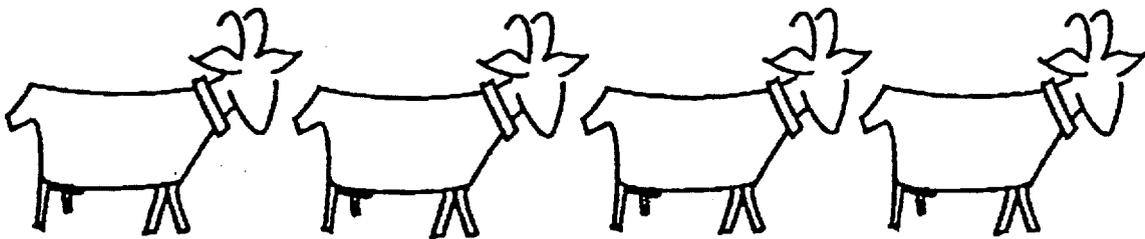


Technical Report

“Of Goats, Groups and Gender”

A Research Report on the Sociological Impacts of the Kenya Dual Purpose Goat



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INTRODUCTION

"Of goats, groups and gender" aptly describes the various subjects covered in this report. This report is the result of a two months field research on the sociological impact of the Kenya Dual Purpose goat (KDPG) in the two areas of Kenya where the KDPG technologies are being developed. As such, it will look at various aspects of the KDPG and the way it influences and impacts the livelihoods of farmers in Kenya.

The KDPG is one of seven research components executed by the Small Ruminant Collaborative Research Support Programme (SR-CRSP) worldwide. It was developed by the SR-CRSP to contribute to family welfare in areas of high population density, where increasing fragmentation of land property and access is taking place, thus reducing the ability to keep cows. The goat could provide a solution, especially in view of the overall finding that goats were often used by farmers as drought insurance, and could provide essential nutrition through the milk.

However because most local goats were not profuse producers of milk, a synthetic breed was produced: the KDPG. This is a four way cross between two indigenous breeds, the Galla and the East African Goat, and two exotic breeds, the Toggenburg and the Anglo-Nubian (Semenye 1992). This four way cross provides more milk and grows much faster, by the age of 6 months it is considered mature.

The goat was developed at the research center of the Kenyan Agricultural Research Institute at Ol'Magogo, its first crosses were tested in farm trials in Western Kenya. Having developed the KDPG it became important to determine if the now fully developed breed and supporting technologies would be flexible enough to adapt to other areas of the country. In a policy shift, it was decided to move away from high potential areas and thus focus on the marginal semi-arid and sub-humid zones of Kenya. The sites chosen were Machakos province and the Coast. These sites were selected in line with the small farmer thrust of the project in 1993, which was complemented with a commercial thrust that started in 1995. The commercial thrust was developed to ensure a sustainable multiplication of the breed in private hands with a primary market orientation.

This report concentrates on the small farmer thrust, the initial target group. The original sample for the distribution of the goats was developed from the population in five clusters, three in the Coast and two in Machakos. Twenty farmers were selected at random from

a sample frame to form each cluster. From each five were randomly selected to receive two pregnant KDPGs does each, and the remaining fifteen farmers would be "in waiting". As soon as the original does would kid female offspring, these would be passed on to the farmers in waiting, one per doe received. This pass-on system was seen as a crucial part of the research.

The overall testing program in these two areas would concentrate on the socio-economic impact, the production system and the breeding system of the KDPG. The farmers would be monitored through field visits and questionnaires (monthly, output, input and agricultural). It is within this context that the results presented in this report were obtained.

This research in conducted under the Project Title: 'Sociological Analysis of Small Ruminant Production', activities addressed are 'Community: Social Networks' and 'Impact Analysis at the Household' of the workplan for 1995-1996.

Rationale for the community emphasis

The introduction of the KDPG has been based on a community effort, which in many cases is new to the area. The community approach was used because it was believed that social networks facilitate access to resources in situations where markets do not function efficiently. This social capital can be defined as the diverse social networks that a person, family or household belongs to. These various networks will allow access to information, resources or assistance. The networks are created through diverse interactions between people, and a person can be member of several different networks at the same time. These social networks may serve different purposes.

In previous SR-CRSP research of a Bolivian peasant community in the Andes the presence of networks allowed families with different levels of wealth access to similar amounts of land (Cala and Jetté, Jetté and Markowitz). In the same research, existence of strong social networks also resulted in the construction of the facilities, irrigation systems, tap water in the community reducing risk and improving the quality of life. Access to information was also instrumental in seeking funding for development projects for this rural community.

Social networks is seen as vital for the success of the pass-on system of the goats. However it is also hoped that the community effort will create room for resource poor farmers to cultivate new networks which will help them with the goats in times of need.

The success of the community approach is believed to translate in the strength of the clusters. The higher the density of social networks the more successful the cluster will be in the pass-on, and in seeking assistance when problems arise. However benefits of the community efforts will hopefully not be limited to the KDPG but will also include the external benefits, such as instigation of other projects by the group. Because each group has had varying degrees of success in promoting cooperative action, it is important to document the differences in order to understand what actions and factors are important in catalyzing the pass-on mechanism at a community level.

The relationship between community effort/social capital and the strength of the cluster will be approximated by frequency of meetings, contribution to the organization, understanding of the workings of the group (balloting, rules etc.), participating in other group efforts, identification with the group, and the presence of a collective memory.

GENERAL DESCRIPTION OF THE AREAS

The KDPG project is made up of 5 clusters. Each was chosen for its very diverse agro-ecological or socio-economic background. The areas that were selected for this research were Machakos and the Coast province, in Kenya. The Machakos area contains two clusters: Kitanga and Kimutwa. Kitanga is a recent settlement in the Mua hills surrounding the town of Machakos. It is very densely populated land. Kimutwa is an older settlement on the lowland plains, and representative of most of the area.

See Figure 1: Map of Kenya with the specific sites

The other site, the Coast, consists of 3 clusters. Officially these are Vuga, Matuga and Kakajuni. However for this report, we refer to Kwale (Vuga and Matuga¹) and Kilifi (Kakajuni). These clusters mainly differ in their religious composition and their physical environment, Kwale is in the hills, and Kilifi is on a sloping plain.

1 Of these two areas, the emphasis will be placed on Vuga to the exclusion of Matuga, because the data was less consistent on the cluster.

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Figure 1: Map of Kenya with the specific sites

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The following section describes the two main areas, with specific information on the clusters where necessary. The information will be geared towards the physical environment, but also the socio-economic background.

Coast Province

Physical description

The Coastal zone reaches from the beach of the Indian Ocean to about 100 km inland. It spans from sea level to gentle rolling hills. Kakajuni (Kilifi) is located on the plain, whereas Vuga (Kwale) is located in the hills.

The rainfall follows the elevation with higher rainfall in the lowlands, reducing slowly with higher elevations. The average rainfall ranges from 400mm to 1200mm. The rainfall pattern is bimodal; the main season beginning in April and ending in July with a peak in May followed by a minor season from October to November. This pattern is especially noticeable in the south, in the north the rain pattern is more unreliable. A USAID project states: 'the minimum annual rainfall of 750mm required for permanent agriculture is guaranteed in nine out of ten years on the narrow coastal belt south of Malindi in Kilifi district to Shimoni in Kwale district' (USAID 1990). Temperatures range from 26°-30°C in the Coast and 30°-34°C in the hills.

The coastal region can be divided into four major zones according to dominant crop: the coconut cassava zone, the cashewnut zone, the livestock millet zone, and the ranching zone. Kwale is predominantly a coconut cassava zone and Kilifi is a cashewnut, cocunut and cassava zone. The soils in the area vary from sandy to sandy loam. The fertility of the land is only moderate, though this also varies by area. Most of the soils are erosion sensitive. The topography in the area is undulating with gentle to very steep slopes.

See Figure 2: Maps of Kwale and Kilifi (Jaetzold 1983)

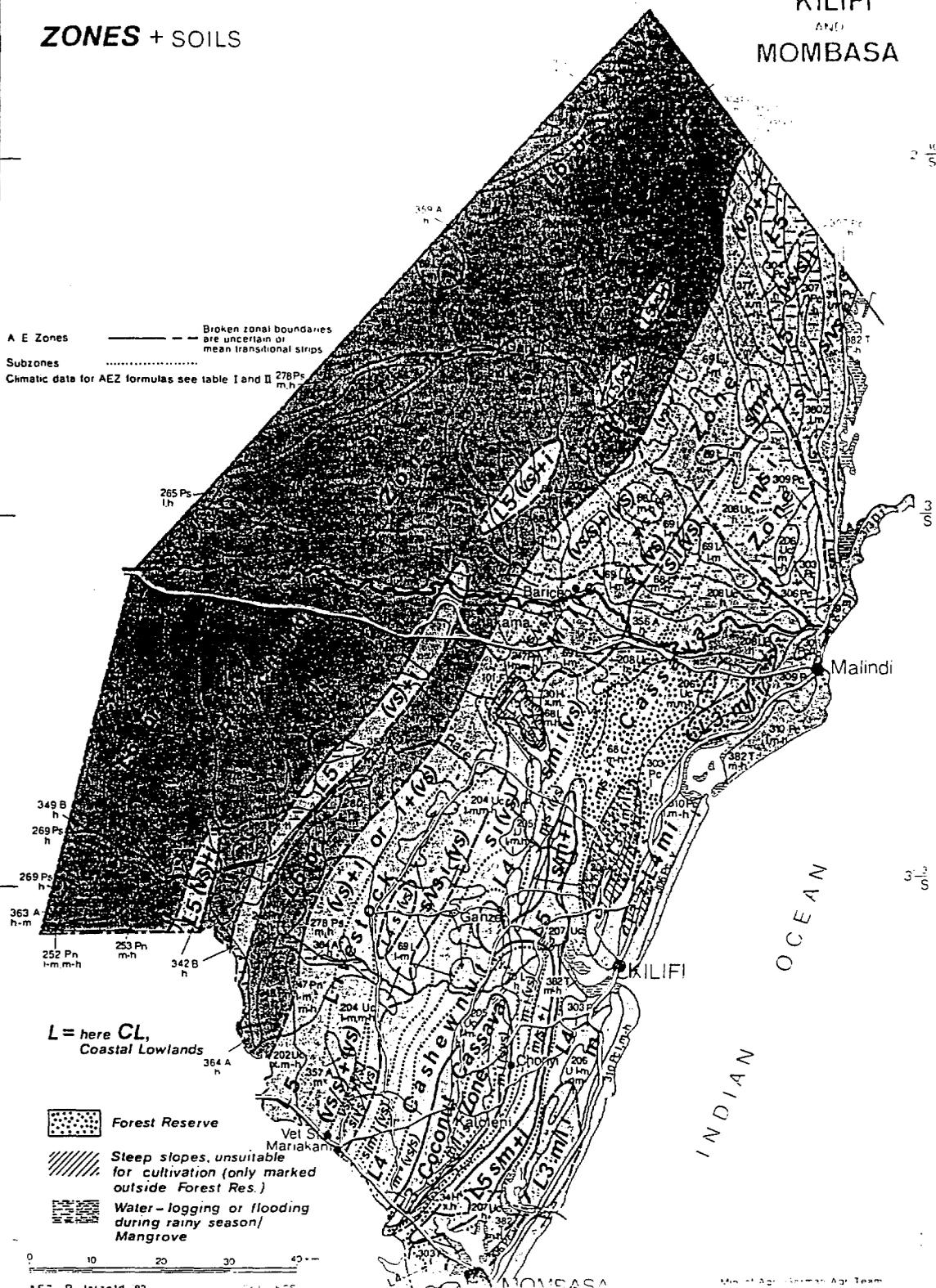
Socio-economic

The Coastal zone is home to a variety of people from different races and ethnic groups (Wekesa). However more than 80% of the people belong to one ethnic group, the Mijikenda. The other 20% are mostly immigrant people such as the Akamba, Taita, Kikuyu, non-African Kenyans, and foreign residents (though they form an insignificant minority).

AGRO - ECOLOGICAL ZONES + SOILS

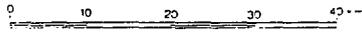
KILIFI
AND
MOMBASA

A E Zones ——— Broken zonal boundaries are uncertain or mean transitional strips
 Subzones
 Climatic data for AEZ formulas see table I and II 278Ps m.h



L = here CL,
Coastal Lowlands

-  Forest Reserve
-  Steep slopes, unsuitable for cultivation (only marked outside Forest Res.)
-  Water - logging or flooding during rainy season/ Mangrove



AEZ B 131201d 83

Map of Agr. Dept. Agr. Team

At the turn of the 17th century the Mijikenda migrated from the southern part of Somalia to settle in the southern part of the Kenyan coast. The Mijikenda are divided in several sub-groups which share a common linguistic and cultural heritage; the dominant groups are the Giriama, the Durama, and the Digo. The six minor groups also considered Mijikenda are the Rabai, Ribe, Kambe, Jibana, Chonyi and Kuama. Kilifi district is predominantly populated by the Giriama, and they are identified as agriculturalists (Maas 1990). Kwale district has both the Durama and Digo, in Vuga most farmers identify themselves as Digo.

Population trends: Population density varies greatly on the Coast, due to the variation in agricultural potential, various government schemes on employment, and other factors. The highest density is around Mombasa, and the lowest is west of the Coastal range (Maas 1990). According to the latest available census the population of both Kilifi (591,903) and Kwale (383,053) districts amounted to 974,956, 52% of the coast population (CBS 1994). This is a marked contrast with Maas (1990) who states Kwale and Kilifi used to present 72% of the Coast population in 1983. The only major urban area in Kwale district is Kwale town, which had a population of less than 2,200 in 1989. Malindi is the major urban area for Kilifi district and had a population of 35,000 inhabitants in 1989 (CBS 1994).

Present day farming systems

Farmers on the Coast are predominantly dependant on tree crops for their income. The average land holding is 11.7 acres in Kwale and 21.7 in Kilifi,, though variability is high, noted by the standard deviations in parenthesis in Table 1. The land is very fragmented in the area (see Table 1), Kwale has 2.4 parcels per family and Kilifi has 2.3 parcels per family, the portions per parcel indicating the cropping land is further subdivided. Parts of the area have only been settled recently and are often termed squatters land. Many people do not have a title to their land because they do not see the benefit, it costs too much to register and the only gain you get is you can get credit at a too high interest.

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Table 1: Land distribution and Use Patterns in the KDPG Clusters

Cluster	Number of Households	Land Quantity (Acres)	Parcels per Family (#)	Portion per Parcel (#)
<i>Coast</i>				
Matuga (HPI)	19	8.8 (6.8)	2.1	4.0
Vuga	20	14.4 (11.39)	2.7	3.5
Kilifi	20	21.7 (16.65)	2.3	2.7
<i>Machakos</i>				
Kimutwa	20	17.1 (16.04)	1.4	3.9
Kitanga	20	27.9 (33.04)	1.6	2.7

Source: Prepared by D. Martínez-Castilla and C. Valdivia, Data Baseline. 1993. Short rains of 1992 in Machakos and long rains of 1993 in the Coast.

The livestock census from the baseline survey shows that Matuga (HPI) as the cluster with more families owning cattle. In Vuga only one family has cattle, while in Kilifi 6 have. Average cattle herd for those owning cattle can be seen in Table 2. Owning goats is more common. More than half the population in each cluster owns indigenous goats.

Table 2: Average Number of Livestock per Household Managing Livestock By Species

Cluster	Number of families in cluster	Cattle Average Herd n= with	Goats	Sheep
<i>Coast</i>				
Vuga	20	4 / n= 1	4.9 / n=13	6 / n=1
Matuga	19	3.2 / n=13	10.7 / n=11	-
Kilifi	20	4.8 / n= 6	8 / n=12	-
<i>Machakos</i>				
Kimutwa	20	4.6 / n=18	5.9 / n=17	2.5 / n=2
Kitanga	20	5.9 / n=19	5.1 / n=18	1.7 / n=6

Prepared by Domingo Martínez-Castilla and Corinne Valdivia from the Baseline Survey.

Table 3 Contribution of crops and livestock to farm-household (cash and in kind) income expressed in Kenya Shillings in 1995.

	Cluster				
	Kitanga	Kimutwa	Kilifi	Vuga	HPI
Total value of farm production	32915.37	51410.75	12758.63	13476.38	21631.20
Crops %	48.52	52.92	67.69	72.41	33.99
Livestock other than KDPG %	46.83	44.51	11.87	17.50	61.37
KDPG %	4.65	2.58	20.43	10.09	4.63

Source: Lutta, M., Valdivia, C., Asambu, F., Mbabu, A., Martínez-Castilla, D., Sheikh, D., Haan N. de, Wekesa, E., Njeru, G. and Njoroge, W. "The Socioeconomic Impact Assessment of the Kenya Dual Purpose Goat"

Table 3 shows the economic importance of crops in terms of percentages of total income. Both Vuga and Kilifi have a great proportion of their income derived from crops, tree crops being important in their economy. Kilifi is the poorest economy in the Coast. HPI the Matuga cluster included in the analysis of the Vuga cluster for purposes of this report, has the greatest experience with cattle and the lowest success rate of all three clusters in terms of the pass on rate. Remittances, from off farm employment, are important in the economy of the Coast, both in Vuga and Kilifi, over ten percent of the value of agricultural production (Annual Report 1995).

Machakos Province

Physical description

Machakos district is located 60 km south east of Nairobi. It is comprised of several hilly masses (reaching as high as 1800-2100 m) (Tiffen et al. 1994), small plateaus and plains. Kimutwa is located on a plain just south of Machakos town. Kitanga is located in the Mua hills surrounding Machakos.

The rainfall in the area is very variable because of the great change in topography. The average rainfall ranges between 500 and 1300 mm. There are two rain seasons; end of

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March-May, these are locally known as the long rains, and end of October-December, known as the short rains (ICRA 1996). The terminology used by the farmers is based on the bursts of rain and not on the duration of the season (de Haan 1992). The area in the hills usually present patches of mist and some additional rain in June and August, so that there average may exceed 1000 mm. Temperatures range from 10°-26°C. The hilly masses have been known to record temperatures as low as 4°C in June and July. The district is very drought prone, usually take place in cycles of once every 5 years, and will severely affect the food security (Tiffen *et al.* 1994).

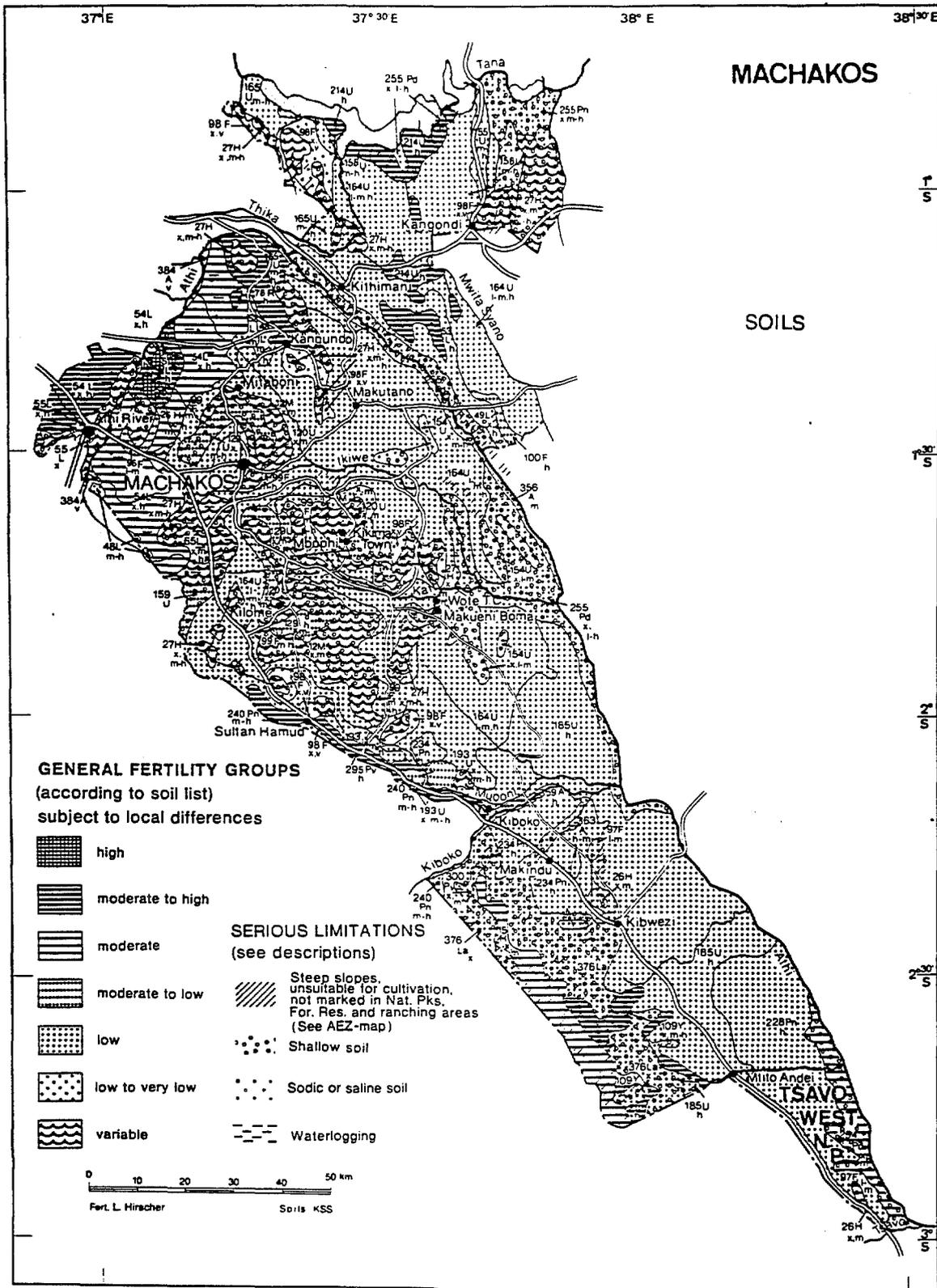
Machakos can be divided into several zones, however the zone containing both research areas can be characterized as a maize sunflower zone. The soils are mostly acrisols, alfisols, ferrasols, andasols and vertisols (ICRA 1996). The fertility in both areas is variable, ranging from moderate to low (Jaetzold 1983). Most of the erosion in the area is not connected with cultivation but with grazing according to Tiffen *et al.* (1994)

See Figure 3: Map of Machakos (Jaetzold 1983)

Socio-economic description

The predominant ethnic group (96.6% of the population) in the Machakos is the Akamba (English 1994). The Akamba are the fourth largest tribe in Kenya, and their language, *kikamba*, is Bantu of origin (Neunhauser 1983). There are other tribes that have migrated to the area, however they are seen as insignificant compared to the Akamba.

The Akamba migrated to the Mbooni mountains in the 17th century, from the slopes of the Kilimanjaro after increasing conflicts with the Maasai. Traditionally they were hunters who kept livestock and cultivated millet and sorghum, however when they migrated northwards they were forced to add shifting cultivation to their farming system. They were also known as traders in poison arrows and iron implements, considered some of the best traders in East Africa. By the 1840's they were big dealers in ivory, transporting it to the Coast. With the arrival of the colonial powers, the Akamba were also forced into finding off-farm employment in order to obtain cash to pay taxes imposed by the British. They have now adapted to a complete sedentary agriculturalist lifestyle.



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Population trends: Machakos district has one of the countries highest population growth rates, 3.79% per year for the whole area (ODI 1991). According to the latest population census which was in 1989, Machakos district had a population of 1,402,002 (CBS 1994). The density has been calculated to be 100 persons/km². Ten percent of males over 15 are apparently absent from the farm (ICRA 1996).

Machakos district has several larger towns, Machakos town, Kiboko, Mitito Andei, and Kibwezi, however only 6.5% actually live in towns (English 1994). Machakos town is the fifth largest urban area in Kenya, and is reported to have a population of 116,293 people, with a sex ratio of 1 to 1(CBS 1994).

Present day farming systems

Farmers in the Machakos area combine crop production with livestock. The average land holding is 17.1 acres in Kimutwa and 27.9 in Kitanga. Land is more fragmented in the Kimutwa area compared to Kitanga, 1.6 parcels to 1.4 parcels per farmer, and several plots planted in each (see Table 1). In Kimutwa the farmers used 19.8% of their land for cropping, in Kitanga it was 35.4%. The dominant form of landownership was "untitled" owner followed by owned with title, and jointly owned. The land in Kitanga used to belong to a white settler, with independence it was turned into a cooperative. This cooperative has since disbanded and the land was divided between the members. Therefore the settlement pattern is one of old settlers with plots ranging around 90 acres and new comers with smaller plots bought from the big farmers. The going price for a piece of land in the hills is 60,000/= Ksh. The land in Kimutwa has been settled longer and therefore the pattern is more stable but also more fragmented (SR-CRSP 1994).

Cows, goats and sheep are kept by farmers in Machakos under extensive grazing management systems. Each site had on average 5 or 6 goats and cows (See Table 2). Sheep were much more dominant on Kitanga. All the milk consumed is cow milk. The average milk production was 3 liters per household per day; 35% of the households in Kitanga sold some of their milk production, 45% in Kimutwa sold milk.

Maize is the most important cereal crop in the area, and beans are the most important legume. Other crops are pigeon peas and fruits. These are generally grown in mixed stands. The residue is often used for feeding cattle and other livestock, especially maize stover.

Table 3 show that farming systems in Machakos are better defined as crop-livestock systems, where almost even income is generated from both subsystems. It is common in this area to find farmers supplementing their income with off-farm income. In 1993, the average income was in the region of 4,295/= Ksh in Kimutwa and 5,138/= Ksh in Kitanga (SR-CRSP 1995).

KDPG PACKAGE

The KDPG project sought to disseminate the goat innovation package through community efforts. The emphasis of the report will be on the technology, the pass-on system and how it relates to community networks. The present section looks at the technical aspects of both thrusts (pass-on and technology package), and discusses the outputs of the project. Each of these are essential to understanding the sociological impact of the KDPG at the community level.

The technological package

The KDPG requires a supporting package to achieve acceptable and sustainable production levels according to the production system where is introduced. Some of the technological components of this package are specific to the KDPG production, however the project also included some advice on general goat husbandry. The information on the management practices was gathered from several sources. This approach allowed for an important degree of flexibility on the adaption of the technologies. The technologies implemented in the field were based on results of the component in Western Kenya. Therefore it was important to determine which technologies were adopted or adapted in other agro-ecological areas.

Feed: The KDPG requires higher levels of nutrition and farmers are therefore recommended to tether their animals and cut and carry the feed. The farmers are encouraged to plant and feed the goats any or all of the following fodders: Leucena, Clitoria, sweet potato vine and Napier grass. They are also told to provide clean water for the goats.

M

Health: The goats are expected to be dipped or sprayed with acaricide, and dewormed. At the on-set of the project the goats were also vaccinated.

Housing: The farmer is expected to build a shed for the goat. This shed should have a slatted floor bottom to let the air through and the manure out.

Breeding: Because of the relative recent establishment of the KDPG breed, breeding strategies are very important. A close record should be kept as to which goat breeds with which serving buck of the group.

Watering: The farmers is expected to provide clean water to the goats, especially if they are tethered, and if it is the dry season.

The purpose of the impact assessment in these two new sites was to determine flexibility of the package, and adaptability of the KDPG to the farming systems.

The Pass-On System

The pass-on system is an integral part of the project. It is based on a concept developed by Heifer Project International (HPI). The principle of the concept is that anyone receiving assistance will pass-on the gift. With recipients of animals, this means the farmer will pass-on an animal's offspring to another farmer (HPI, 1994). For the KDPG this meant that every farmer receiving two KDPG does would pass-on two of its offspring. By ensuring every farmer receives and passes on a doe, it would create a pyramid effect, in which eventually all the farmers would get a goat.

To make the pass-on system work effectively a group is chosen to represent the recipients of the gift. Several members will be initial recipients of the animal and the rest would be members-in-waiting. After identifying the areas, researchers developed a sample frame of farmers in the area, and asked them whether or not they would like to be part of the project. Of these, 20 farmers were randomly selected to be in the group.

Of the 20 group members in each cluster, 5 farmers were again randomly selected to each receive two does. The motivation for handing out two animals per household is so the

does would not be lonely and that the farmer would have a doe to fall back on, should one die. Each of these farmers was required to pass-on two does again. After that each farmer receiving was responsible for passing on one doeling per doe received.

The 20 members making up a cluster were each individual members, and were each chosen because they were the head of households. In practice, it was the whole household that was regarded as a member.

Each cluster was also provided with a mating buck. Because the project wanted to keep a strain of the breed pure, the KDPG does were only allowed to mate the KDPG bucks, whom were genetically selected to avoid in-breeding. For this purpose the group received two bucks, one to serve the first generation does and one to serve the children of this generation. The buck belonged to the group, and it was up to the group to decide on rules that would determine the usage of the buck.

The group was set up to be guided by a committee in charge of ensuring the members in the group passed-on the does. At the onset of the project, the groups were mentored and monitored. However, even at this stage, there was a strong emphasis on allowing the group to do what they thought best.

The strongest motivation for working with a group was the establishment of a social networks, accessible to farmers too resource poor to go elsewhere. Another motivation was that the farmers-in-waiting could act as a social control, ensuring that the farmers were actually taking care of the goats. Both of these mechanisms will be discussed at some length in the results section.

Other Benefits Provided by the Project

This project was set up as a research study and therefore the involvement of SR-CRSP personnel was in this area. Various surveys were carried out with the farmers. This meant that the farmers were often approached, and as one researcher said 'it is their way of paying for the goat they receive'. However it also had the benefit, especially in the Coast area, that the farmers had access to staff when needing more information on the goats. This information was provided in the following forms:

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PRAs: As part of the work in the field, several Participatory Rural Appraisals (PRAs) were conducted. These were especially held when the research required information on a larger scale. PRAs were also held when it was believed the group was having some internal problems. One of the benefits these PRAs provided the farmers, is that it gave them a venue to interact with each other, under sanctioned circumstances.

Field-days: Field-days were held by the resident scientists to help the farmers with elements of the technological package. During this study a field-day was held to show the farmers in the Kwale cluster how to plant Leucena and Clitoria. Other days have also been held, especially at the beginning of the project, to teach the farmers how to take care of the goats. There were two field-days where the farmers were taken to the area's research station, to learn about the management of the goat.

METHODOLOGY

Theoretical Background to the Social Assessment: The Actor Oriented Approach

Because understanding social networks is seen as essential in this research an actor oriented approach was used to provide a framework. In the past, most research projects as these, situated in a locality were assessed from a deterministic view point. In these situations, little room was left for the intended beneficiaries to influence the process, thus the critical human interaction was frequently forgotten. An actor-oriented analysis of development issues yields this room to the human agency involved in the development, for this project this means that farmers as well as project staff are equal in creating the project. Human agency attributes to the individual actor, to the project beneficiary and project staff, the capacity to process social experiences and to devise ways of coping with life. Long uses this concept of human agency especially when the development intervention, for instance the KDPG and the whole package connected to it, comes into the life-world of the actor, the farmers in the clusters. Within the limits of existing information, uncertainty and other constraints, social actors are "*knowledgeable*" and "*capable*" (Long, 1989). These two characteristics are the key features of social actors. Long then argues that in this way they actively engage in the construction of their own social world.

A specific characteristic of the human agency is its composition of social relations (networks). Human agency is only effective through these networks. This implies a certain degree of organizing capacity from the actor. Any external factor will be transformed and mediated by internal structures of the actor, thereby giving the actor a value, preventing him from being a passive bystander. Human agency also implies that a person will always be involved in the social project of others, creating a network of social actors. The most creative and diligent manipulation of these networks of social relations will result in the most effective use of agency. He/she always has choices. 'Multiple realities' is one of the constructions on which the actor will select his discourse. The notion of multiple realities in rural development studies (Berger and Luckman 1967, Knorr Certina 1981, Long and Arce 1992, and Leeuwis et al. 1991) is derived from Arce and Long (1992) who 'challenge the notion of equating knowledge with some professional or esoteric set of data or ideas, and question the 'objectivist' view of the world as composed of facts which knowledge provides a literal account'. This implies that a body of knowledge is produced from an interaction of different situational, cultural and institutional factors. In the case of the KDPG, this includes the farmer's knowledge on how to take care and the scientists representation on how to take care, as well as the specific cultural context of the farmer. This body of knowledge is therefore not an accumulation of facts but a way in which people construct their world (Arce, 1993).

By accepting that bodies of knowledge are constructed through and by people, it is also necessary to accept that power and authority will have their influence in shaping the body. This is directly connected to the life-worlds that surround each actor. Life-world is "a lived and largely taken-for-granted world" (Shutz and Luckman as quoted in Long 1989). It is defined by the actor, rather than the observer, it is thus made up of past experiences, personal and shared understanding (Campbell, 1992) and also local knowledge. It is the acceptance that there are other realities and bodies of knowledge that define the boundaries of the interface between the internal and external constructions. Thus interface becomes the window in studying actor's agency (Arce, 1993). Interface is where the different actors interact and the arena where the structural discontinuities, due to differences in normative values and social interests, become most apparent. The interface also allows for the actors to either propagate their local body of knowledge and meanwhile transforming it to that of the external influence or structure. The interface created by the project is through the interaction between the farmers, the project staff

and the KDPG.

It is by analyzing the interfaces of knowledge that we can understand how external interventions, such as the KDPG, re-organizes and, is re-organized by everyday life (Arce, 1993). It is through interface studies that we can focus on the linkages between interacting actors rather than just on their individual strategies, and expose the forces formatting conflict and incompatibility between social actors (Long, 1989). The social interface is defined by Long (1988) as "the critical points of intersection or linkage between different social systems or levels of social order, where structural discontinuities, based upon differences of normative values and social interest, are most likely to be found. The concept implies a face-to-face encounter between individuals or social units representing different interests and backed by different resources". Yet the interface analysis is important, because it is the arena in which external forces acquire meaning through a process wherein local knowledge interprets, internalizes and re-shapes their intervention. The process thus becomes part of the resources and constraint used by actors in developing their own strategies. With this process the local actor can then reshape his world to accommodate and use the external intervention. These changes of accommodation and reshaping forms one of the key objectives of the study (Arce, 1993).

The Actor Oriented Approach and the Kenya Dual Purpose Goat

The KDPG programme lends itself very easily to actor oriented approach because it is about how an external agent, the KDPG, impacts on the local population. The KDPG entered the life-world of these people through extension agents and research scientists. It is this interface between these different actors that becomes intriguing. It becomes a story of how all the actors in the interface perceive the KDPG, and how they see the technological package and the group dynamics. However most importantly the actor-oriented approach provides for a tool by which it was possible to look at the networks in which a farmer is involved with, and he/she uses and manipulates these to reach his/her own goals.

Because the interface was deemed such an important element in the project, the research focused on activities at this level. For this project it meant in very simple terms that the interaction between the farmers themselves, and between the farmers and the project staff was crucial. But what was also of importance was the actual introduction of the intervention, the goat in this case and the way that the farmers negotiated among themselves on how to fit it within their life-world.

Fieldwork

For the actual fieldwork, this meant that the focus was on the farmers and on how they perceived the dual purpose goat and the project. This meant that the farmer was seen as the primary source of information. Therefore much of what is presented in this document is the story of the farmers and not the story of the project staff or the project documents.

The field research conducted by de Haan, took place during the months of July and August in 1996. An average of a week and a half was spent with each cluster. The last week was spend collecting missing data in both locations. The fieldwork consisted of open-ended interviews and a questionnaire (see Appendix 1 and 2). The open-ended interviews would take an average of an hour, and the main topics that would be discussed would be the KDPG they had, the functioning of the pass-on group and the constraints and benefits from the KDPG package. This information was backed up and supplemented by a questionnaire that focused on resource management, labor, and gender.

The open-ended interview and the questionnaire were applied to all the farmers with a KDPG and in some clusters to several additional group members, i.e. members in waiting, were also interviewed. In the Kilifi cluster, because of the interesting group dynamic, two farmers were also interviewed that had left the group. Most farmers were only interviewed once, however there were several farmers that were interviewed multiple times and therefore used more as key informants. In all 58 farmers were interviewed, of the 70 active farmers that remain from the original sample of 100.

The interviews were usually done with the household head or the person that attended the meetings. Of the 58 farmers interviewed, 35 were female and 23 were male. In the Coast the breakdown was as follows: Vuga 14 males and 5 females, in Kilifi 11 males and 5 females. In Machakos the females were more dominant, the distribution was: Kitanga 5 males, and 12 females, Kimutwa 3 males and 13 females.

Another vital source of information, especially on how the group worked were the group meetings. In total six meetings were attended. Of the six, four consisted of PRAs held by the project with the specific purpose of eliciting information on the functioning of the group and the status of the pass-on. Of the other two meetings, one was interestingly enough a pass-on meeting organized by the group. Field observations were also made while attending a field day organized by Mtwapa Research Station to disseminate *Leucaena* seeds to the farmers. For each group,

information was obtained to create a 'family' tree of the goats within the group.

Though the farmers were the backbone of this research, information was also obtained through interviewing the scientists and the field assistants involved with the project. The scientists were questioned in official interview settings, with open-ended questions pertaining specifically to their responsibility in the project. One meeting of the resident scientists at headquarters was also attended. The field assistants were never formally interviewed however they provided invaluable information along the way.

When possible contacts were established with old project workers to obtain background information on the project and some of their insights into the developments. Significant amounts of literature on the project was collected and used when appropriate, however the main focus of this study is the farmers own perception and interpretation, therefore most attention and analysis focuses on these aspects.

RESULTS AND ANALYSIS

With such a complex set of observations generated by the research, it was decided to categorize the information as much as possible according to the two levels of analysis; individual/household level and community/group level. This rationale is also in line with the two main thrusts of the study i.e., (I) the technology package and gender, and (ii) the pass-on system and group dynamics. The information will be presented according to clusters or according to subject matter, for the household level information on technology and gender it will be according to subject. The community information is presented as cluster case studies, providing the reader with the diverse reactions and interpretations given by the members of the groups.

Because a strong emphasis was placed on farmers own interpretation, most of the information is presented in those terms. The questions were also asked accordingly, e.g., the farmers were asked whether they could list the rules of the group, instead of being asked whether the group had the following rules.

Where possible, an analysis at the end of each section will provide comments on how the groups and the technology is functioning and how this plays a role in the success of the KDPG. It should be noted that this is a time delimited report, all that will be described will be the perceptions at the time in the field. The challenge of studying and writing on a dynamic project like this, is it is a process that will even change while writing but once written it will be perceived as

the end point of the process.

Individual and household levels

The impact of the KDPG at the household level was assessed on three aspects; the technology package, gender and the positive or negative externalities. These were seen as most important because they could give information on the flexibility of the package, on the role goats played in the division of labor and on the benefits of the KDPG.

The introduction of the KDPG and its modes of interaction.

The first interaction the farmers had with the project was the selection procedure. For each cluster, the farmers reported similar processes for selecting the recipients of the KDPG. It was interesting to note that the initial recipients were the ones who could explain this process better. Farmers were approached to ask whether or not they wanted to participate in a project, in which according to some farmers 'they were promised free goats'. In all the clusters, there were only two stories of farmers who did not want to be included. Of all the farmers only 40 were contacted again to enquire if they wanted to participate, of those 20 were asked to come to a meeting to receive a goat.

At this point it varied per cluster whether or not the farmer got the goat during a meeting with all the farmers in the group, or only at a select meeting with the initial 5 recipients. In Kitanga, the story is that the farmers received the goats after the original recipients spent a day at the research center to learn how to take care of them.

If the members all met in a group, it is at this initial meeting where they were informed on how to take care of the goat. This information was distributed by the production and breeding staff of the project. Any follow up information would depend on the structure put in place by the project or by the farmers:

- In Kitanga and Kimutwa, there was hardly any organized extension. The livestock section of Katumani Research Station was active in the beginning in supplying the farmers with vaccinations, however, according to one farmer the station run out of funds² for these vaccinations so they do not come by anymore. Presently, the only information the farmer

²This coincides with the budget cuts suffered by the SR-CRSP in 1994.



receives is at field-days. The official policy is to provide this information at pass-on meetings. However, for Kitanga this has only been twice, and at the last pass-on there was very little information disseminated regarding the technologies recommended by the scientists.

- In contrast, the Coast farmers have more access to information related to the KDPG. Especially in Vuga, there are active and accessible field agents subsidized by the project, where farmers demand information on KDPG management. In this area there is also a stronger farmer to farmer interaction, and thus a much closer connection to the project. In Kilifi, there is very little dissemination of information, on a regular basis. However, both the project and extension staff in the area were very much in tune to what was going on. Most of the information that would be disseminated would be through field agents or at meetings not purposely set up for this. In both clusters, however, there seems to be no coherent policy on the dissemination of information to all the farmers.

This information is crucial in understanding the farmers approach to the technology package.

In each cluster, the distribution of information was placed in a very loose structure, leaving it basically to the farmers and people in the field. This produced in the Vuga cluster an interesting relation between the extension agent and the farmers, but it also meant that the farmers in this cluster did occasionally turn to each other for solutions. In the Kitanga cluster, this resulted in the virtual disappearance of any structure for about a year, until it was revived through a PRA.

What is the management regime of the KDPG, according to the farmers?

To get an idea as to the importance the farmers themselves place on the proposed project management regime, farmers were asked whether the KDPG required special care. If so, what was this special care? By asking it in this form, it was hoped that the farmers themselves would come with their 'own package' or the factors they would consider important for the successful production of the KDPG.

There were only a few farmers that were able to mention more than two technologies recommended by the project. Interestingly enough, the wife of one of the extension workers was able to mention more than two technologies. Many of the farmers said taking care of the KDPG did not require anything special. In Kitanga there were farmers who even said the KDPG took

more effort than a local goat, and that it was not worth it. In Kimutwa, several farmers felt the same way, though they did mention the need for more feed for the goat to produce milk and to grow quicker.

When asked directly whether they used any different practices, most farmers mentioned the **feeding regime**. Most farmers understood that they would have to give the goat more food than the local goat. This technology was often connected to the napier grass that several farmers had received from the project. Each cluster had planted some napier grass, although the way they secured it varied. Several farmers were very proud of their fields, these found it imperative that we would see them. This, in combination with the fact there were farmers who planted napier grass though they had not received a KDPG, shows the success of napier grass in general. Though it should be noted here that napier grass had also been promoted in most clusters in connection with zero grazing. Unfortunately in Kilifi, the napier grass was brought to the farmers when there was a dry spell, so very little actually survived.

Of the other **fodders** advised by the project, few were mentioned by the farmers. Some farmers in the Coast planted Clitoria, others were already familiar with the crop because Mtwapa Research Station had conducted a research experiment on it. In Machakos, several farmers had planted Leucaena, although for some the connection between fodder trees and goats was not clear. For example, during an interview, a farmer asked what he should do with a bag of seeds he had received at the start of the project, it turned out these were Leucaena. Several farmers fed other stovers to their KDPG as fodder, for instance, maize stover.

Another aspect of the feeding regime mentioned by the farmers was the need to supplement the diet with bran. This was a common occurrence within the Vuga cluster, although one farmer thought this bran made the goats too expensive to take care of. In Machakos, no farmer mentioned this.

The second most common management technologies mentioned were **tethering and cut and carry**. This was often mentioned in direct connection with the fodder. However, not all farmers directly connected this as a particular technique for the KDPG, and every time we visited the farmers fields we were showed tethered goats. One farmer in Vuga even mentioned tethering as a benefit of the KDPG, other goats you had to herd which took more time. Tethering did cause a problem for one farmer who succeeded in amputating a goat's leg because she had tied the rope to tight, and now asked whether the project could not make a fake leg for the goat.

At the Coast, **animal health inputs** were also seen as an important part of the management regime. In Machakos, this was only sporadically mentioned. The farmers in all clusters mentioned the importance of deworming and deticking. However the questionnaire will have to give input into whether this belief was translated in action. The importance was also stressed by the group meetings where they would always discuss the potential of collecting money to buy medicines. Most farmers realized that the lack of medicines was one of the major constraints to the survival of the KDPG. There were various ways by which the farmers interpreted the situation, for example:

- they saw it as the groups responsibility to provide the medicines;
- they wanted to train their own paravet (Vuga);
- they believed it was the individuals responsibility to ensure the goat was vaccinated; or
- they considered it part of the responsibility of the project to provide veterinary services.

In all clusters they had tried to elicit help with dying animals from the veterinary service, however most thought it was too expensive and they were usually too late. It was one of the most unresolved problems within the groups, and among the individual farmers.

Of the other techniques presented by the project staff only some were mentioned. Several farmers mentioned **housing** of the goat. The farmers in Machakos mentioned the importance of having a slated house for the goats, here the connection was made by some farmers between the housing and pneumonia. In the Coast, the farmers were more concerned with housing as a deterrent to stealing. Farmers advised KDPG owners to keep them in the house, in the kitchen. In the Kilifi cluster one KDPG had been stolen, this could be a reason for the concern with decent housing.

Breeding was mentioned by several farmers. This was especially in context of learning useful things at meetings. Several farmers in the Coast were not able to detect signs of heat and were happy they had now learned that skill. There was also a lot of concern among farmers that the KDPG should not breed with the local goats. From the whole group three farmers indicated that they had actually castrated their local goats. Tethering was also seen as a technology that would prevent the goats from cross-breeding.

Water was mentioned at the PRA as one of the most important constraints to the production system. However in talking to the individual farmers the opinions were very mixed as to the importance of the water. There were several farmers that mentioned it as a prerequisite for the KDPG however they were seen as a minority.

All the farmers realized the KDPG required special attention, however few could name the different technologies recommended by the project. The people in the Coast were overall better in giving lists. The farmers in Machakos were more matter of fact on how to take care of the goats.

The following is a table presenting data from the questionnaire on resource management, labor and gender. It shows the number of farmers with KDPG in each area and who many apply the techniques mentioned.

Technology	Machakos	the Coast
Milking	8	7
Fetching Water	8	21
Cut and carry	11	10
Herding	8	19
Tethering	8	19
Kidding	10	21
Planting Fodder	11	13
Record Keeping	7	11
Spraying and Dipping	12	20
	N=12 (with KDPG)	N=23 (with KDPG and Crossbreeds)

Source: Resource management labor and gender questionnaire July-August 1996.
Table 1: Adoption of techniques

How will I benefit from the KDPG? Why should I keep a KDPG?

All farmers, in one form or other, were asked whether it was worth it to keep a KDPG. All farmers, except two answered positively. One stated that he would rather have seen a project on credit instead of a goat that required too much attention. The other negative respondent had passed on his goat to one of the committee members because it refused to give milk.

The single most important benefit mentioned by the farmers from the goat was **milk**. Every farmer was happy to have or to get his/her own source of milk. It is in this arena that the KDPG will benefit the farmers the most, and also impact the farm household the most. The KDPG farmers who were actually able to milk their goat, and who got sufficient quantities of milk said they would like to sell it if they could get more. There were also two farmers who actually used goats milk for their own consumption and would sell the excess cows milk, and thus obtain extra income. Most of the milk was consumed by the farmers themselves in hot tea. It was interesting to note that several farmers especially expressed the importance of milk for the children's diet, they often privileged the children with the milk. There were farmers who also remarked that the goats milk was much better and nutritious than cows milk because it was creamier, and made the tea white quicker.

Of all the farmers that had KDPGs and that were asked the question whether they milked the goat, a 100% mentioned that they milked the goat at one time in the past, if they weren't milking it right now. Most of the farmers, at the height of their milking, would be able to milk 0.75 liter in the morning and 0.75 liter in the afternoon. Vuga, with its high pass-on rate, had the most farmers milking. In all the clusters there were one or two farmers who did sell some of the milk. Prices seem to range from 13/= Ksh to 20/= Ksh, depending on the market.

Farmers could also see other benefits from having a KDPG, **market value and manure** were mentioned most often. Both farmers with KDPGs and without said that a KDPG grows faster and would get a higher value in the market. Most of the farmers that have sold their KDPG have received prices around 3000 Ksh. for a mature buck, and around 1500 Ksh. for a buckling. The farmers used the revenue for different purposes.

Along with market value, a farmer on the Coast said he would obtain prestige if he would receive a KDPG. About 4 farmers, when asked what they would do with the KDPG, said they would like to build up a herd to sell some and make a profit. Thus the farmers have seen the potential of the KDPG.

There were farmers who mentioned **manure** specifically as a benefit. However it was interesting to note that in asking what happened to the goat on a day, most farmers did say they cleaned out the goats over-night places, and spread the manure on their fields.

Crossbreeding, though it was never mentioned in terms of a benefit, was seen as a positive externality to the project. Farmers really appreciated the cross breeds of the local does and the

group KDPG buck. There were some people whom had actually used the group buck for this purpose. There was even talk within the Kitanga group of 'renting' out the buck to other farmers for this purpose. Though in several places the KDPG buckling was also used for this purpose. On average 3 out of every 4 farmers said they would actually even prefer a crossbreed to a local goats or a pure KDPG. The reason they gave for this choice is that the cross KDPG is still able to produce more milk and grow faster than the local goat, but is more resistant to diseases than the KDPG.

Does the KDPG affect the life-world of women in the area?

This field study was too short to gain complete insight into how the KDPG impacted the women in the area, however some overall observations can be made. Of all the 58 farmers interviewed as being involved in the project, 34 were women. Mamma, or the female head of household, in almost all of the cases took care of the goat. Though it should be noted that during the interviews, the respondent would often say the whole family took care of the goat. However when asking who decides where to tether the KDPG it usually was the female household head. This was not the case in all households, especially at the Coast, where men spend a majority of their time on the farm. In the Coast, women were reluctant to say that they would take care of the goats, and would often present it as a team effort, though the women would take responsibility if the man had left the farm temporarily. There was an interesting dynamic in the amount of knowledge the men and women had. The women would often say that the men could take better care of the goats, because they were the ones that had the information on the animals. It was difficult to see whether the KDPG created an extra burden on the women's work load, none of the female farmers interviewed mentioned it as a constraint, though several women mentioned milk for children as a benefit.

This contrasted with Machakos where women were more vocal, and almost unanimously agreed that they could take better care of the goats. Their explanation was that they were on the farm all the time, and therefore knew what was going on, whereas the men 'just dropped by'.

The goats did not financially impact the women because in both areas the men were the ones in the end to decide what would be done with the animals. There was one case in which it looked like the woman would decide, since she ran the farm by herself, however even there she said she decided in consultation with her husband. Another area that could really impact the women

relation with the KDPG is the milk. Unfortunately total output has been too low because of the small number of goats to understand the potential dynamics of whether this allowed the farmers to sell milk or whether it significantly impacted the diet of the family members.

Summary: Does the KDPG impact the lives of farmers?

Yes, because it brings them benefits, especially in the Coast, that they would otherwise not have had. It seems to have less impact on the farmers in Machakos than on farmers in the Coast, which is corroborated by the household analysis (Lutta, et.al)

Impact of technologies: Technological impact differs between different clusters. The farmers in the Vuga cluster were more versed in the different technologies, than farmers in Machakos. This could be because the farmers in the Coast have less of a tradition in livestock, and are therefore more receptive to the package. In Machakos most of the farmers have in the past kept goats, therefore they place less faith on the technologies for the survival of the goat. These farmers might even have already internalized enough of the technologies, to not associate them with the KDPG. Having said this it should be noted that it could also be dependant on the access to extension.

The only technology that was often not directly associated with the project, was crossbreeding. However this technology seemed to have the most promise. By crossbreeding, the farmers would have the benefits but not the problems. A lot of farmers saw the potential for this, however up to date very few had actually done it. This could be a consequence of the strict advice given by the breeding scientists to keep the KDPGs away from any local bucks.

In several cases the presentation of a technology was reinterpreted by the farmers. The most clear case of this is the rationale behind the housing. The scientists had recommended this technology because the goats were susceptible to pneumonia. However the farmers in Kilifi directly connected it to stealing. In Kimutwa, there was a farmer with the largest herd, who has an 'official' shed, and says he built it after he realized his goats were dying of pneumonia. Another technology that had an additional impact was the Napier grass. There were several farmers who were growing it even though they did not have a KDPG, but they used it to feed other animals. (Though this could be attributed to other influences such as a zero-grazing programme in the area).

The varying impact of the technologies could also lie in the institutional structure guiding the clusters. The cluster most versed in the various technologies, was also the cluster with an active field agent. These farmers were able to interact daily with the project and the technologies. Whereas the clusters with very little knowledge of the techniques, had the least contact with the project staff.

Another area where the explanation could lie is in the difference of agro-ecological zones. The Coast and Machakos are both different from Western Kenya, where the package was developed. It then becomes a question whether the technology package is better adapted to one zone or to the other, and thus the results are more visible and more useful. This is especially true with feeding, where we do not fully understand the various different types of fodders farmers are able to adopt and why they will adopt them depending on the ecological conditions. Within this context, rainfall patterns, for instance, can become essential in the strategies farmers undertake for the survival of their flock. These can all have detrimental effects on whether or not a person will adopt a strategy, and presently it is not clear enough per technology whether the uptake is affected by differences in agro-ecological zones.

Whatever the explanation might be, it is clear that understanding and incorporation of the KDPG package has been very flexible. Farmers have mainly adopted the technologies they would consider worthwhile for the survival of their goats, or the ones they were interested in and could use elsewhere. The high mortality rate experienced in the first years has dropped. Increased adherence of the technology package, or the need to develop appropriate diagnostic tools for farmers to intervene in an economic way may still be necessary in clusters with high abortion rates.

Women and the KDPG: The KDPG has clearly become the domain of the women in Machakos district. In the Coast, this is not as clear. However, it can be said the major caretaking and management responsibilities fall on the women, but the end decision on what to do with the animal is usually taken by the man.

Summary:

(A) Positive benefits: The most beneficial impact at a household level of the KDPG has been providing milk for the household. Overall most farmers, whether male or female, see this as the main aim of getting a goat. The next important impact has been using the KDPG to crossbreed

with the local goats. In the eyes of the farmers, this would upgrade a goat to a goat with all the benefits, with the advantage of being better adapted to the local conditions.

(B) Constraints: The major constraint for the farmers has been the high mortality among the KDPG, caused partially by the lack veterinary help. Another very important constraint has been the lack of doe's being born, which hinders the pass-on system discussed in the next section, but it also reduces the interest in the whole technology package in general.

One of the most interesting observations about the technology package is that it was made for a different agro-ecological zone, and therefore new technique may need to be incorporated.

(C) Opportunities: The biggest opportunity for the farmers lies in upgrading their local goats with the KDPG. It gives the majority of benefits from the package with only a few of the problems.

Group and Community Level

The project introduced the goat into individual farms, accompanied by a semi-official group mechanism. The 20 randomly selected farmers were told they would be expected to work in groups, to ensure that the pass-on system would work and that the members would have people to turn to should they have problems. The members were initially brought together by the project staff, to initiate group dynamics. These groups were told to develop a constitution with rules that would guide the group, and that would ensure the pass-on system would succeed. The specifics of the rules were left for the group to decide on. Stricter rules may have been introduced at the initial distribution, however now there was very little memory connected to them. It became clear that each group had interpreted the group process and purpose differently and had thus created a different group dynamic. This section shows the different dynamics within the various group, which will be used to explain the differences in success by each cluster. The approach used is one where the farmers were themselves asked to show the different characteristics and problems they had within the group, therefore the heading in each group will not be the same.

Vuga

The Vuga Dairy goats group is seen by many as one of the most successful clusters. It has been able to provide 16 of the 20 farmers with KDPGs. The group was set up when the goats

went to farm in 1994. The group choose its committee members at the time and they are still in the committee. The group is the only one that has an officially written out constitution. It meets once a month as a general group. The committee has a meeting before the general meeting to set up an agenda. The farmers of the Vuga group live within walking distance from each other (see map in Appendix 3). It normally would take a person about four hours to walk from one side to the other.

In this report, the Vuga group has been collapsed together with the Matuga group. In essence this is not right because Matuga was set up as an independent group. It was included as a cluster because HPI had already started a project with the group to pass-on a cow but were waiting for them, and thus they wanted in the meantime to become involved with goats. The reason the group was not examined by itself for this study because there are only five members with KDPG, of which only one is a pass-on. The rest of the kids have been males, and the does of one farmer all died. The reason that the Matuga group has had such a low pass-on rate could be attributed to the farmers waiting for a cow and thus are not interested in a goat. Because the group is more concerned about its HPI activities than its goat activities, it was decided to include the farmers with KDPGs in the interviews and put their information under the Vuga cluster.

The following are paragraphs divided by the farmers words to show various aspects of the group and its interactions. The emphasis has been placed on what the farmers found important.

- **Membership:** Is open to any settled farmer with land in the area. Several members have joined the group, but it is not exactly clear whether they were asked and whether they were voted in. It never was completely clear as to how many farmers belonged to the group. The constitution said that the maximum amount would be 30 however there were several farmers that said the group had 32 people. The meetings usually are well attended. There are varying answers on the amount of members that are in the group. Some farmers talked about there being a core group of people that make up the group. Membership was decided on by the group as a whole. It was interesting to note that one of the newest members of the group was the wife of an extension agent in the area. When people were questioned about her membership most members seemed to regard it as a fair exchange for the work done by the extension worker. It could be regarded as a mechanism for cementing the ties with the extension worker. The new members pay 200/= to join.

- **Rules and regulations:** There are official rules and regulations of the group, and most of the group members are able to tell about some of the rules and regulations. The rule that is clear to all is that everyone has to pass-on one goat, and that if you sell a buckling you have to give some of that money to the group, although it is unclear how much. They do as group have a constitution, and most people know that there is a written set of rules. (A copy of the constitution can be seen in Appendix 4).
- **Meetings:** The meetings are supposedly held every 1st Sunday of the month. However at the time of this research in June the previous meeting had been in January, so there are some doubts whether this schedule is adhered to. Several farmers said the chairman was too busy to set up meetings. And according to many farmers he is the only person that can set them up. One farmer put it this way: 'the chairman seems to be disappearing'.
- **Chairman:** In general, there was some criticism on the chairman, with respect to the amount of time he spends doing other things and not spending time with the group. He seems to be spending a lot of time as member on committees in livestock and poultry. The committee members are supposed to have meetings before the meetings for the general group. They are also to function as social control to see whether everyone is taking good care of their animals. In the past they would take tours of the farmers with the KDPGs, however it is not done anymore, which the farmers themselves say is a shame.
- **Balloting:** The goats have in the past been passed-on through a balloting system where the farmers would pick yes or no out of a hat. Most members consider this a very fair system. However, according to some both farmers who had already received and were in waiting, the system has changed. The farmer who knows of a goat to be given will go to the chairman, who will write a letter to the farmer with the goat stating that the letter bearer is allowed to take the goat. This means the responsibility lies solely with the chairman. Along with this change came the change that new members, outside the originally selected 20 members, got goats quicker. Nobody in the group had any verbal complaints about this.

- **Group cohesion:** Several farmers talked of there being a core group that was always involved with the cluster. The group seems, compared to the other clusters, cohesive however there are still a number of farmers who do not know what is going on. As in other groups, the Vuga cluster does not seem to have a collective memory of the project or of the group.
- **Matuga group:** The Vuga group has several close connections with the Matuga HPI group. In this research they have basically been combined under the Vuga group, however Matuga HPI is actually also a cluster within SR-CRSP. The group is dispersed, and the people within the group are more interested in getting a cow than a goat and the pass-on rate is negligible. The Matuga cluster does however effect the Vuga cluster in several ways. Most importantly people have experience and know about the pass-on system because HPI also works with it. The president of the Vuga group is actually also a member of the Matuga cow group. Another interesting observation is that people from the Matuga group seem to be involved in several things, and they are often to be found in all corners of the area.
- **Member of other groups:** It was very hard to discover whether the people in this cluster had affiliations with any other groups. There was one woman how mentioned there were about 5 groups in the area. According to her only two people from the cluster were also members of these groups. She also said that most men were not member of any of the groups. Of the groups she mentioned 3 were women lending groups. However, the chairman and several other people did talk about a poultry group. And there were members in this group that were also officially in the HPI Matuga group. The survey will shed more light on this question.

Overall this group is interesting because it has a very good track record, and has been able to build up some momentum on which it is presently surviving. The group members are however getting more and more vocal on the lack of commitment from some of the committee members.

The members of the group do have a certain amount of commitment to the group. Though even here there is some talk by some members that the group is being, in the words of one farmer, driven zig zag by the committee.

The interesting aspect of this group is that they actually have an extension worker in the field, whom is constantly involved with them. At the moment there seems to be increased dissension

between the members. This is especially clear when talking about the role of the chairman. Most farmers think that he has done a good job, however that he is also too busy to actually fulfill the role of chairman. When questioned whether or not they could have new elections, most seemed to think that it was not directly necessary, though it might be a good idea.

In terms of social networks this group seems to have the actual highest density of contacts with each other. This is illustrated by the field day held by the project held distribute Leucena and Clitoria. At this field day farmers were just asked to come, the farmers did not have to be part of the KDPG to come, and yet, at least half of the participants were members of the Vuga cluster. Another interesting indication was that most farmers were able to say something about other members, they even volunteered this information.

Kilifi

Kilifi is a fascinating group, on the one hand it is the most dynamic group, on the other hand it is the most discombobulated group. This cluster is in a relatively newly settled area (personal communication). The members are spread around and meet on one side of the cluster where a member has a church building on her land.

The Kilifi group received its goats a few months after the Vuga group did. According to an official project document it was March 31st, 1994. The goats given to this group were not in kid as was the case in the clusters. This slowed down the pass-on system for a while, because the goats first had to become pregnant and kid, before they could pass-on. The group has had an irregular past, and at the time of the study they were working on becoming a group again. (A family tree of the pass-on system and a map of where the farmers can be found in Appendix 5.)

- **Membership:** There have been some big changes in the number of people in the group. This cluster does not have a limit to the amount of farmers in the group. The consensus at one of the PRAs was 32 members. Most of the members that entered, did so because they showed interest. The way one members became part of the group was through his parents who were also members
- **Meetings:** The last meeting that the farmers could remember was in January. At this meeting the goats were discussed and those farmers that had not received them yet were identified.

The meetings are convened by the chairman who will ask the secretary to send everyone a letter with the information

- **Attendance:** The group seems to have a very variable attendance, in numbers and in members. If a farmer can't go he might send his son or wife. There are some women that have attended most meetings. At the first PRA, some husbands wanted their wives to leave the group, because they were not getting anything from the group, however the women convinced their husbands that it would be worthwhile because in the end you would get a goat. One farmer stated that at the last meeting only four members showed up, however he did believe that there was hope for the group if there was more push from the committee. The members of the group are informed through letters from the secretary about the meeting. It is the duty of the chairman to convene the meetings.
- **Benefits:** The most common statement made was that it taught the members how to organize in a group. There was one farmer who said that it taught them to be friends. The other benefits as perceived by the farmers were: the ability to learn about things, not only about goats but to learn things in general.
- **Rules and regulations:** There was quite a lot of confusion about the rules within the group too, of all the farmers interviewed only the committee members had seen the constitution. Most of the farmers when asked about the rules would say that they knew about them but had not seen the paper, when asked what the rules were most farmers could not recall any rules, except that you had pass on one goat. In effect, the list that is being used as the official constitution, are the notes of the instigation meeting held in August of 1994.
- **Committee members:** On the question whether people knew the names of the committee members, most could not remember or if they could then they would only name the president or vice-president, and the secretary or the treasurer. The treasurer is an interesting case because he came into the group through his mother. He was one of the members that was invited when it was decided that certain members hardly ever showed up and thus they were not functioning. The interesting thing about the mother was that she did not understand the

rules of the group, she believed that the doeling that her doe would conceive should be sacrificed to God, and not passed on. When asked what the group would think, she said that surely they would understand.

Within the context of the committee members, it became clear that social networks were very important in this group. The story of the son of the mother joining in and becoming the treasurer, clearly illustrates this. He became member just because his mother was in the group and because some of his friends were also in it. It is difficult to say at this point whether or not the project allowed them to build more social networks or if just strengthened the existing ones.

The Kilifi group is a very difficult group to understand, there seems to be little cohesion in the group. When asked about the group, the members seem willing enough to work together. However when looking at the attendance of the last meeting and the understanding of the rules, the group does not have a good record. The field agent gives several reasons why the group is not doing well: (1) there is a lack of interest, most farmers do not think that it is worth it, (2) farmers-in-waiting are getting impatient with the system, the pass-on systems is getting to long for them to actually receive benefits, (3) there is a high level of illiteracy, which makes it difficult to communicate information to the people. The views of failure within the group are more direct towards the inability of the pass-on system to work quickly enough, and the lack of cohesion within the group.

It is probably a combination of these factors, in addition to the important part played by the field agent. It was clear that the field agent influenced the continuity of the group. For example, the field agent had threatened to take away goats from farmers if they did not take care of them. This had two effects: the farmers did not consider the goats their own, and the farmers did not consider the group as their own. The project had developed in such a way that the farmers perceived the project to have the final say, which meant that everything the farmers did could in the end be nullified. The same attitude would be true for the goats, because the people were not the owners of the goats, what incentive would they have to take extra good care of the goats?

The Kilifi group is an example of how if you put people together that hardly know each other, it is very difficult to do anything collective unless you foster that. The best way to describe the group is in the words of one of the woman farmers, when asked if she would have any advice for the project, she said there is nothing to advice on because they are doing nothing. It could be said

that this sentiment is mirrored in the lack of pass-ons, and the low numbers of attendance at the meetings.

Kitanga

This group is very different from the groups in the Coast. It is situated in the hills surrounding Machakos and is predominantly Christian. It is a relative young settlement, most farmers settled around independence.

The goats were distributed to the cluster on November 30, 1993. The group itself was active at the initial stage, but became dormant for two years when no meetings were held³. A PRA was held in December to revive the group. This had implications for the interviews because this meant that people remembered what was discussed in the meetings and they often mirrored the same sentiment in the interviews. When this research left the field, it looked like the group could form a cohesive unity. However there was a clear segregation between the males and females in the group. So it will be interesting to see what happens to the group now that the chairman has become a chairwoman.

There are now 8 farmers with goats, 5 are original farmers and 3 have received pass-ons. When the research left the field, 2 more goats had officially been passed on. (A family tree of the goats in the group and a map of where the farmers live can be seen in Appendix 6).

- **Membership:** The group has a closed membership. However if you have land in the area, you have a chance of admission. Approval from Katumani Station was mentioned as a prerequisite by one farmer. This was corroborated by scientist from the station who said this was one of the prerequisites set up by the research.
- **Balloting:** The general system of passing on a goat is through balloting. The farmer passing on the goat brings the tag number of the goat to be passed on and through a lottery system the goat is allocated. All members thought this is a fair system, because it means they were not against anyone in the system.

3 This coincided with the cuts to the SR-CRSP, which had a direct effect on the participation from the research station. Funds were provided by NARP II to fill that void.

- **Chairman:** The group has had the same chairman for the last three years. At the meeting in February, he decided to step down because he was going to be looking for a job. The vice-chairman, took his place. But the ex-chairman still has the official book, and still opens the meetings. At the last one the vice-chairman was starting to take over. The chairman performs an important function within this group because he/she is responsible, according to the members, for calling the meetings and knowing whether or not there are any goats to be passed on. The chairman also had sufficient influence as to what the group would do. When asked whether the group was planning any other activities, water tanks construction was mentioned, apparently because of the chairman's interest.
- **Rules and regulations:** These were very unclear to most of the members. Most members could say the one rule which was that they should not gossip about each other, element of social control within the group, one farmer explained the rules and regulations in terms of no gossiping, the need to visit each other to see whether or not the goats are taken care of, and the need to report any member that is treating the goat badly. There were two rules being implemented at the time of the study; every member had to bring 20/= to every meeting, and would have to pay a fine if he/she showed up late or if he/she did not attend the meeting without an excuse. Both these rules were meant to strengthen the group, by increasing the pressure to attend the meetings and by increasing the financial resources of the group. (A copy of the tentative rules of the group can be seen in Appendix 6.)
- **Purpose of group:** When asked what the purpose of the group was most members replied, to strengthen us! Only if you would ask them further would they mention the goats as a reason for the group. Most of the farmers could see the purpose of passing on their goats. As one farmer put it: "I have been lucky to get one so I think that I should pass on the luck."

There was also a strong push from within the group to initiate other projects. The chairman wanted the group to build water tanks, this was mentioned by several people. However there was a core group of women who also had other ideas, such as starting a nursery or building bricks to sell.

- **Group cohesion:** There is definitely a sense of group. This can be attributed to the PRA they had earlier in the year, which concentrated on institution building. This was necessary because as some members put it, the group had died right before the PRA. There seemed to be a core group of people, who knew what was going on in the group and who also seemed to know each other. Yet there were also some members who could not tell us who was in the group and what the group was doing.
- **Other Groups:** Most of the women were member of women's groups. These groups were mostly rotating fund groups. One woman was member of three groups, and was therefore difficult to interview because she was always at one of these meetings. Men were not usually members of any of these groups.

Kitanga is identifiable by its potential. There are several members within the group that could make the pass-on system work. They have an interesting ethic about gossiping which gives them a unified feeling. This is also reiterated in the other projects that the group wants to start, most members know that there are other ideas being bounced around. This is a group that might be able to survive. A lot of the women know what they want and how to do it with the group, however they are afraid of saying it to the committee members who are still predominantly male, which will slow down any projects they have in mind.

The members of this group have tried to transform it into something more than just a goat group. They want to be able to deploy other projects through it. This is a major benefit. A typical statement of this group is that the primary purpose of the group is to unify them, and then to make sure everyone got a goat.

Kimutwa

The first impression one would get of the Kathome Goat Grazing Self-Help Group is that it is a self sufficient group. The cluster is located close to Katumani Research station. It is an older settlement than Kitanga and it is located in the lowlands. Most of the households are evenly dispersed around the town of Kimutwa.

The group was started at the end of 1993. It does not seem to be very active, however there are members that are willing to participate in the group, and are willing to do something if it is

important enough. Due to their proximity to Katumani, several farmers are able to benefit from services provided by the research station, however as group they seem to be a little more reluctant. (The family tree of the goats in the group and a map of the farmers can be seen in Appendix 7). The specific interpretations they gave to the same concepts the other groups did, is described below:

- **Rules and regulations:** This group does not as yet have an official constitution, they have discussed it, but it is unclear whether it has been ratified yet. One of the rules that all farmers are able to mention is the fine that people have to pay if they do not show up without an excuse or if they show up late. The other rule mentioned is that if you do not show-up to three meetings consecutively then you are eliminated from the group.
- **Last Meetings:** The last meeting was in May. The one before that was in December when a PRA was held by the project people. Many people cited the lack of meetings as one of the problems facing the group, (in contrast to the lack of does in other groups). The meetings are usually called by the chairperson.
- **Certification:** A lot of the farmers mentioned that the group came back to live after it had been certified, and it is now officially known as the Kathome Goat Grazing Self-Help Group. Being certified means being registered in Machakos with the Ministry of Social Services. The reason for being registered is so that the government would know who they were and would not question what they were doing. Upon further questioning with officials, one of the benefits for being registered is that social services can help them with the group processes.
- **Committee:** The committee in place at the moment is new. The group did not function between 1994 and 1995. This new committee has a new chairman and a new secretary. The old chairman was good but was too busy and had very little time for the group. The present chairman was chosen because he has worked at Katumani Research Station (he used to ride a tractor) which is seen as a benefit for choosing him. As one farmer stated: at least the chairman would know what is going on at the research station. This new chairman has received a KDPG and has become one of the big success stories of the project. Since the time

he received the goat he has been able to pass on his required two does and increase his flock to 10 starting from the original two does. He did not explain why his goats were so prolific, he just had to laugh. Most of the members of the group were not able to recall all the members in the committee, though most were able to name the chairman and either the secretary or the treasurer.

- **Balloting:** The pass-on system works much like in Kitanga, most farmers were happy with it. However there was one farmer who mentioned that there used to be a list that the group was just working on. This was better because this meant that a farmer knew when it would be his turn to get a goat.
- **Superstition:** When the goats were given to the group there was one rumor that the goats would 'draw blood' or take your wealth away from you. Trying to find the source of this story was very difficult, but most people said that it was just a rumor created by people in the village. There was one farmer who was to be an original keeper however she refused because of this. When asked whether she would still refuse, she said and she realized now that she had been stupid then.
- **Other groups:** Other groups are very important in this cluster. Most of the women belonged to other groups. These were usually women groups. The ones the farmers mentioned were: church groups, rotating funds groups and mutual help groups. The women that belonged to several groups were asked which one they appreciated the most. This was a difficult question to answer because the big benefit of the goat group was that you actually received a goat. However the drawback was that the group was not functioning that well and therefore some of the people were not that sure whether or not they would get a goat. There was even one farmer who maintained that the other groups (especially church groups) worked better because there they helped each other.
- **Connection with the project:** There was a prevalent conception that the goats actually belonged to the project. However farmers realized after the PRA in December that the goats are their own. One farmer said that this made it all better and that they would now take better

care of the goats.

- **Gender:** Because women are the ones on the farms, they are also the ones that attend the meetings. However curiously enough, most respondents would say that there were more men at the meetings than women. When asked whether or not they would like to elect a woman chairperson, the female respondents often said that they would like to but that they could not because they just had an election. One of the farm woman also maintained that you had to ask the women if you actually wanted to get something done. As she stated, men only debate and talk about useless things. Upon asking whether she says anything at the meetings she says no because the men are there.

The Kimutwa group has two interesting characteristics. It is certified, none of the other groups are. In Kilifi they talk about doing it, but the final step has not been taken. The other characteristic is that it has one of the most successful farmers of the whole project in the country however he is in a cluster where the pass-ons have not been that great. The group cohesion seems to be important, however access to resources is also a determinant. The farmer with the most prolific goats, was a resource rich farmer, and was nominated president partially because he still had connections with KARI. It would be interesting to research exactly how far this fact had an impact within this cluster.

What do these case studies tell us?

Social networks are an integral part of the KDPG project. In the case studies above it becomes very clear that each group has different interpretations as to the purpose of the group, and on how to reach that goal. Vuga comes closest to the initial purpose for creating the groups. Kitanga has been the most creative with the group. And the other two are still trying to find a position for the group in the community. Kimutwa is the only one officially registered.

Each of the groups, however, seem to require a certain impetus to ensure its survival. However too much intervention is also not good, as is seen with Kilifi. It is interesting and important to note that each of the groups has fostered some new networks within the community. It is crucial for any new research to be able to gauge exactly how important the existing networks are for future pass-on systems. The groups have also provided some with an opportunity to learn about goats and

on how to organize themselves.

Cohesion is important and it is something all the groups missed. There was no or very little collective history in any of the groups. Most of the information that the people could give on the workings was very patchy, possibly, because the group was seen as being of minor importance.

Both cohesion and social networks need a certain amount of time to establish themselves. Unfortunately all of the clusters are very young, and have not had the necessary time to establish themselves and to cultivate the necessary networks for the pass-on system to work. This is where the PRAs were very important, though they were meant to get information from the farmers, they served as a venue for the farmers to meet. In other words, time and opportunities to interact are important elements in making the pass-on system a success.

Discussion/General and Particular constraints at the different levels

From the results above, certain observations can be highlighted as affecting the success of the KDPG in the clusters.

- 1) The distribution of KDPG is overall a success, considering the short time span of the project. An indication of this success is the appreciation farmers express for gaining access to a source of milk. There are farmers who have had requests from neighbors on how they could get a KDPG. Another indication is the enthusiasm the farmers show for potential cross-breeding. However, the KDPG is in part a success because farmers are able to get a 'superior' goat, by only paying dues to a group, and investing in labor and resources to produce a female kid that will be passed-on. (It is a system that can easily be compared to receiving credit that you repay in-kind). The interesting aspect at this point is whether the goat is able to sustain itself if the farmers would have to pay. In Kilifi, the farmers are having problems selling the KDPG bucks. People involved in the project there are trying to sell two KDPGs at 3500/= Ksh a piece, which they say is a reasonable price, however they have not been able to sell, it seems to be a too high price for farmers in the area as the analysis on prices showed (SR-CRSP Annual Report 1994-1995). This would be a crucial research question if the project were to continue.

- 2) The tradition of livestock is very important in the adoption of the KDPG. The farmers in Kwale knew the most about the various technologies that went along with the KDPG. In contrast the

farmers of Machakos district were less able to enumerate the various technologies, and were also less likely to use them, with the exception of the sheds. On the other hand, the farmers in Machakos were more likely to use the technologies they had learned for other purposes, for instance, the farmer who feeds the napier grass to his cows, even though he did not have a KDPG yet.

A reason behind this could be the historical context of the farmers. At the Coast, the farmers are not traditionally pastoralists, therefore they are more likely to adopt 'the whole package' because they are less adapt at taking care of goats. Whereas the farmers in Machakos have a tradition of having goats, and thus the farmers have a more relaxed attitude towards them, and will only take the parts that they are interested in.

- 3) In all clusters, it was clear that the women were the primary caretakers of the goats. In the open ended questions, the farmers were asked to explain what happened to a goat throughout a day. In most of the cases, it became clear that it was the woman who was responsible for taking out the goat and for its general management. Yet there were differences between the two areas.

This could be directly related to access to information. In Machakos, the women would often attend the meetings, however the women would also often be members of other groups so they would have a lot of time to interact and exchange information. In the Coast, men were seen as the better caretakers, because they had more knowledge of the management system. This could easily be true, since the meetings are usually attended by the men, and the women have very little time to access the information on the care of the animals, and are less likely to be members of more groups.

- 4) As can be seen in the case studies, the groups really work very differently. The biggest differences seems to be the amount of interactions the group members have with each other. The group that seems to be working best is also the group that seems to have most contact with each other. Part of the set up of the project was to use the groups as social controls to ensure that the members would take good care of the goats so that there would be goats to

pass-on. The concept is good, however the groups with hardly any contact, had not build up any social networks to enforce the social control. The groups were much to young for that, and though the farmers were usually in the same area, and therefore knew each other, there were very few that had the same social networks to build on. Networks are very important in a system like the pass-on, however one of the constraint to this in the KDPG is that little attention is given to ways of building them.

- 5) People are important. It is clear that the direct interaction between the farmers in the group and the people representing the project is very important. The group with the most face to face contact with the project has the highest pass-on rates (Vuga). The groups with little interaction have lower rates of success (Kitanga and Kimutwa). In the Kilifi cluster, it is interesting to note that the project has created enough room for an extension agent to create his own position, which gave ambivalent results.

- 6) All groups called the delay in passing on does as one of the major constraints. This can be attributed to a lack in social control so that farmers let the goats die. It can also be attributed to mortality and fertility of the goats. One of the reasons that there is such a high mortality rate is because the breed has not yet become immune to the diseases in the area. This reduces the amount of does available to be passed-on. Mortality rates reduced greatly in 1996. It is an interesting discussion because it goes back to whether science is at fault or whether the farmers are.

Recommendations

From the discussion above it becomes clear that certain recommendations can be made to identify indicators for future success of the implementation of the KDPG on a larger scale. However, the project itself should first be recommended for its flexibility in allowing recommendations like these to be made and accepted as an integrated process of the design. Most of the recommendations made below are presented for the whole package, in other words, for the technology package as well as the pass-on system.

Because *networks* are so important in making tools like social control and safety nets work,

all integral parts of the project through the group, it would seem most important to work on this aspect. This could be done through:

- working closer with the groups on *institution building*. The farmers in Kitanga really appreciated this aspect of the project. In Kilifi, they talked of the group teaching them how to organize themselves.
- working with *existing groups*. This would mean the farmers already would have a social base to work with and on, so social control on taking care of the KDPG would only be an extension of their daily interactions. In Kimutwa, 3 farmers already belonged to some of the same groups. In essence, it would not even have to be self help groups, they could be formed of any type of social institution.
- working with *women groups*. This is a recommendation derived from the need to work with a more cohesive social group, and the realization that women take care of goats, a logical conclusion would be to combine the two, and use women groups to disseminate the goat.

Attention also needs to be paid to the *delivery of better health care and extension*. On the one hand the loose structure of the delivery of extension has proven beneficial, however in more cases it has proven to be a constraint. The recommendation would not be for a much more rigid structure, but a structure in which the farmers would know how to access information, and responsibilities were clearly defined.

An option that would require some research but that could be beneficial, is the training of paravets. These paravets would be trained in the basics of animal health care as related to the KDPG. They could be selected members from the groups, who would determine how they would organize the delivery of these services.

Related to health care, much of the mortality among the first generation is caused by the new environment these animals were introduced to. This affected the groups ability to pass-on, and thus the groups cohesion, challenging it before it was established. This may be lessened if the goats were first allowed to *adapt* to the agro-ecological conditions before being placed on the farms. Commercial multipliers are addressing this partially because they are being established

in the regions. Markets will define the prices for these animals and the accessibility to farmers. However for each of the interventions, it is crucial that cost effective solution be sought and investigated. It may be necessary to consider a longer start-up period to allow for adaptation.

The two major benefits the farmers receive from the KDPG are milk and crossbreeds. Farmers themselves talk of the milk as the benefit, however crossbreeds are not regarded in this sense yet, though they are beginning to see the potential. Perhaps more emphasis should be placed on the *crossbreeding/upgrading potentials* of the KDPG. Upgrading through crossbreeding would allow the goat to adapt to the local conditions while still maintaining some of its major characteristic.

Concluding remark: The project has a lot of potential, both in the KDPG itself as well as the accompanying pass-on system. The two are linked in a way that produces its success. As seen in the recommendations there are enough areas for improvement, however the project gives resource poor farmers an opportunity to better their position, and it encourages them to create and build on intangible resources, like social capital.

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Appendix 1:

Open-ended questions

- Do you have a DPG? Have you passed one on? Who did you pas it on to?
- Do you go to the meetings? Who in the family goes?
- What did you discuss at the last meeting? When was the last meeting? Where was the last meeting? How did you hear about the last meeting?
- How many members are there in the group? How does the group choose the committee? How many members are there in the committee? What is their task?
- Do you know all the members in the group? Do you get any benefits from the group? Did you learn anything from the group?
- What do you get from the goat? Any other benefits? What are your biggest problems with the goats?
- How does the pass-on system work? Could you elaborate? What are the rules? Does the group have a buck, what is the system surrounding the buck? When was the last pass-on? Are there any problems with the pass-on system? Is the goat your own? When does it become your own?
- Does the DPG require any special care? Where do you get this information from? Are there any seminars? Do the DPGs require more or less attention?
- Is there any difference between the DPG and local goats? If you could choose between a DPG, cross or local goat, which would you choose?
- If someone from the project told you they were also going to do the project in Tanzania is there any advice you would give them before they would set up the project there?
- Could you take us through a day with the goat? When you wake up what happens to it? Who takes care of it?

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Appendix 2:

Questionnaire

KENYA DPG - KARI - SR CRSP
1996 LABOR & RESOURCE QUESTIONNAIRE
Machakos

1. Name of Household Head:	M/F	
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2. Farm Manager:	M/F	
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3. Interviewee:

5. Date of Interview: / /	6. Time: :	Farm I.D.:
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Sub-location:	Enumerator:
---------------	-------------

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7. This question is intended to get information about the use of time by household members and who allocates the labor, i.e. who decides who does what, in relation to the livestock on your farm.

7a) How many: goats: _____ do you have?
 KDP goats: _____
 cows: _____
 bulls: _____

7b-k). (Where ever there is a question of several people doing it, note all people with the person doing it most of the time as the first.)

Activity	Do you:	Who does it		Hrs/day	Days/week	Weeks/month	Months/year	Decision Maker	If not done, why?
		Gender/ Age	Relat to HH						
Milking	Y	F:							
	N	M:							
Fetching water	Y	F:							
	N	M:							
"Cut and Carry"	Y	F:							
	N	M:							
Herding	Y	F:							
	N	M:							
Tethering	Y	F:							
	N	M:							
Kidding*	Y	F:							
	N	M:							
Planting & caring for fodder	Y	F:							
	N	M:							
Record Keeping	Y	F:							
	N	M:							
Spraying & Dipping	Y	F:							
	N	M:							

* Kidding refers to all the activities regarding reproduction.

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8. This question is intended to get information about awareness of credit sources.

8a) What are the sources of credit that you are aware of? Check.

1) Commercial Banks	<input type="checkbox"/>
---------------------	--------------------------

2) Parastatals e.g. AFC	<input type="checkbox"/>
-------------------------	--------------------------

3) Commodity Corporation e.g. KTDA	<input type="checkbox"/>
------------------------------------	--------------------------

4) Non-Governmental Organizations (NGOs)	<input type="checkbox"/>
--	--------------------------

5) Cooperative Society or Union	<input type="checkbox"/>
---------------------------------	--------------------------

6) Friends, Neighbors, Relatives	<input type="checkbox"/>
----------------------------------	--------------------------

7) Rural Merchants, Duka owners (if you can get the name please fill in:	<input type="checkbox"/>
--	--------------------------

8) Land Lords	<input type="checkbox"/>
---------------	--------------------------

9) Chiefs, Church Leaders, Local Lenders	<input type="checkbox"/>
--	--------------------------

10) Other	Specify:
-----------	----------

--

8b) Since you started participating in the KDPG program, have you received any credit?

Yes	No
-----	----

If yes, from what sources? :

.....
.....
.....
.....

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8c) Could you tell us where you got the credit and what you used the credit for?

Credit Sources	Uses *	Amount K Shillings (How many times)**

** In parenthesis indicate the number of times in the production year (long rains and short rains) that credit has been received. Amount should be total for the period.

* Check list of possible uses include:

- A) Cash crops
- B) Food crops
- C) Cattle
- D) Goats
- E) Construction
- F) School Fees
- G) Land Purchases

H) Other (Specify)

9. This question is intended to get information about the ownership of land.

9a) Do you have a title to your land?	Yes	No
---------------------------------------	-----	----

9b) IF YES, under whose name is the title?		M/F
--	--	-----

9c) IF NO, who "owns" the land?		M/F
---------------------------------	--	-----

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10. This question is intended to get information about inputs:
 10a) **Do you buy inputs?** (Inputs are defined as things that are not bought on a daily basis and that are related to the cultivation of crops and the like.)

IF NO, go on to question 10b).
IF YES, fill in table 10.

10b) **Do you buy food?**

IF NO, go on to question 11.
IF YES, fill in table 10.

Table 10:

Activity	Who does it		Hrs /day	Day/ week	Week/ month	Months/ year	Decision Maker	Who supplies the money	What is bought?
	M/F/ Age	Relation							
Buying Inputs	F								
	M								
Buying Food	F								
	M								

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11. This question is intended to get information on decision making with respect to cash crops.

Do you sell crops? YES, fill in Table 11.

NO, go on to question 12.

Cash crops are defined as crops that are cultivated for the market. Answers should be completed in Table 11.

11a) Who sells the crops?

11b) Gender

11c) Crop name

11d) Where was(were) the crop(s) sold?

11e) How did you use the revenue from the sale of the cash crop(s)?

Table 11:

Name (11a)	F/M (11b)	Crop Name (11c)	Location (11d)	Use of the Cash (10e)

12. This question is intended to get information on decision making with respect to livestock.

Do you sell livestock?

IF YES , fill in Table 12.

IF NO, go on to question 13.

12a) Who sold livestock

12b) Gender

12c) What species (cattle, goat, sheep)

12d) Where was the livestock sold?

12e) How did you use the revenue from the sale (purpose)?

Table 12:

Who Sold (12a)	M/F (12b)	Species (12c)	Where (12d)	Purpose of Sale (12e)	Amount

63

13. This question is intended to get information on decision making with respect to KDPGs and their

products.

13a). Who is in charge of the general husbandry for the KDPG? F/M Relationship to householdhead (HH)? _____

13b). Could you tell us something about the goats?

Table 13:

Activity	Who Sold it?		Where was it sold?	How many (quantity) and for how much specify if total sale or unit price	How was the revenue from the sale used
	Gender / age	Relation ship to HH			
Milk	F				
	M				
Live KDPG	F				
	M				
Meat/carcass	F				
	M				
Skin	F				
	M				
Lending the bucks for breeding	F				
	M				

14. This question is intended to get information on decision making with respect to wages.

Do any members of the household work outside (provide labor, in other word does the farm get any supplementary forms of income that are not from the farm)?

IF YES , fill in Table 14.

IF NO, go on to question 15.

Who Does?	Age (years)	Activity	Total wage	Total time a year	How is this income spent

Comments pertaining to this household (use back of page if more space is needed):

65

Kwale

* Kugwa
* Abuballa H

* Ntengu: Rashid
H.

Kwale

Zimba

* Rashid Kori Sivi

* Rashid Koda

Uuga.

* Hamisi Omdiri Sivi

* Juma Mohammed Havi

* Omani Mwalantu

→ * Mwayi Hassan Mchanga

* Rashid Mwachanga

→ * Mwanahalinga Hongza

* Asha Mgunya

→ Salimu Ali * Mkambe
* Kidzogaio * Mwangi

Mwachambo
Mkonono

* Rajab
Mukamba

* * Falim Yungu *

* Mwingi Mohammed

* Bakari Zimba

* Singete bakungu

* Mariam Omani

Appendix 4:

Constitution of Vuga Cluster

67

MINISTRY OF AGRICULTURE AND ANIMAL INDUSTRY
DEPARTMENT OF ANIMAL INDUSTRY
DAIRY DEVELOPMENT DIVISION

1. NAME OF GROUP - VUGA DAIRY GOATS GROUP

2. PURPOSE.

- a) To improve nutrition
- b) To improve the standard of living
- c) Income generating
- d) To increase Dairy goats.

3. AREA/LOCATION OPERATION.

Village - Vuga
Division - Matuga
District - Kwale
Province - Coast.

4. POSTAL ADDRESS AND TELEPHONE

c/o BOX 258
KWALE

5. ACTIVITIES.

a) DAIRY GOATS PROJECT

b) FUTURE PLAN.

To make every members of the village to have 2 goats and 1 possible to supply to the market.

c) WHO DECIDED ON WHAT PROJECT TO UNDERTAKE.

Committee then General Meeting.

6. MEMBERSHIP

a) Permanent - member ship fee Ksh. ^{20/-} 30/- will vary with time.

- b) Members present - (i) 20
- (ii) Minimum allowed 20
- (iii) Maximum allowed 30

- 7 (a) If a member fails to attend three meeting consecutively without apology his/her membership is with drawn with out prior notice and the goat will be taken away and be given away to another member by the group committee.
- b) A)member must take good care of both goat and its kids failure of which both will be taken away and be given to another member.
- c) If the doe or the kid dies the member must report to the group immediately, the same day.
- d) Each member must realize that the goat is the property of the group and not his/hers.
- * e) Those members who will get 2 does at the start must give out 1 female kids in total to the group. Where as those who will get the off springs must give out 2 female kids.
- f) If a doe give birth 3 male kids consecutively they will be sold and the money will be loaned to purchase a female goat for another members.
- g) The group members have passed that the chairman and the group committee have got authority to control the planed group activities as per the rules and regulations of the group.

8, CONDITION FOR ADMISSIONS.

- i) Pay membership fee
- ii) Attend meetings
- iii) Must co-operate
- iv) Group to decide on the new member ship

TERMINATIONS OF MEMBERSHIP

To get his/her share back.

- 9 a) ADMINISTRATION - Chairman and Assit
- Secretary and Assit
- Treasure and Assist
- Committee members total 5

- b) ELECTION Every one year
- c) IF A MEMBER Fails to abided with groups rules and regulation will be chased away from the group. 55b

69

9

c) OUT GOING OF THE OFFICE BEARERS

will hand over to the new office bearers.

10

a) MEETINGS.

One General meeting every last Sunday of the months.

b) One Committee meeting per month.

c) If a member fails to attend three General meetings and three Committee action can be taken against him/her.

d) The quorum for the meeting will be half the members.

FOMU YA UWANACHAMAKIKUNDI CHA MBUZI WA MAZIWA CHA VUGA

MIMI..... IDNO

Kijiji Cha

Tarafa

Wilaya

Mwanachama Nowa kikundi cha mbuzi wa maziwa cha vuga
 Ninakubaliana na kufata mashariti na sheria zote za chama na pia ya
 fatayo.-

1. Kulipa pesa za waandikishaji na shea na zenginezo zitakapo hitajika kwa kikundi.
2. Kuhudhuria mikutano yote itakayo pangwa na kikundi kwa wakati ufaao
3. Kuudhuria Mafundisho
4. Kutunza na kuudumia mbuzi wa wa kikundi
5. Kushiriki kikamilifu kwa miradi yote itakayo pangwa na kikundi kama ifatavyo:
 - a) Kupanda nyasi za gugu na miti ya lukina.
 - b) Kujenga nyumba ya mbuzi.
6. Nina kirukusu chama kuchukuwe hatuwa inayo stahili iwapo sitatimiza kati ya hayo yaliyoandikwa hapo juu..

Sahihi - Mwenyekiti _____

Mwandishi _____

Mwekahaajina _____

Tarehe _____

Sahihi ya Mwanachama

71

Requirements
upon
receiving

MAPATAFO NA MASHARTI YA UPOKEAJI VARIKA

(WATOTO WAKIKE WA MBUZI) NA WAKIUME KUTOKA

KWA CHAMA CHA UFUGAJI WA MBUZI ZA MAZIWA VUGA

Jina Npokeaji wa nvarika NO

ID/NO Mtaa wa

Nimekubaliana na masharti iliyowekwa na kamati ya chama cha ufugaji wa mbuzi za maziwa cha vuga.

Na hitatimza yafatayo

1. Kulipa kwa cha chama Kshs 150/- kama akiba ya chama.
2. Kuregesha watoto wa kwanza wa kike wakiwa na umri wa miezi minne kwa chama ili wapewe wana chama wengine.
3. Mwanachama na chama kuwa shea kwa watoto wakiume kwa kuchelea kuingiliana kwa kizazi kimoja.
4. Kufata mafundisho au maagizo nitakapo pewa na mwalimu anaye husika na mrafi.
5. Kuhudhuria mikutano yote ya kikundi.
6. Sita muza, wala kumchinja wala kumtowa mbuzi niliye pawa na chama bila kibali kutoka kwa kamati
7. Kama nitashindwa kumtunza mbuzi nipokonywe apawe mwana chama mwengine
8. Kamasitamlisha varika vizuri nitarudisha mamaa kwa chama ni baki na varika
9. Nitatimiza ya fatayo.-
 - a) Kulisha mbuzi vizuri na watoto wake
 - b) Kuogesa mbuzi mara moja kwa week
 - c) Kuwapa mbuzi dawa za minyoo
 - d) Sita wapandisha mbuzi na dume za kienyeji.
 - e) Nitatiniza maagizo ya kamati ya utunzaji mbuzi

Mimi mwanachama NoNimesoma masharti yote kama ilivyo hapo juu nanimekubaliana nayo

Sahihi ya mpokeaji

Sahihi Mwenyekiti

Sahihi ya mweka hazina

Tarehe

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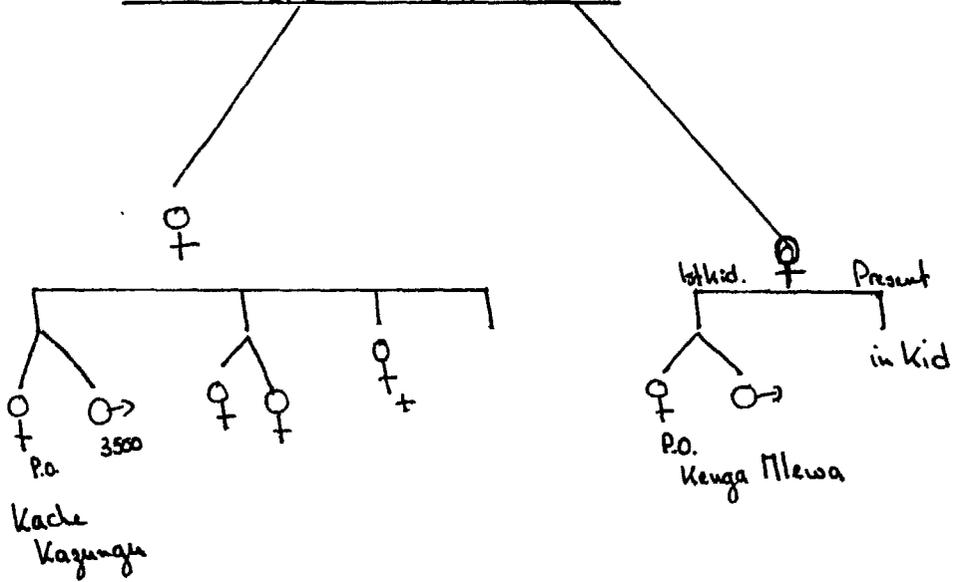
Appendix 5:

Family Tree of the Pass-on System in Kilifi

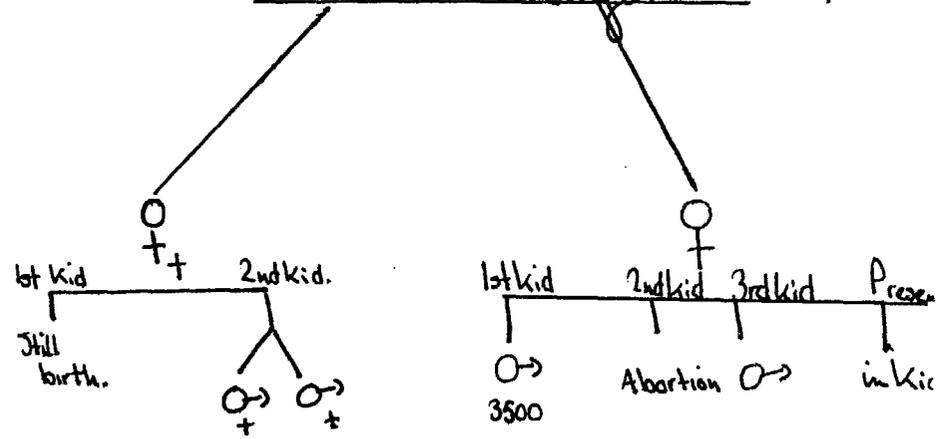
23

Family Tree of KDPG in Kilifi (original farmers)

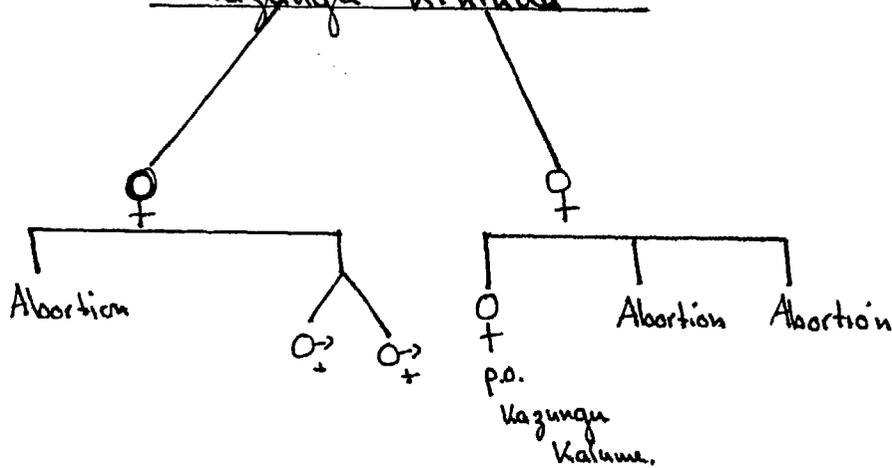
Charo Kinda



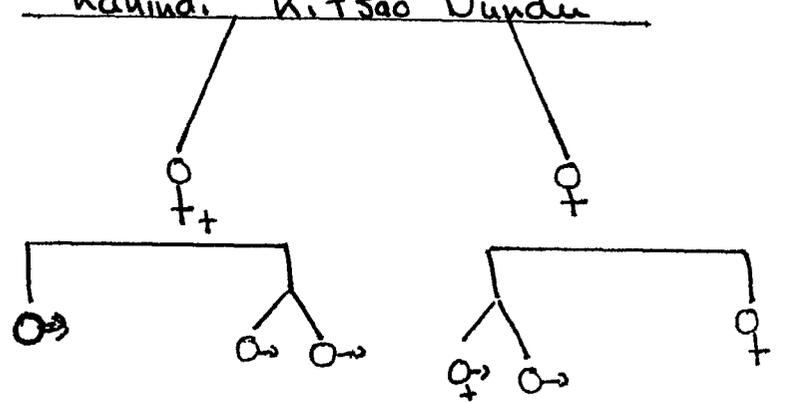
Kadii Kenga (Tabou)



Kazungu Kihinda



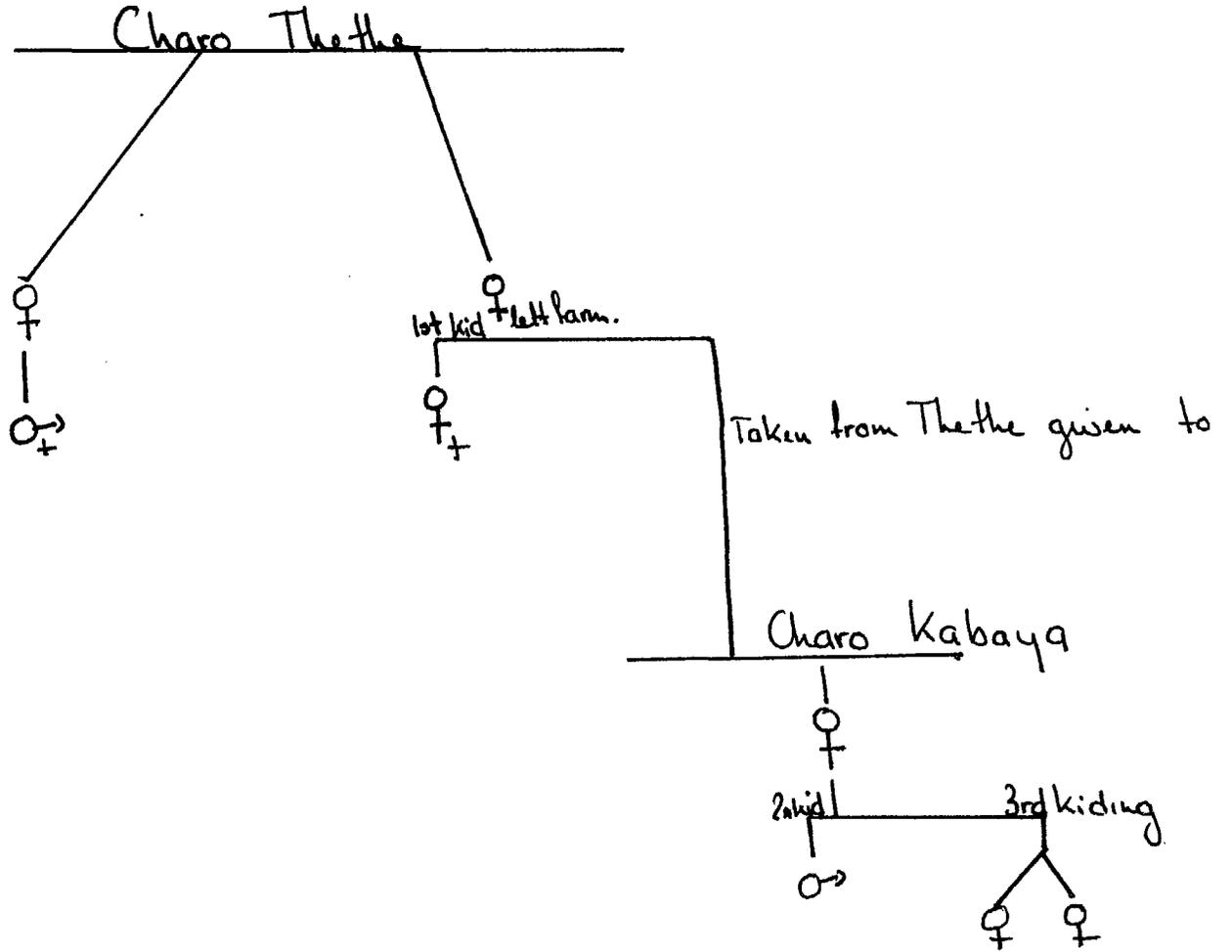
Kalindi Kitsoo Dunder



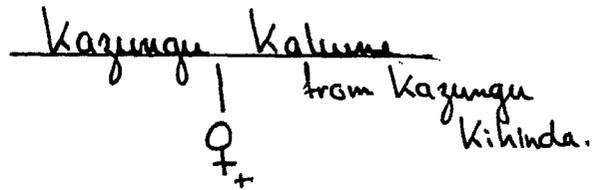
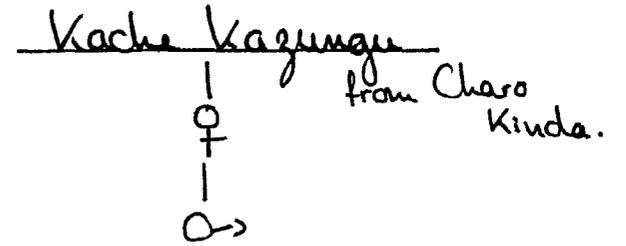
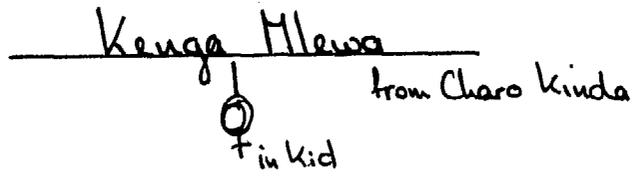
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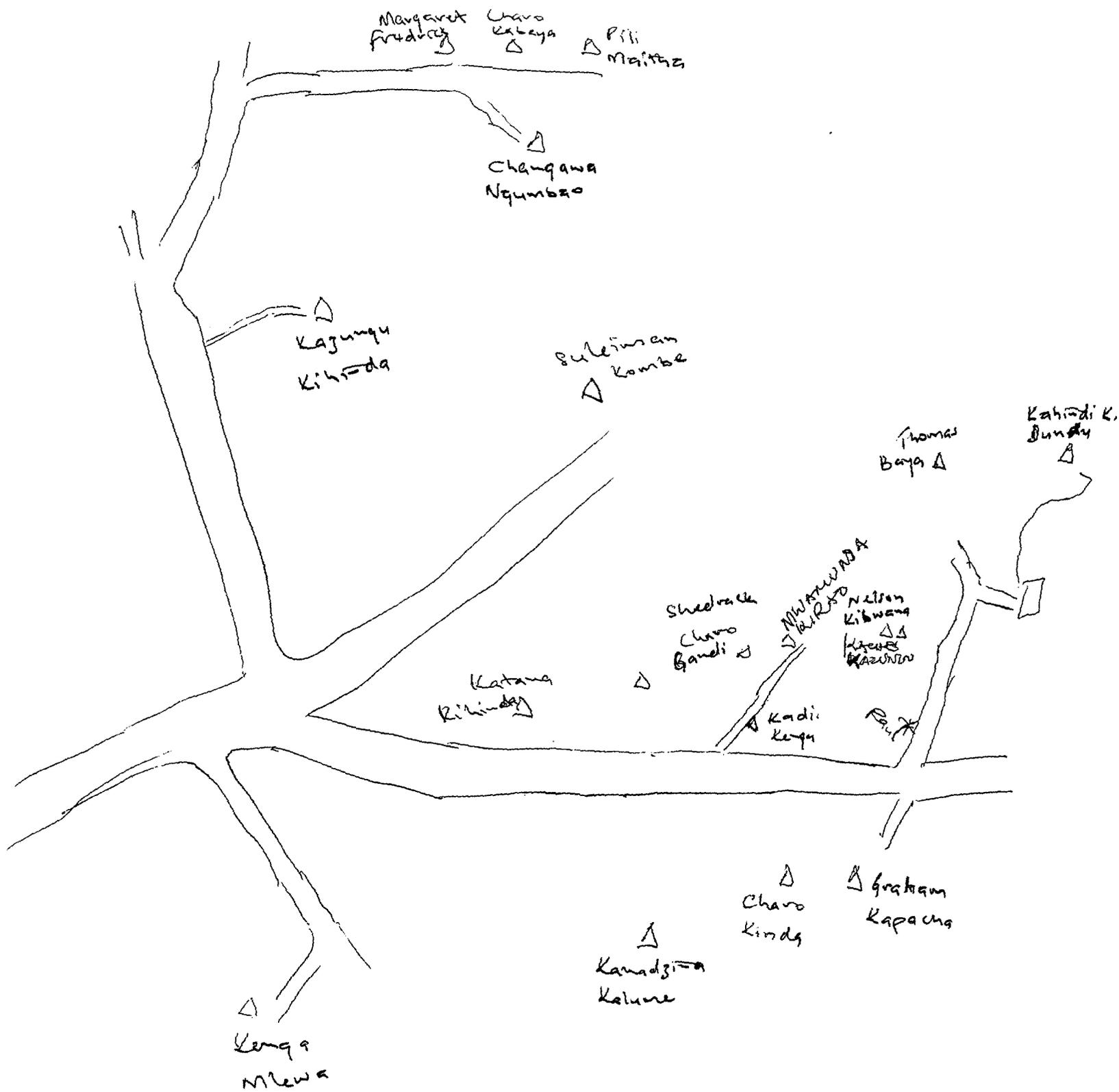
Family Tree of KDPG in Kilifi (Original Farmers)

76



Family Tree of KDPG in Kilifi (pass-on farmers)





77

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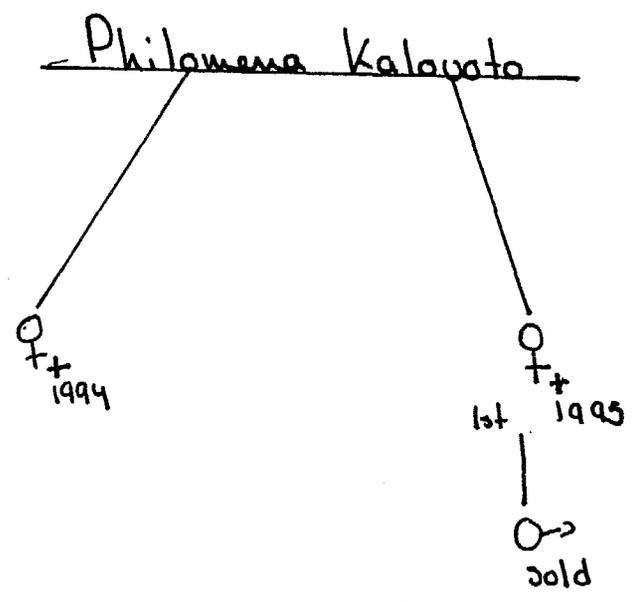
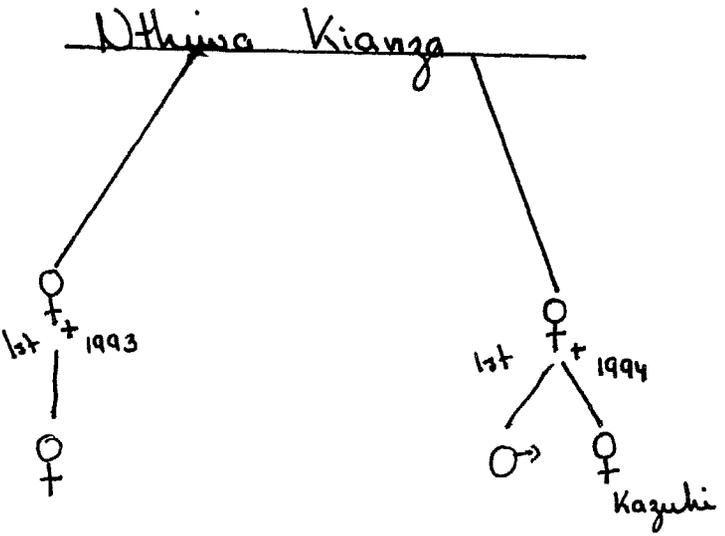
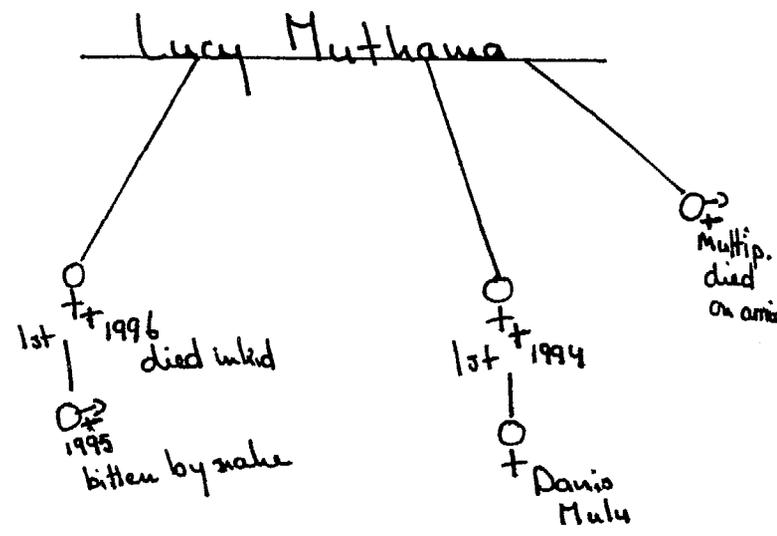
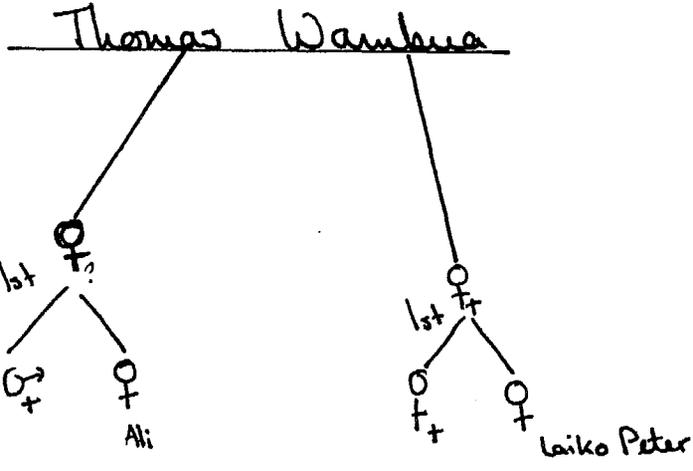
Appendix 6:

Family Tree of the Pass-on system and Map of Kitanga as represented by the field assistant

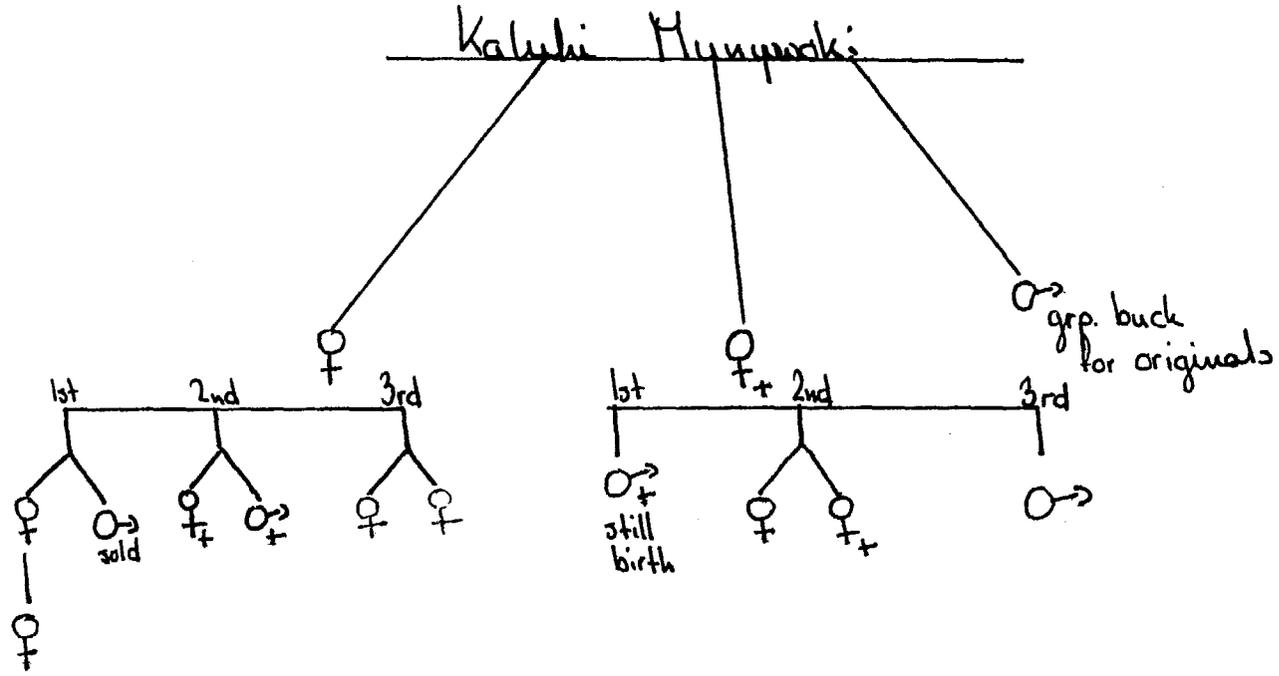
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Family Tree of KDPG in Kitanga (original farmers)

20

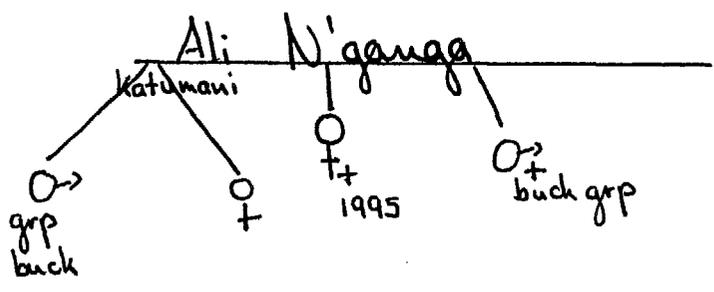
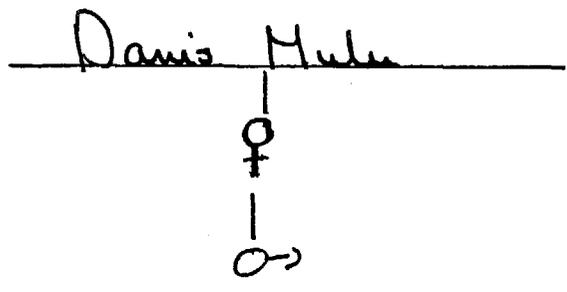
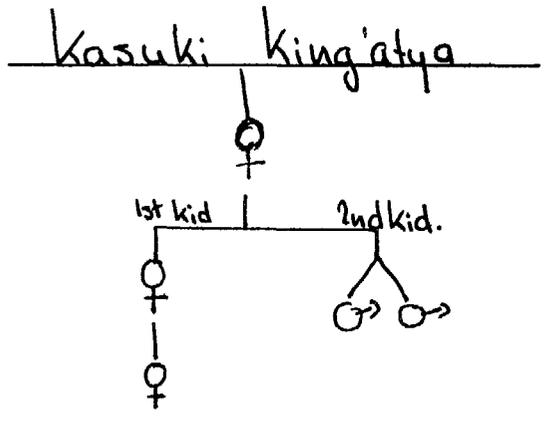


Family Tree of KDPG in Kitanga (original farmers)



Family Tree of KDPG in Kitanga (pass-on farmers)

11



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KITANGA DAIRY GOAT SELF HELP GROUP OF KATHEKAKAI LOCATION
KITANGA SUB-LOCATION

1. Committee members will be allowed to hold the post for one year.
2. The age for the doeling to be passed on is five months. The buckling born by the doe will belong to the farmer.
3. They are not ready to or other they will have the right to take a doe from the farmer who is receiving it if he allows it to cross with the local then it kids to un-pure breed, the farmer will be left with the doeling kidded then they take the mother (doe).
4. In case of twins and they are both doelings, the group members will take one of the doelings and the farmers will be left with one of the doeling.
5. In case of triplets, two bucklings and one doeling, they will take the doeling to pass on.
6. If a DPG becomes sick, the farmer is supposed to report immediately to the committee for them to see if there is any help that they can give.
7. The multiplication buck is not supposed to be given to none group members, and if a farmer gives it out to be used by a non-group member, that farmer will pay 200/= to the group and if the member refuses he will canceled from the group.
8. If a member fails to attend the meeting for three times he/she will be canceled from the group.
9. A member is not supposed to gossip about the group, if a member gossips he or she will pay 50/= and if he or she refuses to pay he/she will be canceled from the group.

The members also decided to contribute 20/= every month to open an account and when the account will be having 10000/= they will be voting and if a members wins he/she will receive 2000/= to build a water tank.

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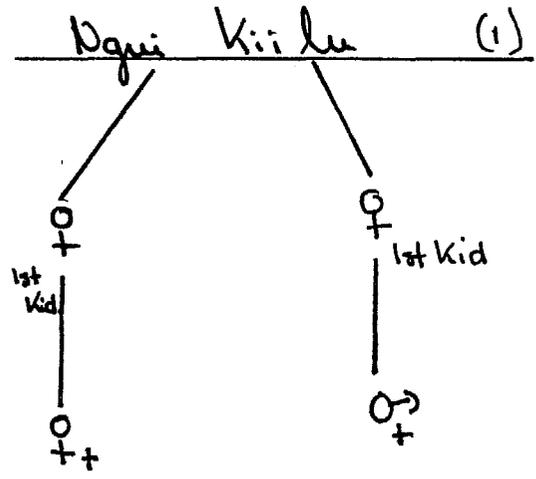
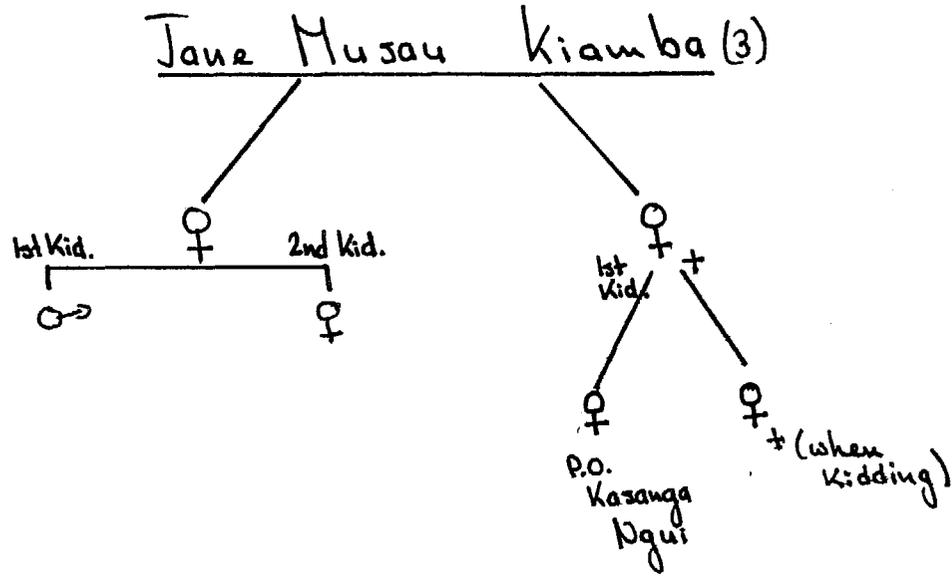
Appendix 8:

Family Tree of the Pass-on system and Map of Kimutwa as represented by the field assistant

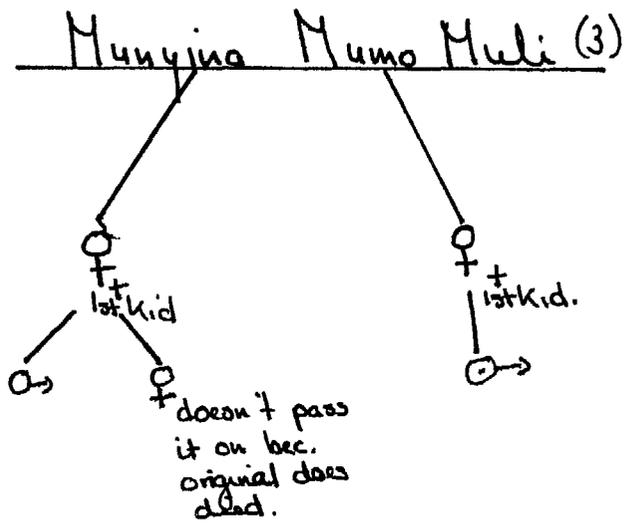
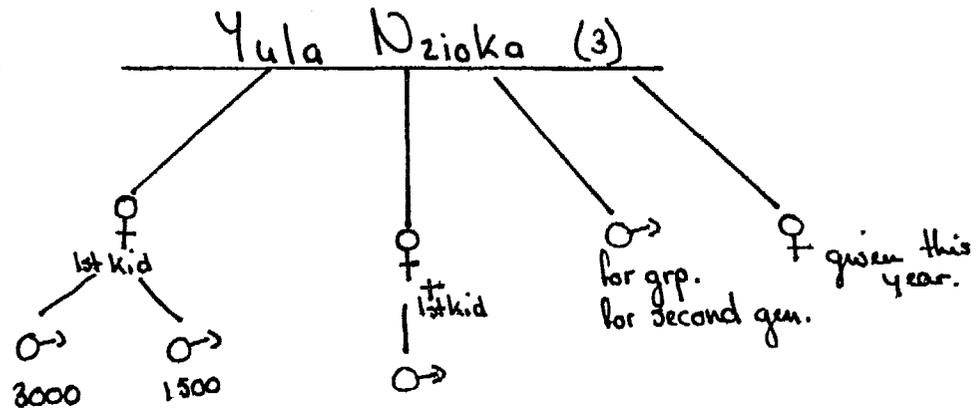
84

Family tree of KUTG in Nimitwey village

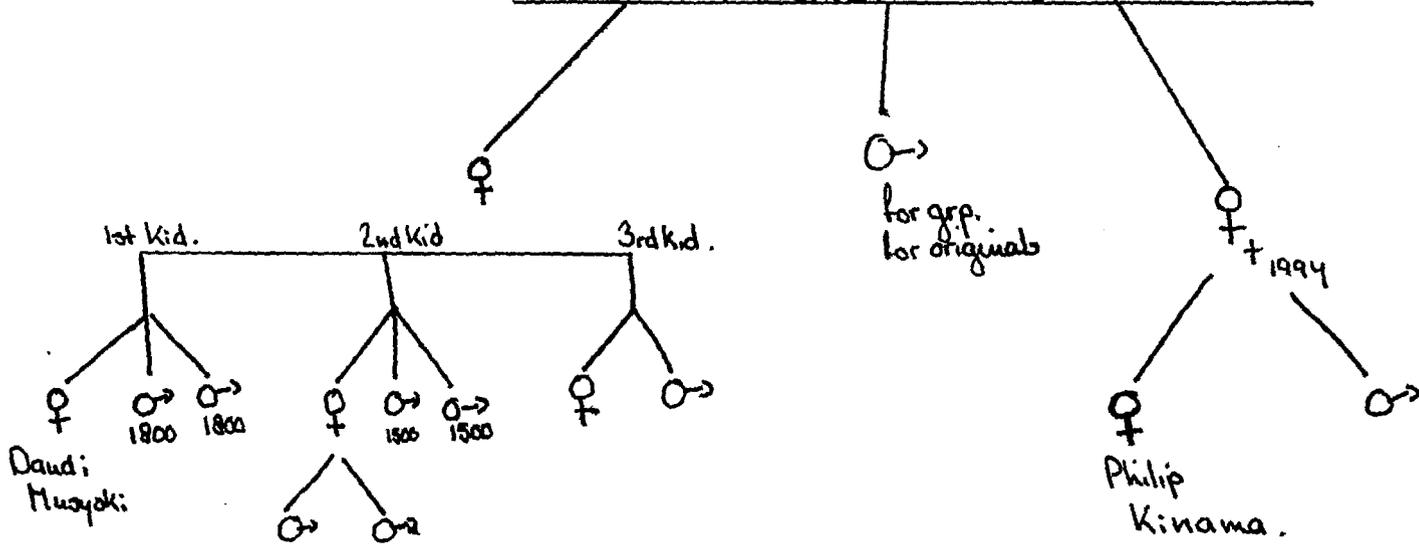
9



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Musembi Kijilu

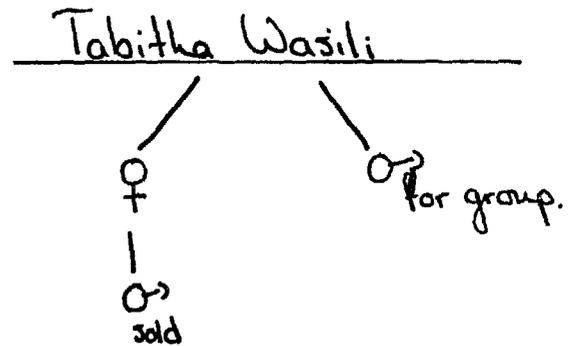
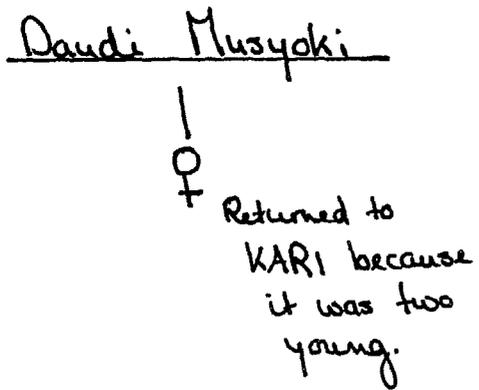
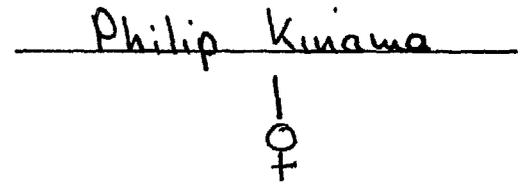
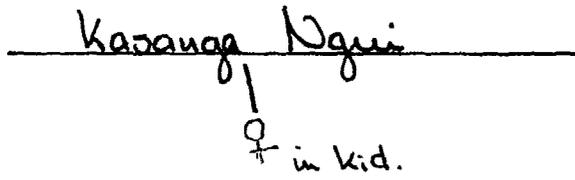


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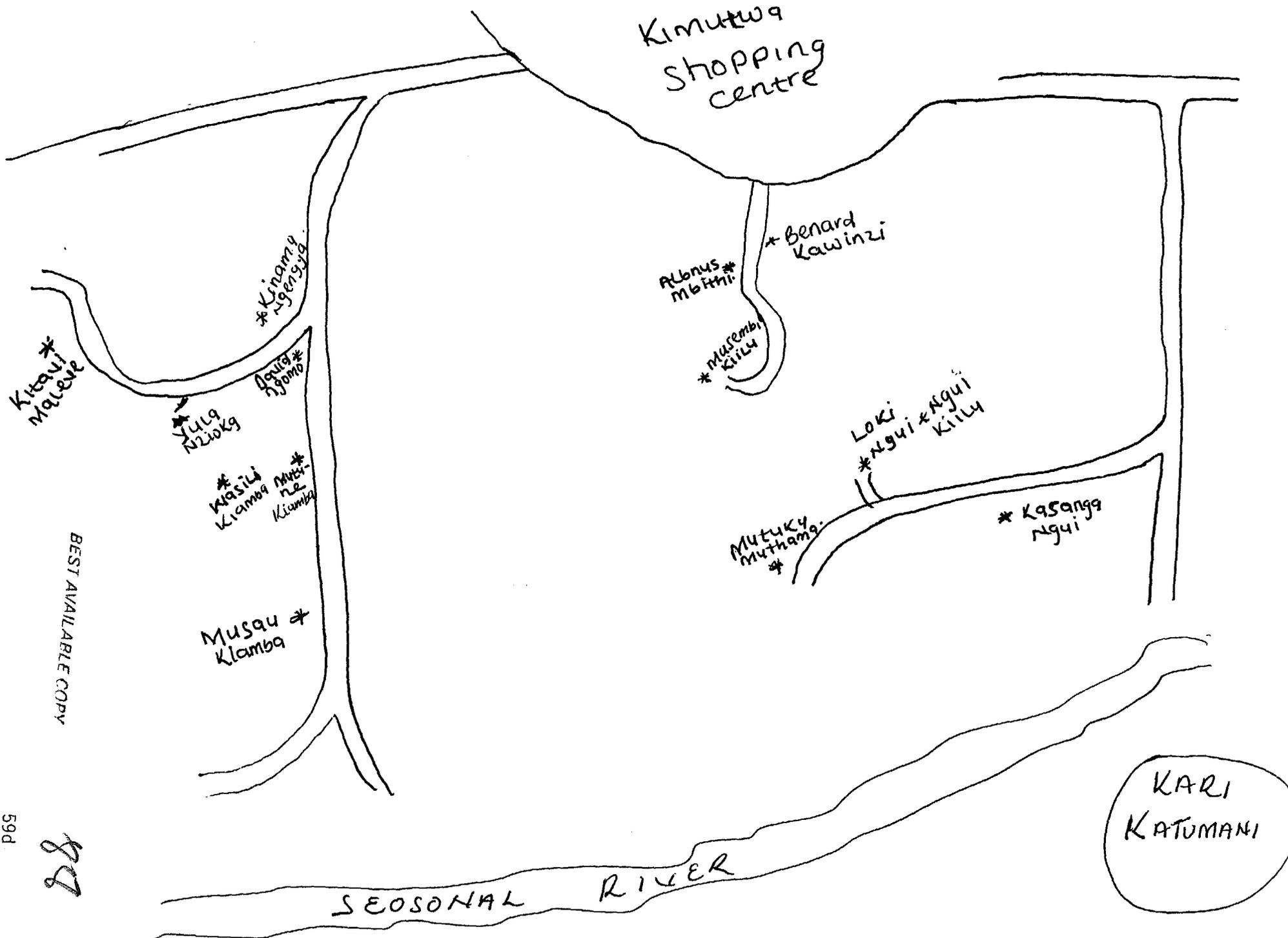
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Family Tree of DPG in Kimutwa (pass-ons)

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KARI
KATUMANI

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