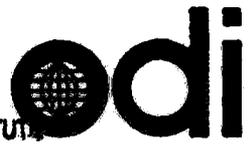


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Working Paper

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ENVIRONMENTAL CHANGE AND DRYLAND MANAGEMENT IN MACHAKOS DISTRICT, KENYA 1930-90

INSTITUTIONAL PROFILE

edited by Mary Tiffen

A. Akamba Institutions and Development, 1930-90
by Judith Mbula Bahemuka and Mary Tiffen

B. NGOs and Technological Change
by J.W. Kaluli

**Results of ODI research presented in preliminary form
for discussion and critical comment**

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WORKING PAPER 62

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OF ARID, SEMI-ARID AREAS AND WASTELANDS
Nairobi, Kenya

Preface and Acknowledgements

This Working Paper is part of a study which aims to relate long term environmental change, population growth and technological change, and to identify the policies and institutions which are conducive to sustainable development. The first stage, published in these Working Papers, is to measure and assess as precisely as the evidence allows the changes that have occurred in the study area, the semi-arid Machakos District, Kenya, over a period of six decades. Degradation of its natural resources was evoking justifiable concern in the 1930s and 1940s. By several measures it is now in a more sustainable state, despite a five-fold increase in population. A long-term perspective is essential, since temporary factors, such as a run of poor rainfall years, can confuse analysis of change if only a few years are considered. The study is developing a methodology for incorporating historical, physical, social and economic data in an integrated assessment. The final report will include a synthesis and interpretation of the physical and social development path in Machakos, a consideration as to how far the lessons are relevant to other semi-arid environments, and recommendations on policies for sustainable economic growth.

The project is directed at ODI by Mary Tiffen, in association with Michael Mortimore, research associate, in co-operation with a team of scientists at the University of Nairobi, and with the assistance of the Ministry of Reclamation and Development of Arid, Semi-Arid Areas and Wastelands in Kenya. We are grateful to Professor Philip Mbithi, Vice-Chancellor of the University of Nairobi, for his support and advice. We also thank the Overseas Development Administration, the Rockefeller Foundation and the Environment Department of the World Bank for their financial support. ODI Working Papers present in preliminary form work resulting from research undertaken under the auspices of the Institute. Views expressed are those of the authors and do not necessarily reflect the views of ODI or supporting institutions. Comments are welcome, and should be sent directly to the authors or project leaders.

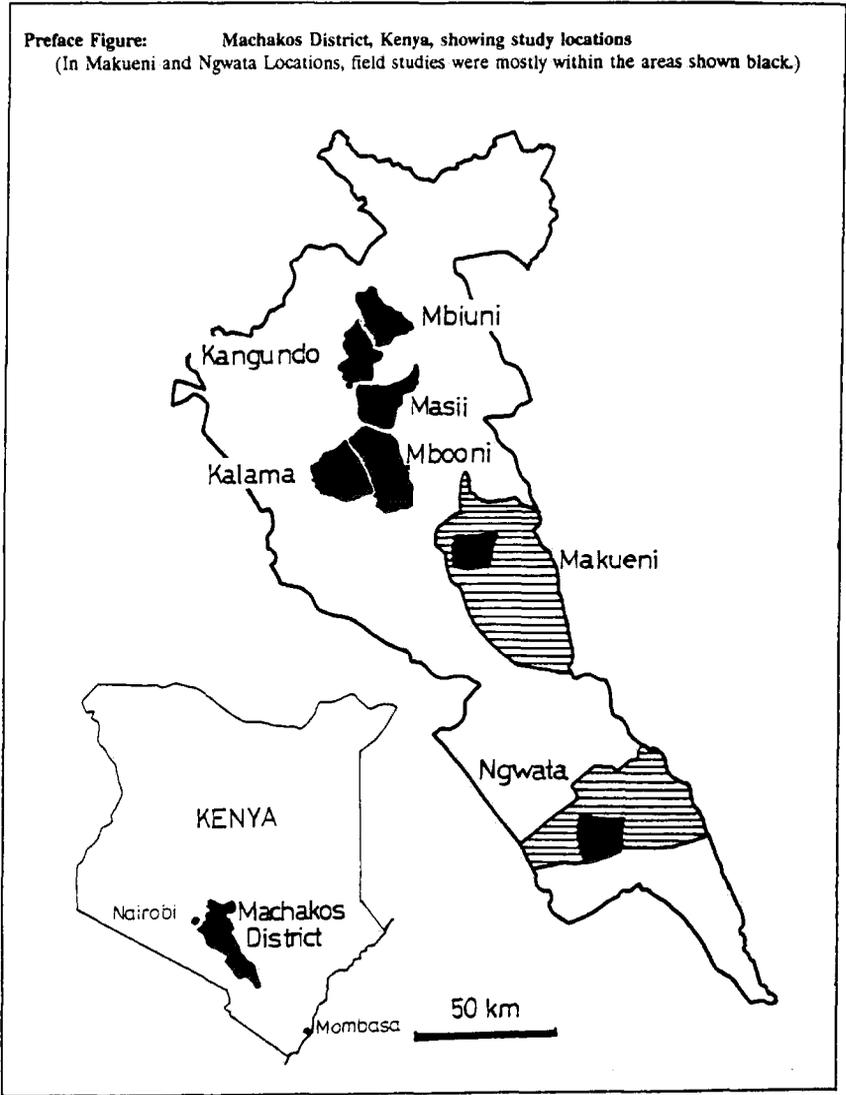
Other titles in this series are:

- Machakos District: Environmental Profile
- Machakos District: Population Profile
- Machakos District: Production Profile
- Machakos District: Conservation Profile
- Machakos District: Technological Change
- Machakos District: Land Use Profile
- Machakos District: Farming and Incomes Systems
- Machakos District: Tree Management

The principal authors of the Institutional Profile are Professor Judith Mbula Bahemuka, Department of Sociology, University of Nairobi, Dr Mary Tiffen of the Overseas Development Institute (who is also the editor), and Mr James Wambua Kaluli, Agricultural Engineering Department, Jomo Kenyatta University College of Agriculture and Technology, Nairobi.

The objectives of the paper are to describe the institutional changes in the period of study and their contribution to technological change and increases in productive capacity.

Preface Figure: Machakos District, Kenya, showing study locations
(In Makueni and Ngwata Locations, field studies were mostly within the areas shown black.)



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INTRODUCTION

Mary Tiffen

This Working Paper consists of two unequal parts. Section A, *Akamba Institutions and Development, 1930-90*, by Judith Mbula Bahemuka and Mary Tiffen, examines the main elements of Akamba society in their relationship to the transmission of knowledge and the increase in organisational ability, particularly the ability to accumulate and use capital assets, to invest these selectively in new technologies, and to influence government policies. The development of human capacity, including that of women and the young, is a striking feature of the Machakos story. This occurred through education, travel and trade. In part it was reaction to government programmes or mission and NGO activities, but probably most credit should be given to the way people were able to develop indigenous institutions such as the family and mutual-help groups, in response to new circumstances, challenges and opportunities. While at the beginning of the period of study indigenous institutions operated at a very local level, by 1990 they were linked into national and even international networks, through which ideas, technologies and capital flowed.

Section A concludes by looking at some of the limitations under which government programmes currently operate and at the changing relationships between national government and local participation. Development has always relied in part on self-help activities. Recently self-help has been augmented by considerable NGO assistance. External NGO funding has become important since media attention was given to African famines, and in Kenya this has coincided with increased shortages of government operational and development funds. In some fields, such as community development, there are now far more NGO-supported staff than government-supported staff. Much current activity in conservation and in the promotion of new economic activities is carried out by self-help groups with, in many cases, substantial assistance from the NGOs with whom they have made contact. The largest NGO is itself one of the new institutions that has grown up during the period of study: the Catholic Diocese of Machakos. While some NGOs operate within a framework that is supportive of local agenda-setting, in a few cases they have attempted to impose agendas, or have provided counter-productive amounts of assistance. On the whole, it can be said that Machakos people are well able to manipulate the NGOs for their own purposes. Some of the current activities of a variety of NGOs are examined in Section B, *NGOs and Technological Change*, by J.W. Kaluli.

We owe much to discussions with Professor Philip Mbithi, at the time Vice-Chancellor of the University of Nairobi, who has worked on the social development of his home district since the 1960s. His insights have often directed us, as will be clear from the theoretical framework we have adopted. Also extremely important to us was the deep knowledge of the men and women of the district of Mr Peter Muasya of Muisuni Sub-Location, Kangundo. He was for many years the District Community Development Assistant for Machakos County Council. Through him we were able to contact community leaders, both men and women, in five sub-locations, and to meet many outstanding individuals who have played their role in the transformation of Machakos. Amongst these were Mr Onesimus Musyoki, now a

leading farmer in Makueni, and an agricultural officer there when the settlement was new; Mr Thiaka of Muisuni, born about 1906, a former Councillor for Kangundo who helped pressurise for the introduction of coffee; and Mrs Veronica Musyoki, Chairman of KANU, Nseveni sub-location, Mbooni, who exemplifies the changed role of women. We were also fortunate that Mr George Mbate, currently Chief Planning Officer in the Ministry of Reclamation and Development of Arid, Semi-Arid areas and Wastelands, was one of the advisors to the Project. He was formerly Programme Officer for the Machakos Integrated Development Programme.

Initial findings were presented at a Workshop in Machakos, in September 1991. Participants included the academic staff of the University of University and Jomo Kenyatta University College who had carried out the various studies, Departmental officers now serving in the District, representatives of the Ministries of Agriculture at national level, ten farmers and representatives of local NGOs. We are also grateful to them for the further insights which were then provided.

A. AKAMBA INSTITUTIONS AND DEVELOPMENT, 1930-90

Judith Mbula Bahemuka and Mary Tiffen

I. AIMS AND METHODOLOGY

1.1 Aims

Social institutions are legal or social machineries for directing and executing activities that are required to satisfy basic needs. They can also be seen as associations which govern most people's behaviour, but which are not necessarily defined by law. We are not attempting a comprehensive description of Akamba¹ social institutions. The aim of this paper is limited to describing developments between 1930 and 1990 in those institutions which societies use for matters crucial to economic development:

- transmission and acquisition of knowledge, skills and organisational ability;
- accumulation and use of capital assets, especially for farm improvements, and the development of local infrastructure and trade; this is markedly affected by changes in land tenure;
- influencing national leadership on general policies and services.

During the period under consideration, Machakos District experienced various extreme situations: droughts leading to famines, establishment of settlement schemes, land alienation, destocking campaign and increased soil erosion. To be able to respond to these situations, new structures and machineries were created and older institutions experienced change at different levels. Social structure became more complex or differentiated, with more specialised institutions. A school of thought important in the 1960s associated growth in complexity with the ability to process knowledge and to adopt and use innovations.² Currently, many sociologists are more pre-occupied with the 'empowerment' of underprivileged groups to enable them to get better access to state resources. This, however, is only one possible consequence of the diffusion of knowledge. We prefer therefore to take as a key social variable the mechanisms which facilitate the communication of knowledge. Knowledge, to be effective, has to be implemented, which requires ability to raise capital and organise labour. Successful implementation may require complementary facilities which only

¹ The Akamba tribe is a northerly member of the Bantu group. The majority live in Machakos and Kitui Districts, Kenya (Morgan, 1967).

² Applied and confirmed in regard to East African communities, including samples from Machakos and Embu in Kenya and two areas in Uganda, in P. M. Mbithi's thesis, 'Social differentiation and agricultural development in East Africa', 1971. His theoretical approach derived especially from F. W. and Ruth Young, in *Towards a theory of community development*, 1963, and other publications.

governments can easily provide, or it may require a change in government policy. We must also, therefore, be concerned with those institutions which facilitate good communication between government and governed.

Growth in complexity and differentiation can be seen not only at the farm and family level, but also at the village level. Improvements in village communications lead to improved flows of information, and improvements in other facilities. Hence, society becomes better able to react to disasters and to seize opportunities for improvement in farming, marketing, and other income-generating activities. Mbithi constructed two scales for villages in Eastern Kenya first on the basis of presence of such items as primary schools, tea houses, shops, co-operatives, churches, dips, agricultural extension, banks, etc, (community differentiation) and secondly, in terms of its physical links by roads and paths to other centres (relative centrality). These are shown for the Machakos villages he surveyed in Table A.1. Mbithi found that high relative centrality was associated with increasing or high community differentiation, which in turn is associated with increasing or high farm differentiation (Mbithi, 1971a:171). The village facilities associated with centrality and differentiation are provided in part by individuals (shops, etc), in part by community effort and self-help, and in part by government action. Centrality, meaning a good communications situation, helped to cause growth in village differentiation, since villages with good communications heard what was going on elsewhere, getting both knowledge and inspiration to create facilities themselves. The development of leadership and organisational skills at the village level assists this process. Economic development therefore reflects not merely what is happening to the average farmer, but also growth in the capacity of social institutions. Our emphasis on the social institutions which diffuse knowledge is in consonance with the belief that sustained economic growth over a long period of years can only be understood if knowledge, (leading to technological change), is considered as an additional factor of production, and that growth is also related to the openness of an economy (theoretical work of Paul Romer discussed in *The Economist*, 4 January 1992; Romer, 1989).

Table A.1: Relationship of community relative centrality, community differentiation and farm differentiation, in Machakos, 1968

	<u>Village</u>		
	<i>Riakanau</i>	<i>Karaba</i>	<i>Kimurwa</i>
Village relative centrality ratio ^a	12.6	20.0	32
Village level differentiation ^b 1968 position	5	6	9
Median farmscale ^c position for farms	4.5	5.5	7
Scale step under which ^c 80% of farmers fall	5.5	5.8	8.4

Notes: (a) Measure of excellence of road communications.
 (b) Score of community facilities.
 (c) Measures of farm type, commercialisation and technology.

Source: Mbithi, P.M., 1971a, Table 48.

The Working Paper starts by describing the basic Akamba institutions: family, land tenure, mutual help groups and local leadership in the period 1930-45. It shows the ways in which they have since become more complex and more open to external and internal information flows. Central to this story are the self-help groups, which developed a much wider leadership base in society, provided new means of organising capital and labour, and developed national and international linkages. It then examines the main agents of change, official and unofficial, including the churches, education, developments in trade, extension services and government policies towards popular participation and agricultural development. It concludes by considering the policies and institutions which have most facilitated an appropriate social context for technological development.

1.2 Data Base

The study utilised several methods for gathering information. These included analysis of previously published or archival materials, interviews with key informants, group interviews with local leaders and discussions with key government officials. Group interviews were carried out in five sub-locations in each of Kangundo, Masii, Mbooni, Makueni and Ngwata locations. The rationale for selecting the areas was that, Mbooni and Kangundo are in Agro-Ecological Zone (AEZ) 2 and 3, Masii is in AEZ 4 while Makueni and Ngwata are recently settled areas in AEZ 5 and 6. In the first three we also had some description of the situation in the 1960s through the study then carried out by Owako (1969). The group interviews proved a valuable method of tapping oral history and served to confirm or elucidate information gathered from official district records and academic studies. An important baseline report is by H. E. Lambert, who carried out interviews with the elders of the reserve in 1945 (KNA: Lambert, DC/MKS/1/7/1).

In the group interviews, the researchers, with the help of an open-ended questionnaire, discussed with a group of the older men and women leaders (invited to meet us with the help of the District Administration and the Community Development service) some important institutions and how these functioned at three easily identifiable epochs: 1945, when many Akamba soldiers returned from the war; 1960-3, the years immediately preceding Independence, and the time of the interview, 1990. The initial aim was to interview men and women leaders separately. However, at Kangundo it was apparent that the large group who had assembled would prefer to discuss the questions together³, and that the women present had no inhibitions in taking part. At Makueni a delayed arrival led to a single interview. At Masii, Mbooni and Ngwata the original intention of separate interviews were carried out. Thus, there were altogether eight interviews, normally with 8-12 participants. While the Location Chief and the Community Development Assistant (CDA) facilitated the interview, they did not take part. The types of person present varied, but they generally included former Councillors and the elected officers of self-help and women's groups. Others attending were clan leaders, pastors, teachers, leading traders, retired government officials, traditional healers,

³ Fortuitously, the sub-location Muisuni, selected because Owako had studied there in the 1960s, was also the home of Mr Peter Muasya, for many years the District Community Development Assistant. Mr Muasya formed a part of the study team, and his active collaboration and personal knowledge were everywhere invaluable. This was particularly the case in Muisuni, where some twenty to thirty people joined us during a day of discussions.

etc. All these people were also practising farmers. In addition, fifteen key informants were interviewed separately.

2. CHANGE IN THE BASIC ELEMENTS OF AKAMBA SOCIETY

2.1 The Family

2.1.1 The family as an economic unit

The Akamba family is the basic unit of socialisation, production, consumption and investment. The ideal family in the conception of the 1930s was an extended family based on polygyny, including adult children. The extended family was part of a more diffuse clan. The larger the family, the greater a man's territorial sphere of influence, through clan and kinship mechanisms, as his older sons settled elsewhere.⁴ The nuclear, monogamous family was seen as a stage in the family developmental circle or it was imposed by economic circumstances. Polygyny in itself was prestigious: only the very rich could afford it because of the rules on bridewealth. Bride price was paid mainly in cattle and goats. A family's livestock was therefore intimately bound up with its past and future and had immense significance. The chief capital asset and the most productive (although highly risky) investment was livestock. The rules of inheritance were based on polygyny (see Ndeti, 1972; Mbula, 1974; 1977).

The ideal to be striven for was a family possessing large herds, a plot of land in a valley bottom or with the capability of being irrigated, (which both gave some food security and provided sugar cane for the beer which played an important role in older males' social networks), and other fields for staple foods. Not every family attained this ideal. Some attained it, and then lost it, if disease or drought afflicted their herds. Some families have always owned more cattle and goats than others. A man with much livestock was able to marry more than one wife, and have many children, increasing his agricultural labour force, his farm size and his prestige, so some families became more wealthy and influential than others.

Older married sons usually remained part of their father's household initially, before forming new households on previously uncultivated land. They retained a feeling of responsibility towards the family head and those remaining in his household. This was true not only for those who formed farms elsewhere, but also for those who left home to work. If the family head or his unmarried adult children were away from home earning, as became increasingly common in the period 1930-60, they tended to contribute at least part of their earnings to the support of those at home. This situation continues today. If adult children earn locally and live at home, they normally contribute to some farm activities and would be counted by the head of the household as part of the farm unit. Even if adult children have established a new

⁴

Clan and kinship relationships are discussed later in the section on local leadership.

household based on a non-rural occupation, they may continue to make a contribution either to their parent's general welfare, or to the improvement of the farm which lies at the heart not only of the family economy but also of family affections. Land ownership is an essential expression of the Akamba psyche.⁵ Younger members working away may return during holidays or weekends and contribute to the work force at peak periods. The extended family, therefore, is an important economic unit, in which capital and labour can flow to and from sub-units which manage different farms, or different occupations.

The fluidity of the economic boundaries between the family sub-units make it difficult to define the farm household. From the 1932 population count till the 1979 census the census household has always averaged between 5 and 7 people. This refers to what we would call a family sub-unit, consisting of those sleeping under one roof. These may be the whole or part of a farm household. They may be a man, his only wife, and their children, managing jointly one farm. Alternatively, they may consist of a wife and her children, who in a polygynous household will manage her own farm within her husband's land. They may be a married son, or occasionally, a younger married brother, who manage a part of the family holding. We define the farm household⁶ as the group of people who recognise the same household head, normally the father, who have an obligation to contribute to his support (as he to them), and whose entitlement to use land derives from him. The household in farm surveys has consistently been found to average 8-10 people, larger than the census household because it may contain one or more decision-making sub-units controlling farming activities on parts of the family land. However, certain assets, such as cattle or ploughs, may be managed by the family head on behalf of all members.

In the 1930s there was still fairly strict division of labour by age and sex. Breaking new ground for planting was, for example, done by men, while weeding was done by women and children. Chasing of birds and taking care of livestock was the work of young boys. Younger family men and boys might spend part of the year at a distance, at a cattle post looking after livestock.

2.1.2 The family as an educational unit

Traditionally, the family was the agent for transmitting basic human values and for passing on from father to son and mother to daughter the knowledge necessary for managing household, agricultural and pastoral activities. This knowledge had been developed in a dangerously variable climate, in a situation where land was plentiful

⁵ Akamba colleagues in the University of Nairobi half laughingly acknowledge they cannot help but spend time and money on the family farm.

⁶ The Central Bureau of Statistics has found it necessary to extend the concept of household when carrying out rural surveys. It defines household as 'a person or group of persons normally living together under one roof or several roofs within the same and sharing a community of life by their dependence on a common holding as a source of income and food, which normally but not necessarily involves them in eating from a "common pot"'. Within the household there might be semi-autonomous sub-units. (Central Bureau of Statistics, 1977).

in relationship to the labour available to work it. Grandparents played a significant role in transmitting knowledge and values and integrating the young members in society, for age was respected. The family was seen as the foundation of the principles of reciprocity, equalitarianism, resource-pooling, and mutual social responsibility. Reciprocity and mutual social responsibility provide some security against disaster and the larger a person's social networks and the more people that are indebted to him or her, the more he or she can rely on help in time of need (Oliver, 1965:147). This principle can still be seen at work today in the self-help groups and in the more informal arrangements that govern wood-collecting (see Forestry Profile). Resource-pooling within the family and within social groups based on the village remain fundamental to the building up of assets.

Equalitarianism requires more explanation. Several scholars have emphasised the value that the Akamba put on the individual, and relate this to their disinclination to invest any single person or group with too much power, which, as we shall illustrate later, meant that there was no hierarchical leadership structure. However, at the same time, certain classes of people were particularly respected. One such class was the senior age-grade. It was the oldest men in the village who formed its council. A second such category were the male family heads, who controlled all other family members. Men as a category rank higher than women. Although some observers reported in relation to men and women 'an amazing equality (relative to other African societies) for although the man is the overt leader, the mutual obligations between men and women are highly reciprocal and in courtship it is the girl who chooses the boy' (Nida, 1962, quoted by Consortium, Report 6, 1978:44), women generally were expected to behave with respect towards men and to obey their lead. Within each category social equality is accompanied by respect for the wealthy, successful individual and achievement is desired and emulated.

2.1.3 Changes within the family, 1930-90

The Akamba family, however, has experienced change over the years in its economy, the processes of socialisation, and in family size and structure, (Mbula 1974; 1977). The traditional family, where wealth and prestige were measured by the number of wives and the size of the herd, is no longer the ideal.

Since the 1930s, the family has become cash oriented in its division of labour and resource utilisation. Modern economy pressurised the family towards cash exchange for basic needs beyond those supplied by the family, such as school fees, clothing, medication and household effects. The pressure for a minimum cash income led to rural-urban migration. At first this was almost exclusively by men (see Population Profile) so it enforced change in sex roles. Studies by Heyer (1966); Matingu (1974) and Mbithi and Bahemuka (1981) indicated that at times over 40% of families in rural Machakos had absentee male adults. An increased acquisition of male roles and tasks by women - such as house repairs, breaking ground for planting, using the plough and determining family policy on youth education was being experienced. It led to an increasing economically-imposed maternal dominance. The resultant change brought about higher proportions of split and single parent families. Divorce, which was traditionally frowned upon, became more common. Male migration, absenteeism and,

more importantly, the frequent inability of the male to obtain gainful employment and exert his role in supporting his family could lead to male alienation and alcoholism (Mbula, 1974; 1986).

However, many families successfully surmounted these strains, and evolved a new marital relationship based on shared decision making, and shared work roles on the ever smaller farms. In a Kenya wide study, in 1986, men reported that husbands made the major household decisions in 65% of cases, the wife in 6% and both together in 20%. (Women respondents tended to report rather higher numbers for decision making by the wife or jointly). As far as day to day farming decisions were concerned, the husband was said to make them in 44% of cases, the wife in 21% and they were made jointly by 28% (Mbula Bahemuka, 1986). (This excludes the households with female heads with no husband). In Machakos, the importance of female decision-making within the household is likely to be above the average, due to the higher than average status of Akamba women within society.

In the area of family size and structure, there has been an increasing tendency to nuclear families. This change from extended to nuclear family has been due to elite individualism, which was brought by christianity and western education. Christian values emphasised the marital bond and the 'unity of body' (Mbula, 1977). By the late 1970s the nuclear family had become the norm in older settled areas. In 1979 Meyers found only 6% of polygamous household in his sample. Although 32% of households had 2 or more sub-units, these included not only second wives, but also households with married sons or married brothers (Meyers, 1982:150). In more newly settled zones, where land was available to those who could cultivate it till the 1970s, polygyny remained common until later, for additional wives gave control over additional farm land. Village leaders said most men were polygynous in Ngwata in 1990 - confirmed by a CARE survey in the Kibwezi area in 1990.

For a long time, the Akamba family relied on the clan and kinship during times of disaster and conflicts. Every Akamba belongs to one of 25 clans, and marriage should be with a member of a different clan. With family members searching for employment and for land to settle, clan social control mechanisms have diminished. This was already reported in 1972 (Ndeti, 1972:73, quoted in Consortium, Report 6, 1978:39). Farmers attending a workshop held in Machakos in September 1991 to discuss issues arising from this research agreed that clans were only felt to be important by people aged 40 or more. However, they also agreed that the family in its loose extended form, which includes close relatives no longer residing on the farm, remains the most important mechanism for collecting and concentrating capital for the development of the farm.

A positive aspect of the change to nuclear families is that men no longer confine themselves to defence, clearing land for new farms and caring for livestock, but, if their main role is farming, like the women they may contribute to all stages of crop production. In the 1960s Mbithi observed that men did not participate in traditional female roles in farming or even self-help activities. He characterised them as sitting about idly or seeking about for beer, or a feast or a political meeting or *baraza* (Mbithi, 1971c:24). Now, one woman leader in Mbooni told us, men have become

more helpful. The farm labour force has become more flexible. It is, however, reduced in size and it is still predominantly female, since more men than women have off-farm jobs. With young people going to school or working off-farm, parents or hired labour have taken over most of the activities children traditionally performed. If the father is away or in a non-farm occupation, these additional tasks add to the daily load on women. At times of peak labour requirements, many of the off-farm workers, male and female, may return to give a hand.

Traditionally, grandparents played a significant role in transmitting knowledge, values and integrating the young members in society. Over time socialisation and humanisation of the young was taken on by churches, education institutions, peer groups and other organisations like youth clubs. Between 1930 and 1960, most Akamba parents were less educated in book knowledge than their children and hence suffered from knowledge insecurity. The socialisation process shifted from parent-child to child-parent, with the parents suffering from cognitive dissonance. The shift, however, has had some positive impact since such young people have been agents of technical change in their families (Mbula, 1977; 1986). On the other hand some traditional knowledge, for example in regard to trees for fodder, medicinal purposes or famine emergency, was decreasing amongst younger members of the community, especially men. Male absence, and the respect for school knowledge, was impairing transmission of knowledge from the old to the young (Rocheleau, 1991).

Mbiti (1966), writing about the Akamba family, argued that children were of great importance to the family because they preserved the 'chain of humanity' and it was through children that the family name was perpetuated. Today the Akamba parent does not only seek the perpetuation of the family but wants to see children get the best of education and the best jobs in urban areas. These parental aspirations have brought about fast change in the family. Youth get educated and migrate to towns to look for employment. Those that get employment remit some cash back to the rural areas. This helps the family with capital to start new innovations. Other youth become frustrated and fall into crime and a total dislike for rural life.

2.2 Land Tenure

2.2.1 The position in 1930

The usual mechanism for acquiring arable land was by a person or family moving into an unsettled area, *weu*, and fencing it to keep wild animals away. The settling on this *weu*, the fencing, the clearing of the bushes and the building of a hut to live in was the initial step towards ownership of the land. Once the head of the family or his wife had cultivated it, it became family property known as *ng'undu* which was inheritable. The cultivation need not be continuous to maintain rights; the land could be fallowed with security. A man could even allow others to graze on the fallowed land, establishing a temporary grazing ground (*kisesi*), but such a tenant had to leave when the owner required the land back, according to Akamba representatives on the Reconditioning Committee in 1935 (KNA: DC/MKS/12/2/2). A family could claim exclusive rights to a *kisesi* by establishing a cattle post (*syengo*) and marking the

surrounding trees. Exclusive grazing rights only endured so long as the area was actually used; if the cattle post was abandoned it reverted to *weu*. If part of the *kisesi* was cultivated, it became *ng'undu*. Lambert (1945:26) argued:

The sense of ownership of a kisesi was never as strong as the sense of ownership of a ng'undu. A ng'undu was regarded as a necessity because it meant subsistence and subsistence was generally recognized as a primary right of every Akamba. (KNA: Lambert).

Grazing areas and some cultivated fields might be relatively distant from the home base. As the family grew, young men who herded together might locate the site of a new settlement (*utui*) in the *weu*, bringing their wives to cultivate new *ng'undu*.

In 1930 land was administered under Akamba customary law, with a few modifications in those areas where settlers, government officials, institutions and missionaries had influence. Local clan elders were, and still are, adjudicators in all land disputes. Land sales and land alienation were practised by some individuals. Two respondents in Kangundo in 1990 agreed that the father of one had sold a piece of land to the father of the other (who had inherited it and still farmed it) around 1920 in exchange for a goat. Such transactions were socially recognised by the customary authorities but not officially recorded. Other individuals currently hold land by certificates of sale confirmed by the District office and dated in the 1930s. Sale of land in Machakos is, therefore, not new but part of traditional land acquisition. Lambert (1945:57) reported

This method of acquiring a new ng'undu or a kisesi is the basis of the Akamba statement that the outright sale of land was always customary among them. (KNA: Lambert).

Despite these statements from the elders, Lambert thought that an increasing frequency of sale was in 1945 a recent phenomenon, and that until the Machakos Akamba came into contact with the British and for some years afterwards,

... their general principle in regard to outright sale was that, uninherited agricultural land could, but very rarely, be sold and that the possibility of sale of inherited agricultural land was approximately in inverse proportion to some power of the number of families descended in the patrilineal line from the primary holder. (KNA: Lambert, 1945:57).

He may be exaggerating the difficulty and recentness of sale, since according to Throup, he was a paternalist predisposed to communal tenure and behind the administrative resistance to individual tenure (Throup, 1987). He is presumably differentiating here between sales of land which the seller had himself cleared and

sales of land which the seller had inherited.⁷ This distinction was not mentioned to us in any of our discussions on land tenure in 1990. The frequency of sale probably increased with nearness to markets, high population density and increased competition for land. In Owako's 1964 sample 28% of those in Kangundo had purchased one or more of their plots, 17% of those in Iveti and Masii and less than 10% in Mbooni and Nzau (Owako 1969, Appendix 4). However, there are still strong family and social pressures against the sale of inherited land. If sale is necessary, it is thought correct to offer the opportunity of purchase first to relatives.

At the death of the father, the sons were entitled to inherit the land cultivated by their mother. The oldest son has a say in all major decisions regarding the land; all the sons are entitled to a share of the land parcel, although they may forego this if they have already developed a new farm. As land became scarcer with time, they became less likely so to forego. The youngest son traditionally lives on the parcel where his father's homestead is built and takes care of his mother until she dies. On land inheritance, Lambert (1945:32) says:

Neither the first-born nor the last-born son gets any great advantage in regard to land; all the brothers (sons of one woman) share more or less alike. (KNA: Lambert).

The rules of land inheritance under customary law have not changed in basic outline today, according to the village leaders we consulted. Women do not normally inherit, acquiring a right to a cultivable plot on their husband's family land on marriage. The division of the land the wife manages amongst her own sons may be postponed till her death. We were told that in some cases provision is now made for unmarried daughters. If there are no sons, the land reverts to brothers or to the clan.

It will be seen that there have long been clearly established inheritable and saleable rights to cultivated land. This encouraged the investment of family labour in permanent improvements. It is said irrigation systems were built in the Mbooni hills from the eighteenth century. The constructor obtained water rights (Penwill, D.J., 1957:53). Rights to private grazing land in 1930 were secure only for the period of actual use. Much of it was used as a common resource belonging to a particular village or clan, if near the settlement, or to the tribe more generally if more distant.

2.2.2 Institutionalisation of individual tenure

The colonial government started encouraging individual ownership of grazing land as part of its efforts to prevent land degradation. In 1938, the District Officer persuaded the Local Native Council to pass a resolution requiring people to fence or hedge both their arable holding and their *kisesi*. They were given assistance in obtaining sisal and

⁷ A distinction between cleared and inherited land occurs elsewhere in Africa; thus, in 1960 the Senior Councillor of an emirate in northern Nigeria told villagers that a man could sell land he had himself cleared, but not land he had received from another. By 1970 this had been extended to allow sales also of inherited and purchased land (Tiffen, 1976).

other hedges. In the more densely inhabited locations such as Kangundo, no unclaimed *wetu* remained, so all land was demarcated as privately owned. An elderly farmer there, Mr Thiaka, credited this with the beginning of improvement in the grazing land; from then on, he said, you could only ruin your own land, so you had to take better care of it (interview, 1990). In less densely settled areas, farms and settlements might still be interspersed with unclaimed communal grazing or *wetu*, as can be seen in the air photographs for Kalama in 1960 (Land Use Profile, Figure 5).

For a period in the 1940s some government officers, particularly in the Department of Agriculture, were against individualisation of land holdings, and thought that communal institutions (about which they had rather idealistic and erroneous ideas) should be revived as a basis for co-operative effort. Lambert (1945:45) quotes a rather disapproving memo by the Agricultural Officer, Mr M H Grieves, in 1944, complaining that:

... during these past six years, the policy for agricultural development has been based on the encouragement of individual rather than cooperative effort. (KNA: Lambert).

Grieves wanted the projected Makueni settlement to have collective group farms.

L.H. Brown, who became Chief Agriculturalist, was one of those thinking the co-operative approach fashionable around 1945 a major error. While agriculturalists generally agreed that fragmentation and African inheritance customs were a serious obstacle to sound farming, there was a battle within the Department amongst those who saw the remedy as group farming and those who saw it as consolidation of the scattered plots into one legally registered individual farm (Brown, 1968:39). By the 1950s government policy was again firmly in favour of legally recognised individual freehold tenure under a land consolidation and registration programme. Even prior to this, the settlers in Makueni, because of this their Local Native Council's strongly expressed opposition to group titles, were given individual titles. The Swynnerton Plan (1954) aimed at revolutionising African agriculture through the introduction of individual tenure and the cultivation of profitable export crops hitherto prohibited to Africans. With the introduction of new cash crops like coffee, and increased cultivation of vegetables and fruits, the government thought that individualised ownership would facilitate the use of manure and individual farmers would be encouraged to utilise better-yielding varieties. Consolidation of scattered plots was thought as necessary as secure tenure, to encourage good farm planning and to save much time wasted in moving from one plot to another.

Land consolidation was opposed in Machakos District because farmers valued having land in different ecological niches. As consolidation was initially a condition for registration the land adjudication process was delayed. Machakos District was not declared for registration until 1965, and only got its own adjudication officer in 1968. People are generally strongly in favour of registration, and it is often pressed for by those settling new areas, who want a clear title. In the older areas the process of registration can take six to seven years since it involves establishing and mapping boundaries (demarcation), hearing of objections and resolution of disputes, and finally,

when all disputes and appeals have been heard, the issue of certificates against payment of a fee. In Machakos there were many objections and delays, due to absence of some claimants working away, or disputes between sons some of whom had established a new farm in a new area but still wished to retain a claim on their mother's land. Table A.2 shows full land registration had only been completed for 35% of sub-locations by 1992. However, the process had begun in another 45%, including the important first step of demarcation. Official demarcation of clear boundaries is regarded by many farmers as the most important step, since formal title deeds are only necessary for certain purposes such as loans. Some farmers do not pay the fee to collect title deeds even when registered (Ministry of Planning, 1988). However, most farmers we interviewed thought registration valuable for preventing quarrels and disputes over ownership and improving access to credit. The process involves both arable and grazing land; in any case, by the time registration occurs there is rarely any unclaimed communal grazing left.

Table A.2:

Land registration, 1977 and 1992

	<u>% of Sublocations</u>		
	<i>Fully registered</i>	<i>In process</i>	<i>Undeclared</i>
1977	24	26	50
1992	35	45	20

Sources: 1977: Consortium, Report 6, p.54.

1992: Calculated from information given by Lands Officer, Machakos District.

Clarity of ownership and permanency of rights is a most important factor in the adoption of technology. Many farmers do not wish to invest too much money in a piece of land which does not belong to them. One of the farmers in Makueni argued:

You cannot effectively develop a piece of land unless you know it belongs to you. When I moved to Makueni, it was for a purpose. I needed a piece of land that I could officially call my land, have a title to it and settle on it without any quarrels with my relatives. (Respondent, November 18th, 1990).

By the 1980s, there was no unclaimed land in Machakos, even though the registration process was incomplete. Respondents said that land was becoming scarce. The only way to obtain land was to purchase it, since there was no unoccupied *weu*. Land sales, although still socially disapproved, continued to take place as some farmers struggled to raise money for such things as secondary education for their children, or as a consequence of failure to repay a loan. Government efforts to regulate sales and to ensure that farmers did not deprive their children of land rights had created some uncertainties, but had not stopped either sales or the belief of many individuals in their untrammelled right to sell. An Agricultural Production Survey in 1986-87 showed

97% of farmers held their land by ownership and only 3% rented (compared with 10% nationally) (Central Bureau of Statistics, 1989).

Legal registration of title has been less important in Machakos than in some other areas, because tenure had already evolved to a status akin to freehold. It is valued for the extra security it gives, particularly in situations where there may be disputes about rights of ownership or rights to settle on specific areas (as for example, where there is also government or estate land). Apart from such areas, it has not been a prior condition for agricultural development, because of the degree of security already available through customary law.

2.3 Mutual Help Groups

2.3.1 Traditional mutual help

Mutual assistance groups (*mwethya*) were traditionally based on reciprocity, accountability and mutual social responsibility. As in many parts of Africa, they pooled resources either to create new capital assets, or to make routine work easier. According both to our informants and to Mutiso (1975) there were three types:

- *Mwilaso*: a small group of friends and neighbours, traditionally either all boys or all girls, who worked on each others farms on a strictly rotational basis. This still continues between neighbours today, but nowadays the participants are often older. The main purpose was, and is, to make routine farm work such as weeding, cutting of firewood etc easier, pleasanter and more productive. However, it could by agreement be used for other purposes.
- *Mwethya*: called by an individual who needed assistance with a definite, short-term task. It was composed of relatives, friends and neighbours. *Mwethya* was an *utui* (village) organisation. The host would (usually) cook for them. It was not rotational, but people who participated in *mwethya* could expect *mwethya* help from others when they needed it. Such work might be either for normal farm operations, or for farm improvements.
- *Vuli*: If the task at hand was too large to be handled by the *utui*, elders or friends from different villages could come together and organise for several groups to perform the task. The conglomeration of several groups was called *vuli*. The caller would slaughter a bull and brew beer for the participants. It was used by comparatively rich persons for projects such as collecting materials and building a house, or for opening a new field. Its purpose was essentially to create a new capital asset.

2.3.2 The evolution of modern self-help groups

The colonial authorities tried to use the elders and the *mwethya* to create community improvements by compulsory labour. To an extent this was accepted for desirable community assets. One DC remarked that the Akamba were always willing to turn out for schools or roads (RH: Penwill papers, 1953 - Machakos District Development Plan 1953). They were also used to build dams, to plant grass on bare *mang'alata*, to block gullies and to build terraces across cultivated and uncultivated land. Initially this was on an ad hoc basis, as the experimental programme built up. However, after 1946 more funds and more government staff became available for the Machakos Betterment Scheme and the work became more continuous and spread over more locations (see Conservation Profile). In 1946 four Akamba chiefs were sent to Fort Hall (Muranga District) to observe what was then considered a successful terracing programme, where the elders of each village were responsible for managing communal labour twice a week, and selecting the areas to be terraced. The system was then adopted in Machakos. It differed fundamentally from *mwethya*; it was compulsory, it was for a long continuing activity rather than a special day-long project, it was instigated by government officers and led, not by an individual host who wanted the project, but the chief, government officials or those whom the government regarded as elders. This is well illustrated in one of many similar touring reports in 1948:

The chief reported that every utui was now working, both men and women. The day before I arrived forty young men had been prosecuted for failing to turn out, and the chief said this had a good effect. They were fined 20/- each. The chief showed me the time-table he had drawn up - each utui turns out for 2 days a week, men and women together. Neighbouring motui work on different days so the Chief and AI (government Agricultural Instructor) can inspect (KNA: DC/MKS/8/5).

This was not a voluntary response to 'felt needs' but a reaction to 'imposed needs'. Informants in several villages in 1990 agreed that compulsion helped to kill traditional *mwethya* at this time (except for *mwilaso*). Other factors were the absence of men on migratory labour, the rounding up of many remaining young men for more or less compulsory contract work in Makueni, and schooling, all of which broke traditional mechanisms for handing on the customs connected with *mwethya*.

Informants said that the self-help group and women's groups which evolved by the late 1960s are different from the older *mwethya*. Self-help groups are distinguished from traditional *mwethya* by having long-term objectives and a programme to achieve them, elected officers, legal recognition and registration with the Ministry of Social Services so that they can operate bank accounts, etc. Members contribute money as well as work towards the objective in hand. The objectives are agreed by the group. They may range from the provision of a community amenity (a school, dip, dam, etc), to the establishment of an income-earning activity (tailoring business, poultry rearing, etc), to mutual assistance (terracing members' farms in turn, improving kitchens, etc).

While government policies had a negative effect on traditional *mwethya*, they did have some effect in the building up of the new type. In London, the Colonial Secretary issued in 1946 a circular calling for popular participation in planning. This had only a limited effect on the entrenched top-down planning mechanisms. It was followed in 1948 by a Despatch on Community Development. The Community Development or Mass Education Department was established, (which later became the Ministry of Social Services) together with the Jeannes Schools (later the Institute of Administration) to train workers and leaders. Machakos had an expatriate Social Welfare officer in 1948 and 1949. He tried to get communities interested in building meeting halls, adult literacy, forming women's clubs (very much orientated to crafts and domestic management), and improved farming management. Given the Colonial Secretary's interest, his reports were attached in full to the District Officer's Annual Report for the next two years. The Community Development Department, as it became, worked closely with local women's organisations, trained the Akamba in better methods of hygiene, better nutrition for their children and construction of better houses. Community development also worked closely with church organisations.

In 1953 the District Commissioner requested a Jeannes School team to improve agricultural methods and promote farm consolidation and registration of tenure (RH: Penwill papers, 1953). John Malinda, a local man, was created African Administrative Assistant, responsible for community development (CD) work. He diverted CD effort into the strengthening of the soil conservation groups, but tried to make more use of the traditional *mwethya* ethic. The groups still did communal work as previously, but under locally elected committees, who decided where to work, and used their own methods of ensuring compliance, rather than relying on the chief's sanctions. In addition to terracing, they undertook the making of boundaries for newly demarcated land, constructed dams, made roads, and built new houses (interview recorded by Hill, 1990). By 1958-60, the Kenya Community Development Commissioner was referring to Machakos as a model.

The coerced terracing of the late 1940s and early 1950s was never popular and is remembered as a time of great hardship. However, the need to do something to improve the cultivated and grazing lands was recognised. The Akamba, very impoverished at this time, needing famine relief during many years in the 1940s and 1950s, and having lost many livestock through droughts, must also have welcomed the opportunity to get the hundreds of *jembes* and shovels handed out to assist the digging. The women never went on strike against terracing as they did in Baringo. Indeed, because of the absence of many men, they were the informal leaders and rhythm leaders (Mutiso, 1975:259), using traditional music and dance to help along the work.

The compulsory work had the effect of increasing solidarity amongst the women and developed women leaders. Women formed clan-based groups at the locational and divisional levels, for soil conservation, harambee schools, health centres, etc. Competitive fund-raising meetings were attended by local dignitaries and accompanied by speech-making and celebratory dancing (Mbithi, 1972:161-2). In northern Machakos and particularly in Kangundo and Matungulu a powerful women's organisation emerged, the *Mbai sya etu*. Many of its leaders were the wives of 1939-

45 soldiers, and their organisation was clan based, with a vice-president for each clan, and sergeants and corporals responsible for organising women at the sub-location and below. It became part of the women's clubs movement, with elected representatives to District and national level, which brought it national contacts. The District Women's President exclaimed 'Now we can whistle from Lake Victoria to the Indian Ocean' (Peter Muasya, personal communication, 1990). The organisation was used by Paul Ngei⁸ to secure his election in 1963. The *Mbai sya eitu* raised campaign funds as more or less compulsory offerings from its members. After the leaders had taken their cut (the women expected their leaders to become wealthy, as did men leaders), the money might be passed on to favoured political leaders, or used to finance and organise a *harambee* project in a particular location. At the inaugural meeting for the project the men would be instigated by songs and dances into increasing their financial contribution (Mutiso, 1975).

In 1963 President Kenyatta made *harambee* - self-help - a clarion call for the Kenyan people to rally together to develop the newly independent country. The Community Development Department of the Ministry of Cooperatives and Social Services was put in charge of monitoring the *harambee* activities, through the Community Development Assistants (CDAs) who worked for the County Councils. Mutiso collected information on the *harambee* activities in the Northern Division of Machakos in which *Mbai sya eitu* was active. Between 1965 and 1970 projects worth Ksh 3,197,966 were carried out in the division. Of this, central government contributed Ksh 44,000 and Machakos County Council Ksh 8,300. The people contributed over Ksh 3 million, Ksh 1 million in cash and Ksh 2 million as labour (Mutiso, 1975:276-277). Mbithi gives the example of one sub-location of 1,500 households, Karaba, which during 1962-68 constructed four dams, two local roads, a secondary school, a nursery school, and cleared bush for cotton. He contrasts the enthusiastic competitive spirit amongst self-help groups based on traditional kinship and organisational patterns with the comparative failure of previous governmental campaigns for forced communal dam-making, communal terrace making, compost making, etc. (Mbithi, 1971a, 183-186). We can note the contrast of this voluntary collection of funds with the fines imposed twelve years earlier.

By 1969 struggles within the governing political party, KANU, meant that the clan-based *Mbai sya eitu* was seen as an undesirable political organisation. The Community Development Department was told to register women's groups and self-help groups only for particular projects, rather than as clans carrying out a series of projects (interview, 1991, with Peter Muasya). The women's club movement was incorporated into KANU (Kanu Maendeleo ya Wananawake). Self-help groups are for both sexes. Women's groups, however, occasionally have a minority of male members, exceptionally even a male, semi-political chairman. Registration as Women's Groups gives them access to funding through the Women's Bureau of the

⁸ Paul Ngei is the grandson of the legendary Chief Masaku from whom the District derived its name. The original name of the District Headquarters was 'Kwa Masaku'. The colonial administrators started calling it Masaku's, hence the name Machakos. Ngei was educated at Makerere University and was later jailed with the late President Jomo Kenyatta. He has held various Ministerial appointments but is not currently in office.

Ministry of Social Services (Consortium, Report 7, 1978:177). They are more numerous than the self-help groups and women remain the backbone of self-help. Functionally, more women's groups are active in income generation and more self-help groups in community amenities, but functionally there is considerable overlap.

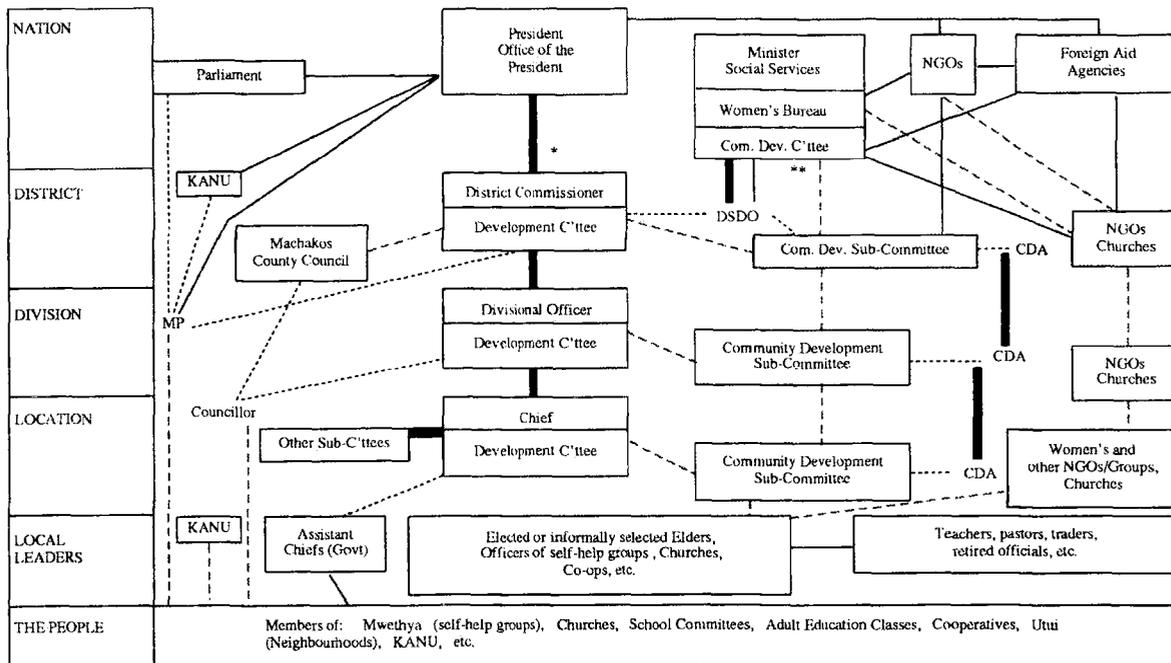
The project-based groups elect sub-location committees, and upwards to district level, as shown in Figure 1. At the Divisional and District level the Government's Social Development Department keeps an eye on the groups, assists them in planning and collects data on their activities and fund-raising. Because the CDAs were appointed by the County Council⁹, they were local people and stayed in their posts for a long time. Their length of service, age and the emphasis their training gave to interaction and communication, made them more respected and effective than the average government agricultural and veterinary assistant (Mbindyo, 1974). During 1980-82 Locational CDAs ran 65 courses for 7,500 self-help group leaders and 30 courses for 2,600 women's group leaders. There is also an annual seminar for CDA assistants from all locations which increases information flow. According to the Annual Reports of the Social Services Department and Machakos County Council in 1981, the resources then available to self-help projects was nearly Ksh 27 million. Of this, just over Ksh 24 million represented CDA's estimates of local contributions in cash, kind and labour (likely to be understated) and Ksh 2.7 million represented grants. These were listed as Government of Kenya, Ksh 40,000; Machakos County Council, Ksh 516,000; Kenyan NGO harambees, Ksh 20,000 (understated due to lack of records); European Development Fund via MIDP, Ksh 719,000; Government of Kenya via Women's Bureau, Ksh 1,200,000 (which included a large USAID grant for poultry projects in Mbooni); other external donors, Ksh 170,000 (ODI, 1982). By 1986-7 the estimate of the total people's contribution had fallen to Ksh 13.6 million and the estimate for NGO grants (many of which were foreign based) had risen to Ksh 3.6 million (Ondiege, 1992). Non Governmental Organisations (NGOs) activity received a new stimulus from the 1984 drought.

By 1990 the CDAs were certainly not registering all groups, since church dioceses and other NGOs appointed their own community development staff and did not necessarily register groups assisted by their personnel. The groups today are connected with many hierarchies, based on their association with churches, or with KANU Maendeleo ya Wananawake or with other national organisations (Figure 1). Through these they are able to obtain advice and monetary resources for their projects. Most groups operate as single units, or are federated through their association with an NGO such as the Catholic Diocese. Occasionally, they form independent federations. Thus, the Yatta South Women's Group Enterprise Development consists of 31 groups who together are able to employ staff to provide transport, marketing and other services to their members' businesses. They approached the Danish Volunteer Service and the Kenya Rural Enterprise Programme for technical and financial support (Ondiege, 1992). Another example is Utooni (see Paper B).

⁹ Community Development Assistants became Social Development Assistants in the mid-1980s when their employment was taken over by the central government.

Figure 1:

Community structure (simplified)



Key:

- Responsibility lines
- ex officio
- - - - - sends up elected member
- pressure group route
- * Chairman in this line always as official
- ** Chairman in this line always elected
- NGO - Non-Governmental Organisation
- KANU - the ruling political party
- CDA - Community Development Assistant (responsible to County Council)
- DSDO - District Social Development Officer

Initially, the principal of CD work was that the groups should raise 90% of the cost of a project before getting a topping up from government sources - for example, raising a school to ceiling height and getting help with the roofing materials. In these circumstances the group truly owns the project, and provides for its operation. One of the dangers of the quantity of resources now available is that self-help and self-reliance may be sapped by too much assistance. Since the media impact of the droughts in the Sahel, Ethiopia and Sudan, in the 1970s and 1980s, many new NGOs have been formed and older ones have expanded their activities. While NGOs have been actively searching for projects, people in Machakos have also quickly realised that self-help groups are attractive to NGOs, and can attract resources. NGOs vary in their sensitivity to the self-help ethos. Some NGO projects have their own agendas which may be accepted for the sake of the rewards - for example terrace building whether or not they are needed or in the right place, in order to get tools or food for work. They may provide far more than 10% of the cost of a project. Examples of NGO activities in the field of soil and water conservation, and their interactions with groups, are given in Paper B by J. W. Kaluli.

Despite the failures of some groups through internal dissension, poor leadership, or lack of knowledge¹⁰, the self-help and women's groups have been important agents for collecting and concentrating local contributions of work and capital, and securing supplementation of these by outside sources of finance and expertise. The groups have a very wide membership; in a Yatta sample 90% of families had a *mwethya* member (generally a woman) (Neunhauser et al., 1983:95). Elsewhere, lower but still substantial family representation has been found, of the order of 50-60% of families. Groups generally meet once or twice a week for work on their community project or to rotate round each others' farms. In a survey by Ondiege, (1992) 115 groups had 'ecological' programmes (eg terracing, tree planting) and 345 had various income-generating programmes, for example, mutual assistance in farming activities, livestock keeping, operating shops, constructing rental housing, etc. As a general rule, very poor women do not join the groups, being unable to afford to give refreshments or to pay the small membership fee. The rich prefer to hire labour rather than wait their turn for a rotational group (discussions with village leaders 1990).

Kibwezi provides an example of the way foreign funds and technical assistance from various sources is drawn in. In the late 1970s and early 1980s there was much poverty and hardship as new settlers tried to establish themselves despite a high incidence of droughts, and difficulties in securing legal rights to land. Men were out-migrating for work, with consequent burdens for women. The local Catholic sisters approached a Kenyan NGO, the Council for Human Ecology - Kenya (CHEK) through a former pupil of one of their schools, who was a member. After a series of meetings between the CHEK vice-chairman, the Sisters and the leaders of 81 women's groups, several programmes were formulated including bee-keeping, brick-making, goat-

¹⁰ An example was the failure of many poultry groups, where women lacked knowledge on hygiene and feeding under intensive conditions, contrasted with much more success in groups making school uniforms, where the necessary skills were available (ODI, 1982).

breeding and basket-exporting. The women pay an annual membership fee which entitles them to a share of the joint profits (as well as to the share based on their individual inputs). CHEK secured technical advice from the Ministry of Livestock Development, the Ministry of Social Services, Peace Corps volunteers, and Action AID craftsmen, and small grants from CARE, USAID, GTZ, the Canadian Presbyterian Church, the UK Beatrice Laing Trust, FAO, ADF and the Chicago branch of the United Nations Association. CHEK also pressured the local Member of Parliament to secure a land registration team for the area. Most of the projects were said to be self-supporting and sustainable by 1989, although some of the brick-making groups were stagnant or had changed direction, and the honey refinery, originally intended to be collectively owned by the groups, seems to have become government-operated. The group activities had contributed to a considerable development of activities in Kibwezi town, an expansion in formal education services, the opening of a bank and the expansion of the post office. There are new businesses in transport, bars and hotels, and consequent easier marketing for vegetables and other produce (United Nations Centre for Human Settlements, 1990).

2.4 Local Leadership

2.4.1 **The colonial period**

During the 1930s and 1940s traditional social leadership survived, but was becoming undermined and dominated by colonial institutions. The ability of the colonial government to diagnose the causes of the environmental degradation that was occurring, and to bring in remedies, was limited partly by its thinness on the ground (there was no agricultural officer till 1932), partly by a rapid turnover of personnel which inhibited a good knowledge of local conditions and institutions, and partly because of the low valuation put upon Akamba knowledge, which led in turn to a neglect to develop truly representative institutions, or to incorporate the real local leaders into the governmental machinery.

Traditional leadership among the Akamba was provided by elders selected by the *utui*. Each *utui* in turn, selected one or two elders to represent them in the *kivalo*. The *kivalo* was a group of neighbouring *utui* which habitually cooperated and between whom there were links of kinship and marriage, corresponding roughly to the present day sub-location. There were also religious people who were respected and provided leadership during times of crisis, such as rain-makers and prophets. One such charismatic leader was Mwatu-wa-Ngoma (interview, D. K. Kata). Traditional Akamba leaders were seen as a structural part of the community, and therefore, decision-making was seen as community based. While every family was represented, leadership was firmly in the hands of the older male family heads and respected men. The male elders settled disputes, arrived at community decisions, etc at a special meeting place, and increased their solidarity by drinking beer together (forbidden to women and young men).

The *utui* elders were supported by clan elders who were leaders of kinship groups based on the male line. In the older settlements all the households might belong to

a single clan, but in the newer ones several clans would be represented. Thus the clan provided a unitary thread between people in different *utui*, stretching up to the Location and even, at times, District. It was a basis for cooperation, especially at crisis points, since there was a spiritual loyalty to the parent clan and its totem. The clan collected compensation in case of accidental killings by one of its members. However, its functions were limited by the dispersion of its members throughout Ukambani (Morgan, 1967; Mutiso, 1975). After the 1939-45 war ex-soldiers dominated the clans, and added new functions, forming District associations to collect money to send clan members to school, to Makerere College, etc. Colonial District officials regarded these and other associations with some suspicion, fearing they would become involved in Mau Mau. In turn, many people regarded Kenyans working in the administration with suspicion, fearing they were involved in police informing.

The colonial government imposed a geographically based hierarchy on these groupings of neighbours and kin. Leadership at the District level was provided by the appointed District Commissioner. Government appointed chiefs were placed in charge of Locations together with their headmen and assistants at the level of the *kivalo*. These were helped in their leadership roles by the *asili*, who acted as both traditional and modern Court Advisors. Amongst their responsibilities were the solving of disputes and to a certain extent they were assimilated with the elders.

Chiefs were sometimes from prominent families and sometimes from a new class of people known as *asomi*¹¹ who had moved somewhat outside tradition by acquiring some education, and who perhaps had had a job away from the District for some time. The Chiefs' power came from the colonial authorities, backed if necessary by the police. They were chosen for their willingness to carry out government policies, although by the 1940s the authorities were taking more trouble to see that the chief, at least when first appointed, was acceptable. They were frequently able to use their position to acquire land, livestock or other forms of wealth.

As in other parts of Kenya, a Local Native Council was set up in 1924 to provide the District Commissioner with advice at the level of the District. There was an elected element but chiefs and other appointed *asomi* were in the majority (Hill, 1990:39). The Councils were given limited responsibility for raising additional tax and deciding its allocation, authorising communal labour and administering the very rudimentary initial health and education services. These people were not entirely separated from the concerns of the majority, and at the time of the Carter Commission in 1934, the Council members organised a vigorous defence of Akamba interests, mustering 187 witnesses to losses of land and cattle. They opposed certain administrative decisions, registering opposition to the compulsory sale of cattle, and to the imposition of strict farming rules and farming at Makueni in 1946. However, the Council was not seen by ordinary people as a means through which they could influence government policy.

¹¹ *Asomi* derives from the word for readers and was applied to Christians because of their ability to read (Mbiti, 1971). It then came to have associations with education and membership of a new elite.

Our informants were surprisingly agreed that as late as 1945 the people who took the decisions and had influence were the District Commissioner, the Chief, and perhaps, the elders on local matters (see Table A.3). Government was an alien institution over which people had no control and in which they did not participate. Elected Councillors became more influential, particularly because of their association with the political party and the local MP, after Independence.

The expatriate members of the administration came and went, relatively few having time to develop a deep knowledge of the District. Both administrative and technical officers reflected, and were sometimes divided by, the intellectual fashions emanating from Britain or other areas of the colonial Empire, both in relation to the use and development of 'native' institutions, the value of consultation as opposed to compulsion, and in relation to technical questions such as the causes and cure of environmental degradation. This led to policy changes which from the point of view of the Akamba were temporary and unpredictable. The divisions have been well outlined by Throup (1987). His list of District Commissioners, Machakos, during a crucial period of rehabilitation gives an insight into the lack of continuity during an important period in the Machakos Betterment programme:

G.R.B. Brown	May 1944 - 1946
R.J.C. Howes	1946 - June 1948
J.W. Howard	June 1948 - December 1949
J. Pinney	December 1949 - August 1950
J.W. Howard	August 1950 - May 1951
J. Pinney	May 1951 - July 1951
J.K.R. Thorp	July 1951 - November 1952
D.J. Penwill	November 1952 - 1953

2.4.2 Local leadership today

The consequence of the changes within the family and mutual help groups, together with other developments in education, in the churches, and in government policy which will be discussed in the following sections, is a much enlarged and more competent leadership base at local level. This now includes women as well as men. Local leaders include pastors, teachers, traders, retired civil servants, etc. They are well connected with national and even international institutions through the party, the Councillors and MPs, the churches, the old-boy and old-girl networks, etc. The wider range of leadership in 1990 as compared with 1945 has already been shown in Table A.3 and is also illustrated in Figure 1. The Chief is still important for his connections through the DC's office to the office of the President and the national political leaders, but he is no longer the only agent of development and semi-alien.

Table A.4 is a summary of those organisations that our sample of village leaders credited with having helped development in Machakos over the period in consideration. Featuring prominently in it since 1960 are the self-help groups, but we also find listed the government, the churches and political organisations, which are amongst the change agents next to be discussed.

Table A.3: Leadership patterns

<i>Locations</i>	<i>Period</i>		
	<i>About 1945</i>	<i>1960-63</i>	<i>1990</i>
Kangundo	District officers Church leaders	District officers Chiefs Political leaders Church leaders Presidents of clan committees Self-help leaders	Chiefs Political leaders Volunteers Church leaders Men and women self-help leaders
Mbooni	Colonial government administration <i>Utui</i> elders Clan elders	District officers Chiefs Elders Assistant chiefs	Assistant chiefs Pastors KANU leaders Members of parliament Councillor Community development assistants Women's group leaders Elders
Masii	Clan elders Headmen and chiefs	Chief and sub-chief Clan leaders Headmen Political leaders after independence Councillors	Party leaders Councillor Clan elders Church & school leaders ' <i>Mwethya</i> ' group leaders Chiefs Assistant chiefs Provincial administration
Makueni	Settlement area from 1946 Sub-chief Village elders	Chief (appointed in 1951) DOs, Agricultural Officers Village elders Councillor Party leaders	Church leaders Party leaders Village elders
Ngwata	Not settled	(Settlement in the 1960s) Chief & Colonial administrators Member of parliament Councillor Clan leaders Cattle rustler leader Judicial elders	Provincial Administrators Councillors Men & women group leaders Chief KANU leaders & MPs Elders Church leaders

Source: Key informants and village leaders questionnaire.

Table A.4: Developmental organisations			
<i>Locations</i>	<i>Period</i>		
	<i>Around 1945</i>	<i>1960-63</i>	<i>1990</i>
Kangundo	Church Colonial government ' <i>Mwethya</i> ' groups Community development	Church Government Political organisations NGOs Self-help groups	Self-help groups Government NGOs Church
Mbooni	Colonial government ' <i>Mwethya</i> ' groups Church Community development	Church Self-help groups Community development Government NGOs	Government Self-help groups Church NGOs
Masii	People called by the chief Colonial government Clans Soldiers coming back from war Famine relief	Government ' <i>Mwethya</i> ' groups (clan) Self-help groups (Jeannes School)	Government Self-help groups (non-clan) Women's groups
Makueni	Colonial government	Colonial government/ government ' <i>Uitui</i> ' groups Self-help groups NGOs	MIDP NGOs Churches <i>Kanu Maendeleo ya Wananawake</i> Parent-teacher associations
Ngwata	Not settled	In-migration area	Government MIDP Self-help groups NGOs Church (Catholic Diocese) CDA assistance (County Council)

Source: Key informants and village leaders questionnaire.

3. MAJOR AGENTS OF CHANGE

3.1 The Missions and Churches

The period before 1930 was characterised by intensive evangelisation efforts. Akamba traditional religion was slowly replaced by Christianity and Islam (the latter only in the town centres). The first mission to be established in Machakos was built in Kibwezi in 1891 by the Imperial British East Africa Company under the name of East African Scottish Industrial Mission. In 1895, a second group of missionaries arrived in Nzau Location under the umbrella of African Inland Mission. From Nzau, the missionaries built stations in Kangundo (1896), Mumbuni (1902), Mbooni (1909). The Catholic Church established a mission in Kabaa in Mwala Location in 1912 and, from this station, moved on to establish missions in Kilungu, Mbitini and Kangundo.

The establishment of mission stations went hand-in-hand with opening of the mission schools. Together with the teaching of the Bible to the Akamba people, technical subjects were taught: better methods of farming, construction of better houses, carpentry and general hygiene (Philp, 1936). The first elite to emerge from Machakos were Christians who had attended either Kamuthanga School (Newman, 1974), Muisuni A.I.M. School or Kabaa Catholic School (Osogo, 1970). These Akamba, whom Mutiso termed the *asomi*, formed a cleavage in society and became agents of change. At first, their numbers were small, but from about 1935 conversion proceeded more rapidly. It was accelerated by the return of soldiers from the war, when many had accepted Christian teaching in the army, by an increase in the number of white missionaries after the war, and by the rapid expansion of education at the same time, with most schools under mission supervision. The new converts themselves became evangelists and developed a new confidence (Mbiti, 1971:15-23). By 1970 about one third of the population were Christian and today they form the majority.

During the early 1950s local leadership of the churches developed. The Akamba Christian elite were mobilising the local people to work toward independence, of which one aspect was independent churches. In 1945, Simeon Mulandi, with the help of friends from Nairobi - who included Mr Eliud Mathu - formed the Akamba Brotherhood Church. The Akamba Christians wanted to be independent of the mission church organisations. The AB church put the stress on the unity of the people, and reacted against the slow pace of progress shown by the Africa Inland Mission (Mbula, 1974).

With independence religious denominations came together to work towards development. The churches developed the human resource base by providing new local leadership roles, no longer confined to traditional elders, through organising and implementing projects such as new churches and schools. The role of the church in sponsoring Harambee schools is significant. Most of the churches developed a hierarchical organisational structure, (eg the Catholic and Church of the Province of Kenya Dioceses) which provided an alternative framework to the clans and the government for contact, information flows and cooperation at District level. These in turn were linked into national and international networks. Church-led community projects, especially in health care, famine relief, food production, food storage, domestic water and irrigation, were able to unite local resources and enterprise with additional

support derived from national and international NGOs (for examples, see the paper by J.W Kaluli).

John Mbiti credits the churches with effecting a major change in philosophical attitude (Mbiti, 1971). They taught a society which had been oriented towards the immediate past to govern its actions by contemplation of the future and the second coming. It is quite possible that the new orientations of Christianity undermined traditional constraints, and made the acceptance of change and of planning for the future socially easier.

3.2 Education

3.2.1 **Primary and secondary education**

The development of the education system in Machakos is the result of the concerted efforts of parents, the government, churches, and self-help. It is notable for its emphasis on primary and technical education; in secondary education it has been a comparative laggard. By 1930, the District Education Board, using the Local Native Council funds, had established schools in most of the divisions. These schools accepted people of all ages and basically taught them how to read and write. In order to encourage the people to join schools, the pupils were given gifts in the form of clothing, sugar and salt. Exceptionally, a government technical school was established in Machakos as early as 1914. Of education in Machakos, Forbes Munro (1975) says that the Akamba shared the colonial government's enthusiasm, for technical education, since they saw it as a means of transforming their own economy and society. The colonial authorities were frequently disappointed that the technical school graduates dispersed to the villages and set up their own businesses rather than join government services, but in so doing they provided vital repair and support services for the development of the agricultural economy.

With the outbreak of the Second World War (1939-45), those Akamba who joined the Kings African Rifles experienced the importance of education during their travels. From then on, education became a strongly felt need, and an enormous amount of self-help went into educational facilities. After their return soldiers encouraged their families to join schools, led the drive for new schools and helped in paying school fees for their relatives. The DC noted that 'the Akamba appear to appreciate the importance of girls' education and were enthusiastic' about the Government Girls' School which opened in Machakos in 1950 - the first all-girls' school in Kenya (KNA: 2/DC/MKS, Handing Over Notes, December 1949). Towards the end of 1950, a pamphlet published in Machakos, 'Wasya Wa Mukamba' (The Voice of the Akamba) encouraged the Machakos Akamba to double their efforts in education. The returning soldiers instigated new clan activities, such as the collection of funds to send students to high schools, Makerere College and overseas Universities (Mutiso, 1975:258-9). In the early 1960s there were still only two Akamba graduates (personal communication, Dr Owako), but from then on there were increasing numbers, some of whom reached high positions in government, where they were in a position to influence the flow of funds towards their home district (as officials from other Districts were also doing). It was at this time that the effort to provide secondary

education, through government or harambee schools, took hold. The scale of self-help facilities became noticeable. In addition, parents give constant support to pay for additional teachers, books, uniforms, and contributions to the Parent-Teacher Committees, although primary education is officially free. Fees are paid for secondary and nursery schools. In our interviews, the burden of school fees was constantly mentioned as a cause of feelings of poverty.

By 1987 enrolment in primary schools was over 390,000 pupils. Machakos is amongst the top Districts in Kenya in the proportion of the age group enrolled (Uitto, 1989:71). As a consequence, 68% of males and 42% of females were able to read in 1982, both above the national average (see Table 18, Farming and Income Systems Profile). However, the quality of education in secondary schools is said to be below standard, as the sector is dominated by a large number of Harambee and private schools. The District had 40,000 secondary pupils in 40 government schools and 178 schools classified as assisted Harambee/pure Harambee and private in 1987. In 1982, only 34% of the students who sat for their Kenya Certificate of Education attained Division III and above. In 1987, 60% of all secondary school teachers were untrained (Ministry of Planning, 1988).

3.2.2 Youth Polytechnics

Partly because of the failings of the secondary sector, and partly through the traditional interest in technical skills, Machakos District has been a leader in the construction and maintenance of Village (since renamed Youth) Polytechnics. A study by Yambo (1986) showed that, at a national scale, Machakos District had better-organised polytechnics. Village Polytechnics were first established in 1967 in response to a 1966 report which was written by the National Christian Council of Kenya (NCKK) on the plight of school-leavers. Now, as Youth Polytechnics, they are an important part of Government educational policy as low-cost training centres in rural communities.

Youth Polytechnics are supposed to provide new ideas for rural development to primary school-leavers, provide new products and services that local people need and want, act as centres for community activity and, finally, provide local businessmen (Youth Polytechnic graduates) who will help develop the community. (Nzioka, 1986:15).

Currently, more emphasis is being put on secondary school drop-outs. The community, in reciprocating, provides land, money, supplies, labour, trainees, people for the management committee, contracts for the trainees, the market for the trainee products as well as money-making opportunities. The Kenya Government made it clear that Youth Polytechnics are village projects; the community has therefore to support the projects.

Machakos acquired its first government-aided Polytechnics in 1972. By 1977 there were 18, of which 7 were government aided, 5 self-help and 6 church aided (Consortium, Report 7, 1978). By 1987 there were 44 Youth Polytechnics, eighteen government-assisted and twenty-six operated by non-governmental organisations

(NGOs) (Ministry of Planning, 1988). Teachers are paid partly by government and partly by parents. Linkages with NGOs have assisted them in developing new intermediate technology products such as carts, water storage items, etc which form the foundation of new businesses, and earnings from which supplement the polytechnics' own income. Although many are under-equipped, a sample survey in 1986 found their graduates were quite successful in securing employment (Table A.5). In terms of employment rates Machakos was better than most districts (Nzioka, 1986).

<i>Employment</i>	<i>Education level of graduates</i>				<i>Total</i>
	<i>Some Primary</i>	<i>Completed Std VIII</i>	<i>Some Secondary</i>	<i>Completed Form IV</i>	
Self	6 (66.7)	23 (25.3)	5 (25)	0 (0)	34 (27)
Paid	1 (11.1)	55 (60.4)	9 (45)	7 (87.5)	72 (56)
Unemployed	2 (22.2)	13 (14.3)	6 (30)	1 (12.5)	22 (17)
Total	9 (100)	91 (100)	20 (100)	8 (100)	128 (100)

Source: Adapted from Nzioka, 1986, pp.89 and 92.

3.2.3 Adult education

Older people, particularly women, who missed out on education earlier, have taken advantage of adult education classes so that they can participate more fully in self-help groups, use banks, and acquire information more easily. The first pilot adult literacy scheme in Kenya was planned for Kangundo in 1954 (RH: Penwill papers, 1953 - Machakos District Development Plan, 1953). However, the programme seems to have lapsed, and in 1977 there were only 456 students (Consortium, Report 7, 1978:170). As part of a national literacy drive, MIDP provided additional funds and in 1982 Machakos was one of the national leaders in this activity, with nearly 35,000 women and 4,000 men in classes. There were 140 full-time and 380 part-time teachers provided through the government and a further 575 teachers sponsored by the churches or self-help. It was seen as a pilot area for adult education methodologies and received an above average allocation of national resources in this field (ODI,1982).

3.3 Travel and Observation

The Akamba have a saying '*Tuma itho, kutu kwi mbitya*' (use your eye, the ear is deceptive). It is particularly noticeable how they used observations made in their travels to introduce innovations at home. The Akamba had always been noted traders, but from about 1930 many more of them travelled, either within Kenya seeking work, or by serving in the army (see Population Profile). The increase in the number of men working away brought in new ideas for farming or business activities. The most famous example is the Akamba soldier who was in Tanzania in the 1914-18 war, who observed the Makonde carvers did a good business with European settlers, who learnt the trade and brought it back to Wamunyu, still the centre of the large Akamba carving business. It was already a notable revenue earner by the 1950s (Elkan, 1958). The 1939-45 war had a tremendous impact on Akamba society, bringing in a flood of new ideas (Mutiso, 1975:220). Soldiers serving in India got the idea of running teashops and bakeries, now found in most Akamba villages, and which provide new facilities for the exchange of ideas and experience. Other Akamba observed and brought back new ideas on vegetable cultivation from different parts of Kenya, India and Ceylon. The observations are likely to have been made with deliberate intent of learning. G. Mutiso recently recorded a case of a man who retired from carving in Mombasa, and who, as part of his policy for building up a large dairy farm, devoted Saturdays to bicycle trips through the District so that he could observe and discuss the practices of good farmers (Mutiso, personal communication).

Migrant work and the war gave the opportunity for capital accumulation for new business ventures. Most of the first Akamba plough owners, transport owners, shop owners had accumulated capital through work away from home. With outmigration on a large scale first starting in the 1920s, these results coming through in the 1930s, and the flows were accentuated after 1945.

Akamba soldiers also learnt that the white man was a man like any other. This led to much more confidence in their own abilities, and a much more positive attitude to education and to learning skills hitherto felt to belong to the whites, not merely on the part of the marginalised few, but by the majority (personal communication, Philip Mbithi).

3.4 Markets and Trade

3.4.1 Roads, regulations and trading growth

Despite the handicaps of bad roads and unnecessary regulations, traders have played an important role in Machakos, by stimulating production, specialisation and exchange. Some of the traders have been outsiders, others have developed internally, often starting off either as farmer-traders, or as migrant workers who have returned home to start a business. Informal groups and formal cooperatives have both played a role in the accumulation of capital for trading and processing.

Markets have always been a feature of Akamba society, providing another unifying influence amongst the scattered *utui*, as Lambert observed in 1945:

Another type of bond, the economic, was situational in character, although it expressed itself particularly in an economic institution of considerable continuity and permanence. This institution was the market (king'ang'a, pl. ing'ang'a)... In normal times, it was regularly attended by the people, especially women, living over a much wider area. But its unifying influence was not so great as might reasonably be expected. It was essentially a place where commodities could be obtained and family shortages made up in exchange for family surpluses. (KNA: Lambert, 1945:12)

The major problem with marketing was related to the long distances that had to be travelled and the commodities that could be traded, given the distances. The building of the railway had little effect at first on trade, as it served the white estates and ranches which bordered the Reserve. However, as feeder roads developed, ox carts, lorries and bicycles appeared on the scene. One of our respondents told us that, by 1924, the A.I.M. missionaries had constructed a road system that had connected Kangundo, Machakos, Mbooni and Mukaa (Aaron Kasyoki, 1990). A road connection to Nairobi helped to make Kangundo the leader in agricultural development in the division. By 1932 there were more than 200 Indian trading families in the district (KNA: MKS AR 1932).

During the 1930s new shops and transport businesses were established throughout the District, usually by returning migrants, despite hampering restrictions. Thus, as late as 1951 the District Commissioner wrote:

We have had a campaign against the illegal isolated coffee shops which spring up along the roadside, but there are still far too many. They should all normally be within markets (ADC byelaws). Within or without, they are dens of idle loafers and sisal spivs ^[12] who make the maximum of money with the minimum of work (KNA: J.W. Howard 2/DC/MKS, Handing Over Notes, May 1951).

Trade in cattle was often restricted by quarantines, and the government's concern to protect the European dairy and export industry. There were quality controls on hides and skins to facilitate exports. The precursor of the Grain Marketing Board, and restrictions on grain movement, originated in 1936, and were reinforced during the war. They were meant to avert famines but also gave an advantage to large-scale operators who knew the way to handle bureaucratic requirements. Trade through other channels was seen as wrong, but nevertheless

A large, regular, and quite uncontrollable black market trade took place, for instance, between the fertile districts of Embu and Meru ... and the impoverished arid districts of Kitui and Machakos across the Tana River. In the case of maize, district officials even connived at such trade by turning a blind eye because of the high price differential

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At the time, sisal sales were enabling the Akamba to buy food despite poor harvests.

between producer and consumer through the official control (Brown, 1968:73).

The Veterinary Department took over 33 hides and skins drying sheds from Local Native Council, to which all Akamba within a five mile radius had to bring their hides and skins. In 1936, they were handed over as a local private monopoly to Akamba superintendents, much resented by other Akamba traders. Nevertheless, the number of Kamba traders, shop-keepers and transporters steadily increased (Forbes Munro, 1975).

The effect of good market access in bringing information and stimulating agricultural change and investment is well known not only to academics, but also to the villagers. Village leaders in Kangundo credited Indians with the increased production of grams, coriander and Indian vegetables in the 1940s. The long-standing connections continue today, particularly through the export of what are known as 'Asian vegetables' to the Indian communities now living in the United Kingdom (see Production Profile).

The development of Akamba-owned shops and trade was accelerated after Independence when Indians were banned from certain activities. More important than ownership was the increase in number, shown in Table A.6, and indicating the increase in commercialisation. Akamba traders mainly operate in small informal groups or as individuals. The groups were active in fruit and vegetable marketing in Mbooni and Tala in 1969. In Tala they were associated with coffee cooperatives, often using their buildings for meetings but having separate officers and separate accounts. They had contracts with Thika Cannery but, in some cases, also sold direct to the wholesale market in Nairobi. The groups hired a lorry; an official of the group recorded members' produce and its weight; one member accompanied the lorry to Nairobi and recorded prices and, after paying transport costs, distributed payments to farmers immediately upon his return. In Mbooni in 1969, there were similar groups but, since trade was long distance, they consisted more of specialist traders than of farmer producers. Here, the groups seem to have grown out of a cooperative founded in 1956/7 but which collapsed in 1962. They saw no need to revive it (Bottrall, 1969).

	1929	1936	1957	1987
Markets	11	28	101	700
Licensed shops and kiosks	85	na	1,600	8,000

Source: Forbes Munro, 1975 (for 1929 and 1936). Kamba owned shops only. Peberdy, 1958 (for 1957). Excludes shops in Machakos and railway townships. Ministry of Planning, 1988 (for 1987).

Trade is still handicapped by bad roads and archaic regulations. Classified roads per 100 km² rose only from 12 to 19 between 1970 and 1983, while districts in high potential areas had 30-60 km by 1970 (Gyllström, 1991, Appendices 1 and 2). The National Cereals and Produce Board was established to stabilise the prices of grain cereals and pulses and to guarantee a market for any producer surplus, so as to maintain a national minimum reserve. Until 1991 the movement of more than ten bags within the district of origin or of two bags between adjacent districts required a movement permit from the NCPB. This permit could only be obtained in Machakos and a fee had to be paid additionally for movement out of the district. This added considerably to the cost of marketing (Neunhauser et al., 1983).¹³

Bureaucratic impediments to trade continue today in new fields. Many farmers interviewed said that french beans for the export markets had become important revenue earners, and that specialist contract grower firms had brought in the seed and organised the marketing. Farmers expressed no complaint against these firms, but the General Manager of the Machakos District Cooperative Union said that his vegetable societies had difficulty in securing direct exports because of the amount of paper work required for inspection of produce, securing of export licences and competing for freight space at Nairobi airport. This delayed exports, reduced quality, added to costs and led to difficulties in competing with Tanzania, which in 1991 had simpler procedures (personal communication, 1991).

3.4.2 Individual enterprises, partnerships and cooperatives

While the individual trader or small partnerships probably account for the bulk of transactions in Machakos District, they have been little studied. We know nothing of the flows of capital to and from agriculture and private traders. However, many farmers are also traders; many traders farm as a subsidiary occupation. The larger operators are mainly men; women dominate the petty trade in the markets. We have not found much literature on trading connections between traders within the District and larger operators outside it, except for a few studies such as that by Onchere (1976) which identifies the suppliers of farm inputs to local shops. The relationship between traders and financial institutions such as banks does not seem to have been studied.

Co-operatives have been an important means of raising capital from numerous small farmer members to improve the collection and processing of farm output. The earliest reported cooperative in Machakos was based on a church and engaged in the wattle trade (Forbes Munro, 1975). Two or three vegetable growers cooperatives existed by 1953 (RH: Penwill papers, 1953). By 1945 cooperatives were fashionable in government circles, and a new Cooperative Ordinance, aimed at helping foster cooperatives amongst the African rather than, as formerly, the European population, was passed, followed by the creation of a Department of Cooperatives in 1946 (Zezeza, 1990). Only three were registered 1946-53, followed by 46 in the period of

¹³ In 1991 free movement of up to 44 bags, a lorry-load, was permitted under the Government's liberalisation reforms.

high government activity, 1954-62. However, 69% of these were liquidated or became dormant (compared with a national average of 60%). Most of the survivors were the coffee societies; high death rates were mainly amongst those for cereals, eggs and poultry (10 groups in this period) or multipurpose (Gyllström, 1991). The development of the coffee industry in the 1950s had the secondary effect of stimulating the growth of an effective cooperative movement, in all parts of Kenya where coffee could be grown. Coffee societies financed the building of factories and the buying of inputs. Other cooperatives were formed to purchase former settler land, although this had only limited applicability in Machakos (where some ranching cooperatives were formed).

It has been estimated that co-operatives marketed 48% of smallholders' gross marketed production in 1971, and 43% in 1983. When coffee, which accounted for 75% of their purchases in 1983, is excluded, their share of remaining marketed production fell from 25% to 10% in the same period (Gyllström, 1991, Table 4.2). Coffee societies were helped in obtaining a relatively good performance, because they had a monopoly of purchase, and because there were scale advantages in carrying out initial processing near the farms. Gyllström's detailed study shows that co-operatives perform best in environments where the private trader can also thrive: that is, areas with a high population density, dense road coverage, high educational enrolment, diversified economy and other favourable factors. He stratified Districts into 4 groups according to whether their environment favoured co-operative development. Machakos fell into the third (unfavourable) group in the period 1946-71, but had moved up to the second category, moderately favourable, in the period 1971-83.¹⁴

The strength of the coffee cooperatives was assisted by the long educational tradition in the highland coffee areas. In the 1970s Kangundo Division had six coffee cooperatives. One, the Matungulu Cooperative, had seven coffee factories for drying and grading the coffee of members, as well as owning two estates. In 1973, the coffee societies of the Northern Division had 10,641 members and 14,823 in 1975. They provided necessary inputs to members on credit, deducting costs from receipts. This was almost the only form of agricultural credit available. The only dormant society was that concerned with cotton (Onchere, 1976). Machakos coffee societies performed less well than the average coffee society, in terms of sales per member and of farm-gate price as a percentage of total price obtained, largely because all its societies were in the marginal coffee zone, with lower than average yields per farm and higher marketing costs. Average sales per member in 1982/3 averaged Ksh 1,950, compared with Ksh 4,360 in the seven most favoured districts, and average payment ratio was 71% compared with 83% (Gyllström, 1991; Table 4.14). Coffee then was 85% of the total sales income of the District Union.

Many, but not all, primary cooperative societies, joined the District level Machakos Union, which, like other District Unions, provides central services such as book-keeping, accounting, bulk-purchasing of inputs, etc. In 1977, the Machakos Union consisted of 26 societies: twelve coffee, thirteen recently-formed cotton and one wattle

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It earned a higher score largely through increases in educational enrolments and adjudicated land.

bark. In 1976, the value of coffee production was Ksh 52.6 million while that of cotton was only Ksh 6 million, giving an idea of their relative importance. The Union was then made responsible for a new government programme to direct credit towards food-crop producers. The Union complained that it was an unwilling agent of government policy and that it did not have the necessary staff, facilities and training for the projected expansion (ODI, 1982). It would appear that the Machakos Union was one of several in Kenya that got into difficulties with the programme (Zezeza, 1990), with widespread default and indebtedness affecting the Union's other activities. It also seems to have made losses on its cotton operations between 1976 and 1979. Consequently, under the MDP programme, an expatriate expert was assigned to the Union and funds were made available to improve storage, other infrastructure and communications, especially for cotton and food crops (ODI, 1982). This had a temporary beneficial effect on cotton production but in 1982-3 it still registered a loss of Ksh 1,254,000 (Gyllström, 1991, Table 4.20. By the late 1980s farmers were abandoning cotton due to late payments, high costs of inputs and low prices (Mwenge, 1989, and own investigations).

By 1987, the Union was said to have over eighty active societies out of a nominal 114. The most active remained the coffee societies. Its turnover was said to have ranged from Ksh 200 million to Ksh 333 million during the years 1983 to 1987, depending on climatic conditions. The Union had established a Machakos maize mill with a loan from the Cooperative Bank of Kenya. Its banking service had five branches in the District. It was also planning to take over Makueni cotton ginnery provided satisfactory terms could be negotiated (Ministry of Planning, 1988 and personal communication, General Manager, 1991). It is undoubtedly the biggest business in Machakos, and entirely African managed.

How far the Union's activities are assisted by the Government's Co-operative Department is an open question. Nationally, the period 1971-83 saw a great increase in Co-operative Department staff, partly due to new functions being imposed such as the delivery of credit, and a more complex accounting system, largely under the influence of various donor programmes. Despite this, co-operative market share fell nationally. The aim of the government's Cooperative Department is to improve the management capability of the cooperative movement and to make it self-sufficient through supervision, financial control, etc. (Ministry of Planning, 1988). It seems, however, doubtful whether the imposition of unwanted new tasks is the right way to do this. As long ago as 1969, a small farmer in Machakos, asked whether a dormant fruit and vegetable marketing society should amalgamate with an existing coffee society, replied:

We have a saying that pigs and chicken do not mix. Certainly, I would not put healthy pigs and dead chickens in the same pen. (Quoted by Bottrall, 1969).

3.5 Extension Services

3.5.1 Shortcomings of the extension services

The extension services should be an important channel for farmers to learn new and more productive technologies. Kenya has devoted impressive resources to them. Already by 1973 there was one extension agent per 310 farmers on average, high by comparison with other African countries (Heyer and Waweru, 1976). However, the service suffered from several limitations, particularly in the colonial and immediate post-colonial period. By the end of the 1970s there is evidence of considerable acceptance of agricultural messages.

(a) Lack of understanding of the local farming system and of the wider social system of which it forms part

Initially, extension took place in a top-down framework which hampered communication. It is significant that the first agricultural staff at Location level were called Agricultural Instructors. It was believed

The African in Kenya has not yet arrived at the level of education which enables him .. to plan his agricultural economy successfully..... In his case, therefore, it is essential that his general farming policy shall, to a large extent, be dictated to him in the light of the experience and knowledge of officers of Government responsible for his welfare.... (L. H. Brown, 1968, quoting Annual Report of the Agricultural Department, 1945).

By the 1960s it was beginning to be realised that compulsion was the enemy of communicative education:

By and large, however, the use of compulsion has done much to set back the cause of agricultural progress. In many areas, such as Machakos District, ... the extension service is still in bad repute because of its past association with the enforcement of soil erosion control, livestock limitations and the like. (de Wilde 1967:162).

Mbithi (1974) pointed out farming takes place within a social context, and that decisions on how to organise labour take account of age and sex taboos, competing social activities, etc. Partly because such matters were ignored, the first Akamba to adopt the extensionists' recommendations were seen by the majority as deviants from the norms of the larger society. This reaction could be reinforced if colonial extensionists started soil conservation efforts or other demonstrations on the lands of farmers whom they perceived as progressive, but who were socially unacceptable (interview with D. K. Kata, 1990, Mbooni Location).

- (b) Lack of adequate technical knowledge based on sound research, particularly as concerns the semi-arid small-scale farming areas

Agricultural and veterinary research in Kenya was at first orientated towards the needs of the large farm sector, particularly in the high potential areas. The first technically qualified agricultural officer arrived in Machakos in 1932, and embarked, as did others after him, on a series of experiments. Before the results had been thoroughly tested and evaluated they were transmitted as instructions to the farmers. This experimentalism was known in Tanzania as 'Wazimu wa Mzungu' (European madness) (Alila, 1977).

... since he (the Mzungu) could not possibly pay attention to the whole gamut of affairs which were legally under his jurisdiction, he concentrated upon one or more items which would be his contribution to district development (and probably his promotion as well). As soon as the African discovered what the madness of the new officer was, they could relax with regards to programmes of his predecessor. (Alila, 1977:10-11)

The approach led to a great deal of misdirected energy on the part of Machakos farmers. Examples in Machakos were mulching with crop residues, introduced and abandoned in the early 1930s, silage making in the 1950s and the concentration on one type of soil terrace later found to be much less beneficial than the *fanya juu* type most farmers later adopted.

This rather negative assessment of early experiments were shared by some of the agriculturalists themselves. L. H. Brown thought that up to 1945 development often proceeded in advance of supporting research. Instructions based on short-term or inadequate experiments made Akamba farmers suspicious and difficult to convince, unless as their proverb states, they could see results. It left a legacy in the development of agriculture extension which has had to be overcome. Where results of new methods or new crops were well proven they were readily adopted if feasible.

Experimentalism on the part of the farmer was at first ignored or in certain respects, forbidden. Thus, farmers were not allowed to experiment with coffee; even when it was finally agreed to admit African farmers to coffee growing, they had to wait until the Agricultural Department was satisfied it had the right techniques for Machakos. These were imposed as regulations on a limited group of strictly supervised farmers whose numbers were only gradually expanded. However, at least in the case of coffee, a crop already grown by white farmers, there was a good research base. In other fields, as the best agricultural officers were acknowledging by the late 1940s, the best way to find a solution to a problem was to go and look at what some good farmer was doing. Machakos files show evidence of this; we find agricultural officers noting banana pits in one area in 1948 and advocating them widely in the 1950s, for example. According to Brown, 'the majority of agricultural policy in the African areas in the years 1950-60 was actually based upon what a few more advanced African farmers were doing, augmented by research results where necessary' (Brown, 1968:79).

Between 1945 and 1960 several specialised research stations were established, including ones for coffee, fruit and pasture. The establishment of the Katumani Research Station in 1957 concentrated some research resources for the first time on a long term approach to some of the fundamental problems of small-scale farming in semi-arid areas. Katumani began by collecting local varieties of maize in use. Paradoxically, the establishment of more research stations led to a reinforcement of the top-down approach, since by 1960, according to Brown, the knowledge available in the research stations became, and remained, in advance of most agricultural practice. A rising belief in the value of indigenous knowledge and experimentation began to show itself in the 1980s.

(c) Inadequate training of junior extension staff

In the early 1950s the government's agriculture policy widened beyond soil conservation and control of grazing to aim at increased efficiency and intensity, with viable cash crops such as coffee and cotton. However, from 1955 agricultural services were cut, (Brown, 1968:80) and from the 1960s, concentrated on the high potential areas, the areas where farm consolidation was taking place and new farm plans were needed, and areas affected by the settlement of previously white-owned farms. Semi-arid areas such as Machakos suffered comparative neglect. Combined with a consequent shortage of staff numbers was inadequate staff training. The older recruits at village level had little primary education and in the immediate aftermath of independence, agriculture did not attract the ambitious school leaver. An observer of the extension services in the early 1970s in Machakos found:

A lot of staff were trained in the technical rudiments of soil conservation.... However, the same techniques and staff proved to be much less equipped to deal with the improvement of agriculture which required patient persuasion and proper identification of farmers' problems and needs (Mbindyo, 1974:31).

Mbindyo identified the problem as not simply the low level of initial education and the shortness of formal training of the location level staff, but also the lack of training in communication skills. Mbindyo examined the credibility in the eyes of their clients of three types of extension agent - for crops, for veterinary services and for community development - in two areas of Machakos. He found credibility was enhanced by client orientation (most pronounced amongst CDAs), length of service in the area, service in the home area, and age. On schooling, credibility suffered either if the agent had too little primary education, or if he had some secondary education, and was highest for those who had reached standard V-VII in primary school. Length of technical training improved the agent's credibility, but not his client orientation. Amongst the crop extensionists, 58% had had 4 months or less of technical training. Mbindyo also found agents suffered from isolation, inadequate supervision and advice from technical specialists, and lack of transport and other aids to efficiency. Since Mbindyo's investigation, the qualifications of extension workers have gradually improved as new entrants have a school certificate followed by two years technical training. However, the argument as to whether the staff at location

level should be generalists or specialists has not been settled, and various tactics have been tried in the 1980s, sometimes at the cost of undermining existing work.

For example, soil conservation extension became more effective in the early 1980s with the adoption of a methodology that took account of socio-economic institutions of the district. From 1979 the programme was redesigned to incorporate 3 stages:

- (i) Choice of catchment in consultation with Chiefs and local leaders; meetings with farmers and *mwethya* group leaders; introduction of the soil conservation supervisor, planning.
- (ii) Major physical works, carried out by *mwethya* groups. Training of *mwethya* group leaders.
- (iii) Programme becomes part of normal farm activity; soil conservation supervisor withdrawn.

This was a programme under MIDP, which replaced the former policy of training the ordinary extension workers in soil conservation. It relied instead on concentrated theoretical and in-service training for a small cadre of supervisors, combined with training of farmer-leaders selected by the *mwethya* groups (ODI, 1982; Neunhauser et al., 1983). Various assessments found this strategy successful; (ODI 1982, Mwenge, 1989, Neunhauser et al., 1983). However, shortly afterwards the extension service was reorganised to follow the Training and Visit system under another foreign aided project. There was no place for the soil conservation supervisors, most of whom had to leave the service when the special MIDP funding for their employment ceased. Such changes are not made in consultation with local people, despite the District Planning framework which is supposed to exist (Mwenge, 1989).

In the 1960s and 1970s extension work was conducted mainly through individual farm visits, demonstrations, *barazas*, agricultural shows and 4-K clubs (Heyer and Waweru, 1976). There were also some farm training centres which ran short courses for farmers. The 1980 survey showed that 61% of farmers said they had attended a *baraza*, 34% shows, and 20% farm demonstrations (Mbithi and Bahemuka, 1981). Knowledge of agricultural messages on matters such as spacing, planting and weeding was shown by over 80% of farmers. In 1981 the District had 47 Technical Assistants and 105 Junior Technical Assistants. In the short rains 100 farmers provided an acre for demonstrations; in the following long rains 60 farmers participated. Although some recommended practices were doubted, both by staff and farmers, the yields were generally above average, and this was acknowledged by the farmers. Altogether there were about 4,200 farmer/day visits, less than recommended since most staff organised fewer than the recommended three per season. However, farmers probably visit informally. More official effort went into short two day courses at training centres, attended by 6,700 farmers in 1982/3 (ODI, 1982).

Supervision and follow up were supposed to be improved by the Training and Visit system introduced in 1983. As a result of regular meetings which were also introduced there was a much better two way flow of information between research and

extension staff. The field extension staff were re-orientated to work with groups of farmers. As Mwenge observed, evaluation, is difficult since the ultimate measure of success is increased crop production, but it is difficult to separate other, larger, influences on production such as rainfall and marketing conditions, (Mwenge, 1989).

(d) Inadequate orientation to the needs of the average and poorer farmer, and to women farmers

The concentration on the individual farmer, generally selected because he was deemed progressive or outstanding, meant that extension workers tended to ignore the average or poorer farmer. This was already noted as a national problem by several observers in the 1970s (Heyer and Waweru, 1975). The progressive farmer sometimes suffer from too many visitors, while women farmers tend to be neglected (information from farmers attending the Machakos Workshop, 1991). Nevertheless, Machakos has a relatively good record in this respect. Women farmers formed 44% of participants in Farmer Training Programs run in Machakos in 1977 (Consortium, Report 7, 1978:167).

3.5.2 Attitudes to extension and new technologies

The Akamba farmer is not hostile to new ideas, and has found the extension service one useful source of information. A survey of over 1000 farmers, including a substantial proportion from Machakos District, found that 475 said they would accept a new idea if it was demonstrated to be profitable; 41% would accept if it provided more food. These were overwhelmingly the main influences; reduction of labour or profitability to others earned few responses (Mbithi and Bahemuka, 1981:47). Asked whom they would turn to for advice on a technical agricultural problem, 40% responded the agricultural officer, but 42% said friends or relatives (Mbithi and Bahemuka, 1981:44). It is creditable to the agricultural service that so many see them as the obvious source of advice, but it is equally apparent that many others are also deemed expert. In the 1977 survey of more than 2,000 farmers in Machakos and Kitui, 60% said they would seek advice about agriculture from the extension service, 53% said a member of the service had visited their farm, and 32% said they had been invited to attend a course at a Farmer's Training Centre, (and of these, 78% had accepted)(Consortium, Report 6, 1978). These percentages, at a time when the service had no special resources, are a tribute to the growing effectiveness of the service in the 1970s.

Amongst the practices recommended by the Agriculture Department a series of surveys (1973, 1978 and 1980) in the new farming areas of Kimutwa, Kibwezi and Kambu found that even new settlers struggling to set up farms in a very difficult environment had adopted Katumani seed (70 to 90%); planted in rows (rare in 1973, over 90% by 1978); practised early planting (very exceptional in 1973, 70-80% in 1978-80 (Mbithi and Bahemuka, 1981:30). Unfortunately, the study did not relate the innovations adopted to the development of the farm, and the gradual acquisition of the ox-ploughs or the hiring of tractors which makes some of the technologies such as row planting and dry-planting feasible. Initially, farmers found it difficult to keep livestock because of tsetse (farm interviews, 1990), so it is not clear if the lack of

adoption of certain practices in 1973 was due to lack of knowledge of the benefits, or lack of means to put them into practice.

Equally, it is obvious that while the extension service has played a role in providing information on farm improvements, despite its shortcomings, ideas and information have also been derived from many other sources, including the farmers' own experiments (see Technology Profile). Farmers observe each other and exchange information on improved seeds, crop rotation, paddocking, planting on rows and the use of farmyard and *boma* manure, some of which derived from the Agricultural officers, (Mbithi and Mbula, 1978). The case of the dairy farmer in Wamunyu has already been cited as one example of deliberate learning from other farmers. Exchange is not confined to ideas. Farmers borrowed and lent new tools such as jembes and fork-jembes. On seed development one of our informants said there are farmers with a reputation for good seed selection, and customary principles of reciprocity and mutual help makes it difficult for them to refuse to supply neighbours.

4. GOVERNMENT POLICIES AS CHANGE AGENTS

4.1 Participation, Local Representative Institutions, Central Planning and Compulsion

The effect of 'good governance' on development is currently the subject of much debate. Governance includes such things as political accountability and representation, the rule of law, and effective, competent administration. Concepts of good government have varied over time, and have always been subject to a difference between practice and theory. At one end of the spectrum is the concept of a supposedly wise central government which takes decisions on the allocation of scarce resources according to national priorities; this central government may or may not be elected. In Kenya in the colonial period it was unelected. In practice central governments are subject to internal pressure groups and external influences, either of which, if sufficiently powerful and organised, secure for at least some of the time favourable policies or allocations of resources. In the colonial period external influences were the Colonial Office in London and UK public opinion; since Independence they have been aid agencies and public opinion in donor countries.

A second concept is that planning and the allocation of resources should be from the bottom up, reflecting the wishes of the people in their different localities. The fullest reflection of this concept is an elected local government with a wide range of powers including the allocation of revenues some of which it itself raises. This may lead to a weak centre and an unequal distribution of services and resources between well-endowed and poorer regions. It therefore tends to be opposed by central governments, though it was the policy of the colonial government in the years immediately before the handover to elected national politicians. Central governments prefer to amass power and patronage at the centre. They can and do win popularity by reducing local taxing powers, thereby emasculating local authorities. However, at the same time the central government relies on local support and in Kenya since

Independence elected MPs and local councillors have been important in putting local views to central politicians and ministries.

A final concept is that of participation and consultation either with small groups or on an ad hoc basis. Even centralising governments acknowledge the need to adjust policies to local circumstances, and find that implementation is easier where policies are acceptable to local people. Participation has perceptible costs, particularly in time, which make it unpopular with bureaucrats unless they perceive clearly that the benefits outweigh the costs. It also risks the modification of plans. This can be avoided by consultation with selected groups only - eg members of the ruling party at the local level, district or lower level government employees, etc. Alternatively, if the consultation does not provide the desired answer, it can be ignored.

If local people contribute some of the initial capital or the running costs, they have a real influence on the location, design and content of projects. The areas with the most effective local leaders get the most projects, without consideration of priorities either at a local government or a national level. If the self-help groups can be confined to running very local projects, participation will not threaten the government's national power base. Indeed, governments can secure the power of patronage by their allocation of funds to local projects.

Independent Kenya has to a large extent evolved in the direction of a powerful central government, with elections in a one-party framework (KANU)¹⁵, combined with consultation with and participation by local interest groups. However, the groups have not stayed isolated. They have become part of national networks, some party-political, some church-based, others linked to NGOs or simple old-boy (or girl) networks (See Figure 1). The groups have become adept at manipulating politicians, influencing the allocation of government resources through unofficial channels. Everywhere, not only in Machakos, politicians must, as part of their election strategy, make personal donations to the self-help groups (Tarter, 1984:200). It was noticeable in talks with the local leaders at village level that they all thought they had much more influence over what they saw as their own government than when they were under an alien colonial authority. They understood and could work the system. This does not mean that they passively accepted government plans or government inaction. Indeed, self-help at local level can be in direct conflict with government plans. Mbithi quotes Holmquist's observation that self-help groups in Kisii characteristically disregarded government programmes - 'they will build maternity clinics even when the government opposes the move on the grounds that there are no nurses and doctors; they will build schools even if the government refuses to guarantee them teachers'. Mbithi found the same situation in areas he studied in Machakos and Embu in the 1966-70 Five Year Plan period - at self-help meetings speakers were cheered only when their words related to locally perceived needs (Mbithi, 1972:157). The situation has not changed today. If groups are unsuccessful with the government, they have learnt how to get assistance from many other agencies.

Political history in Machakos shows constant tension and swings of the pendulum between central government planning and local priorities as expressed either through elective mechanisms or through locally-based pressure groups. The latter have become constantly

¹⁵ KANU has been described as loosely organised without pronounced ideology (Tarter, 1984).

more effective and now embrace a very large segment of the total population. On the whole government policies have had much more positive results for development and conservation of natural resources when they have been based on some degree of consultation than when they have been based on compulsion.

4.2 Government and People in the Colonial Period

While the late 1920s saw the beginnings of a more participatory approach with the establishment of Local Native Councils (LNC) with some powers to allocate some revenues, the pendulum swung back to a top-down coercive approach for most of the 1930s and 1940s. From 1946 this began to be countered by impulses from London in favour of local government councils, community development and cooperatives as the key to development.

In the 1930s the DC and the Agricultural Officer were preoccupied by agricultural, forestry and resource conservation questions. Recognising that between 1932 and 1935 there had been several changes in agricultural staff, who had all tried out their own ideas, a Reconditioning Committee was set up to provide continuity and advice. It consisted of a majority of white settlers who were considered more expert in farming than the Akamba, officials, and two appointed Akamba. The latter were therefore outnumbered. It had several meetings from December 1935 till April 1937. The LNC had agreed that headmen could give orders to effect hedges, the planting of napier grass, the forbidding of fires, the closure of eroded areas to livestock, etc, but the Committee wanted to go further. After the copy of Maher's memorandum on soil erosion was circulated, it recorded its opinion, native members dissenting, that compulsory control of cattle numbers might be also necessary (KNA: DC/MKS/12/2/2). The LNC opposed the forced sale of cattle at low prices to Liebig's in 1938, although they did not organise the protest that followed, when 1,500 Akamba camped in Nairobi for six weeks. Both in the Committee and in the LNC, to the very minor extent that Akamba representatives were consulted, their opinions were disregarded. The enforced sales led to extreme suspicion of the administration, including the belief that after reconditioning the Europeans would take over more land.

In 1938 the LNC agreed to enforce the fencing with sisal of private grazing lands. This affected almost all grazing in the densely populated areas around Machakos and Kangundo. To an extent it was a natural development of what was happening already, with individual *kisesi*. Apart from sisal fencing, which many people adopted voluntarily, most of the reconditioning effort of the 1940s remained based on instruction and compulsion, as has already been illustrated in the section on *mwethya*. Only a few officials at this period realised that persuasion and consultation might be more productive.

A perceptive DC, Gerald Hopkins, who had been three years in the District, recommended that there should be a more balanced Land and Water Conservation Committee including 2 or 3 (white) settlers and 3 or 4 progressive Akamba elders. He also suggested that in the projected Makueni settlement tactful guidance in cooperation with the settlers would work better than rules and regulations (KNA: Hopkins, [1943?] DC/MKS/8/3: Report on Machakos District). His successor ignored this; the Reconditioning Committee was reconstituted in 1944, consisting of government officers, five white settlers, and only one Akamba representative who attended rather erratically 1944-50, and not at all 1950-54. Thus, there

was virtually no Akamba input into planning during the period of major expenditure under ALDEV's Machakos Betterment programme. The Committee secured the imposition of detailed Makueni Rules to regulate farming at the new settlement and successfully opposed Akamba settlement in the Yattas and Chyulu Hills. It was rebuked by the Director of Agriculture in 1952 for promoting mechanical terracing without the agreement of the people concerned (KNA: DC/MKS/3/Reconditioning/30/1/82).

After the war the Labour government issued a circular calling for popular participation in colonial planning. As part of the response in Kenya, the LNC became the African District Council (ADC), with elected Locational Councillors. This later became the Machakos County Council. The aim of the colonial government was to build up the County Council as a representative body which would employ the revenues from the local tax to pay for government services and development. Development was defined as all funds which did not go on salaries. According to Mutiso, between 1920 and 1960 the LNC/ADC spent 78% of development funds, since most central government revenue went to salaries (Consortium, Report 7, 1978:220). In the 1950s it was still heavily advised by the DC. Although it had to oversee a great expansion in education and other services, the DC also persuaded it to operate business ventures such as a sisal factory and the Konza ranch. The former proved particularly disastrous after sisal prices fell, and the Council's finances never really recovered. This hampered its ability to support health, education, roads and veterinary services, etc.

Thus, in the 1950s, there were both positive and negative influences on people's willingness and ability to work together to achieve common objectives. The positive influence was the government's theoretical commitment to elected local governments with their own revenues to support selected activities, community development and more profitable African agriculture. The negative influence was the very minor degree of influence that people actually had on planning. Consequently, the authorities and the people had differing agendas. That of the authorities was concerned with soil conservation, guided agricultural settlement which anticipated continued white control, and slowly progressing local government elective institutions; the people's agenda was concerned with more profitable farming, the right to settle land in the Yattas and the portions of the White Highlands they considered theirs, national independence and manoeuvres to secure a good position for the Akamba in the central government. Both parties were acutely suspicious of the other. The two agendas coincided to a limited extent with the adoption of the Swynnerton plan for developing profitable African farming.

Thus, development in the colonial period was hampered by the lack of communication between the people and the government. This led to coercive methods of enforcing government objectives which often proved counter-productive. Events proved that in the late 1940s and 1950s time was no longer available to build up an alternative style of government based on elective local authorities with powers to determine local policies and revenue allocations.

4.2 Central Planning, District Planning and Local Initiative, 1963-90

Central government policies in relation to local government since Independence in Kenya have recently been reviewed by Wallis. Almost immediately after Independence there was

a shift from the development of elected local governments with powers to raise and allocate money (devolution in political terms) to the building up of central authority, later with a degree of decentralisation of planning to District level officials. District Development Committees were set up first in the 1960s, and from the start, were dominated by officials of central government departments. The elected element, represented by MPs and the Clerk of the County Council, were in the minority. In any case, the Committee was only advisory to higher levels of government, and most planning was done by national and provincial government departments. In 1967 the Government rejected the Hardacre report which suggested that committees of the county councils should replace the DDC. In 1969 three important functions of County Councils - primary education, health and most roads - and its major revenue source, Graduated Personal Tax, were transferred to the centre. Without major funds except some produce cesses (in the case of Machakos mainly from coffee and sand) Councils found it difficult to carry out their remaining duties in respect of markets, community development services, and minor roads (Wallis, 1990).

On the economic front, there had already been a proliferation of Boards and parastatals for controlling the growing and marketing of most crops. Brown lists 8 established by 1945, and 8 more formed between 1945 and 1960 (Brown, 1968: 64-65). He complained that 'as boards and committees proliferated.....no senior staff member in Nairobi could find a clear week to do his normal work'. This was not its only disadvantage, since the Boards continued to expand after Independence, adding direct and indirect costs to marketing.

Thus, by the mid 1960s, the governmental approach was based on central planning and allocation of financial resources, modified by the need to tap resources at the local project level through the Harambee self-help movement (Mbithi and Rasmusson, 1977). The central structure was top heavy:

... the country had three complete networks of agricultural research stations ... Again, it has two rival sets of short-course training centres (one under Agriculture and the other Community Development, just as it has three overlapping extension services aimed directly at rural women (the same two Ministries plus Health). Where development is implemented 'from above', each agency begins its work by strengthening its central office in Nairobi, a tendency exacerbated by the shortages of suitable housing in the rural areas and by the desire of both technical assistance staff and their Kenyan counterparts to keep near the centre of power and innovation in Nairobi itself (Moris, 1972:144).

This continues; as a rule when new Ministries or agencies are created old ones are not dismantled. Moris compared the governmental organisation not to a pyramid with a narrow top, but to a tree:

the Nairobi agencies constituting the sunlit leaves and interlocked branches at the top; the provincial organization being the solid trunk; and the local sub-district organizations forming roots of unknown depth and strength, invisible in the muck beneath.... One's view of the tree will be almost unrecognisably different depending upon whether it is seen from the vantage point of its roots, its trunk or the branches above..... The structure encourages an intense but

distinctive type of politicization, wherein local clients line up beneath their national patrons. From the simplistic vantage point of a local man looking upwards, the main feature about national level administration is that it appears to afford almost unlimited access to influence and privilege (Moris, 1972:144).

Central planning decisions were therefore subject to modification by local manipulation, through the routes illustrated in Figure 1. It is important that the government is now seen as 'our' government; it is no longer alien to society but part of it, and village leaders know how to influence it. Table A.3 shows that party officers and other politicians are seen as important local leaders. Although there is only one party, KANU, there are often several candidates for office, and, throughout Kenya, these candidates 'have to convince voters of their superior ability to keep patronage flowing to the home district' (Tarter, 1984). Although the County Council diminished in importance, the Councillor is still regarded as a man who can make things happen, not only to get Council services or grants, but because of his connections with the local party and the MPs. String-pulling secures resources that are not available through official plans and normal government services, which have throughout the period since Independence been hampered by budgetary constraints. Government money is absorbed mainly by salaries, leaving comparatively little for operational resources (Moris, 1972 and various observations in the 1980s). Lack of finance further means that activities and policies get decided entirely outside the District, since so much depends on external funding agencies and their changing fashions (as in the T and V system of agricultural extension already cited).

In an effort to combine local input with planning by government expert staff, the Kenya Government evolved a District Focus Strategy. This began in 1983 with strong support from President Moi. In principle, this should involve the people in identifying and implementing projects, through the hierarchy of development committees from the sub-location upwards, shown in Figure 1. In practice, the unofficials are in a minority by the time the plans reach Divisional and District level. Within the District Development Committee, most decisions are made by a Steering Committee consisting principally of officials (Tiffen, 1985; Wallis 1990). The County Council, a district wide elective organisation, is still marginalised. However, since 1986 there has been more emphasis on creating elective Municipal Councils for new rural growth points, and giving them more authority to plan and implement local urban projects.

The general result is that there is neither central planned services with adequate revenues for their operations, nor local elective bodies with powers to raise revenues and decide priorities on a District basis. In Machakos, as in the rest of Kenya, government staff are handicapped by an increasing shortage of operational funds. Active local groups can preempt government planning by creating local activities, assets and services; government services, as in the case of Kibwezi illustrated earlier, tend to follow local initiatives. Although there is a desire to make district planning effective, the shortage of government funds means that more and more reliance has to be placed on getting local community groups to run services. Such groups are still preferred to any wider elective authority. Thus, recent water projects have been handed over to user committees for operation and maintenance, whose staff are paid from the water fees received from users. Special interest groups and NGOs often lead development activities and government staff can often be at their most effective when they operate in conjunction with these (see Section B by Kaluli). The dipping service, taken over by government from

the County Council in the late 1970s, was being handed over in 1990 to local user groups, who must finance the necessary purchases of inputs, etc.

Akamba ability to organise themselves in groups and to make contact with both government and non-governmental organisations results in concentrations of funds and activities in areas with good local leadership or contacts. Other areas are held back, perhaps because of weak local leadership, perhaps because of the absence of an underpinning essential infrastructure that requires wider-scale planning and funding. By comparison with the colonial period there is more communication between local leaders at village level and government, and most villages have both more social amenities and more knowledge with which to deal with their difficult environment, but a concerted development effort remains hampered by lack of a sound basis for raising revenues and deciding priorities.

4.4 Special Programmes for the Arid and Semi-Arid Lands

The amount of attention given to the dryer as opposed to the higher potential areas of Kenya has fluctuated. Periods of drought with concomitant high costs for famine relief remind governments of the need to make the semi-arid areas more productive. The first programme especially concerned with the needs of these areas was the Ten Year Development Plan covering the years 1945-55, with the dual objectives of resettling people on little utilised land, and rehabilitating the degraded areas. The African Resettlement Board was set up in 1945, which later was subsumed in the African Land Development Organisation, (ALDEV). Its functions were financial control and planning various development projects, co-ordination of activities within and between areas, and carrying out certain functions such as surveys and engineering works. Its funding came from District Betterment Funds, derived mainly from cesses, and Colonial Development and Welfare grants. Projects were put forward by the District Agricultural Committee (mainly officials) through their provincial agricultural committee (Ngutter, 1981). It could direct funds to what it considered priority areas, and these included Machakos. Machakos received 36% of total funds from ALDEV in the period 1946-62.

The Swynnerton Plan shifted the focus to the high potential lands which could develop coffee, dairying and tea. Machakos lost its privileged funding, particularly after 1962. The Million Acre scheme for redistributing European farms to Africans was launched and absorbed three quarters of government expenditure on agriculture in 1963/4, and still one half in 1968/9. This dramatically reduced the number of agricultural staff in Machakos.

A decade later attention began to return to the dry lands. An ILO mission in 1972 strongly recommended giving attention to the 'less favoured areas'. The 1975 drought reinforced this message and in 1976 the Government secured US funding and technical assistance for a Marginal/Semi-Arid Lands Pre-investment study team, which began its studies in Machakos, Kitui, and parts of Embu and Baringo (Ngutter, 1981). The Consortium's reports began appearing in 1977 and 1978. Over the next decade different overseas aid agencies committed funds in support of special programmes for different semi-arid districts. In Machakos there was EEC finance for an experimental district based programme - the Machakos Integrated Development programme (MIDP), inaugurated in 1978.

MIDP embodied the then fashionable planning concepts of integration, participation and decentralisation; it did not, however, reconcile the conflict between integrated planning, which has to be controlled by government officials, and participative consultation on felt needs (Tiffen, 1985). It was a forerunner of the District Focus, in that planning was decentralised to district level. In its first phase, 1978-82, planning and implementation tended to be dominated by expatriate experts seconded to government departments, although some government departments were able to marginalise them. The consultative round at the beginning of the project had shown the felt need for improved water supplies, and the project was able to bring extra resources into this area. The planning and execution of the projects took longer than anticipated, and in this and other fields the expatriate experts were at first ignorant of the local social situation, the capacity for self-help, and the community development knowledge embodied in the CDAs, the cooperative union and other local institutions. The assembling of evidence on felt needs at the beginning of the project was also the end of participation, until the seconded expert in soil conservation learnt that involving the farmers and the community was the most efficient method of proceeding (3.5.1 above). Later the need for community involvement in the operation and maintenance teams of the water projects made itself felt, and has since been addressed. One undoubted achievement of the project was the provision of some large scale water projects which would have been impossible without the extra funds. The additional resources of vehicles, offices and operating funds enabled many government departments to operate temporarily at higher levels of efficiency, but the problem of raising permanent revenue for this was not faced, and most of these activities fizzled out as European funding came to an end. In 1990 the government was left with underutilised offices and underemployed staff in the continuing, but necessarily inactive, Programme Management Unit. MIDP therefore has a mixed record of achievement (Mbate, 1991).

Although the District has benefitted from two special programmes, ALDEV and MIDP, both of which had some achievements, they cannot be given all the credit for the success the District has achieved in supporting a higher population and counteracting a degradational spiral. Much of the work of terracing was done, as can be seen from the Land Use Profile, in the period 1960-78, when it was receiving less attention than the high potential areas, and when one of the main forces was self-help.

5. CONCLUSIONS

5.1 Summary

Characteristic of the period under review is an expansion in the number and complexity of institutions which convey and process knowledge, or which allow manipulation of the changing economic and political situation. There has been a broadening of the leadership base at village level which now includes women. Government is now felt to be part of society, and local leaders understand how to communicate with it. Kenyatta's call for cooperation between people and government in the enterprise of development could be answered because there were existing village structures which could be built on and expanded, and because the political process made both necessary and possible direct communication

between politicians and supporters. As a consequence, people feel somewhat more in control of their lives; they still have to contend with an uncontrollable and uncertain environment, and have only limited means to affect general government policies, but, as compared with the colonial period, they are more able to pool knowledge, capital and labour for private and community projects and to achieve improvements at the farm and village level. This has led to a great expansion of facilities at village level, at little cost to government, many of which (schools, minor roads, bars, shops, etc) have still further expanded information exchange. The self-help groups pull in capital and expertise from national and international sources to supplement local self-help, through upward links to the political system, the churches and other NGOs. Most rural families belong to a self-help group; most are also church members.

Capital for the improvement of farming comes mainly from extended family resources. Within the family, capital flows between farm and non-farm enterprises, and between members based in the village and relatives who have achieved good positions in urban areas due to their education. Families have invested heavily in education, both through payment of fees for their own children, and through their self-help support to schools, etc. Education and the church have helped to change the family, which suffered stress due to male out-migration, but which has proved in most cases sufficiently flexible to survive. Within the family as within the village, women are now playing a greater role in decision-making, so that the talents of all members are now more fully utilised than when society was dominated by male patriarchs.

The growth of trade has been important not only in providing incentives for farmers, but in bringing in new ideas. Indian traders brought in vegetable cultivation in the 1940s and contract growing for export has become important recently. Markets, shops and service workshops follow the improvement of roads, but the roads themselves remain very underdeveloped. Co-operatives have been very successful in the coffee areas, and major investors in processing plants of various sorts. The Machakos Co-operative Union is the largest African owned business in the District.

Factors that have assisted increased organisational ability, the improvement of farms and the uptake and development of new types of enterprise are:

- (a) Education. While great sacrifices are made for secondary education, notable features in Machakos as compared with the rest of Kenya is the almost universality of primary education, the self-help village polytechnics turning out craftsmen, and adult education.
- (b) The individualisation of land tenure. Cultivated land was traditionally inheritable, and has been sold at least since the 1920s. Between 1939 and about 1980 all grazing land was enclosed and is now individually owned. Farmers feel secure once their farms have been officially demarcated with recognised boundaries, and if this is delayed formally, village elders and party officials carry it out. Full registration is necessary for access to official credit, and when there is disputed ownership, particularly in regard to 'government' land.
- (c) A long tradition of community development support, going back to the 1950s, has strengthened local organisational ability.

- (d) The extension services have suffered many weaknesses, but the majority of farmers seem to have had contact with them. New ideas have also come in via soldiering in the war, traders, and farmers' exchange of ideas and materials. An Akamba proverb is the equivalent of seeing is believing: demonstrations (formal or informal) are what count.

Where self-help is possible, it has in many cases emerged and found support. What remained lacking in 1990 was any means for feeding the knowledge and the priorities of the people into the allocation of funds for major projects and services, which remained within the purview of central government departments and aid-giving agencies.

5.2 Policy Lessons

Greater recognition of the entrepreneurial spirit in individuals, their knowledge of the local environment and their capacity as individuals or as groups to initiate developments and to recognise good opportunities and good innovations would enable the government to reconstruct its services as necessary to support people's efforts to help themselves. This means revising policies that impede farm profitability, particularly those that impede marketing, and continuing to develop institutions which allow for a popular input into planning. Two-way communication between government and people, however achieved, releases energies and stimulates a development process which occurs much more slowly under a coercive approach.

By 1990 financial pressures were enforcing recognition of the role of the community in running local facilities, and senior government agricultural staff were beginning to be orientated towards recognition of local farmer knowledge and the need to understand the farm situation. However, ever since the local tax base in alliance with a local planning and implementing authority was abandoned, the problem of providing for the development and recurrent costs of desired services has not been solved. There are important services and development projects which cannot be provided through self-help and community management, for example, main roads. Roads are as important as education in stimulating information flows.

Institutions have grown in their complexity and capacity. However, they can be overwhelmed by being burdened by too many tasks in their initial stages, as happened to the County Councils and the cotton co-operatives. Sensitive guidance to new institutions is required, without overwhelming them with regulations and instructions.

B. NGOs AND TECHNOLOGICAL CHANGE

J. W. Kaluli

1. INTRODUCTION

There are many Non-Governmental Organisations operating in Machakos. Mutiso undertook a study of them for the District Development Committee in 1985. Although 50 attended the meeting called to inaugurate the study, only 20 eventually provided data. Amongst these one of the largest was the local Machakos Catholic Diocese; others were linked to NGOs incorporated in other countries; still others were vigorous local groups such as Utooni, operating in a limited area within the District. The Machakos Catholic Diocese had the largest number of specialist staff amongst those reporting, totalling 973 for 80 projects. Care Kenya then had 90 projects; most others then reported less than 20. The greatest number of staff at that time were in the fields of health (509 staff reported), and community development (309 staff reported). Agriculture, domestic water and food distribution each had 70-90 staff. This is an incomplete picture, since not all NGOs provided information (Mutiso Consultants Ltd, 1986). The importance of community development staff reflect the fact that most NGOs operate by instigating or encouraging self-help groups.

This report examines the interaction between the people and Non-Government Organisations (NGOs) in two sectors only, soil/water conservation, and water supply and sanitation. The report presents the role and approach of NGOs in the development of these technologies in Machakos District. It is found that the NGOs have successfully achieved their objectives by involving their beneficiaries and as a result of effective planning, supervision and record keeping. Where NGOs fail to take account of the real objectives of the beneficiaries, they are comparatively unsuccessful. Some collaboration has been seen to take place between NGOs and the public sector. However, NGO to NGO collaboration is missing.

2. SOIL AND WATER CONSERVATION

2.1 Technologies under Consideration

The following technologies are considered under soil and water conservation:

- Terracing and gully rehabilitation
- Agroforestry
- Tree planting

Apart from the Ministry of Agriculture, the following NGOs are involved in soil and water conservation work in Machakos:

- The Semi-Arid Land Use (SALU) programme of the Catholic Diocesan Development Service (CDDS).
- The CPK diocese of Machakos.
- Utooni self-help project.

Most of these NGOs use a similar approach. To illustrate their methodology, the SALU programme approach is discussed in detail. The projects being undertaken by the other NGO are discussed in less detail.

2.2 The SALU Programme of the Catholic Diocese

Machakos Catholic Diocesan Development Service (CDDS), formed in 1979, is one of the most active NGOs in the District. It has eleven different programmes dealing with almost every aspect of community life with the aim to improve the living standards of the people. The CDDS has programmes for women, youth and children. SALU is an agricultural programme in the CDDS that helps the community to improve its farming methods by obtaining better seeds and animals, carrying out soil/water conservation and generally creating an awareness of the importance of environmental conservation.

The SALU approach emphasises complete involvement of the community. The NGO works with organised groups where decisions are arrived at by consensus. Some 80% of these groups are women. For a group to qualify to work with SALU, it has to have existed for at least six months. After SALU receives a request from a group asking for assistance in soil conservation, SALU officials arrange to meet with group committee members. This gives the NGO a chance to assess the quality of leadership in the group. Once SALU is satisfied with the group a study is made to find out

- what the precise needs of the group are;
- the amount of financial resources available to the group;
- the kind of skills accessible either from members of the group or government technical assistants.

Alternative solutions to the problems are evaluated, and costs estimated, jointly by the NGO and the organising committee of the group. Finally the contributions to be made by the group are determined and communicated to group members. The number of groups served has expanded greatly since 1983 (Table B.1).

As a part of promotion and education, SALU organises training seminars in which representatives from different groups are shown the benefits of specific projects and also given skills required in the execution of the projects (see Table B.1). Soil and water conservation is something the people of Machakos know they cannot do without. All that

Table B.1: SALU Agricultural Programme:
groups reached and number of leaders trained

<i>Year</i>	<i>No. of new groups reached</i>		<i>Year</i>	<i>No. of SALU leaders trained</i>	
Before	1983	60	Before	1983	60
	1983	30		1984	29
	1984	50		1985	31
	1985	62		1986	38
	1986	46		1987/88	40
	1987	22			
	1988	50			
Total		320	Total		198

they need are resources to help them in the work. SALU provides working tools and technical advice to groups that need them.¹

At the implementation stage, group members work together. For example if they are involved in a terracing project, they usually work together in the different farms. This way they not only motivate one another to do this very difficult work, but also learn different skills from each other. Evaluation of work done under the SALU programme is carried out occasionally to assess the effectiveness of adopted alternatives. When a solution does not work favourably in a given situation, a different alternative can be tried before it is too late. Since most of the SALU staff are familiar with the cultural values of Machakos people, there is usually no communication problem with group members.

The largest number of groups seems to have been incorporated in SALU in 1985 soon after the 1984 drought. The number of leaders trained have increased from one year to another. Check dams are constructed across gullies for rehabilitation - 285 in 1987 and 48 in 1989. Since 1984, about 1,000-2,000 km of terraces have been constructed annually. The largest number was constructed in 1989 when SALU organised a soil and water conservation competition which was an effective incentive. Some 195 groups participated in the competition and 175,000 km were built. The NGO has encouraged construction of cutoff drains. In 1987, the length of cutoff drains constructed was 350 km. Clearly, the CDDS is the most organised NGO as far as soil/water conservation work is concerned.

¹ When the Diocese was first involved in soil conservation work, it also provided food for work. In 1982, a representative of the Diocese was vigorously attacked by Community Development Assistants at their Annual Seminar. They complained it was undermining the basic principle of self-help. Tools should be given, not food or money. This seems now to be accepted (Personal communication, Mary Tiffen, who was present at the Seminar in question).

2.3 Church of the Province of Kenya (CPK) Diocese of Machakos Programmes

CPK Diocese of Machakos was started in 1985. The soil/water conservation work done by the diocese is initiated from the deanery. Members of the community can learn soil/water conservation methods from CPK demonstration farms. The diocese has agricultural demonstration farms at the following locations: Mua (formerly Settled Areas), Okia, Mukaa, and in Machakos town. In the farms there are fruit tree nurseries, cattle and chicken. Most learning happens during field days when the agricultural staff conduct organised training sessions for the farmers. Tree planting and agroforestry is used as a soil conservation measure. About 80% of the groups sponsored by the CPK diocese of Machakos have thriving tree nurseries. The most popular species include leucaena, grevillea, neem, croton, casuarina, cypress, eucalyptus, jacaranda, oranges, mangoes, passion and papaya.

The diocese mainly works through the deaneries which are distributed throughout the district. Projects are often initiated when individuals take their problems to the relevant people at the deanery offices. The CPK executes its programmes in close collaboration with community leaders such as chiefs and with government ministries which can provide technical assistance.

The NGO also has a workshop at Machakos town that produces furniture and metal work products including *jembes*, oxen and donkey carts, grass cutters and ploughs. At the same location there is a training school to give technical skills to members of the community. The CPK development unit has introduced a brick machine that produces masonry bricks that need not be baked. This is a technology that will help conserve wood, since earthen bricks have often to be baked in fire. Other energy conserving technologies include the raised *jiko* (stove) that burns wood at low oxygen supply conditions. Such *jikos* are able to reduce smoke in the house, use less wood than open fire stoves and save time for the members of the community since they only need a small volume of wood. In view of the fact that land is often denuded as a result of felling of trees for firewood, energy saving technologies can also be classified as soil conservation technologies.

2.4 Utooni Self-Help Project

Utooni is a rather unique NGO in the sense that while most other NGOs have been initiated from overseas, this one was started by the local people of Kola, in Kalama location. It was started around 1978 and has a membership of around 140 men and women. The organisation started as an agricultural cooperative specialising in horticultural farming. Later on its activities were extended to other areas such as soil/water conservation and water supply. Because of its hard work Utooni has won the support of overseas-based NGOs such as World Neighbours which offered its support from about 1982 to 1989. By 1985 it covered three sub-locations. It was regarded with a little suspicion by the authorities (Mutiso, 1991). It has been involved in terracing and the construction of cut-off drains since 1978.

3. WATER SUPPLY AND SANITATION

3.1 Organisations and Philosophies

Some 80% of the enteric diseases people in developing countries suffer are associated with unsafe water, inadequate sanitation and poor personal hygiene (World Bank, 1986). In most of these countries, the supply for clean domestic water is inadequate and garbage disposal and sanitation systems are poor. To remedy the situation in Kenya, the government as well as some NGOs are currently involved in the following main water supply and sanitation technologies in Machakos:

- Roof water tanks
- Ground water tanks
- Hand pumps
- VIP latrines

The type of sanitation used depends on the quantity of water available. In rural Machakos, the commonest type of human waste disposal facilities are pit latrines.

Water is transported some distance to most homes from sources since piped water is uncommon. Currently water development in the district has focused on bringing the water sources as close as possible to the people. Small scale technology development in this area has included the installation of water wells and hand pumps, use of roof rain water catchment tanks and, in a few cases, constructing gravity transmitted water supply lines. These programmes may be initiated by either the government or local NGOs, community leaders or local individuals for their personal use. Large scale technologies, such as large dams, deep boreholes etc. are the responsibility of the government, or in the latter case, County Council.

In the past many water supply systems in Machakos, particularly diesel pumped and hand pumped water supply facilities, have been built without much discussion with the potential users concerning their preferences. In most cases the users did not know how to operate and maintain the systems. Where diesel operated pumps have been used, the people have lacked funds to keep them running. When breakdowns occurred, the users felt it was the responsibility of the government or the constructing agency to make the necessary repairs. Lack of funds and spare parts has led to the abandonment of facilities. Over 40% of the hand pumps constructed through the assistance of Machakos Integrated Development Programme (MIDP) are not functioning. Some have broken down and others have been abused or vandalised. For similar reasons, seven out of the 20 boreholes operated by the County Council were out of service in 1982 (Tiffen, 1985).

It has been found that projects fail for two principal reasons (World Bank, 1986):

1. Use of inappropriate technologies and
2. Rejection by the users.

Where the users of different technologies have not participated fully in the planning and implementation of technology, failure has resulted. Involving the users develops a feeling of ownership and an appreciation of the possible benefits. However, this is sometimes omitted because it is felt that it is expensive to spend time working with the communities, and to involve the beneficiaries. In fact, involving the beneficiaries in planning and implementation brings advantages which lead to sustainability. Users who participate in construction often gain on-the-job training needed for future maintenance work. It is much cheaper when community members can do their own maintenance than having to hire people to do the same.

The water supply projects sponsored by NGOs have a good level of success since potential users are involved by the funding agency. The main NGOs involved in the tasks of improving water supply and sanitation in the district include the CDDS of Machakos Catholic diocese, CPK diocese of Machakos, the Institute of Cultural Affairs (ICA), African Medical Research Foundation (AMREF), Utooni and ActionAid Kenya. To illustrate the approach of NGOs, the approach of AMREF is discussed below in detail. The approach of other NGOs is treated more briefly.

The efforts of the World Neighbors as well as the ICA, the CDDS water programme and the CPK diocese of Machakos to introduce Ventilated Pit (VIP) latrines in the District has received a very poor response. Community members think it is more important to improve their water supplies than to introduce improved latrines or other sanitary excreta disposal facilities.

3.2 AMREF

The African Medical Research Foundation (AMREF), formed in 1957, began its operations in Machakos, in Kibwezi, in 1983. AMREF operates a water supply and sanitation programme in this district. It also runs a community based health care (CBHC) programme. AMREF has helped the community to construct wells, obtain hand pumps, and install roof water catchment systems. Its projects have the following features:

- (a) AMREF has only advocated the use of simple water technologies such as shallow wells and hand pumps and the harvesting of roof water using roof water catchment tanks. These are technologies that the community can effectively operate and maintain.
- (b) By encouraging community participation AMREF saves up to 40% of the total project cost since unskilled labour and locally available building materials are provided by the potential users of the technology.
- (c) The village ability to carry out similar projects independently is increased by getting them involved. This is as a result of the increased self-confidence and acquired skills.
- (d) Before an AMREF project is started, the rights and responsibilities of the NGO and the potential users of the project are clearly defined. The community can tell precisely what their role will be in the project. This way unnecessary delays in the implementation are avoided.

- (e) The exact procedure for project execution is drawn up in advance to ensure success.
- (f) AMREF gives training on the building, maintenance and repair of shallow wells. The users are also taught installation, repair and maintenance of hand pumps and roof water tanks. These types of water technologies are very useful in places such as Kibwezi, where fuel and spare parts for diesel-pump water supply are expensive.
- (g) AMREF has well trained masons and plumbers in the field to help Kibwezi people solve some of the more challenging technical problems.

AMREF has helped construct over 69 wells in Kibwezi since 1983. The NGO trains an average of 10 community members every year. Since 1983 over 100 people have been trained and have been involved in the maintenance of water supply facilities in Kibwezi area. The NGO has a spare part shop available for the community. The different well groups can buy spare parts from this shop, which is run by a wells committee composed of local members of the community. The income obtained is used to purchase more parts. There are plans to start producing well spare parts within the community. This would probably reduce the current annual cost (US \$ 100.00) of maintaining a well.

3.3 ActionAid Kenya

ActionAid Kenya is another NGO involved in construction of roof water tanks in Kibwezi. The NGO has worked with 19 women's groups. A lot of their tanks are, however, built in school compounds. An average of one roof water catchment tank is built per year.

3.4 Machakos Catholic DDS Water Programme

Machakos CDDS has a water programme that works through organised groups. Table B.2 below shows that between 1983 and 1988 a total of 155 water projects were completed and 188,700 people were served with water. (This compares with the 267,000 served by MIDP-financed supplies (Mwenge, 1988:60)). These projects include shallow water wells, spring protection to give better quality of water and subsurface dams. Each project is designed to supply water to at least 500 people. Whenever possible, water is transmitted by gravity, thus minimising pumping costs. In addition, from 1984 to 1988 the CDDS water programme helped to construct 3,000 roof water tanks.

3.5 Institute of Cultural Affairs (ICA)

The Institute of Cultural Affairs (ICA) was registered in Kenya in 1978. The ICA offers leadership training to community leaders, institutions and organisations. It offers training in preventative health. It helps community members obtain water through roof water systems and encourages kitchen gardening and community based health care. ICA started a roof water harvesting programme in 1983. Up to 1987, an average of 10 tanks per year were constructed. From 1988 up to date, the aim has been to construct 30 tanks in Machakos per year. The average tank capacity is 8,000 litres.

Table B.2: Machakos CDDS water supply

<i>Year</i>	<i>No. of wells, springs, dams</i>	<i>Population supplied with water</i>
1983	14	13,000
1984	6	900
1985	10	14,300
1986	25	22,300
1987	44	33,500
1988	56	34,700
Total	155	118,700

3.6 CPK Diocese of Machakos

CPK diocese constructed 15 and 25 roof water tanks in 1988 and 1989 respectively. A gravity fed water supply system has been constructed at Ilovoto, Kithangathini deanery. Two underground water tanks were built to harvest run-off from roads and other sources in 1990 at Kithangathini and Ikanga. Efforts are usually made to clean the water as much as possible and plans are under way to provide water pumps to such sources of water.

3.7 Utooni Self-Help Project

Utooni project has since 1978 built an average of between 5 and 10 roof water catchment tanks per year. About 10 subsurface dams have been constructed under the supervision of Utooni project. The members of the project have worked together to help each other construct latrines in the homes. In 1981, leaders visited UNICEF to get help with water. UNICEF was promoting Galla jars with water filters to collect roof water. Utooni accepted the jars, but rejected the filters which cost Ksh 400. They argued they were not worth the small additional benefit. By 1985, Utooni had built 58 water tanks worth Ksh 185,600, 171 water jars worth Ksh 136,800, and sub-surface dam worth Ksh 100,000, five river barrages worth Ksh 800,000 and a gravity piped water scheme worth Ksh 3,000,000 (Mutiso, 1991).

3.8 World Neighbors

World Neighbors was incorporated in the USA in 1979. It has usually worked with religious groups, not because the organisation itself is religious, but because it is often easier to work through churches. In World Neighbors projects, the community contributes 50% of the total project cost while the NGO provides the rest in the form of hardware materials and technical advice. All the labour is supplied by the beneficiaries.

World Neighbors sponsored the Utooni project between 1982 and 1989. It has supported the Catholic diocese in its water projects since 1981. In 1989, World Neighbors started to sponsor Ukambani Integrated Development Project. The objective of the NGO is to help construct at least 100 roof water tanks per year. Spring protection and construction of subsurface dams are the other activities undertaken by the NGO. So far 11 subsurface dams have been constructed in Machakos. Where spring protection is done, the objective is usually to make a better place for drawing water. Often a pipe with a tap is provided. This avoids the contamination of the water at the source.

4. AFFORESTATION AND AGROFORESTRY

4.1 Organisations Involved

All large forests in Machakos are the property of the central Government of Kenya and are managed by the Department of Forestry in the Ministry of Environment and Natural Resources. Forest managed by the County Council are just a few small plots of trees where little expansion is taking place. In this section different NGOs involved in afforestation and agroforestry are discussed. These are mainly concerned with what is termed social forestry, i.e. the planting of trees for the use of people on private or village land. Due to the uniqueness of the approach and role of the Green Belt Movement, it is discussed in the following subsection in detail. It also illustrates the kind of conflict that can emerge between an NGO with a distinct philosophy and community leaders who may have different priorities.

An international research organisation, the International Council for Research in Agroforestry (ICRAF), began operating in Machakos in 1985 and is now having some local impact.

4.2 The Green Belt Movement

The objectives of the Green Belt Movement in development are:

- To provide fuel wood to communities in rural areas.
- To help prevent soil erosion.
- To make tree-planting an income generating activity for women.
- To help agricultural communities produce enough food.
- To encourage self-employment.
- To address the issue of population.
- To save indigenous trees, shrubs and flora.
- To conserve water and prevent desertification.
- To address the questions of population and poverty.

The Green Belt Movement hopes to be able to engage the community as the main driving force of development. Green Belt does not encourage the use of highly trained foreign experts but prefers to encourage and promote indigenous expertise. This is meant to reverse the harm that has been done to the African people by being made to feel ignorant, inexperienced, incapable and backward. The Movement employs about 21 young people in Machakos as advisers and nursery attendants. The approach of the Green Belt Movement is as follows.

- (a) An effort is made to create within the local population awareness about the importance of trees in stopping environmental degradation. The people are helped to recognise their role in harmful environmental practices. Using dissemination media such as newspapers, television and radio, environmental concerns are translated into a language that target group can understand. Word of mouth and drama especially in schools are used. Promoters are frequently trained by the Green Belt to communicate with community members effectively. The trainees of the movement are equipped with the knowledge to plan tree planting programmes, establish nurseries and organise tree planting activities. The objective at the promotion stage is to encourage the people to start solving the problem by establishing tree nurseries.
- (b) Existing groups, especially women's groups, are encouraged to establish tree nurseries.
- (c) Once a group is formed, it has to get a piece of land for its nursery. Public land is often the best for such purposes. Therefore close collaboration with community leaders such as the local chief is seen as very important. If public land is not available an offer from any of the members is accepted. The movement does not supply seeds but teaches group members how to collect seeds from existing trees. This way they can gain seed collection skills. Even though usually the public prefers to plant high yielding exotic trees, they are encouraged to plant indigenous trees, which are often the best for soil and water conservation. The movement wants to re-introduce indigenous trees to places which it feels have been devastated by unsuitable exotics.
- (d) With the help of local experts such as a Green Belt field assistant, a forester or an agricultural officer, a nursery is physically established. Instead of using new plastic bags to plant their seedlings, community members prefer to use milk packets and food containers. Whenever possible, recycling is encouraged.
- (e) The progress of the nursery should be reported to the Movement's headquarters so that if necessary, assistance can be given. Reporting is done with the help of special forms that show the number and type of trees at the nursery and how many seedling are ready to be issued to the public.
- (f) The tree planting exercise is promoted to the community by sensitising it about their need for firewood, building material and of the pressing need to conserve soil and water. A list of people willing to plant trees is sent to the Green Belt office so that information on ways to plant seedlings with a high chance of survival can be sent to them.

- (g) After trees are planted, another form is sent to the movement's offices so that follow-up of the planted seedlings can be carried out. Follow-up is done by employees of the movement attached to the particular location. This is done to increase chances of seedling survival and keep accurate records.
- (h) Groups are paid some money for surviving seedlings as an incentive to plant trees and care for them. The money is sent directly to the group's account to avoid unnecessary handling of money.

The leaders of the movement encourage the growing of indigenous trees which they feel are often the best for soil and water conservation, but in this respect they have not always been able to convince people. The movement is trying to educate farmers about the usefulness of the indigenous trees but the farmers often prefer to plant trees that earn a higher profit (often exotic trees). They have had to provide funds to reward groups for surviving seedlings, and whenever funds are not available or the people are insufficiently motivated, some tree nurseries have been abandoned. An effort is still being made to get the people to plant indigenous trees of their own initiative. The movement feels, however, that its education campaign is promoting understanding of the interdependence of all life forms. School nurseries are valued because children take the message of conserving the environment to their parents. Machakos alone now has more than 185 nurseries, out of the 600 the movement supports in Kenya. The nurseries are located in school compounds and in the compounds of other public plots such as Chiefs' offices.

4.3 The Catholic Diocese SALU Programme

The CDDS SALU programme has encouraged the planting of fruit, fodder and shade trees to boost the economy of the community. Between 1981 and 1985, over 100,000 fruit and about 26,000 fodder and shade trees were planted through the SALU programme. In 1985, the CDDS had helped to establish 82 tree nurseries and in 1987 about 144 nurseries.

5. OTHER TECHNOLOGIES

5.1 General Agriculture and Livestock Development

In addition to soil/water conservation, water and sanitation and afforestation and agroforestry, other important technologies have been introduced or encouraged by NGOs in Machakos. The Catholic Diocesan Development Service (CDDS) seems to be the most active NGO in the district. In agriculture, SALU has encouraged drought resistant crops such as cassava, millet, and sweet potatoes.² By 1988, members of SALU groups had acquired Galla goats and improved breeds of cattle and chicken.

² It will be shown in the Crop Production Profile that this advice has not had much impact. Maize remains the preferred staple crop.

The Kenya Institute of Organic Farming (KIOF) has encouraged organic farming which discourages the use of chemical fertilisers and pesticides. Instead KIOF promotes the use of organic fertilisers and other natural practices that could enable the environment to stay healthy, balanced, allowing plants to grow and thrive. Crop rotation is used as a disease and pest control technique. Compost converts large amounts of vegetation such as crop residue, garden weeds, kitchen and household wastes, hedge cuttings and garbage into valuable humus.

5.2 Community Based Health Care

The Institute of Cultural Affairs (ICA) has a training programme for community leaders and members of community on community based health care. In this programme the health workers of the NGO go to the community and demonstrate the best health practices. AMREF has been doing something similar, but only in Kibwezi division. The AMREF community based health care programme was started in 1978. Since then, 442 community health workers and 250 transitional birth attendants have been trained. The Catholic diocese is also involved in a similar programme. As a part of this programme, nutrition has been taught to communities and schools. AMREF and ActionAid have been jointly involved in a disability programme since 1988. The programme attempts to make disabled children live more comfortably. Administering physiotherapy to the disabled children and visiting their parents to educate them on how they could make the disabled feel more acceptable are some of the ways help has been given. The friends of the disabled have also been encouraged to love and help the victims of disability.

5.3 Improved Wood Stoves

KENGO is involved in the development of a more efficient wood stove. This will help to reduce the volume of wood used and hence reduce the problem of deforestation. The ICA has introduced a solar cooker. This is being tried in other districts in the Republic of Kenya, and there are plans to introduce the technology in Machakos district. The use of a solar cooker would significantly reduce the use of badly needed vegetation and help maintain a more healthy environment.

6. COLLABORATION

Most NGOs have some form of collaboration with the Government Ministry involved with the technology being developed by the NGO. In most cases the Ministry has a larger work force with a wider set of technical skills and facilities (e.g. soil testing), that can assist the NGO staff in their work. Due to scarcity of resources, it is often difficult for Ministry staff to get transport to the field. In such cases, if the NGO can provide transport, then the two parties can work together. NGOs gain the benefit of the expertise of individuals in the public sector, and influence public sector approaches to development. Irrespective of the reasons for which collaboration between NGOs and government Ministries have taken place, there have been benefits.

NGO to NGO collaboration exists where only one NGO has funds but lacks the personnel to work in the field while the other NGO has the personnel but lacks sufficient funds. This has been the reason for collaboration between World Neighbors and other organisations such as the Catholic Diocesan Development Service. However, ordinarily there is little collaboration between NGOs involved in the development of the same technology. Wellard et al. (1990) referred to NGO to NGO collaboration as networking. What makes networking difficult in Machakos is that there is no organisation to put the NGOs together. Since 1986 some have occasionally met through the Kenya National Council of Social Services, Machakos branch (Mutiso Consultants, 1986). However, this has not yet led to exchange of technologies. Mutiso Consultants (1986:27) comments

We know of some areas where one NGO is pushing groundwater tanks, another sub-surface dams, and yet another two different designs of roof catchment water tanks.

7. CONCLUSIONS

All the NGOs mentioned can be commended for making an effort to involve the users of technologies in the planning and implementation of projects. They first establish that the potential users really need the technology and that they would not rather have a different service. They make sure that locally available material and skill are used. For most projects the users provide labour. When community members can pay some of the costs or collect materials such as stone, this is greatly encouraged. Where this is practised, greater project success has been realised.

The population in Machakos accept soils and water conservation technologies easily since they have come to realise that without soil and water conservation, their land cannot produce sufficient crops for their survival.

The Green Belt Movement is undertaking educational work to encourage tree growing, and especially the growing of indigenous trees. However, at present there is some conflict between what it advocates on philosophical and technical grounds, and what people are willing to do for economic reasons. Some of its projects therefore fail because community leaders and group members are bribed by funding rather than adopting its policies through conviction.

Communities in Machakos were found reluctant to accept sanitation technologies such as VIP latrines. This is attributed to the fact that their most pressing needs are different. Their priorities seem to be food production and water supply. In further research the effectiveness of the existing methods of waste disposal should be determined. Such an investigation will either justify the need to press for improved sanitation or show that the current level of sanitation is sufficient.

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2. Mr Owiro, Ministry of Agriculture, Machakos.
3. Ministry of Culture and Social Services Staff, Machakos.
4. Mr Kariuki, AMREF.
5. Mr Melvin Woodhouse, AMREF.
6. Dr John Tabayi, AMREF.
7. Mr Julius Muturi, ActionAid (Kibwezi Office).
8. Mrs Donde, Institute of Cultural Affairs.
9. ICRAF staff (Machakos Demonstration Station).
10. Mr Elkana Odembo, World Neighbors.
11. Mr Lusaka, Kengo (Kitui Office)
12. Mr Anton Kilonga, SALU (Machakos CDDS)
13. Mr Joseph Silingi, Water Programme (Machakos CDDS).

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APPENDIX

VILLAGE LEADERS QUESTIONNAIRE †

Introduction

We should like to ask for your help in a study which the government has asked us to do. We are interested to know exactly how this sub-location has changed over the last fifty years, and how it has come about that many more people are able to live here now than earlier. We want to know what changes happened and how they came about, so that we can learn lessons from the past and help to improve policies in the future. At the end we shall also ask you about problems at present.

(Note: Use these questions as a guide and put down any other interesting information that comes out of the discussions.)

1. Income Sources

What are the three main income sources for people in this area now? *(Prompt if necessary: Which crops, livestock, crafts, remittances, forest products like wood and charcoal, etc.)*

1. 2. 3.

And about 1960, just before Independence

1. 2. 3.

And about 1945

1. 2. 3.

2. People**a. Leadership**

What sort of people are the most important community leaders now? What sort of occupations do they have?

What sort of people were the most important community leaders in 1960?

If there is change, why has this come about?

What sort of people were the community leaders about 1945?

† As used in Embui Sub-location, Masii. There were slight variations in other sub-locations to take account of local circumstances.

b. **Self-help and other societies**

Do many people here belong to self-help groups for men and women?

- Most belong (more than 80%)
 More than half (60-80%)
 About half (40-60%)
 Not many (20-40%)
 Very few (less than 20%)

What were their main activities?

What age groups are most active in these self-help groups?

What are the other important organisations which have helped the development of this sub-location?

Around 1945, did you have self-help groups? Yes/no

Were they different in any way? Yes/no

If yes, How were they different? Was it in their age groups, or in their activities, or in the way things were decided?

How and why did group activities change between 1945 and now?

What were other important organisations that helped in the development of this sub-location between 1945 and 1960?

And between 1963 and now?

3. **Out-migration**

Can you tell us whether a lot of people were moving out in the 1940s and 1950s, either to settle somewhere else or to work, and, if so, where did they go?

In the 1960s and 70s, did more or less people leave this place than in the 1940s and 50s, and where were they going then?

More Less Going to

4. **Land Tenure History**

a. What is the most common size of farm?

Now:	Arable land	Grazing land
In 1960:	Arable land	Grazing land
In 1945:	Arable land	Grazing land

- b. If a man or woman wants more land for farming now, how does he or she get it?
If by buying: What is the usual price per acre of:
- | | |
|-------------------------|-------|
| Grazing land | ..... |
| Arable land, unterraced | ..... |
| Terraced | ..... |
- c. If a man or woman wanted more land for farming about 1963, how did he or she get it?
 And about 1945?
- d. Is the land here registered? Yes/no
If yes, When was it registered?
 What difference does the registration of titles make?
- e. How much of the arable land here is protected by terraces?
- | | |
|--|-------|
| Almost all (more than 80%) | ..... |
| Very much, more than half (about 60-80%) | ..... |
| About half (40-60%) | ..... |
| Not very much (10-40%) | ..... |
| None or very little (less than 10%) | ..... |
- f. When were the first terraces made?
- | | |
|-------------------|-------|
| Between 1950-1960 | ..... |
| Between 1960-1975 | ..... |
| Between 1975-1990 | ..... |
- How were the first terraces made?
- | | |
|---|-------|
| Forced communal labour | ..... |
| Government labourers or machinery | ..... |
| People working on their own farm with their own means | ..... |
| Voluntary self-help with no outside assistance | ..... |
| A self-help group that was given tools | ..... |
| A self-help group that had food for work | ..... |
| People hired labour or machinery privately | ..... |
- Did people find these works useful and keep them in good repair? Yes/no
If no, what was the problem
- Have people put in terraces at any later time? Yes/no
If yes, When? (*note there may be several periods*)
- Was there any difference in the way they were built, e.g. by family labour rather than communal labour? Yes/no
If yes, what was the difference?
- Were these terraces useful? Did people keep them repaired? Yes/no
If no, what was the problem?

5. Cattle and their Feeding System

- a. How many cattle do large cattle owners have now (approx.)?
- How many cattle do small cattle owners have now?

How many farmers have no cattle?

- Almost all (more than 80%)
- Very many, more than half (about 60-80%)
- About half (40-60%)
- Not very many (10-40%)
- None or very few (less than 10%)

- b. Did people own more or less cattle about 1963? About how many for:
- Large cattle owners? Small cattle owners?

How many farmers had no cattle then?

- Almost all (more than 80%)
- Very many, more than half (about 60-80%)
- About half (40-60%)
- Not very many (10-40%)
- None or very few (less than 10%)

- c. What did people feel was the chief importance of having cattle around 1945?

What is the main importance of having cattle now?

Reasons for any changes in the attitude towards cattle

Has this led to any changes in the type of cattle people keep? For example, in the number of males and females kept, or in the breed of cattle kept?

- d. How many farmers here have grade cattle or cross-breeds?

- Almost all (more than 80%)
- Very many, more than half (about 60-80%)
- About half (40-60%)
- Not very many (10-40%)
- None or very few (less than 10%)

What are the most useful services the government has provided for cattle in this area?

- e. Where do cattle graze now?

Only or mainly on their own farm

Sometimes taken outside the farm (If so, ask where)

Do many cattle owners have paddocks, and rotate cattle around the paddocks?

Many Some A few

Was there any difference in the grazing system about 1963? Were there any communal or *utu* grazing areas?

What was the grazing system in 1945?

- f. Please describe the usual way cattle are now fed.
(Check if necessary by follow-up questions if there is any use of silage, zero grazing or stall feeding, planted fodder crops.)
- g. Why have these changes come about?

6. Other Livestock

- a. About how many goats does the average farmer have now?
- How many did the average farmer have about 1960?
- How many about 1945?

What is the main purpose in keeping goats now?

What was the main purpose in keeping goats about 1945?

- b. How many farmers have sheep now?
- Almost all (more than 80%)
- Very many, more than half (about 60-80%)
- About half (40-60%)
- Not very many (10-40%)
- None or very few (less than 10%)

Do sheep have any advantages over goats?

- c. How many farmers have poultry now?
- Almost all (more than 80%)
- Very many, more than half (about 60-80%)
- About half (40-60%)
- Not very many (10-40%)
- None or very few (less than 10%)

7. Crops, including Tree Crops

- a. Please tell us about the three main food and cash crops grown here:

Period	Food crops	Cash crops
	(Write in order of importance)	
1940s		
1960s		
1980s		

- b. What were the main varieties of maize grown here about 1960?
 What are the main types of maize grown now?
 If there was a change, what was the reason for it?
 Where did the new type or types come from?
- Are maize yields generally better or worse now than in the 1960s?
 Better Worse Why?
- c. Has cotton production increased or decreased in the last few years?
 Increased Decreased Why?
- What are the main difficulties in increasing cotton production?

8. Horticultural Crops

- a. What were the main fruits and vegetables grown:

	For consumption	For sale
In the 1940s		
In the 1960s		
In the 1980s		

9. Ploughs

Do many farmers have ploughs?

- Almost all (more than 80%)
- Very many, more than half (about 60-80%)
- About half (40-60%)
- Not very many (10-40%)
- None or very few (less than 10%)

When were the first ploughs obtained?

Is the type of plough used now different in any way?

What operations do people use the plough for now?

Was it used for all these operations about 1960? Yes/no

- If no, Why did people begin to use it for more things?
 Where did these ideas come from?

Do any farmers here use tractors (owned or hired)? Yes/no

If yes, How many farmers use tractors?

- About half (40-60%)
- Not very many (10-40%)
- None or very few (less than 10%)

10. Irrigation

Do any farmers here irrigate their crops, i.e. give them water when it is not raining? Yes/no
If yes, how many?

If some use irrigation, ask:

What type of irrigation?

What type of crops are irrigated?

Where did the idea come from?

11. Other Changes

Do you think there are more trees here now than in 1960? Yes/no

If yes, Why?

Is there any advantage in having more trees?

Is there any disadvantage in having more trees?

Is there enough fuel wood here?

Do you think people were generally better off now or in 1960?

Now In 1960

Why do you think this?

Nowadays, how many people buy maize or maize flour for their families even in good years?

Almost all (more than 80%)

Very many, more than half (about 60-80%)

About half (40-60%)

Not very many (10-40%)

None or very few (less than 10%)

If many people buy, ask:

About how much of their needs does the average person buy in a good year?

Almost all

More than half (about 60-80%)

About half (40-60%)

Not much (10-40%)

Very little (less than 10%)

What have been the most useful services of the Ministry of Agriculture recently?

Are there any other important changes between now and 1960 which we have not mentioned?

If so, what are they and how did they come about?

What do you think are the two chief problems facing people of this area?

How do you think they can be overcome?

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