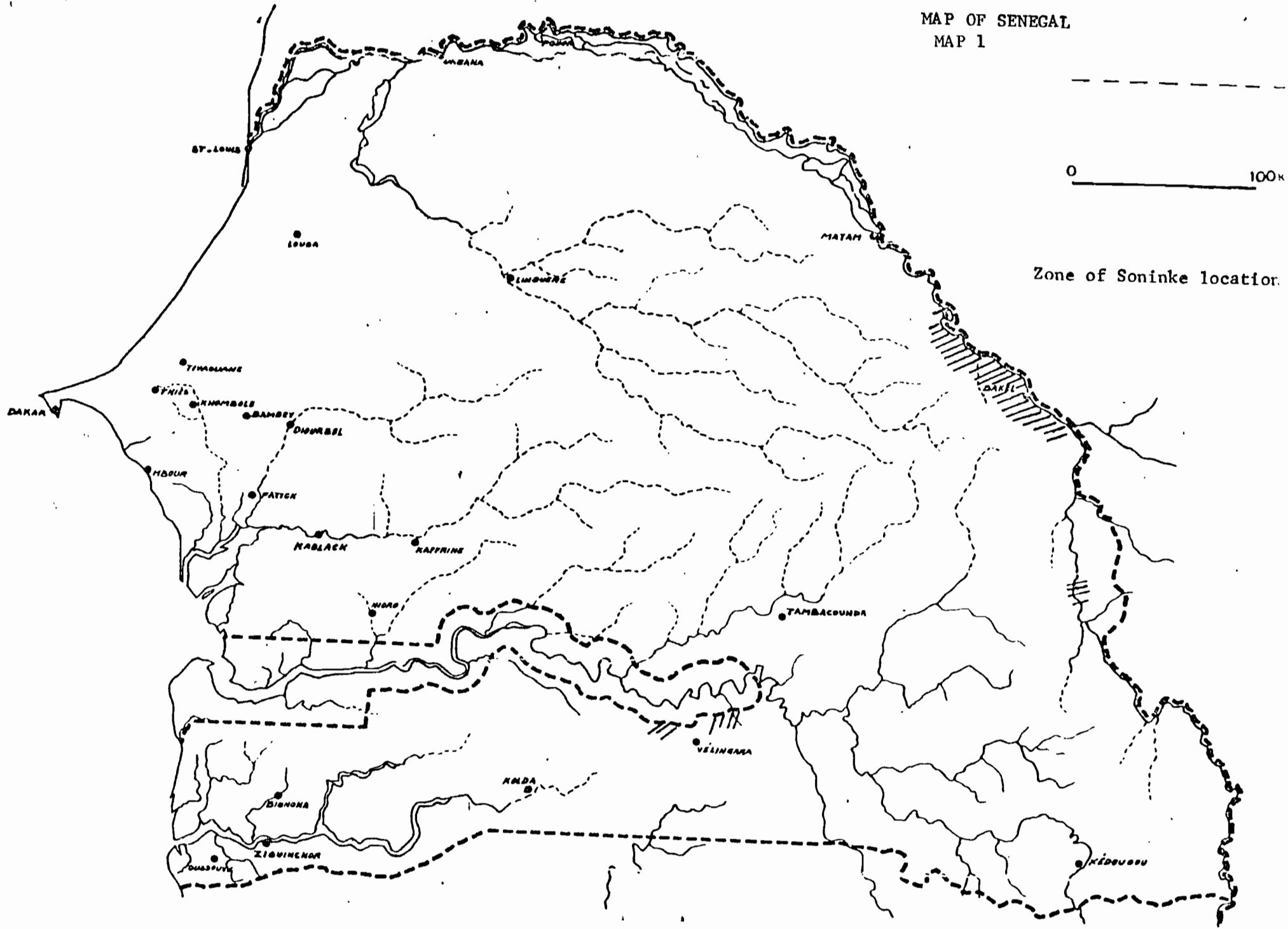
The Soninke peasantry of Senegal had the characteristic of being the richest of the country: the very marked extroversion of the male labor force, demonstrated by the migration, principally to France, explains this fact. The incomes repatriated by the Soninke migrants are estimated to amount to 3.7 billions of francs CFA (\$18 million). In the first place, they serve to overcome the deficit in cereals which followed the degradation of the local hydrology and rainfall and the diminution of the male labor force, as well as to assure a standard of living above that of the neighboring populations.

Meanwhile the local economy has seen a radical transformation which concerns, on the one hand, the modalities of migration (with the stopping of the migrations to France), and on the other hand, the system of production with the accelerated development of irrigation.

In this brief report, we will develop particularly the modalities of irrigation in the Bakel zone, and its consequences on the traditional socio-economic system.

MAP OF SENEGAL
MAP 1

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THE DEVELOPMENT OF IRRIGATION IN THE DEPARTMENT OF BAKEL

Starting from the Senegal River Delta, the SAED (The Society for the Development of the Delta Lands) has seen its field of action extended to the whole length of the river as far as Bakel. The type of development that is seen at Bakel is that of the small village perimeters, based on the model of those of Matam, Aere Lao, or of Kaskas, which are small irrigated units with an area of about 20 hectares on average with irrigation effected by one or more motor driven pumps, and which makes possible the production of the crops advised by the SAED (rice during the rainy season, maize and vegetable crops during the dry season). These are definitely developments radically different from those of the Delta as far as their size and above all their organization. In effect, although the division of the perimeter into plots, which is done in an egalitarian way, is controlled by the SAED, the development of the perimeter and the organization of the work are under the responsibility of village groups: the reciprocal obligations of the SAED and the village group are signed by both sides in a contract.

Meanwhile the development of irrigation in the department of Bakel, although it is comparable to that of the Middle Valley, does exhibit certain differences which are explained by local and historic considerations: an example can be seen in the differences of the contract in the Bakel region and in the Middle Valley (Matam, Aere Lao, Kaskas).

The history of the development of irrigation shows a mobilization of the peasants in its favor since 1973. In fact, the collective initiatives at Koungani and Mouderi started before technical assistance for agricultural production was available from the CIDR (International Company for Rural Development) financed by Oxfam and War on Want. Two major pump units, furnished by the SAED in 1975, brought to three the number of villages involved in irrigated crop production, which, at this time, included maize and sorghum during the rainy season and vegetable crops during the dry season.

In March 1975 the authorities of the SAED informed the peasants that it was necessary for them to be placed under the control of the SAED; that is to say, to sign the same type of contract as that signed at Matam, in order to benefit from the gift of USAID for the purchase of motor pumps. Worried about this control, which they thought would be too heavy, disagreeing on the type of crop to be produced, and on the forced individualization of the plots, the peasants formed a federation (The Federation of the Peasants organized in the Soninke zone of Bakel). According to the federation, the support of the SAED should be restricted to technical matters and the organization of work and the type of crop to be grown should be decided by the peasants: that is to say the recognition of the complementarity of irrigated crop production and rainfed crop production would be accepted (instead of imposing a monoculture for each cultural season), and also that collective fields could be cultivated.

Without producing an insoluble antagonism, the differences in conception between the SAED and the peasants' federation relative to the modalities of development of irrigation were in part responsible for the delay experienced by the department of Bakel. However, the availability of financial support

from international aid organizations encouraged the two parties to understand each other and to make reciprocal concessions of which the last contract signed between the SAED and the producer groups of the department of Bakel is a demonstration.

Table 1 - Successive changes in the terms of contracts from 1977 to 1979

Contract 102; 1977	Contract 215; 1978 Changes from Contract 102	Contract 0073; 1979 Changes from Contract 215
<u>Development</u>		
No engine assistance	Stump removal by bulldozer	Stump removal and levelling by bulldozer
Small equipment purchased for cash	Same	Same
Equal sized plots given to individuals	Possibility of allocation: in collective plots (30%)	Same
Allocation of plots under control of SAED and group	Same	Allocation under SAED control
<u>Investment in the motor pump (GMP)</u>		
No control of the group at the time of delivery	Same	Receipt signed by president of group at time of delivery
Set up amortization fund paying 200,000 CFA/year	Same	No specific sum given but the only obligation of the peasants is to be able to replace motor after 5 years
Double signature, SAED and group, required for the management of the account	Signature of group as one required. SAED to be informed	Same
<u>Operation of GMP</u>		
Group must collect fuel from SAED pump	SAED must deliver fuel until 1-1-81	Same
<u>Marketing</u>		
Guarding and loading of the products still at perimeter to be done by the group	Same	Guarding and loading by SAED
<u>Commission of Appeal</u>		
Only 1 peasant repre- sentative of the group involved	Add 1 representative of the Federation	Departmental Director of Agr. added; Coop. representative on Admin Council of SAED removed

As can be seen in table 2, the inequality in the development of irrigation in the Bakel department and in the Middle Valley is considerable. Events tied to this development in the soninke zone make clear the specific features of the socioeconomic system of the region.

Table 2 - Areas cultivated under irrigation and coefficients of intensity of cropping (Bakel and Middle Valley) (1)

	1976/77			1977/78			1978/79		
	Area Cultivable ha	Area Cultivated ha	Coef- ficient of Intes.	Area Cultivable ha	Area Cultivated ha	Coef- ficient of Intes.	Area Cultivable ha	Area Cultivated ha	Coef- ficient of Intes.
Bakel Perimeters	95 ha	125 ha	1.32	106.75 ha	66.37 ha	0.62	250.36 ha	340 ha	1.36
Matam Perimeters	198.75 ha	278.45 ha	1.40	228.57 ha	288.95 ha	1.26	737.96 ha	991.69 ha	1.34
Acre Lao Perimeters	-	-	-	475.2 ha	601.5 ha	1.27	482.35 ha	873.15 ha	1.81

These features concern above all the system of production. In fact, in contrast to the Middle Valley, the rainfall conditions are more favorable which explains the important position of the rainfed crop production and how this competes with irrigated production in the rainy season. Scarcity of labor caused by the labor migration of male workers can slow the increase in the cultivated areas, although the introduction of paid workers from Mali has tended to eliminate this constraint. (2)

Finally, the introduction of irrigation in the agricultural sector cannot compete with the international migrations, which produce very high incomes for the Soninke of this region: the differences between the two productivities and the two remunerations of the work are large. In addition the price system for rice in Senegal does not encourage its development as a cash crop. On the contrary it is maize which provides the majority of the agricultural revenue in irrigated production (in Bakel zone): this fact explains the importance of the area cultivated in maize under irrigation including during the rainy season.

- (1) According to "Les performances de la culture irrigee" (Enquete socio-economique (OMVS) 1979. Chapter C III pg. 9)
- (2) Cf The consequences of irrigation on the socio-economic system, see pg. 30 .

Meanwhile, despite the macro-economic constraints, i.e. the 1975 restrictions on migration, the persistence of the drought has made necessary the development of the irrigated sector.

Self-management by the peasants, tolerated by the SAED, encourages an increase of the irrigated area, which could furnish an alternative to the economic difficulties of the region which was marginal for such a long time and which has always known how to count on its own strength.

THE TRADITIONAL SOCIO-ECONOMIC SYSTEM

Migration

The total Soninke population on the south bank of the River is estimated at 39,300, that is 7% of the total population of the left bank. About 4,300 people, 11% of the total population, is on migration. (1) The small Soninke population and the number of migrants underestimate the economic importance of migration because the Soninke have a rate of repatriation of income considerably higher than the average of the immigrants in France and moreover to those of the Senegalese migrants of other ethnic groups. The rate of migration for the total male adult population varies between 30 and 50%: female migration is insignificant. The immediate consequences of this state of affairs is a scarcity of labor during the cropping season and an influence on the fecundity of women because the migrants are male and the migrations are of long duration.

The principle and permanent characteristic of the Soninke migration is the maintenance of links with the village. In fact, while the seasonal or short duration migrations permitted a temporary contribution but a significant one to the food production, the present international migrations of long duration always maintain this contribution by means of sending an important amount of money from the migrants' savings. The other characteristics concern the place of migration, the age of the migrants and the date of the first departure, and the duration of the migration.

The emigrants are first and foremost in France. The history of the colonization which occurred in the Senegal river area explains the migrants' destination. Colonization, with first the forced mobilization of the labor force (colonial infrastructures, army), and then the importance of trade on the river with is attested to by the past prosperity of Bakel, caused the extraversion of the labor force, which found employment on boats travelling up and down the river, and, after 1914, in the merchant marine. Thus a solid network of migrants which was used during the migratory "boom" of the 1960's was created.

- (1) The average rate of migration of the four villages (Balou, Koungani, Gande, and Goumal) with a population of 4,860 people, was 12%. The Soninke population of the south bank is concentrated in the department of Bakel and the arrondissement of Seme (Department of Matam) where 95% of the south bank Soninke live. (CF "Demography"-Etude socio-economique - OMVS - 1979.)

Meanwhile, other migrations (to other African countries and Senegal), which are also explained historically by the very old commercial networks of the Soninke and the development of peanut cultivation since the end of the 19th century, are not negligible. They represent, especially for West-African migration, an uncertain alternative to migrating to France, which has been stopped since 1975.

With regard to the age of the migrant, it varies greatly, because migration has an effect on all age groups. (1) Depopulation caused by migration begins at the age of 25: this relatively advanced age, which is explained by the cost of international migration, is compensated for by the impact it has on the following age groups.

Generally speaking, it is noted that the total duration of migration is getting longer: this is due to the fact that the replacement of migrants by younger persons is more and more difficult, because of the restrictions on migration which have been imposed. (2)

The second migration appears to be much shorter than the first: this is explained by the type of migration observed, which necessitates a high rate of indebtedness and a stay of several years in order to repay these debts and to potentially save some money.

What are the actual tendencies of migration?

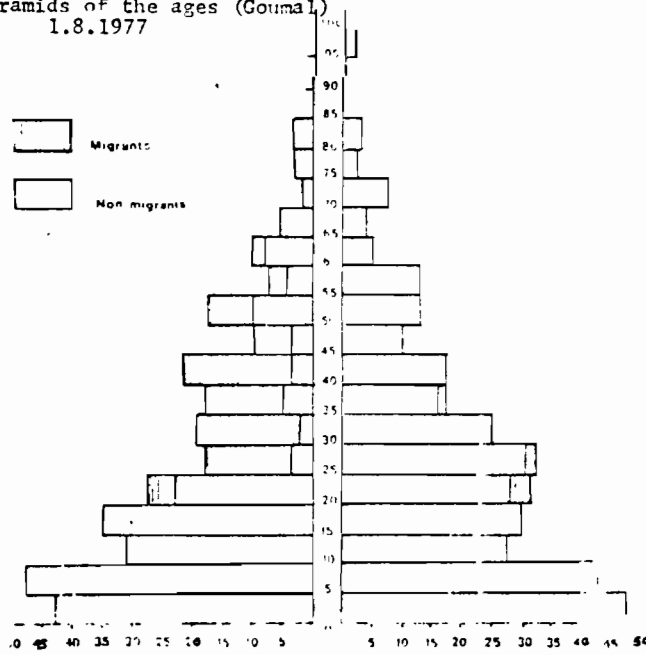
In the first place, a disappearance of the specificity of the Soninke migration in favor of a homogeneity of the whole zone from Bakel to M'pam. In fact, during the 1960's and 1970's, the gradual impoverishment of the local economy under the effect (among others) of the drought, and the prospect of large incomes from encouraged migrations, blurred the ethnic or historic determinants, which had been factors of differentiation.

In the second place, the big problem of Soninke migration is the effective blockage since 1975 of migration to France, which has consequences not only on the destination of the new migrants but also on the behavior of the migrants already there. New destinations have had to be found or old ones rediscovered: they include especially West Africa (Ivory Coast, Congo, Zaire, Gabon) and the merchant marine, but also to a lesser extent certain Arab countries (Gulf states, Libya). Something of the migration has also modified the behavior of the migrants living in France: these modifications affect the duration of the migration which has a tendency to become longer, and the savings which have a tendency to increase and of which a small amount (this is a new phenomenon but one which is important) is allocated to the purchase of farm equipment or to the subscriptions of the production groups which are cultivating the irrigated perimeters.

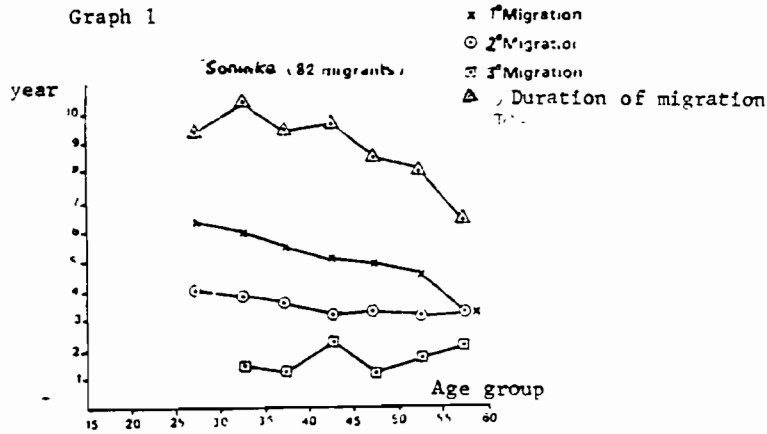
(1) CF Pyramids of ages page 8

(2) CF duration of the migratory life page 8

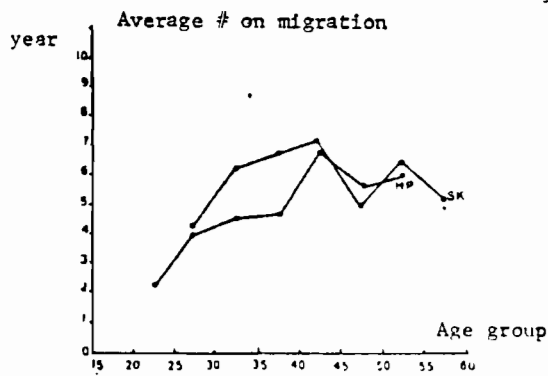
Pyramids of the ages (Goumal)
1.8.1977



Graph 1



Graph 2



HP Haelpular (65 migrants)

SK Soumka (82 migrants)

THE SYSTEM OF PRODUCTION

Ecological Constraints

Until the start of the cultivation of irrigated perimeters, the Soninke peasant was dominated by ecological constraints. The development of the two cultural cycles (rainfed, flood recession) and the production that resulted from them varied as a function of the flood the rainfall, and the local geomorphology.

The analysis of the rainfall data shows that the situation for rainfed production is clearly superior in the Bakel region compared with the Middle Valley and the Delta. The average rainfall even shows a distinct difference between Bakel and a town of the Middle Valley like Kaedi¹, a difference which becomes even more clear when the regularity and distribution of the rain fall is considerable. Thus, the specific advantage of the soninke zone is clear: it provides a greater protection against drought than the Middle Valley. This protection is accentuated by the lesser importance of rainfall deficits in the Upper Basin.

An analysis of the hydrological data shows that the zone of Bakel, like the whole of the Valley, is subjected to the current sequence of dry years. The Bakel area suffers less in a year of low flood than the Middle Valley. The advantageous situation of the Bakel zone once again is clear.

The geomorphology of the region determines the types of land that are available to be cultivated by the Soninke peasants. The population lives bordering on the Valley, with the exception of a few villages: the geomorphology of the region is above all that of an alluvial valley, the more so because the villages not on the bank of the river which have been mentioned above, mostly have access to cultivated land thanks to the alluvial nature of the Senegal River.

The names applied to the different kinds of land below Bakel distinguish the falo, the foonde, the waalo and the jeeri.

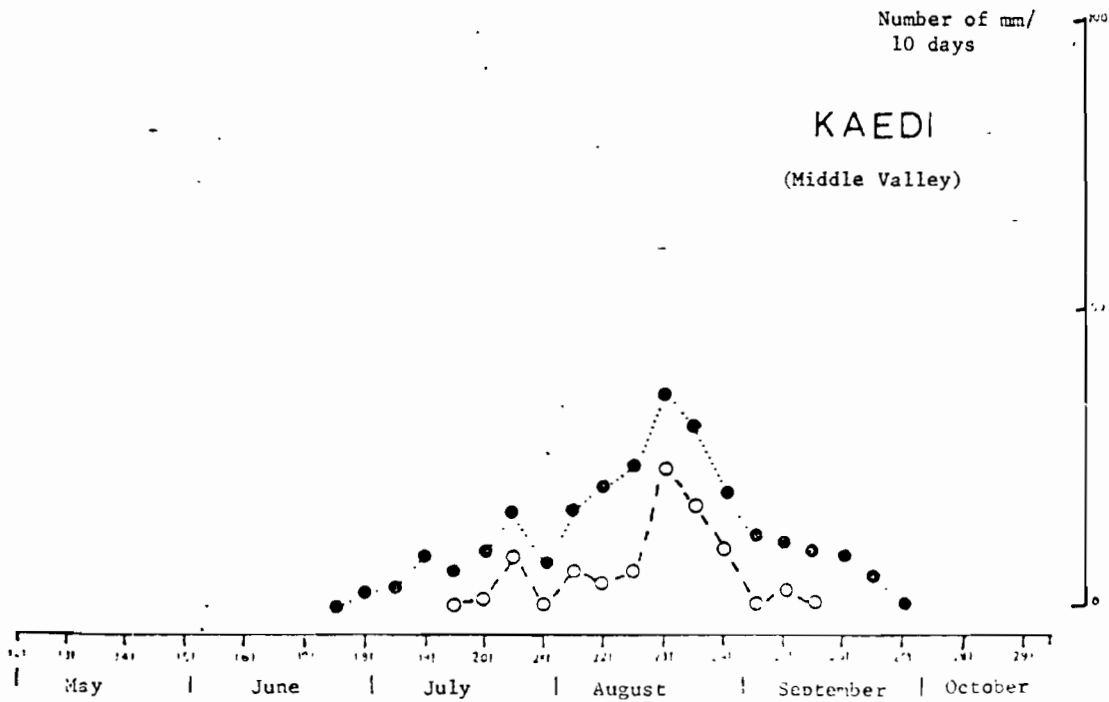
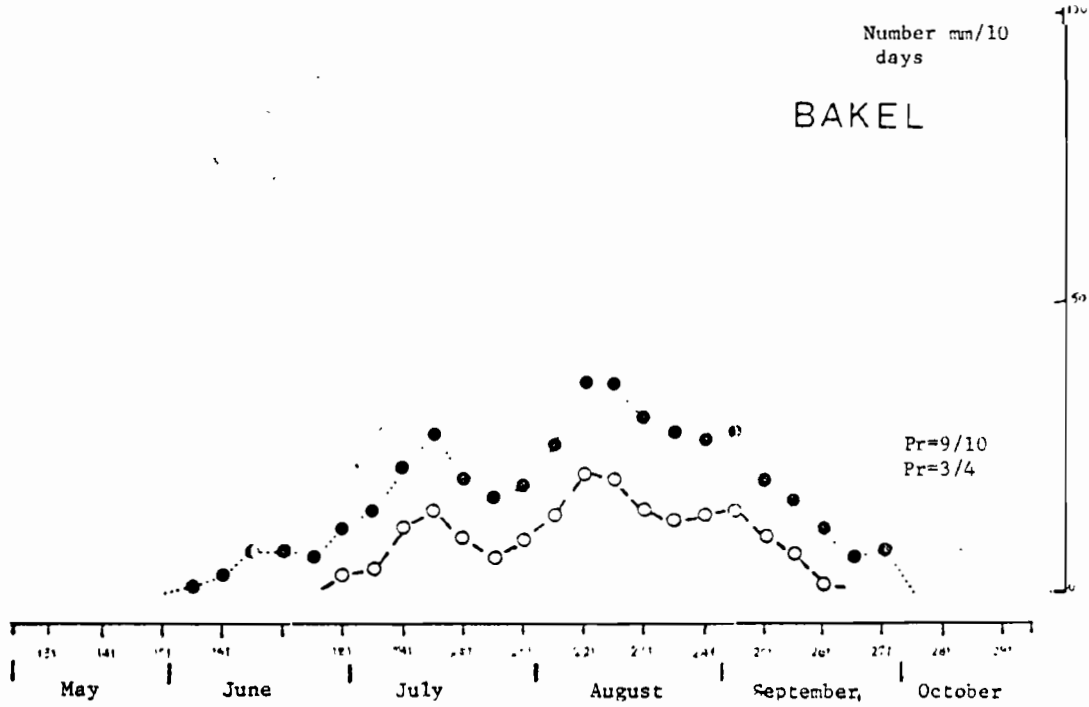
The falo includes the cultivation along the banks of the river or the tributaries of the alluvial valley on recent geologic deposits. The fields, which can stretch right down to the edge of the water, are used for vegetable or sorghum production.

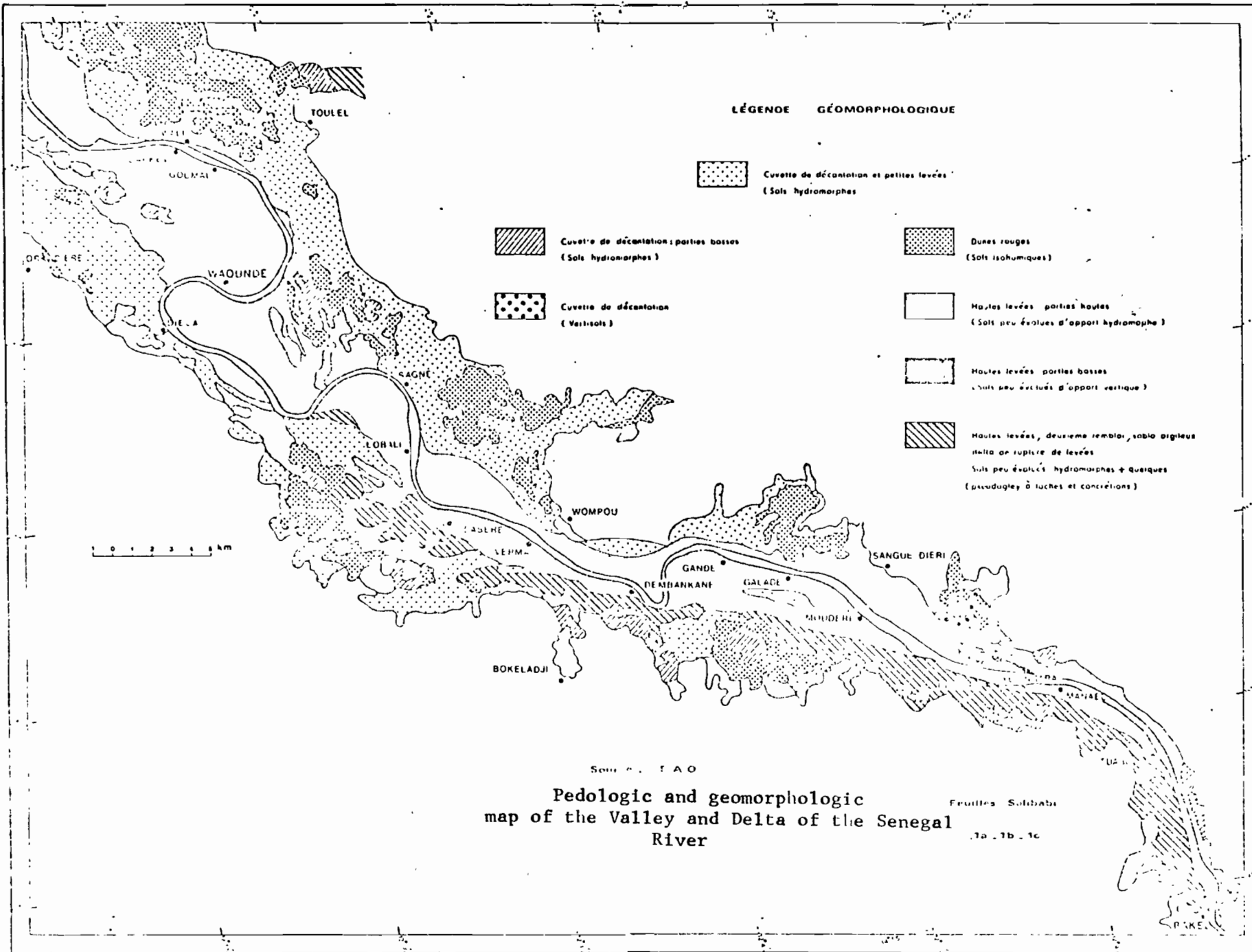
The high banks, formed by the alluvium of the Senegal (post nouakchottian deposits) or the more recently deposited levies formed by the river undermining the old levies, provide the land of the foonde, which are rarely, especially in the present drought cycle, touched by the flood. These are principally cultivated in the rainy season but also in flood recessions depending upon their topography.

The walo is the collection of basins situated behind the levies of the foonde, which is most often flooded by the river and is cultivated after the recession of the water. Various categories of walo can be distinguished in relation to the texture and composition of the soil: in particular the walere and the hollalde.

1. See graph 1 pg. 10

Graph 1: Probability of the Occurance of Rain





Map of Physical Geology and Pedology of the Bakel-Maounde Region, Senegal River Valley (Map 2)

Finally the high land which is dry is called the jeeri and cannot be flooded; it is only cultivated during the rainy season.

This nomenclature induces problems of precision because within the general scheme intermediate zones which are not clearly defined play an important role: the imprecision disappears partly by using local terminology.

So it is necessary to distinguish between ouso and falo. The first, already described by Bathily and St. Pere, were the lowest part of the cultivation of the banks with a slight slope, as opposed to the faloni, the part which has a greater slope and is higher up the bank.

A survey of the foonde diam-diam of Goumal (Haire) show the distinction between a mixed soil of sand and clay of coarse texture, little developed of hydromorphic nature called signakape situated on the high parts of the foonde called fare, and the hydromorphic pseudo-gley with spots and concretions called niine dumbe situated on the lower parts of the foonde, that is the napo in the case of small depressions or khare in large depressions.

The assimilation of the jeeri in the dune zone and in the pediplaires is frequent. The first are called guillu and have the signakape soils (according to our observation this is a term also used to describe the soils of the foonde), signakhole soils composed of light colored sandy deposits, and the sandy soils with a certain quantity of fine sediment called niarwalle contiguous with a soil with a greater concentration of clay called katamagne. (1)

The basins in the wallo are called kollanga, the classification is the same as that made by the Halpulaaren of the middle valley: walere, and hollalde white, black or red. The "pulaarisation" of the wallo terms is explained by the geographic origin of the Soninke of Goye and of the Haire for whom, formerly, the rainfed cultures of the jeeri or of the fonde represented major activities in crop production, as is the case for their related people of the Guidimakha.

Employment of the labor force

Units of Production

The production group and the consumption group are those of the ka: this extension of the term ka, from the sphere of the habitat, to that of production and consumption, is permitted by the recent autonomy of the residence groups in the matter of production and consumption. In fact, the breakdown of the patrilineage and the development of the relationships within it are responsible for the abandoning of the term kore which was the most precise for defining a production and consumption group.

Indeed, there is an almost perfect super-position of the residence group (the ka in a strict sense) and of the group of production and consumption.

The change characterized by the segmentation of the patrilineage is

(1) Bradley, Raynaut, Torrealba: War on Want. London, 1975, page 26.

manifested by the reduction of the number of people in the ka and by the modification of the relationships of production and consumption in their midst. In the traditional organization of the society, the production and consumption group, which united besides the members of the segment of the lineage the dependent captives of kagumme (head of the family) was characterized by the principle of redistribution of the product between the members of the patrilineage which reflected the similarity between the unity of production and of consumption. This system was stabilized by servile work which permitted the oldest to accomplish his duties of redistribution because he was assured the provision of a certain quantity of product due to the overworking of the captives. The liberation of the captives, pacification and islamization explain this change.

But finally the statistical survey makes relative the process of segmentation and indicates a certain indivisibility between the unities of production and consumption as well as that of residents. The group of production and consumption is under the authority of the kagumme, who controls the dominant production relationship(1) which is established at the time of the starting of the crop production in the large field (te khore) and who adds to his power by the management of the remittances from the migrants, necessary to overcome the food deficit and to assure the survival of the society.

The average size of a ka is 16 people. It is appreciably larger than the units of production and consumption of the Halpulaaren, which average 10 people per foyre (2). The strong dispersion of these foyre, the opposite of that in the hapulaar sample, shows the permanence of the large groups of nobles, (hooro), on average 20 people, and that of the small units of captives (komo) and craftsmen (nyakhamala) averaging 12 people. These figures indicate the survival of the large families established under a production organization based upon unequal profits between the oldest and the younger and the use of servile work. When the composition of the production unit is analyzed the most notable fact is the absence of male workers in all the ka. The detailed composition of these groups corroborates the importance of the effects of migration, because in the age group of 15 to 59 years, the number of male migrants is almost equal to the number of workers present. And so it is the young age groups and the women, who hardly migrate or a worker proposed as a substitute, who will be led to play an important role during the cultivating season.

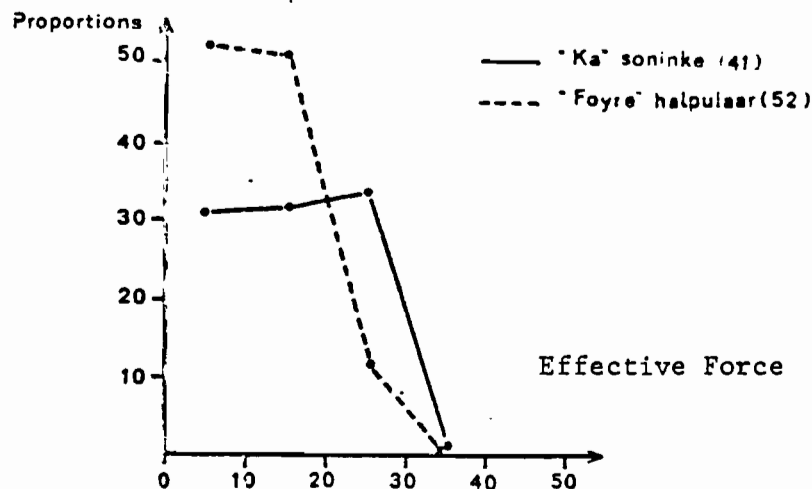
- (1) The study of the results of production and the organization of land tenure shows the permanence of the customary relationships even if they have been modified.
- (2) Cf. A.B. Diop ("Societe Toucouleur et Migration" IFAN. Initiations et Etudes no. XVIII - Dakar 1965) who develops the idea of a foyre (pg. 23)

Table 3 - Average Composition of the ka (1)

Age Groups, Years	Males		Females		Total
	Present	Migrants	Present	Migrants	
0 - 7	1.6	-	1.9	-	3.5
8 - 14	1.8	-	1.4	-	3.2
15 - 59	2.2	2.03	5.0	0.1	9.33
60 or over	0.44	0.03	0.6	-	1.07
Total	6.04	2.06	8.9	0.1	17.10

(1) Based on a sample of 59 kane with a population of 1009 people.

Graph 2 Distribution of "Ka" and "Foyre" according to their effective force



The scarcity of labor, the cultivated areas, and the levels of production

The extent of the male migration explains the scarcity of labor, which is evident by the migration rate of the age group of 15 to 59 which may reach 50%.

The gap left by migration is only partly compensated for by the entry of the young age groups into the production process from the age of 8 to 10 years, symbolized by the attribution of a salouma (individual field), and by changes in the work of women. The low productivity of the young age groups makes their role relative although it is by no means negligible during the crop season. As far as the change in the women's work is concerned, shown by dropping of certain crops (cotton, indigo), it remains relative as is shown by the small number of women's fields appearing when the division of the plots of the foonde is studied². In fact the cultivation of

rained rice, of peanuts, of sweet potatoes, of bissap, and even of indigo, proves the maintenance of the women's specialization of crop production during the rainy season, which continues the need for a very specialized work and in this differs from that of the male workers.

The use of substitute labor would have been able to overcome the effect of migration. However, it remains quite marginal in the traditional system of production, contrary to that in the irrigated system, where the higher yields obtained and the monetarization of a slight surplus of production provide the profitability for the employment of substitute labor by some individuals.

Our tables' results show the small contribution of seasonal workers, both for the rained cultivation and for the flood recession, cultivation and the amount of women's work involved principally during the sowing and caretaking for the two types of production, somewhat greater in the flood recession cultivation because the women are not involved in their own crop production at that time.

Within the production unit, the division of the areas cultivated indicates the different organizations of work; schematically, according to the sex of the participants and the type of the crop. In fact the organization of work introduces a typology of cultivated plots whose area is very variable: on the one hand the fields cultivated exclusively by the women during the rainy season, on the other hand the big fields (te khore) cultivated principally by the men either under rained or flood recession conditions, and the individual fields (saloumo) cultivated exclusively under rained conditions by the male workers.

The total area cultivated by ka can be estimated at seven hectares, or 1 hectare per worker¹. The relationship between the area cultivated in flood recession and that in rained agriculture varies as a function of the use rights of the ka for the respective types of land: it also depends on the ecological conditions (flood and rainfall, the geomorphology, and the topography): nonetheless it can be estimated one half of the rained area².

These figures show the great importance of rained cultivation for the Soninke and are different from those of the Middle Valley where the relationship can be the reverse, indicating the importance of the waalo for the Halpulaaren of the Valley.

The average area of the women's fields shows an individualization of cultivation comparable to that of the saloumo. Two major types can be distinguished³: on the one hand, the fields of rice with an average area of

- 1 Figures applicable in a good year in the sequence of dry years as in 1978.
- 2 The fluctuation in this relationship is based on the situation of each village. Nonetheless the observations, which apply to the villages of Goumal and Mouderi, are adequately representative of all of the villages in the Soninke Zone (with an abundance of foonde, and existence of waalo, falo, and jeeri).
- 3 Some other minor crops should be added (indigo, bissap. . .).

0.10 ha¹ and on the other hand the peanut fields which are much larger, on average 0.3 ha².

The total area cultivated by the women of the production unit estimated at 2.2 ha, 0.4 ha per woman worker. These womens' fields are situated in the low parts of the foonde (khare or napo) as far as the rice is concerned, and in the dune zones of the jeeri (signa), for the peanuts.

The area of the fields cultivated principally by the men are very variable, depending upon whether we are discussing the large fields in flood recession cultivation, the large fields in rainfed agriculture, or the individual fields cultivated in rainfed farming. There is also a difference in the organization of work depending upon the season and the type of culture (waalo or falo on the one hand and foonde or jeeri on the other).

In flood recession cultivation there is no allocation of plots to individuals. The reason given by our informers for this situation is that division into too small plots would make the quantity of the production belonging to and organized by the kagumme negligible and this would introduce a relatively large amount of the production being in the hands of the other heads of households (or their wives in the case of the absence of the head, because the sons give the product of their fields to their mother up to the time of their marriage) which would lead to the autonomy of these households.

In rainfed production, the organization of work leads to two types of fields: te khore (big fields) and salouma (individual field). the majority of the production units have at least one te khore under cultivation (see Map 3) and one or more salouma, although the minority represents either the production units that do not have male workers present and in which the women and children, the sole cultivators, do the farming uniquely of individual plots, or the units which have a very restricted labor force (a couple and their children).

On average a production unit cultivates one te khore of an area of 2 ha and 1.5 salouma with an average area of 0.7 ha, or 3.2 ha³.

The low level of food production is really apparent. In practice a production unit on the average of 2 years in the present sequence of dry years (1 good and one bad year) only produced 1700 kg of millet in grains, or 350 kg per worker or 90 kg per person present, and 600 kg of rainfed rice or 110 per worker or 30 kg per person, and only 860 kg of peanuts, or 160 kg per worker or 45 kg per person present, and lastly a few minor crops (vegetable production on the faloni, indigo, bissap...).

- 1 A sample of 50 fields in Mouderi in the rainy season of 1979.
- 2 A sample of 266 fields in the survey of Koughani by A. Adams, rainy season, 1977.
- 3 A sample of 12 production units including 237 people present.

This level of food production does not provide an adequate standard of living: the revenues remitted by the migrants are not only used for the cereal deficit but also allow for the development of new types of consumption. This definitely assures a standard of living appreciably superior to that of the neighboring zones.

THE ORGANIZATION OF LAND USE RIGHTS AND THE RELATIONSHIPS OF PRODUCTION

Land Use Organization

The system of land tenure for the different types of land cultivated were traditionally characterized by the fact that access to the land was dependent upon the existence of previously defined social and political relationships.

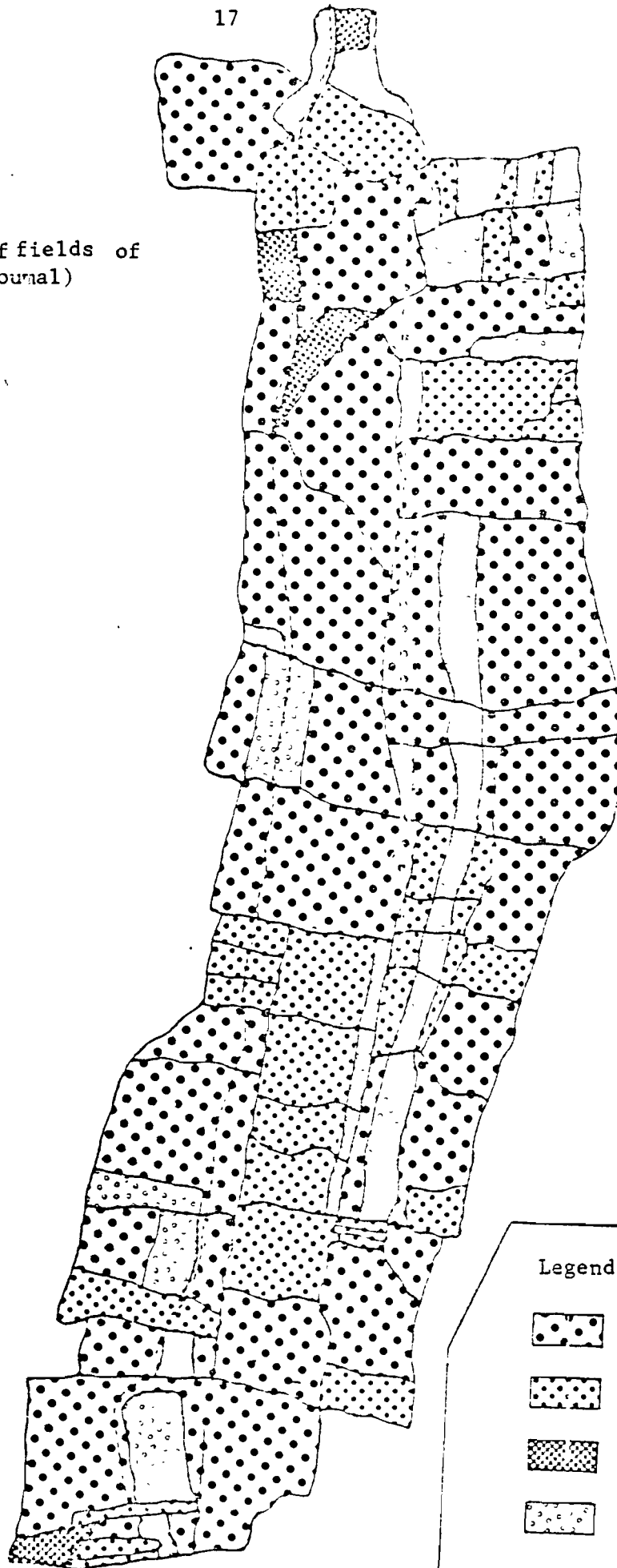
The political relationship involved the clans or the confederations of clans which made agreements (jonnu) limiting their settlement area and dividing the land within the confederation. The age of the settlement, the military power or the hierarchization of the lineages determined these divisions.

The social relationships were characterized by a strong hierarchization between the individuals, based upon the domination of the nobles (hooro) over the captives (komo) and the craftsmen (nyakhamala) and of the elders over the young. The source of the power resided in the control of the means of human reproduction (subsistence and wives) accomplished by various means (dowries, matrimonial strategies, endogamy) and not in the control of the use of land or that of the means of production which remained quite rudimentary (no animal traction). The modalities of land tenure and those of the organization of work illustrate the dependency relationships exercised by the draconian control of physical reproduction of individuals. Thus the control of land use did not appear in the first plan: it was other modalities of social control of the producer which permitted its exercise.






The relative transparency of the land use relationships is explained by the maintenance of the traditional social organization. In fact the hierarchization of the society and the existence of dependent relationships are maintained in a degraded form in spite of the disturbances a priori radical which demand the abolition of slavery and the promulgation of the land use laws.

The dependency relationships manifest themselves in various ways depending upon the social relationships which tie the individual to the master of the land or the lineage requesting to the lineage of the master of the land. The negligible character of the rents in labor or in production which solidify these dependency relationships is often emphasized: in effect, the level of the rent is limited by the low productivity of the labor and the local price of sorghum. But it is no less true that the giving of gifts, in relation to a previous agreement, is necessary before the beginning of cultivation. The terms of this agreement are above all a function of the statutory relationship between the requester and the master of the land that equally obey economic factors such as the differences in productivity of the work or the scarcity of land.

The different types of fields of
Foonde Diam-Diam (Gourmal)
MAP #3



Legend

-  te khore
-  salouma
-  womens' fields
-  uncultivated areas
-  Trail

towards
Waounde

scale 0 100m

Within a segment of the lineage (a group of half brothers or full brothers and their descendents) the actual system of control of the land is characterized on the one hand by the permanence of a traditional law, which is the management of the family land by the oldest of the lineage segment (even if the members of the group are consulted) and on the other hand by the introduction of an individualized control, assured by the inheritance of the older brother or of the father, which can be effective even after the death of the individual, when the inheritor reclaims his rights.

In a general way, the kagumme reclaims, in a way that cannot be done by the members of the ka, control over certain lands which had been divided between the cultivators of the ka (this division is susceptible to modification) and the title of the niine gumme (master of the land). But other lands can be simply granted by the oldest of the lineage segments to this same kagumme which may divide them (niineyimanke) without having the control over them.

The system of allocation of land presents a hybrid characteristic because it is based at the same time on the traditional dependent relationships and on the contractual relationships between individuals or lineage segments, which shows the very rapid depersonalization of social relationships. The two forms of allocation are not exclusive because the individuals or lineages concerned can be involved in the two types of relationships depending upon the category of land cultivated.

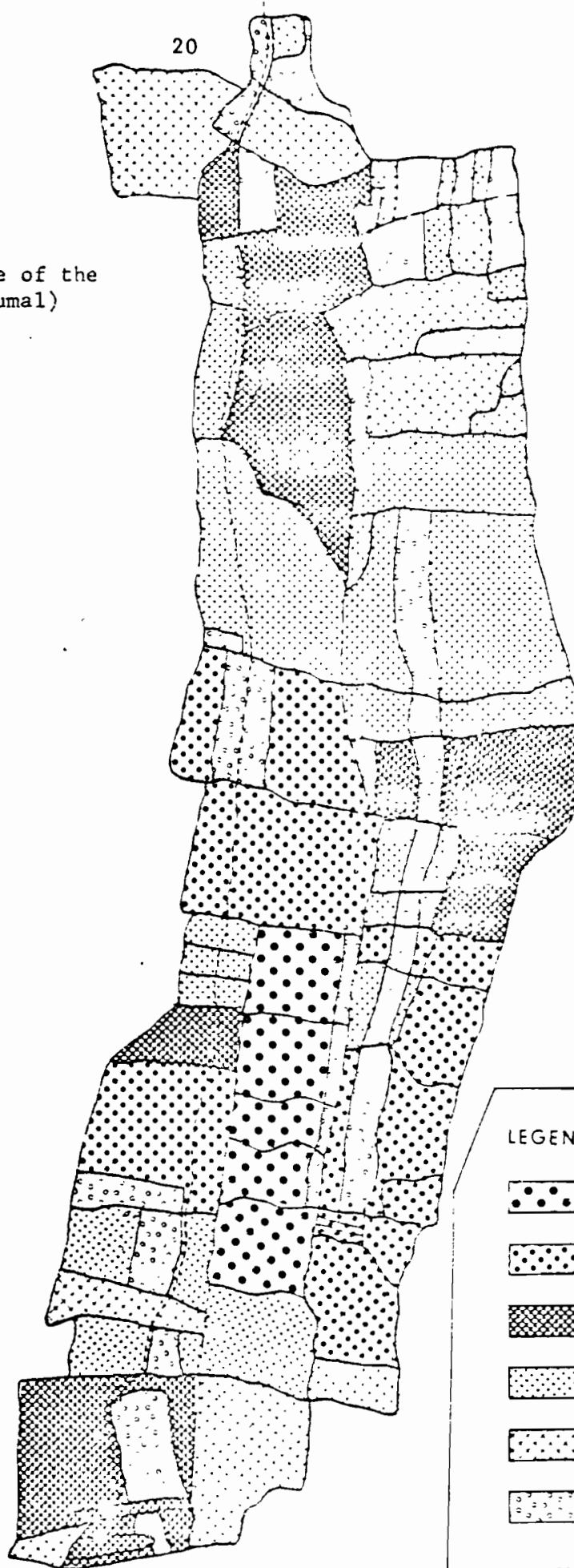
The relationships of land use which are established between nobles, between nobles and captives, between nobles and craftsmen, perfectly demonstrate or in a degraded form in most cases, the traditional dependent relationships.

The admission of noble families from outside into the village could only be approved by providing a transmissible right to use the lands to be cultivated by this segment of the lineage. In the village, the individuals in question would only be recognized as te gumme (master of the field) and not niine gumme (master of the land). This situation on land use implies also the payment of the dyaka (assakal) on all the cultivated lands. Depending upon the type of land, a third of the harvest (te xande siko) or a gift (muso) of some of the produce or in money on the waalo, falo and lower part of the foonde, is paid.




The nature of the system of land use is the most perfect in the case of gifts of work given by the descendents of the captives for the benefit of the descendents of their traditional masters. These gifts are obtained for all types of land and the choice of the partners is established in relation to the old rules of inheritance of the servile labor force. In this case, the descendent of the captive works on the field of the noble one or more mornings per week and in the afternoon on the field which the noble has given to him often in exchange for rent. This land use situation is referred to as sorana (common cultivator) which applies not only to the descendents of captives working on sorghum or maize but also on captive women working on the fields of women coming from a lineage niine gumme.

But the old servile relationships, even if they are not expressed any longer in the payment of rent in the form of work, determine in most cases

Map 4: System of Land Tenure of the Foonde Diam-Diam (Goumal)



LEGEND

-  jamankafa nine
-  xabila nine
-  nine gumme
-  te gumme
-  sorana
-  Superficies non cultivees
-  Piste

Echelle 0 100 m

Waoundé

the action of the protagonists in the allocation of land. The land use rights which are claimed will be that of the te gumme (master of the field). In the same way for the sorano, the cultivator can ask other people if the descendent of his ancient master does not have flood recession land available.

The craftsman (nyakhamala) was party to a relationship of clientele which associated him with a noble ka. This privileged relationship seems progressively strained following the loss of economic power of the noble. The consequences bring a diversity of clientele and a certain reconversion in the same way for the nobles, in the work of cultivation. Progressive autonomy of the craftsman vis a vis a relationship of privileged clientele (which never expresses itself in systematic labor prestations) explains the frequent making up of contractual arrangements to obtain use of land, even if the preferential allocation, according to the traditional clientele relationship, is still in force. The land use situation of craftsmen is normally that of te gumme¹.

The relationship of dependents or that of clientele does not exclude the making of contracts of share cropping or leasing without personal relationships: this could be the case with individuals belonging to the types of relationships described above (nobles, captives, craftsmen) who lack land or the descendent of captives requesting the noble clans for obtaining a field and apparently not delivering a labor prestation. It is flood recession fields but not exclusively, which are concerned with this type of contract because their rarity encourages the peasant who does not have access to them to try to obtain a field from a ninne gumme or a te gumme who may not be the noble which whom they are associated.

The terms of the contract vary according to the type of land concerned: it may just require the payment of dyaka on jeeri fields or for the high fonde, or this as well as a third of the harvest (te xande siko) on a field of kollenga or a sum of money for a falo field or for the cultivation of one or more years of a kollenga field.

Production Relationships

The social hierarchy of the Soninke is established according to age and caste² (hoore, nyakhamala) or to the servile class (kome). The condition which allows the perpetuation of this inegalitarian organization is the control, on the part of the oldest person in a noble lineage, of the physical reproduction of the younger and of the captives. Differentiation between these two types of relationships of production is necessary. The details

- 1 In extraordinary circumstances it could be that the ninne gumme when land has been given or purchased.
- 2 We refer to the assimilation by Pollet and Winter who speak of the noble caste in reference to the situation that each person in hierarchy system, and to their specialization in the work process.

of the organization of work between the oldest and the youngest are based on the division of the workday into the morning, during which all of the members of the work cultivate collectively on the large field of which the production is managed by the kagumme, and the afternoon, during which each member cultivated his individual plot of which the production is managed by its holder, and sometimes gave many labor prestations in accordance with the principle of "collateral seniority" (it only took place during the period of weeding of the rainfed crops).

According to the ideal scheme of the application of seniority, the work of the afternoon would be organized in the following way: apart from the kagumme, who continues as usual to work on the te khore (large field) during the afternoon, all the other members including the sons and nephews of the beneficiary will go and work on the field of the oldest brother, then on the field of the second in order of age, and so on. Meanwhile each time the beneficiary of these labor prestations of time will stay and work on his field (application of the principle of collateral seniority).

This type of organization has become less common compared with that which consists of cultivating one or more ta khore without the application of collateral seniority. The work organization characterized by continuing work in the morning for all the members of the group on the large field and the abandoning of labor gifts arranged in order of age on the individual fields cultivated in the afternoon has become the most common. This tendency to individualize the relationships of production is partly explained by the desire to obtain autonomy on the part of the younger and sometimes of the kagumme himself. The maintenance of the dominant relationship of production, which associates the kagumme and his dependents in the work of the big field in the morning, definitely reduces the importance of the progressive disappearance of the application of "collateral seniority."

The organization of community subsistence can be adapted in a way that permits a certain individualization of the production relationships within the ka, which preserves the authority of the kagumme who still controls an important part of the total production, and authority reinforced in part by the management of part of the savings from migrations.

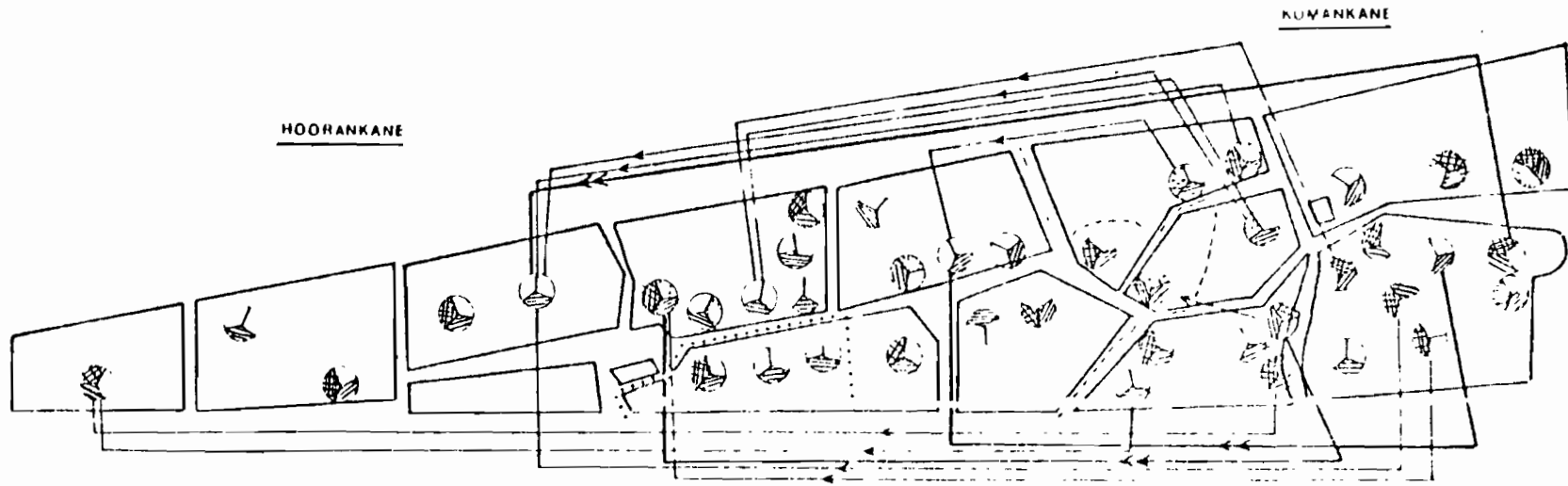
The examination of the work organization between nobles and the descendants of the captives helps in understanding the bases on which the traditional production relationships have been organized¹.








In the first place it appears that the principle of collateral seniority is partially practiced, because it is found on 25% of the kane having at their heads a descendent of the captives. Also the process of emancipation has permitted reinforcing the constitution of some lineages which had adopted the principle of traditional organization of work of the noble families. This phenomenon contributes to making relative again the process of the breakdown of the family groups, presented as being irreversible.

1 A survey done in the Haire (Goumal) where the traditional organization has been better preserved because of the lack of access to the region. The sample covered 264 people, 237 after deduction of the migrants, grouped in 41 kane.

VILLAGE OF GOMAL:
PRODUCTION RELATIONSHIPS

Graph 6



-  Collateral Seniority
-  Individual Field
-  Collective Field
-  Ka Unity of Residence
-  Limit of the nobles or captives area (KOMANKANE)
-  Limit of the craftsmen's area
-  Labor prestations (1 person)

Characteristics of an important part of the kane (37%) are labor prestations, provided by the majority of their male workers during the crop season continuing in a degraded way the old system of exploitation of the servile labor. The prestations are accompanied in all places with land tenure which varies according to the type of land cultivated, of which the beneficiary is the same as the person who gives the work.

As an indication of the ancient state of subordination, the cultivators who are descendants of the captives, without being givers of work, can request to obtain a field from the family on which their ancestors depended. In this case only the payment of a rent determines the dependents' relationships. This is the most common production tenous relationship because it is found in 41% of the kane in which the majority of the members follow this practice.

Finally, in a minority of the kane (22%) the majority of the members address themselves to any noble lineages to obtain land.

These three types of relationships of production cover all of the situations because a descendant of a captive, except at Bakel, is only very exceptionally considered as the master of the land.

It is the monopoly of the lands by the noble lineages which is the condition or the degraded reproduction of the traditional social relationships. But it is not the rent from the land, of which the amount is quite small, which is the basis in itself for the class relationship: the economic condition of the individual in a society characterized by such a method of generalized migration does not determine its social condition.

CONSUMPTION AND ACCUMULATION

Consumption

It is clearly apparent that the region has seen the development of consumption of products from the outside, a development which has been accompanied during the present sequence of dry years by a deficit in cereal production. These importations vary with the year (rainfall and flood) and between villages (supply of flood recession land, existence of irrigated perimeter). To the extent that the consumption of imported products becomes general answering the needs of survival (cereal deficit) but also increasing the level of living, the modalities of consumption have been disturbed only because they no longer apply exclusively to domestic production.

The consumption group provides the relationship for the members of the production group: the term kore is applied to both entities and can be enlarged to include captives and craftsmen, thus embracing the dependancy relationships of clientele and occasionally to members of the lineage and their allies.

-The rules for the redistribution of the domestic production reflect the homology between the process of production and consumption; the individual contributions were fixed in relation to the disposition of cereals to each

person, determined by his place in the organization of production (the oldest who benefits from his own work and that of his dependents was the principle provider of the group).

-As far as the commensal relationship is concerned, the consumption group is more open, because of its very function, to members of the lineage, to strangers, to dependents, and to the members of the age groups of those within the consumption group. During the course of the three meals per day, the men eat by themselves and the women form another group, thus reproducing the separation that exists in production.

In relation to the changes which have intervened, the modalities of consumption have been reorganized.

-The decline in the practice of labor prestations by the descendants of captives, and the principle of collateral seniority, has resulted in an increase of the part of the domestic production managed by the younger men and a corresponding reduction of the proportion managed by the kagumme. The changes which have taken place in the production process explain the new relationships of consumption between brothers, sons and fathers, nephews and uncles, characterised by an increased degree of autonomy on the part of younger brothers, of nephews (in relation to their uncles) and a more direct dependence of sons in relationship to their fathers.

-In the first place, the establishment of an extraverted economic system, following a massive migration of the labor force, seems to have accelerated the process of autonomy of the members of the group in relation to the kagumme. Meanwhile, the conditions of migration, characterised by taking care of the migrant and the mechanisms of indebtedness, do not free the younger brothers or the sons from dependence on their elders. Thus, for example, the analysis of the distribution of the savings repatriated shows the centralization of savings within the ka and above all the maintenance of the power of management by the kagumme who manages the larger part of the savings. The part given to each wife permits as well as the new conditions of distribution of the domestic production a relative economic autonomy in the nuclear family of the migrant. This can be manifested by an individualized commensality of each household within each xube (living unit of a married woman), but this remains very rare, because the real consumption of the product is done in common, even if the preparation is done (by the wives) in turn. The rules of commensality have been the least disturbed, because even in some kane where the process of production is individualized (absence of the large field), consumption is on a collective basis.

Thus the consumption group remains characterised in the first place by the cohesion of its members. The group formed by a wife and her children normally has no separate existence except as the result of disagreements with the other members of the ka. The "cement" for this cohesion is at the same time the great degree of centralization of power in the hands of the kagumme, and also a potential autonomy of the households within the ka, an autonomy which has tended to increase in recent years through the disposition of a part of the migrants' remittances. In the second place, the almost complete identity between the production and consumption groups is still the same work group, can be divided up into several consumption groups.

Finally, observation of the consumption relationships shows their modification much more than any radical change, and more generally it shows the durability of the traditional organization, visible both at the level of residence and of production.

Analysis of budgets shows that the structure of consumption for individuals is mainly determined by the level of migrants remittances, the size of this surplus permits its use to provide for consumption of different things and explains the relatively high standard of living of the zone. All types of expenses are affected by this phenomenon which is of long standing, as shown by a study in 1958 which emphasised the importance of migrants' revenue, consumption has increased in recent years and especially affects food consumption. This development of new types of consumption makes local production relatively less important. To the extent that the migrants savings remain considerable, the equilibrium between food production and the need for subsistence is no longer basic to the standard of living. It is the migrants remittances which are the basis of the standard of living: they have introduced new types of consumption and they permitted (satisfaction) of the deficit in cereals during the years of drought.

Food is an important item since it represents almost 3/4 of the total expenditure, since consumption of certain items (sugar, bread, coffee) is developing and because of the substitution of commodities that is taking place (rice for millet, and fresh fish and meat for dried fish).

The actual food consumption, determined in part by ostentatious social needs, shows that most of the members of the society have left the subsistence

Table 4: Monthly expenditure per head. 1

	Value CFA	%
Food	2.235	71,9
Maintenance of <u>ka</u>	29	0,9
Health and hygiene	19	0,6
Transport	31	1
Clothing	41	3
Semidurables	6,5	0,2
Construction	316	10,2
Purchase of cattle	171,5	5,5
Purchase of jewelry	50	0,9
Farm costs	56	1,8
Ceremonies and gifts	100	2,2
Tax and subscriptions	45	1,5
Miscellaneous	10	0,3
Total	3 110	100

1 Sample of 12 kane comprising 237 people.

level. The products with the greatest consumption are mainly those imported to the region, except for the addition of quantities of millet, or rice if there is an irrigated perimeter, of fish of which only a small part is local and of meat. It should be noted that the average expenditures by category of food disguise great differences in consumption, in relation to income, for several products for which consumption increases faster than the total expenditure on food.

Accumulation

At present the source of savings in the village is almost exclusively migrants' income, which, after meeting the expenses of keeping the labor force or the non-working members, still permits setting apart money for savings or investments.

Table 5: Source of annual income per head. (1)

	Value (CFA)	%
Migration	25.600	71
Pension, rents, salaries	8.300	23
Sale of agricultural products	240	0,5
Sale of livestock products	1.020	3
Craftswork	120	0,5
Trade	<u>800</u>	<u>2</u>
Total	36,100	100

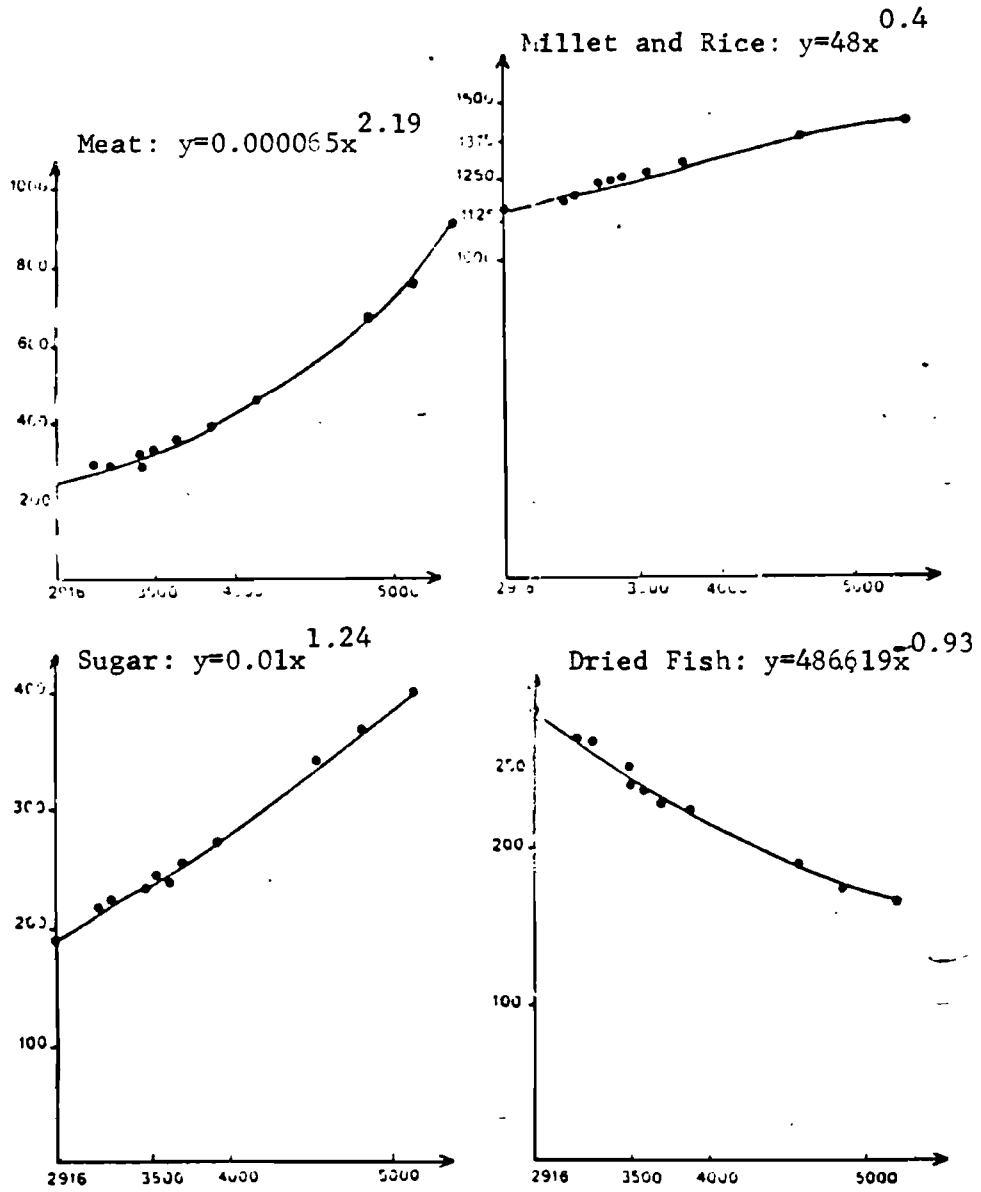
-In fact, the cereal deficit which arises from the sequence of dry years has almost completely suppressed the possibilities of sale or exchange of food crops, which was considerable in 1958; this excludes the vegetable crop production of the faloni. As far as fishing practiced by the Subalbe in east Damga and by the Somono in Goye is concerned, there is strong competition from the regular marketing of fish at Saint Louis or Dakar, which supplies certain markets of Goye (Bakel, Mouderi,...) and of East Damga.

-Livestock production, decimated by drought since 1972, has had to be rebuilt by reducing marketing of stock. The small surplus of milk and its products and a few sales of small stock, (since these herds could be more quickly rebuilt), has nevertheless provided an income of about 3% of the total.

-The high level of consumption of manufactured products, purchased at

1 Sample of 12 kane comprising 237 people. Survey of 1977-78.

Elasticity Curves with Relation to the Total Monthly Amount Spent on Food by Consumption Unit
Graph 3



Dakar, Bakel, or Matam, has rendered the production of local craftsmen marginal in value, except for the jewellers, blacksmiths and, to a lesser extent weavers.

The principle unit of accumulation remains the production and consumption group, with its centralized management by the kagumme of the sum of goods accumulated. He manages the food surplus, the captives and some of the fields. The application of the traditional rules of inheritance, which favor seniority within the collateral lineage, perpetuates the process of centralization of accumulated goods (land, captives, cattle), even if the malekite rite, generally applied to the minor goods, permitted the inheritance of an individualized accumulation.¹

To what extent has this highly centralized system of accumulation been upset by the new conditions of accumulation?

As far as saving or consumption is concerned, the social organization has an astonishing capacity (to depersonalize the migratory savings, although the analysis of the distribution and use of repatriated savings shows that depersonalization is more apparent in consumption than in saving), since an important part of the saving is now taken away from the village level for investment principally in real estate in Dakar. Actually, the repatriated savings are managed differently depending on whether they are sent by postal money order, or by a bank transfer, or are carried by the migrant; the two methods of repatriation are almost equivalent.

-The major part of the savings that are sent is consumed; some savings are made nevertheless, and these are mainly made by the kagumme because he controls over 2/3 of the remittances sent. The method of distribution reinforces his power, because he will manage the sum which was not used for consumption, and use it for investments in the common housing or in buying cattle. However, the amounts sent make the part appreciable that is managed by the wives, who thus obtain some degree of autonomy, or by the parents; these people invest the money in jewelry or in small livestock.

1 In fact, autonomous units of accumulation have always existed within the ka by the management of their own goods (small stock, captives, cleared or purchased fields) by which the farm unit might achieve to a surplus, the members of the group could individually accumulate the goods. But accumulation could also take place at a level superior to the ka. This could take place at the village level from subscriptions to purchase collective equipments, or from a savings account, or by an accumulation within the lineage, managed by the oldest (This mainly arises from farming the jamankafo or xabila lands).

THE EFFECTS OF IRRIGATION ON THE SOCIO-ECONOMIC SYSTEM

The introduction of irrigated production has brought modifications, on the one side on the modalities of the employment of the work force, and on the other side on the level of production and of marketing.

In permitting the cultivation of new land, it disturbs the organization of land use rights and the traditional production relationships. These disturbances also apply to the appropriation and disposition of the production that results.

The analysis of the details of the organization of the farm and the management of the perimeter, the methods of employment of the labor force, the cultural strategies of the peasants and finally of the level of production and of its distribution, enables us to understand the principles of the social transformation introduced by irrigation.

Organization of the farm and the management of the perimeter

As with the perimeters at Matam, each production unit, in relation to its size, is allocated one or more plots to be cultivated by all of the members of the ka. It is obviously the head of the unit of production who organizes the work on these plots and manages their production: this then becomes a plot farmed collectively which is assimilated into the traditional te khore. So in the cultivation and management of the products the plot become a faithful reproduction of the traditional organization. At this level the situation does not differ from the rest of the small perimeters (Matam, Aere Lao).

But it is the existence of the individual womens' plots and the collective fields which create the specific feature of the organization of the farm and the management of the Bakel perimeters.. In practice the individual plots of women confirm the phenomenon of the faithful reproduction of the sexual division of work in the traditional system: on one hand the fields of the unit of production (cultivation done principally by men) on the other the fields of the women. In the same way as in their traditional production, the production harvested on their plots is managed by the women and does not come into the hands of the kagumme (the head of the production unit) the majority of women in the labor force, reduced by the migration of the male workers, explains the importance of their area cultivated (32% of the total in the 1979 rainy season, Mouderi). Finally, the collective fields in the perimeters, a point of disagreement between SAED and the federation of cultivators, are cultivated and managed by all of the peasants in a sub-group (Mouderi there are four sub-groups). It is the head of each of the sub-group who arranges an agreement with the peasants on the days of work and the utilization of the product, distribution or sale. The present agreement between the producers groups and the SAED allows 30% of the total area of a perimeter to be cultivated collectively. Actually this area is very rarely attained: it is more often of the order of 10% (8% in the 1979 rainy season Mouderi) and reflects the marginal character of this form of operations which has known real preeminance over other forms of exploitation.

The myth of the "collective" has often maintained the ambiguity between this type of field, which can be taken into the traditional system to the jamankafo niino, and that also cultivated collectively but by a group which corresponds to a production unit, which enters the traditional system of the te khore (large field).

Irrigation and the production relationships¹

In terms of agricultural production a paradoxical situation is created: it is on the one hand the maintenance of the traditional production system and the privilege granted to irrigated production. An explanation of the strategies adopted by the presence in the employment of the labor force and of the type of crop chosen (rainfed, flood recession, irrigation in the dry season, irrigation in the rainy season) provides an understanding of this paradox. Within the production unit, the development of irrigation has not upset the organization of work. The sexual division of work is maintained because the allocation of irrigated plots to women permits it. This division is still accentuated because the minority participation of women in the production of the traditional fields or an irrigated within the unit of production (te khore) is reduced (in relation to a system of production without irrigation) a reduction which shows the interest of the women in irrigated crop production as well as showing the increase of the area cultivated under irrigation by the women .

If the participation of children in crop production has not been lowered, it is mainly found in the traditional system: there lower participation in irrigated production shows the importance given by the adults to this form of production which they prefer to be under responsibility.

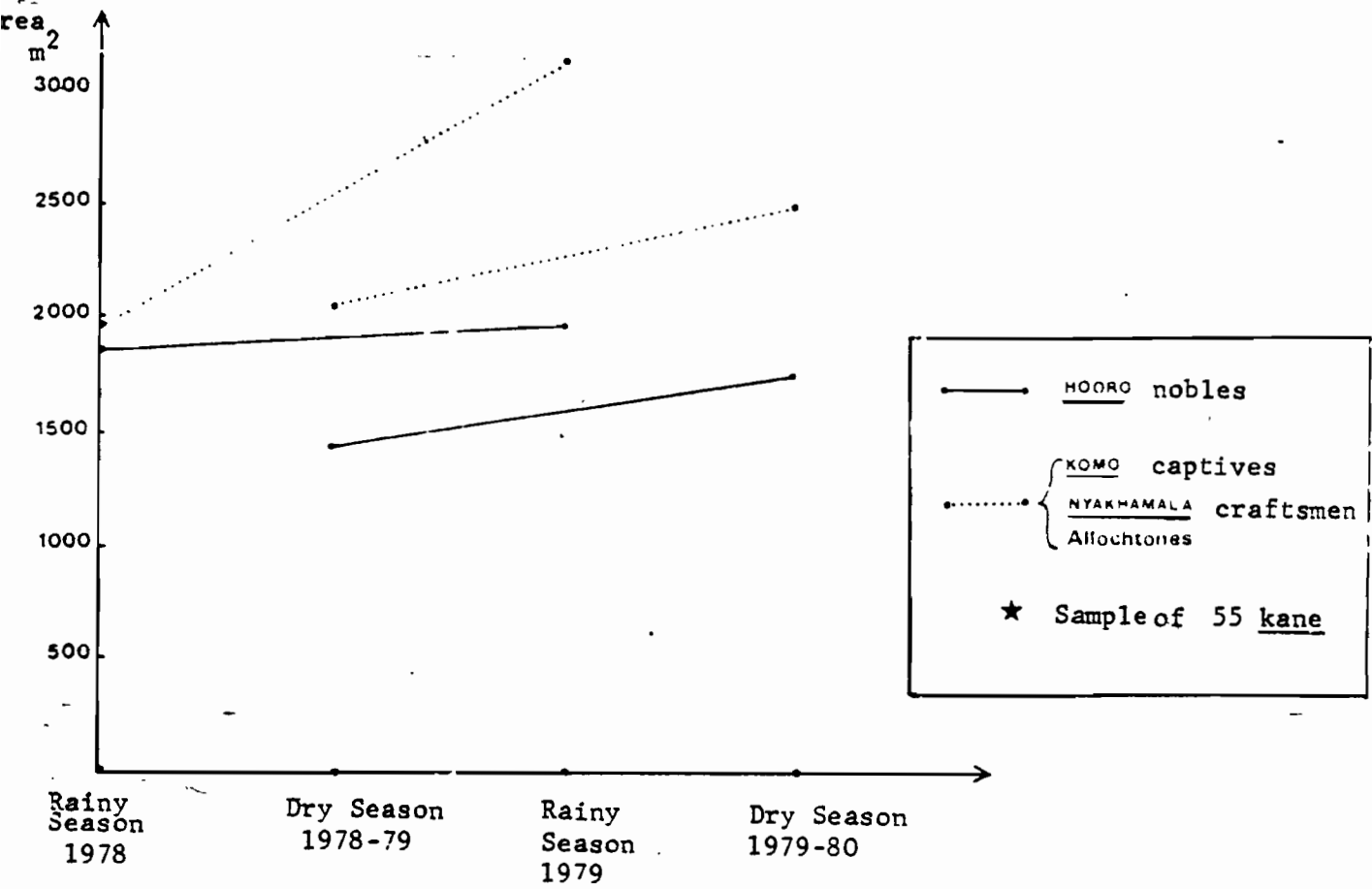
In fact these modifications in the utilization of the labor force are not the determining factors. The big innovation in relation to the traditional system, is the massive employment of paid workers: their participation which was negligible in the traditional crop production system, has passed to 8% since the introduction of irrigation, both in the dry season and in the rainy season. It is evidently the relatively high productivity of work which permits the employment of paid workers and paying them.

The peasant strategies are not uniform. A differentiation by caste reveals the differences both from the point of view of the employment of the labor force and principally in the employment of paid workers, as well as from the point of view of the selection of the crop to be produced.

In effect in the first place it seems there is much less interest on the part of the nobles (hooro) in irrigated production, than that on the part of the descendents of the captives (komo), artisans (nyakhamala) or allochtones, who have the common characteristics that they do not have access to the control of land.

¹ These few pages are not an exhaustive presentation but the first results of a survey at Mouderi (Department of Bakel) from Oct. 1978 to March 1980.

EVOLUTION OF CULTIVATED SURFACES*
 CULTIVATED BY CASTE OVER TWO YEARS
 (Cultivations done by men)



It should not be concluded that this social strata is rapidly abandoning the traditional crop production: in effect the social strata is very progressive¹. The coexistence of two systems of production is explained by the payment of salaried workers and the large area cultivated in total by this social stratum compared to that of the nobles is explained by the fact that the nobles use one quarter of the hired labor.

The progressive abandoning of the traditional cultures is selective: it concerns more the flood recession production than the rainfed production. In effect the pressure on land in the traditional production system is mostly for the flood recession production: the use of these lands permits the nobles to perpetuate the relationships of production which tie him to the descendants of the captives and which result either in gifts of work or by payment of rent. The nobles on the other hand are more attached to their flood recession production than to their rainfed production.

To increase the area cultivated under irrigation and progressively abandon the traditional production shows a general prudence on the part of the peasants in relation to irrigation: they do not want to lose their rights acquired either by a direct control of land use rights or by the exercise of social relationships which are well codified. Nonetheless the creation of areas which can be cultivated by the development of irrigation and their equal distribution has permitted to individuals who do not have access to land liberate themselves from the land use right control which was exercised by the noble clans, masters of the land, a form of control which permitted the maintenance of power and more generally of the social organization in spite of all the changes in the recent history of the socio-economic system of which the most important has been the great frequency of migration of male workers.

The development of irrigation can be seen in its full importance when one knows the great differences in productivity between the traditional system and the irrigated system. The volume of production obtained in irrigated cultivation strengthens the economic autonomy of the individuals who are involved. If the production is mainly reserved for subsistence, an appreciable part which is likely to increase, is sold: this particularly applies to maize of which the sale seems to be less than that of rice, and whose importance appears clearly when one knows that it is not only produced during the dry season but also it is produced on 24% of the area cultivated during the rainy season.

¹ CF figure page 34 .

CASTES AND THE CHANGE IN AREAS
CULTIVATED Figure 5
(mainly male-cultivated crops)

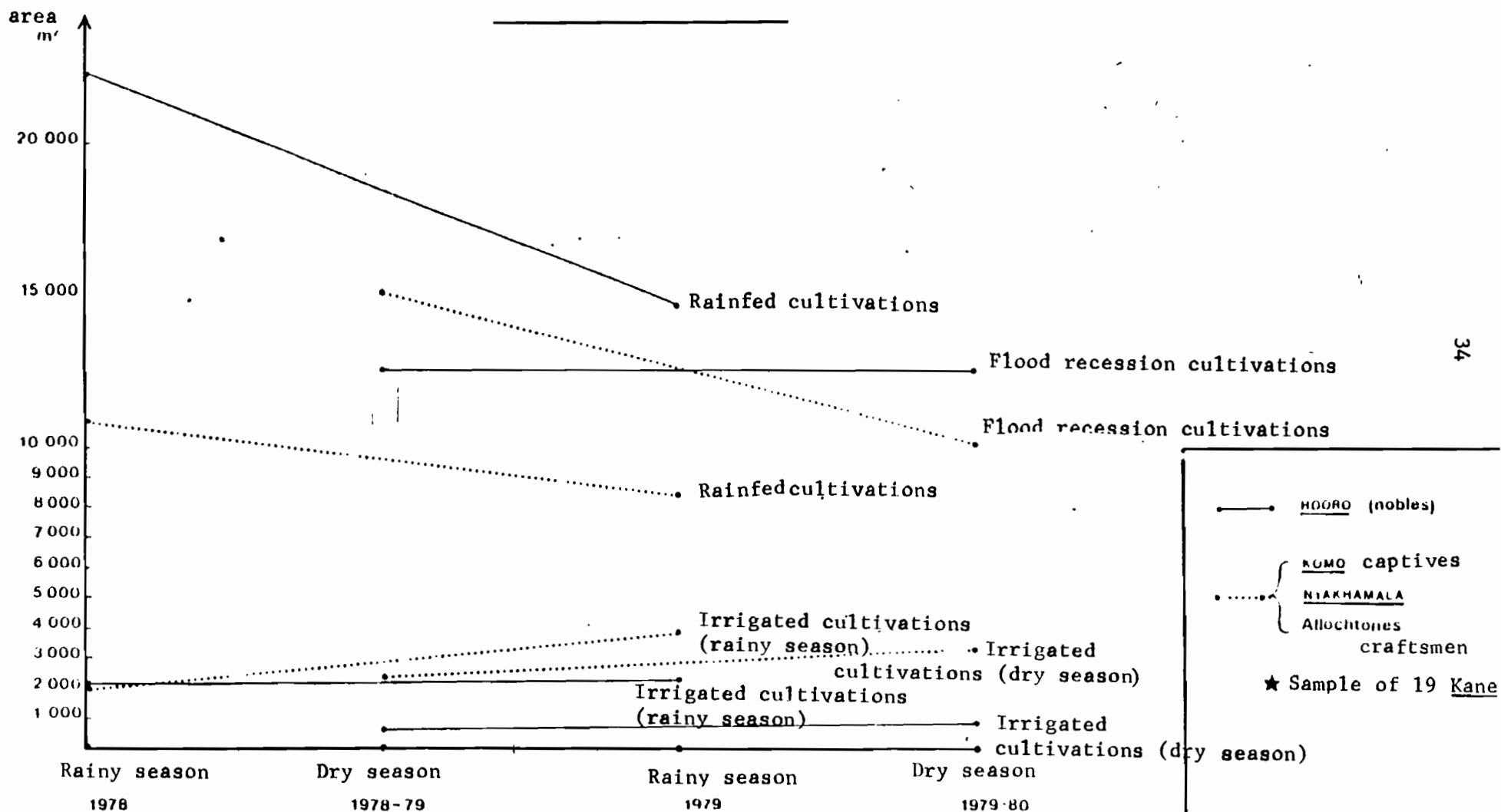


Table 6 : The area cultivated in different types of production by a Ka
(19 Kane, 281 people present)

Type of Production	TRADITIONAL								IRRIGATED							
	Flood Recession				Rain Season				Dry Season				Rainy Season			
	Millet		Peanuts		Rice		Other		Millet		Maize		Rice		Maize	
	ha	kg	ha	kg	ha	kg	ha	kg	ha	kg	ha	kg	ha	kg	ha	kg
Male Dominant	1.44	6.50	-	-	-	-	-	-	1.01	600	0.19	320	0.27	1018	0.08	165
Female Dominant	-	-	0.8	384	0.6	664	0.03	-	-	-	0.23	387	0.18	600	0.07	120

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