

**THE ROLE OF WOMEN IN THE INDIGENOUS FARMING
SYSTEM OF THE MATENGO HIGHLANDS,
MBINGA DISTRICT, RUVUMA REGION**

By

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**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
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ABSTRACT

This study on the role of women in the indigenous farming system of the Matengo highlands was done in three villages of Mbinga District. Interest in this study was prompted by the recognition that although there is an increasing number of studies on indigenous farming systems, few studies have concentrated on the role of gender in the development of the indigenous farming systems themselves. This has resulted into the neglect of the women's local innovation and knowledge systems by development planners and agencies, even though women are the ones mostly involved in the indigenous farming systems.

The study described the indigenous farming system of the Matengo, and determined the role of women in the indigenous farming system, how the role of women in the indigenous farming system has changed over time, and women's and men's opinions on the existing gender division of labour.

A cross-sectional design supplemented by an observation checklist were used in data collection. A total of 104 farmers with equal number of males and females were interviewed using structured questionnaires. Observation checklists were also utilized for twenty farmers out of 104 interviewed.

Generally this study revealed that the Matengo system of farming is designed for the mountainous areas in order to reduce soil erosion and maintain the

natural fertility of the soil.

The gender distribution of work in the Matengo society leaves most of the tedious tasks of farming to women. However their contribution to *non-ngoro* farming activities cannot be ignored.

Apart from their high contribution to *ngoro* activities as well as *non-ngoro* activities, the majority of women were not involved in decision making in the family. Also women were found to have less access to land, extension services and credit compared to men.

Majority of women farmers suggested that the pattern of division of labour, land ownership and decision making should not be biased towards men in the *ngoro* system of farming. The disappearance of cooperative working (*ngokela*) and expansion of the *ngoro* farms in order to produce crops for sale was reported by the respondents to increase the labour requirement of women.

It is recommended that serious sensitization programmes should be employed to open the minds of men towards equal contribution to the farm activities, to make women join various village organisations in order to know and to claim for their rights. Also the dissemination of extension services, credit and other services should target women more deliberately.

DECLARATION

I, **MWANAIKI HASSAN MBAGO**, do hereby declare to the Senate of Sokoine University of Agriculture that the work presented here is my own creation and has not been submitted for a degree awarded in any other university.

Signature.....

Date.....25/11/1997

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DEDICATION

This work is dedicated to my grandparents the late Mr and Mrs S. Tambalaga who laid the foundation of my education.

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LIST OF ABBREVIATIONS

DAAD	Deutscher Akademischer Austauschdienst
MWARP	Miombo Woodlands Agroecological Research Project
USAID	United States Agency for International Development
m.a.s.l	metres above sea level
mm	millimetre
BAWATA	Baraza la Wanawake Tanzania
MBICU	Mbinga Cooperative Union
ha	hectare
hrs	hours

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CHAPTER ONE**INTRODUCTION****1.1 Background Information**

About 72% of the country's population is engaged in peasantry farming employing traditional practices (FAO, 1994; Senkondo, 1991), This implies that indigenous agricultural production forms the basis for food supply and employment for the majority of the population and is among the key generators of economic growth (Ministry of Agriculture, 1983:1) Out of the total active population engaged in agricultural production, 75% are women (FAO, 1994). Most of the women are engaged in subsistence smallholder farming and are almost solely responsible for feeding their families, either through working with men on the farms or by working on their individual farms. Moreover, it is estimated that about 60% of the labour force related to agricultural production in Tanzania is contributed by women only (Wiley, 1984). This can be demonstrated through their contribution and role in the critical and labour demanding tasks of planting, weeding, and harvesting (Mwanyika, 1993; Lamming, 1983).

✓ Apart from being strained by subsistence agricultural responsibilities that take up much of their time, women have to perform most of the domestic activities such as cleaning the house, washing clothes and utensils, cooking, fetching firewood and water and possibly taking care of domestic animals. Food processing and storage also fall under the domain of women (Shayo, 1991). Time use studies done by FAO show that women spend more hours per day than men in both productive and reproductive activities (FAO, 1994). The labour time studies in Tanzania also have documented the fact that the length of the working day of women is one and one half to two times that of men, including domestic labour activities as well as directly productive activities (Mbilinyi, 1980).

At the same time, women are not the decision makers in the household for issues like the use and control of resources in most of the communities in the country (Shayo, 1991). Most decisions are made by men, who in most cases do not consider women's problems, needs, potentials and interests, and women continue to be in the periphery in decision making (Ministry of Community Development, Culture, Youth and Sports, 1988). Literature indicates that women have less access to resources such as land, capital and other production related services (Mollel, 1986). Women do not own land and in most cases, it is men who decide on how much land should be utilized and

the amount of inputs to be purchased (Kimambo, 1989). Male heads of household control the cash proceeds of production on their own land or the livestock of the household even when the wives contribute their labour directly to their production. Moreover even when women produce export crops on their separate plots of land, as in Mwanza and West Bagamoyo, the household head effectively controls the cash proceeds (Mascarenhas and Mbilinyi, 1983).

However, despite the country's commitment to social equity irrespective of sex, the role and the contribution of women to the economic welfare of the peasant farm family remains a neglected topic in the analysis of agricultural production. Women are in many ways invisible to agricultural producers, development agents, extensionists and those who disseminate agricultural technologies such as animal draft power. Development efforts are directed at male farmers, forgetting that 98% of rural women are farmers (Sylawnder and Mpande, 1992). The statistics on economic activities normally classify a large proportion of women as being engaged in the informal sector, which is partly a failure to recognize the degree of involvement of women in economic activities and the impact they have. It also implies a failure to recognize and appreciate the problems that limit fuller realization of the women's potential such as lack of innovation and information (Ministry of Community Development, Culture, Youth and Sports, 1988). Therefore women are caught

up in the vicious circle of low incomes and low productivity despite long hours of toil.

Since women in the rural sector play the major role in agricultural production, any effort or program aimed at increasing the productivity of women would automatically contribute greatly to increased agricultural and food production (Mwanyika, 1992). Conversely any development plan or strategy which fails to recognize the role and contribution of women would run the risk not only of marginalising women and even worsening their situation but would also in fact be doomed to failure (FAO, 1984).

This research is done within the framework of the Miombo Woodlands Agro-ecological Research Project (MWARP) which aims at promoting the sustainability of the Matengo indigenous system of farming. The initial step of the project aimed at understanding the socio-economic context of the indigenous farming system in the area, and helped to identify issues which needed further research within the framework of the project. Since women farmers have a store of indigenous agricultural knowledge through their long involvement in agriculture, this research was aimed at contributing towards the gender analysis for the sustainability of the *ngoro* system of farming.

The critical practice of *ngoro* involves the creation of pits by digging the soil to cover the fallowed grasses or crop residues arranged in rows to create squares in the farm.

This system of farming enables one to cultivate steep slopes without causing severe soil erosion. According to Schmeid (1989) it maintains soil fertility by incorporating organic matter in the soil.

The *ngoro* system is one of the most sustainable indigenous farming systems in Tanzania and believed to have sustained land productivity at high levels for more than one hundred years (Schmeid, 1989). Yields of different crops from the *ngoro* system of farming are higher compared to other systems of land preparation such as terracing and ridging (Rutatora *et al.*, 1995; Basehart, 1973; Stenhouse, 1944; Pike, 1938). This system is mostly used for crops such as maize, beans and wheat. However it is not used for some crops such as coffee and cassava because the pits result into severe root disturbances (Pike, 1938).

The advantages of the system can be summarized as follows;

- i) The reduction of runoff as water and sediments are trapped in the pits.
- ii) The incorporation of organic matter into the soil as part of the *ngoro* preparation.
- iii) The depth of the *ngoro* pit can create a sheltered microclimate and

of the intended group. This is of paramount importance due to the fact that women (when compared to men) participate in many activities pertaining to the promotion and maintenance of the *ngoro* farming system. Therefore this study aimed at assessing the role of women in the indigenous farming system of the Matengo highland.

1.3 Significance of the study

Since indigenous knowledge of small farmers is a key input in the continuing evolution of farming and natural resource management systems (Titilola, 1994), the knowledge of the *ngoro* system of farming can be of use in the provision of recommendations towards its diffusion to other areas of the country where this type of farming is suitable.

The knowledge on the role of women in the indigenous farming system will also provide a basis for recommendations to the relevant agencies on the need to be gender-sensitive in the provision of appropriate technology, incentives, credit and resource allocation for the sustainability of the system and improvement of the agricultural production, income and living standards of people especially women.

1.4 Objectives of the study

The general objective of this study was to assess the role of women in the indigenous farming system of the Matengo.

The specific objectives were:

- i) To describe the indigenous farming system of the Matengo
- ii) To determine the role of women in the indigenous farming system with respect to labour contribution from land preparation to crop harvesting, decision making, land ownership, resource allocation and access to benefits, credit and extension services.
- iii) To determine how the role of women in the indigenous farming system has changed over time.
- iv) To determine women's and men's opinions on the existing gender division of labour.

CHAPTER TWO

LITERATURE REVIEW

2.1 Indigenous Farming Systems

Titilola (1991), Richards (1989) and Warren *et al.*, (1989), defined indigenous farming system as localized agricultural knowledge unique to particular ethnic groups or societies. It is believed to be a consistent and coherent set of cognitions and techniques that has slowly evolved through the trial and error of generations of farmers who had to live by the results. Indigenous farming system is ever changing and very often borrows selectively from outsiders (Niamair, 1990).

In many areas of the world, indigenous technology has evolved in response to local agro-ecological and economic conditions as well as the need to attain food security and accommodate the hostile and unpredictable environment (Ngailo, 1992). Some research scientists and extension officers recognize that smallholder farmers who are mostly women, have a rich understanding of the resource base and are experts at experimenting and adapting to changes over time (Rutatora, 1994). Titilola (1991), Chambers (1988) and Richards (1985), among other researchers, argue that smallholder farmers have, over

generations developed skills essential for exploiting their environment and are very active and creative in the ways they use to achieve their objectives. Murphy (1983), referring to a USAID Report, asserts that smallholder farmers are knowledgeable about their environment in which they operate, compared to researchers and extension officers working at the national or regional level. For example, the Wandali of Mbozi District in Mbeya and Nyamwezi of Urambo District in Tabora use certain plants to indicate the agricultural potential of their land and thus determine the types of crops to be grown in those localities.

The importance of indigenous farming systems has been reported by several authors. Dommen (1988) asserts that the drive to achieve agricultural development without taking into account indigenous knowledge systems has proved socially, economically and environmentally unsuccessful. Warren (1989) argues that the role of indigenous knowledge lies in the fact that it optimally utilizes available resources (e.g return of crop residues to the farm and mulching of banana plantations in Kagera Region), explores and exploits existing diversities, takes into account instability of the environment and provides livelihood whilst appreciating the need to sustain the productive resource base.

Therefore this study tries to verify some details of the *ngoro* system of farming. As it has been argued by Compton (1989) and Warren (1976) that an understanding of local agricultural and natural resource management system would strengthen the extension process, particularly by drawing up the experience of expert farmers and other persons regarded by the community as being knowledgeable about the environment in which they find themselves.

2.2 Changes in the Role of women in Agricultural activities

In Tanzania with the arrival of the Germans in 1890, the soils of the country and her people began to feel the pressure of demands from the rapidly expanding economies of Europe, and the era of cash cropping began. Plantations of sisal, rubber, cotton and coconut were opened up along the coastal belt and extended further inland as communications were improved (Lijongwa, 1981).

The new system of large estates called for an increased amount of labour. To make sure that there were sufficient supply of labour from the reluctant indigenous population, camps were established on the estates to house the migrant labourers. This then meant that men left their families and their villages behind to work in plantations and to live in camps. This was the beginning of

an important development that was to have a profound effect on women in the rural Tanzania. Men's departure for the plantations meant that wives who were left behind were now compelled to look after their families in their husbands' absence, which was to result in women in rural Tanzania becoming the producers of subsistence food to the present day (Lijongwa, 1981 ; Mwanyika, 1993).

The fall of prices of agricultural products in international markets had resulted in a greatly reduced demand for labour, and large numbers of Africans employed in the plantations returned to their homes. In order to counteract the effect of trade depression, the government organised and encouraged increased production of cash crops by the returning peasants. This also had a devastating effect on the rural women, since they were not only becoming the sole providers of subsistence food, but also assisted their husbands to grow cash crops. However, since the husbands normally kept all the money derived from selling the cash crops for their personal use eg. acquiring a new wife, the wives got little benefit from their duties on the cash crop fields (Mwanyika, 1993; Bryceson and Mbilinyi, 1978).

Additionally, agricultural services which might have increased the women's productivity and hence income were not available. This was because most of

the agricultural research undertaken during the colonial era was largely directed to cash crops for export, consequently there was little development in the subsistence crops, the area which fell under women's influence (Lijongwa, 1981).

Apart from the effect of the introduction of cash crops (Boserup, 1989) had reported that in most cases, tribes where women have much contribution to farming have been known to change and adopt a male dependent system of farming and less frequently tribes with male as key farmers have been known to adopt a female dependent system of farming. Changes in the division of labour between men and women seem usually to have been related to the changes in population density and in farming techniques. For one reason or other, the tribe may have migrated to another region, or local condition for agriculture may have changed in the region where the tribe used to live. It might be for instance, that the forest cover was disappearing as the density of the population increased, so that the land had to be cultivated more intensively, with shorter periods of rest.

With the gradual disappearance of the tree cover, the men's task of felling must decline, as must opportunities for hunting-another decidedly male form of work. On the other hand, with increasing population density, new forest areas become scarce. As fertility of old ones diminishes so will the soil need

more careful preparation before it is planted, to offset less frequent periods of lying fallow. In such cases it may be necessary for men to help with the hoeing or even to take over this operation completely from the women; a predominantly female farming system can thus change to one where the two sexes share more equally the burden of field work (Boserup, 1989). Sometimes the increasing population pressure may induce the men to emigrate from the region in search of wage labour elsewhere. In this case of male depletion, the women may have to take over some operations previously performed by men (Boserup, 1989; Anandajayasekeram *et al.*, 1981). The literature shows that generally there are changes in the role of women in agricultural activities. This study specifically determines how the role of women has changed over time in the Matengo indigenous farming system.

2.3 The Role of Women in the Indigenous Farming Systems

Agricultural production in the rural sector is carried out by both female and male farmers, but women have traditionally played a major role in agricultural production, and their participation in present rural development is considered essential to both communal and individual food and cash crop production (Due, 1982). Furthermore by virtue of their long involvement in agriculture, women are considered to have a store of indigenous technical knowledge which maintains the agricultural productivity (Lijongwa, 1981).

In the Juang and Saora provinces in China, shifting cultivation known as khamana and bogodo respectively on the hilltops and slopes is mainly the task of women. The practice involves hard labour throughout the year, and the women know exactly when the various crops should be planted, weeded and harvested. Also the process of chaffing, cleaning and threshing is done by women right in the shifting cultivation plots, while men are involved in certain activities such as selecting plots, burning trees and harvesting (Mishra, 1994). Another study done in the Luang Prabang Province of Lao also in China, found that women's tasks are manifold and their working days are long, the women have very few choices, most of them do not think about tomorrow and have difficulties in seeing what to do to change their living condition. Their activities revolve only around the subsistence needs of the household, most particularly food production. A study also found that women walk to their shifting cultivation plots in the early morning and usually come back in the evening in most days from February to November. The distance to the fields varies between five minutes' walk and two hours' walk, sometimes women must climb a couple of mountains to reach their plots, usually 3 hours' walk away (Hakangard, 1990).

Women as traditional farmers are very experienced in fine-tuning their agricultural practices to the local, ecological and economic conditions and the needs of their households and the community. For example, women in Bangladesh have managed to develop a very intensive type of the farming system of integrating fishing and rice farming through dual raising of rice and fish in the same farm in the same season (Ibus, 1991). Another example is the women in Sri-lanka who have traditionally developed a wide range of strategies to obtain and preserve water and use it for paddy cultivation (Ravnborg, 1991).

Boserup (1989) provided the evidence to show that women in Third World countries play significant roles in agriculture. She pointed out that there were major regional differences in the role that women play in farming in the Third World and that Africa could be described as the "region of female farming per excellence". She drew on several case studies to show that women do more than half of the agricultural work, in some cases they were found to do around seventy percent and in one case nearly eighty percent of the food production (Boserup, 1989 ; FAO 1987).

In many African tribes, nearly all the tasks connected with food production continue to be left to women. In most of these tribal communities, the agricultural system is that of shifting cultivation, small pieces of land are

cultivated for few years only, until the natural fertility of the soil diminishes. When that happens, i.e. when crop yields decline, the field is abandoned and another plot is put under cultivation. In this type of agriculture it is necessary to prepare new plots every year for cultivation by felling trees or removing bush or grass cover. Tree felling is nearly always done by men, but to women fall all the subsequent operations like sowing or planting the crop, weeding of the crop, harvesting and carrying the crop for storing or immediate consumption (Boserup, 1989).

- Of course there are exceptions to this general rule. In some African communities with shifting cultivation, the women have some help from the men beyond the felling of trees. For instance, men may hoe the land or take part in the preparatory hoeing before the crops are planted, but even with such help the bulk of the work with the food crops is done by women (Van den Ban and Hawkins, 1988).

A study on women's contribution to farming systems and household income in Zambia was conducted by Due and Mudenda (1982) on 112 families living in the rural areas and 30 families living in the market areas. Females were found to contribute more to agricultural production than males, while females spent a mean of 8.5hr/day, males spent 7.4hrs/day in agricultural work during

the farming season. This is equivalent of 53.5% and 46.5% for females and males respectively.

Due and Mudenda (1986) carried out another study in Zambia at three levels of agricultural development from traditional to more commercial farms which showed that females contributed 52% of the agricultural labour in the most traditional area, 51% in the most commercial, and 58% in the intermediate small farms. These Zambian studies were undertaken in the areas in which food crop production was primary but there were other crops such as cotton and sunflower grown only for the market. In areas where export crops are relatively more important, the distribution of labour would differ relatively.

In Egypt it was also found that women play a significant role in agriculture, their main activities being planting, weeding, hand removal of pests, harvesting, processing and retail selling of fruits and vegetables. Males' role in Egypt is mainly cultivation and assisting in harvesting. They also contribute a larger share in the marketing labour (Beshara, 1987).

In terms of labour expended by women in agricultural production, FAO statistics show that women form 47% of the agricultural labour force in Sub-Saharan Africa (FAO, 1991). In Tanzania, it is estimated that about 80% of the

labour related to food production is done by women (Due, 1982; Njau and Mruma, 1994) and on average, women provide 60% of all the labour force in agriculture (Wiley, 1984).

Swantz (1985) had reported that in most parts of Tanzania women contribute about 70% of hoeing and weeding, 60% of crop harvesting, 80% of carrying crops from the field to home for consumption or storage and 60% of food processing. Women also spend up to eight hours a day planting, weeding, manuring and harvesting, during peak period in the growing seasons, their hours may be even longer

✦ Anandajayasekeram and Due (1984) carried out a study of farming systems in Morogoro, Tanzania, and found that females' contribution to agriculture varied significantly by crop, as they contributed 67% of the rice crop requirement, 59% for the beans, 48% for maize and about 40% for the sunflower, sorghum and cotton. Kokuhirwa (1984) had reported that in Dodoma Region, women alone produce and control grain while men are highly involved in livestock production and on the Coast the Zaramo women produce all the rice. Therefore the need for household food security is a priority among women's reproductive obligation and it very often determines their involvement in agricultural production.

The current literature shows that women are highly involved in agricultural activities as well as domestic activities. However, despite the Ruvuma Region's potential in maize and beans production using the smallholder type of farming, there is no specific study which determined the role of women in agricultural production in the Region. Therefore this study determined the role of women in the indigenous farming system in Matengo highland.

2.4 Women's involvement in Decision making and Control of Resources

2.4.1 Decision making

The pattern of decision making at the household level reflects the ownership and control of means of production and major household assets (Mtenga, 1993). In most cases it varies from one society to another. In one extreme, we have one decision maker, who is more or less a dictator, whose word is final. On the other extreme, decision is arrived at after consultations between family members, which may include husband, wife and even inlaws; while in between there is a joint decision between spouses. Occasionally, household members make independent decisions on different aspects of the farm either directly or indirectly. Thus, it is possible to find households where men, women and children have wholly separate spheres of decision making affecting production and income expenditure.

For example in Columbia, women influence production decisions. Through their part in managing consumption they have significant influence on what foodstuffs to be eaten and thus influence indirectly what crops should be planted. In addition, they influence decision making in resource allocation indirectly by insisting on certain resources of cash to be devoted to specific areas eg. on children education or on medical care. In the same country, decisions on the management of the farm are made through consultations and negotiations including bargaining between spouses and sometimes involving extended family members (Ashby, 1989).

A study done on some cooperative societies in India had found that although the husbands are the heads of the household, it is mainly the women who are responsible for making decisions in most of the household matters like keeping the family money. However, this practice was slightly more common in the Agra cooperative society. The normal procedure is that the husband gives all or part of his income to his wife. She can then utilize the money for every day necessities, but will consult her husband for major expenditures (Wenelholm and Sjoblom, 1990). However the situation is different for most of the African countries, where women's participation in decision making at the community, regional and national levels is severely restricted and unequal to that of men (UNICEF, 1991).

In Tanzania, decision making depends on heritage (matrilineal or patrilineal) (Mtenga, 1993). In patrilineal societies where women are accustomed to subordination, women play very little role in decision making. For example, in Igunga District it was observed that in 65% and 91% of the sampled households men made all decisions concerning expenditure of income from farm produce and livestock sales respectively. Only in nine percent of the households did women make decisions. In addition, women were rarely found in village councils, the decision making body of the village (Mung'ong'o *et al.*, 1990). The same appears in Malinyi, Morogoro where men are highly involved in control of the income, while women decide on what crops to grow in order to feed and maintain the family. Also in this society, men were rarely involved in agriculture (Lijongwa, 1981). Likewise a study done in 3 villages of Muleba District, Kagera Region, shows that decision making is vested in the male head of the household except when it comes to decision on planting maize and beans in the family's banana plot (ekibanja) where the woman has a say (UNICEF, 1994).

Most women in Bukoba do not control the family cash but they have individual sources of cash from brewing local beer, selling grass for sitting purposes and support from women groups, especially when they are economically oriented (UNICEF, 1994). These individual sources of cash help them in buying the

household needs like sugar and salt and sometimes for things like school and hospital fees. Therefore the government should be committed to the creation of social-political, legal and regulatory environment which will enable women to be full participants in decision making over the production processes as well as key actors and equal beneficiaries of the fruits of their labour.

In Matrilineal societies is where women have a significant say in decision making. For example, a study done by Mtenga (1993) in a matrilineal system of the Luguru society in Mgeta, Morogoro, had found that the decision making pattern was dominated by a consensus between spouses, followed by men alone and lastly by women alone. Mtenga (1993) had also arrived at the conclusion that although gender roles in decision making in the Luguru society are different from those documented for patrilineal societies, literature reveals that even within patrilineal societies there is variation. This means that, gender roles reflect the social customs, norms and beliefs which govern and circumscribe individual behaviour in the particular society. According to the researcher's view, nowadays the matrilineal societies have adopted most of the practices regarding decision making from the patrilineal societies, with the exception of some few basic things which are difficult for the matrilineal societies to adopt. Therefore, very few women participate in decision making processes which determine the direction and pattern of resource allocation.

This study provides recommendations to the government in order for the Matengo women to be full participants in decision making since they are the ones highly involved in food production.

2.4.2 Ownership of resources

In most of the African countries women participation in agricultural labour does not necessarily translate into women's control over resources (Boserup, 1989). Ownership of resources by females is much lower than that of males.

Existing customs and traditional practices moreover while recognizing the role of women in agricultural production, do not reflect this role in terms of distribution, disposal and ownership of wealth women significantly contribute to generate (Ministry of Community Development, Culture, Youth and Sports, 1988). For example in West Africa, it was observed that the ownership of oxen and ploughs by females is lower than that of males. However it is not common in South Africa for women to use oxen, but almost all the tractors for hire were owned by males (Due, 1987).

Males are also the owners of most of the items like houses, forests as well as livestock purchased from the sale of crops or obtained as a bride price for

daughters. As it was found by Ngalula (1977) in Buhongwa village in Mwanza Region, Tanzania, most items bought from the sale of crops eg. cattle and bicycles were men's things, women had to beg for money to buy soap, bus fares etc. and depend on the goodwill of their husbands for these items.

Owing to the land ownership, excluding some large scale leases to private and public organisations, the predominant systems of land ownership for the majority of people are governed by customary, and collective land tenure systems. Most of the customary laws, preclude women from owning or inheriting clan land (Ministry of Community Development, Culture, Youth and Sports, 1988). For example in Shona and Ndembele societies of Zimbabwe, women were in a worse position because the land was owned by men on the basis of individual tenure. Thus women's land rights, tenuous as they were in the communal areas, did not apply in the native African farmers and women were forced to work hard to 'deserve' or 'earn' the right to their own field (Ministry of Agriculture, 1983).

According to McCall (1987), although in the Tanzanian situation all members of the village, including women, have the right to plot allocation, in practice allocation is done by family and thus given to male heads of households. In the 1983 Agricultural Policy of Tanzania (Ministry of Agriculture, 1983:11), the

lease of land is talked of in terms of family or household, not in terms of the individual farmer. Therefore, it is rare that women are allocated their own land by the village authorities. McCall (1987) further notes that this lack of either legal title by an individual from the village government, or physical control of the land can be the most fundamental cause of the subordination of women, since the physical or legal possession of land is important in order to have control over the products and to have access to the market economy such as credit or cooperative membership. Therefore there is a great need for women to have equal access with men to the land ownership in order to have sustainable agriculture. Since in Tanzania there are different customary laws existing in different regions, studies which will give information on the resource ownership for different tribes are of importance in order to come up with the solutions which will fit all tribes and customary laws existing in the country.

2.5 Women's Access to extension and Credit Services

Extension is one of the major components of the agricultural development system. It disseminates knowledge, skills and technology for transforming agriculture (Wiley, 1984). Worldwide, extension systems reach more men than women farmers (Hakangard, 1990). There is a general consensus, for example, that the extension system fails to reach women farmers in India .Most states

of India do not include women farmers among contact farmers, even though 48% of India's self employed cultivators are women. The same reason is given for why the extension service does not reach women farmers in Indonesia, Phillipines and many other countries. (Saito and Weidemann, 1990)

In developing countries, despite the greater contribution to agricultural production it has been reported that women have limited access to innovations, training and other extension services that could facilitate their work and increase their production (Rwambali, 1990). In the case of Tanzania, despite the good intentions of the government to make information available to all people, women still largely depend on their husbands for access to agricultural information (Wambura, 1992). Rwambali (1990) also reports that women are lacking information and opportunities for further training. Even agricultural extension programmes have traditionally concentrated more on educating male farmers.

A study conducted by Rwambali (1991) in Morogoro Region found that 45% of female farmers were getting extension contact through various channels such as their husbands, women's organisations and cooperatives. Just over 48% had no contact despite their awareness of the extension workers. Although all villages sampled were served by extension workers, about 5%

of the women did not know that an extension worker existed in the village. Thus 53% of the respondents had no extension contact. Also Wambura (1992) working in Morogoro District observed that women appeared to have received untimely extension advice due to a number of factors including inadequate number of extension agents and unreliable transport for Village Extension Workers.

Furthermore, Weidemann (1987) identified the factors that limited women's access to extension as inability to travel to extension centers, lack of land, inability to purchase recommended inputs, inconvenient scheduling or locations of demonstrations and meetings, gender bias in extension staffing, lack of improved technology on traditional food crops grown by women, lower literacy rate and political structure that favours male farmers. Mbilinyi (1977) reported that so long as a woman is cut off from the marketing process of her crop, from interaction with extension agents and from informal exchange of information about prices and other things like availability of credit she remains ignorant of her exploitation. This study specifically determines the accessibility of the extension service for women involved in indigenous farming system in Matengo highlands.

CHAPTER THREE

METHODOLOGY

3.1 Location of the study

This study was conducted in Mbinga District in Ruvuma Region, specifically in Lupilo, Litembo, Tukuzi and Mahenge villages, where the indigenous farming system (*ngoro*) is practiced. The District is situated within latitudes $10^{\circ} 17'$ (S) and $11^{\circ} 32'$ (S) and longitudes $34^{\circ} 38'$ (E) and $35^{\circ} 15'$ (E). Its altitude ranges between 500 and 2,000 m.a.s.l. The selection of the villages is based on the fact that they are easily accessible compared to other villages where the indigenous farming system is practiced.

3.2 Research design

The design for this study was cross-sectional, supplemented by information collected through observation utilizing a checklist.

3.3 Population and Sampling Procedure

The target population of the study was women and men farmers from the villages where the Miombo Woodland Agroecological Project operates. A multi-

stage sampling technique was done, firstly for the selection of sub-villages within each study village and secondly for the selection of farmers within each sub-village. Therefore the sample frame was the list of farmers involved in *ngoro* system in the selected sub-villages. Then random selection of farmers in the selected sub-villages was done to get 13 female farmers and 13 male farmers. Therefore the final sample size was 104 respondents consisting of 52 women and 52 men.

3.4 Type and Sources of Data and Instrumentation

The data presented in this study were obtained from primary as well as secondary sources. Primary data were collected through observation checklists and interview schedules using structured questionnaires. The structured questionnaires had close ended and open ended questions. Thirteen respondents from each village were interviewed. Observation checklists were used for only five respondents in each village. The observation checklist was used in order to get the information pertaining to the activities done by women from land preparation to crop harvesting in the *ngoro* system and the time taken for each activity. Additional information was collected through observations regarding the practices conducted in the village at that particular time. Secondary data were obtained by reviewing documents and records from

libraries and from Miombo Woodland Research Project files.

The task of interviewing respondents and filling the observation checklists was done by the researcher with the help of an enumerator. The questionnaires used in the study were reviewed by members of the staff of the Department of Agricultural Education and Extension before administration to the selected samples for pre-testing. These questionnaires were then administered to a selected pilot sample of 15 men and women in order to ensure its validity. The selected pilot sample was similar to those respondents interviewed in the final study.

3.5 Measurement of Variables

- i) The indigenous farming system of Matengo is described by the information from the researcher observation and interviews with farmers supplemented by secondary sources, since there are several studies which have described the *ngoro* system of farming. This study verified some details concerning the indigenous farming system of the Matengo by getting information from farmers on the land preparation for the indigenous farming system, the construction of the *ngoro* pits, the types of crops grown, the time for planting crops, the time for harvesting crops, types of crops grown, the cropping pattern, the advantages and disadvantages of the indigenous farming system

according to farmer's views and if there had been any changes in the *ngoro* system of farming over time.

- ii) The role of women in the indigenous farming system with respect to labour contribution, decision making and access to benefits was determined by the information on the types of activities which are done by the respondents and time taken for each activity from land preparation to crop harvesting and other activities besides farming (such as cooking, fetching water and selling the produce), the decision making pattern within the family, the land tenure system and access to benefits by each respondent.
- iii) In order to know how the role of women has changed over time, respondents (mostly, old men and women) provided information on whether they perceived any changes in the *ngoro* system of farming compared to previous years.
- iv) The women's and men's opinions of their role in the farming system is determined by getting information such as: The advantages which women get (for the case of women's opinion) and the advantages which men get (for the case of men) for their involvement in the indigenous farming system, if they encourage the existing pattern of division of labour to continue, the suggestions of each sex (i.e male or female) over the involvement of the other in *ngoro* system of farming.

3.6 Data Analysis

The data collected were edited, summarized and condensed from questionnaires and entered into the computer for processing. The following statistical methods were used in data analysis.

- i) Descriptive statistics were used to determine the frequency of occurrence of various qualitative responses which include the description of the *ngoro* system, the activities done by women in the *ngoro* system and the changes in the *ngoro* system. This method was supplemented by the frequencies sub-programme which was used to determine the basic distributional characteristics of each variable to be used in the subsequent statistical analysis. This sub-programme provided the absolute frequencies and percentage tabulations for each response category plus the means and standard deviations where appropriate.
- ii) Cross tabulation were used for comparison of variables such as the opinions of women and men about the gender division of labour in the *ngoro* system.

CHAPTER FOUR

RESULTS AND DISCUSSION

This chapter presents the results of the study. It is divided into three sections namely description of the Mbinga District, the Matengo indigenous farming system and finally a section on the role of women in the indigenous farming system.

4.1 Description of Mbinga District

Mbinga District is one of the Districts of Ruvuma Region with a population of 300,000. The District consists of four distinct agro-ecological zones namely, the mountainous (Matengo) highlands, rolling hills of the northern and southern part of the District, the Hagati plateau and the Coastal strip along Lake Nyasa (see Figure 1).

This study was done in the mountainous highland zone. The zone has a slope ranging from 15% to 75% and is situated on an altitude ranging from 1200 to 2000 m.a.s.l. It is characterized by dissected mountains with steep slopes and narrow valleys. The rainfall pattern in the area is unimodal with the average annual rainfall of about 1063.8mm.

This mountainous area is the most populated area in Mbinga with an average population density of about 24 people per square kilometer and with family sizes of about 6.5 persons (Artigas *et al.*, 1991). However some of the villages have population densities ranging between 150 and 300 people per square kilometer. As such the area cannot support all their people and indeed some households have been forced to migrate to the less populated areas of Mbinga District.

This highland zone is an area of high agricultural productivity characterised by the utilization of the indigenous farming system commonly referred to as the *ngoro* (or Matengo pits) system. In this system, maize, wheat and beans are rotationally grown. The most important cash crop in the area is coffee grown on the higher slopes of the mountain on bench terraces. Livestock keeping in this zone is minimal. However few pigs, cattle, goats and chicken are kept. This is because there is acute shortage of grazing land such that most of the animals are often stall fed or tethered.

4.2 The Matengo Indigenous Farming System

This section is divided into three sub-sections which are, firstly, the historical background of the Matengo indigenous farming system, secondly, description

of the Matengo farming system and lastly the cropping calendar for major crops grown using the *ngoro* system of farming.

4.2.1 Historical background of the Matengo indigenous farming system

The *ngoro* system preceded an older cultivation technique which existed which was a simple shifting cultivation system referred to as "liande" in the Matengo language. The technique involved clearing of forests, burning and zero cultivation. After harvest the land was left under fallow for a period of two or more years. This system lasted up to sometimes in the 1940s (Rutatora *et al.*, 1995).

The presence of mountains, high population pressure and the displacement of the local people by the Ngoni invaders, were among the reasons which made the Matengo people who were living at Litembo to find the means of intensifying their agricultural productivity in order to survive. The survival of these people was possible by a fundamental innovation in the land use system. Since people could not move far from their place of refuge, every available piece of land even if it was on the steepest hillsides, was put under the *ngoro* system of cultivation (Schmeid, 1989; Rutatora *et al.*, 1995). Thus the Matengo people in Litembo are the ones believed to have developed the *ngoro*

system of farming, which later spread to other areas. The *ngoro* system now is a unique indigenous cultivation technique in all the Matengo highlands.

4.2.2 Description of the Matengo (*ngoro*) system of farming

In order to verify the information on the description of the *ngoro* system of farming, farmers were asked to describe the *ngoro* system of farming, advantages of the system and the cropping calendar. This information was supplemented by the researcher's observations and literature on the system.

The *ngoro* system is practiced in the following sequence:

- a) Slashing grasses or crop residues (*kukesa*) using *nyengo* and arranging them in rows to create squares (*kubunga*).
- b) Creation of pits by digging the soil to cover the grasses and the crop residues arranged in rows (*kujalila*).
- c) After making pits or lightly covering the grass with soil they broadcast the seeds and cover them by the soil removed from the square (*kukulila*). The soil used in covering the seed is more in amount/mass than that used to cover the grass initially. Generally for every field with Matengo pits, approximately half the area is occupied by pits and the other half by ridges on which crops are planted (see Fig. 2).

- d) Weeding for crops like maize is done as usual, but there is no weeding for beans and wheat.
- e) Harvesting and transporting the crops home.

After two seasons when the fields are being prepared for the following crop, the crop residues and grasses are deposited in the pits and the soil that is dug out naturally forms the raised land (ridges) between the new pits but over the old ones.

Traditionally the *ngoro* system of farming has helped in conserving the fertility of the mountain sides. The main achievements of Matengo pit farming system are:

- i) Erosion of the hillside is checked very effectively. Any soil that may be swept down is caught by the ridge or trapped in a pit. Even if the field is left under fallow, the old pits and ridges continue to maintain their function.
- ii) Organic matter is regularly returned into the soil by burying the weeds in the pits.
- iii) The layer of topsoil is gradually being deepened by exposing the subsoil in the pits.
- iv) Moisture is conserved in the pits for later use by the plants.



Fig.2: A photograph showing Matengo pits as seen from a top view

The main advantage of this system is that it does not involve the initial labour of terracing.

The disadvantage of this system is the fact that it is labour intensive and difficult to mechanize.

4.2.3 The cropping calendar for major crops grown by the *ngoro* system of farming

The major important staple food crops grown using the *ngoro* system in the study villages are maize and beans. Wheat, round potatoes, sweet potatoes, taro, sunflower, cassava, simsim, groundnuts, finger millet are also grown.

The average farm size per individual household was found to be 4 ha and about one third of it is under coffee. In case of food crops which use *ngoro* system, a farmer operates at least two plots so as to alternate between beans, wheat and maize. The study also found that both mixed cropping and monocropping systems are practiced depending on the farmers decision and the cropping calendar.

Table 1: Cropping calendar

Crop	Land Preparation	Planting/Transplanting	Weeding	Harvesting
Maize	–	Dec.-Jan	Late Jan-Feb	July-Oct
Beans 1.	Nov.			June-July
2.	March	March, April-May	–	Feb-April
Wheat	March	April-May	–	Aug.-Sept
Coffee	Jan-Feb (After 3yrs)	July-Oct (After 3yrs)	Sept-Oct. (yearly)	Jan-June (yearly)

Source: Survey (1996)

For crops like beans and wheat, land preparation is usually done in the late February to early March. Planting is done during March for beans, April-May for wheat. There is no weeding for wheat and beans. Harvesting is done from June to July for beans and from August to September for wheat. After harvesting the wheat or beans a farmer later on lightly scratches the soil to remove the weeds and residues ready to plant maize or an intercrop of maize with beans. Therefore in November after harvesting beans or wheat land preparation for maize is done, planting from December to January, weeding from late January to February and harvesting from July to October.

In Lupilo village both the *ngoro* and ridge farming are practiced by almost all of the farmers. This is because of the influence from the Ngoni but also due to the fact that it is hard to prepare the *ngoro*, since the wet season in their village is shorter and so part of the time that is spared from *ngoro* construction is spent on the preparation of ridges. Actually since it is faster to prepare these ridges, the area covered by ridges is bigger than under *ngoro*. However according to the farmers, the yields of maize or beans from *ngoro* plots is more than that from ridged plots.

4.3 The role of Women in the Indigenous (*Ngoro*) Farming System

The section of the role of women in the indigenous farming system was divided into six sub-sections namely, sample characteristics, labour contribution in agricultural activities, labour contribution in domestic activities, decision making pattern, access to services and ownership of resources, changes in the role of women in the indigenous farming system and lastly respondent's opinion on the existing indigenous system of farming.

4.3.1 Sample characteristics

4.3.1.1 Age

The study found that the age of respondents interviewed in the study ranged from 15-75 years. The respondents' age distribution by gender is shown in Table 2. About 51% of the respondents were 36-56 years old, of whom men and women were almost equally represented (ie 26% men and 25% women). Thirty four percent of the respondents were less than 35 years, of whom 12% were men and 22% were women. Just 15% of the respondents were above 55 years, of whom 12% were male and 3% were female. The mean age for all respondents was 42 years, that for men was 45 years and for females was 39 years. Therefore female respondents were on average younger than their male counterparts.

4.3.1.2 Educational level

The results in Table 2 show that 87% of the respondents are literate, of whom 47% were men and 40% were women. The study also found that of the illiterate respondents, 3% were men and 10% were women. There was not a single woman who attended post-primary education among those literate

respondents. Thus a larger percentage of women respondents are in the illiterate group than men respondents. The higher percentage of women being illiterate was also found in Morogoro rural District by Rwambali (1990) and Wambura (1992).

In the case of Mbinga, the higher illiteracy rate for women compared to men could be caused by the existence of customs and traditional norms which lead into female children not going to school soon after reaching maturity and instead to go to the farm regularly and get intensive training on how to manage *ngoro* farms.

4.3.1.3 Marital status of the respondents

The marital status of the respondent was of importance in identifying whether the household is male headed or female headed. This helped in knowing the role of women in the *ngoro* system of farming in the female headed as well as in the male headed households.

Those female respondents who were either single, widowed, separated or divorced were identified to be among the female headed households while the married respondents were obviously male headed households, since the Matengo are a matrilineal society.

Table 2. shows that 89% of the respondents were married and few respondents were either single (3%), widowed (1%), separated 3% or divorced (4%). The table also shows that out of those respondents who were married 48% were male and 41% were female.

Table 2: Personal characteristics of respondents

Characteristics	Respondents					
	Male		Female		Total	
	No.	%	No.	%	No.	%
Age						
15-35yrs	13	12	23	22	36	34
36-56yrs	27	26	26	25	53	51
> 57yrs	12	12	3	3	15	15
Level of education						
No formal education	3	3	10	10	13	13
Adult literacy	1	1	2	2	3	3
Primary education	45	43	40	38	85	81
Secondary education	3	3	-	-	3	3
Marital status						
Single	1	1	2	2	3	3
Married	50	48	43	41	93	89
Widowed	-	-	1	1	1	1
Separated	1	1	2	2	3	3
Divorced	-	-	4	4	4	1

Source: Survey (1996).

Thus in this study the majority of the respondents were married, and among those who were not married, most of them were women. Therefore it can be concluded that in the study majority of the respondents' households were male headed and very few of them were female headed.

4.3.1.4 *Membership in the village organisations.*

Table 3. shows that all of the male respondents were members of a political party and only 50% of female respondents were political party members. Also out of all female respondents, only 25% belonged to Baraza la Wanawake Tanzania (BAWATA). Since BAWATA is a women organisation there are no male members. The study also found that each village in the study area had its own primary co-operative society. These co-operative societies are mostly responsible in procuring the crops especially coffee from farmers and bagging them before being collected by buyers eg. MBICU. Despite each village having its own primary co-operative society, it was found that very few women (9%) are members of these village co-operative societies while all male respondents were found to be members of the village co-operative societies. The higher representation of men in the membership of village primary co-operative societies was claimed to be due to the fact that they are mostly the heads of the households who are usually involved in the marketing of cash crops to

those societies. The 9% of women participating in village co-operative societies was composed of those unmarried women, who also find the means of selling their crops to the village co-operative societies.

Table 3: Membership in village organisations

Organisation	Male				Female			
	No.	Yes %	No.	No %	No.	Yes %	No.	No %
Political Party	52	100	-	-	26	50	26	50
BAWATA	-	-	52	100	13	25	39	75
Primary Coop. Society	52	100	-	-	9	20	43	80

Source: Survey (1996)

Generally the lower representation of women in the village organizations like the political parties and BAWATA may be caused by firstly, their lack of information about the relevance of such organisations to their development and towards solving their problems, and secondly, the lower level of formal education which leads to their lower influence on decision making in village and community development matters, thirdly, is the fact that women do not have enough time to participate in the meetings of those village organisations, since they spend much of their time on farm activities. Similar observations of women being under-represented in village organisations were made by Mtenga (1993).

4.3.2 Labour contribution in agricultural activities

The labour contribution in agricultural activities was observed in order to know the role of women in the indigenous farming system as well as in all agricultural activities. This was achieved by asking the respondents to what extent they are involved in *ngoro* activities, coffee production activities and livestock production activities.

4.3.2.1 *Labour contribution in ngoro activities*

Although there was almost the same distribution of adult males and females working in the family farms, the study found that the labour contribution of women for most of the agricultural activities in *ngoro* farms was higher than that of men, since they are involved in most of the agricultural operations. In order to determine the extent of farmers' contribution to each of the activity in the *ngoro* farms, respondents were asked whether each member of their family contributed less than half, half or full for each activity.

Table 4. shows that in all male-headed households, adult males contribute 64% of labour during slashing grasses, while adult females contribute 18%, male children 18% and none was contributed by female children. The reason

for female children not contributing their labour to this activity was claimed to be that, traditionally in the matengo society slashing grasses is male activity. Female adults contributed to this activity to some extent as they claimed that they were helping their husbands so that they could finish the job faster. Arranging grasses was also claimed to be a male activity, that is why adult males contributed 46%, adult females 36%, male children 18% and female children did not contribute anything to this activity.

Table 4: Labour contribution in *ngoro* farming

ACTIVITY	PERCENTAGE CONTRIBUTION				Total
	Am	Af	Mc	Fc	
Cutting grasses	64	18	18	-	100
Arranging grasses	46	36	18	-	100
Making Pits	21	43	-	36	100
Sowing/Planting	31	38	3	28	100
Weeding	17	36	17	30	100
Harvesting	21	36	14	29	100

Source : Survey (1996)

Key: Am=Adult male, Af=Adult female, Mc=Male children, Fc=Female children

Making pits which is the most tedious task of all activities in *ngoro* farming was known to be a female work. The study found that adult women alone contributed 43% of the task, followed by their female children 36%, while adult males contributed 21% and male children did not contribute at all.

The 21% contributed by men was found in Lupilo village, apparently because it is a new village where crops grown under the *ngoro* system of farming like maize and beans are grown not only for food but also for sale as they don't grow enough coffee which is a cash crop. Therefore people in that village tend to have large plots of *ngoro* farms, thus it is not possible for women alone to make the *ngoro*. However hired labourers are sometimes used in making *ngoros*.

Sowing or planting was claimed to be a shared activity. However women's contribution was higher than that of men. Table 4. shows that adult men contributed 31% while adult females contributed 38%, female children 28% and male children 3%. Thus females alone contributed 66% and males 34%.

The same was observed during harvesting, that adult females with female children contributed 65% (ie 36% adult females and 29% female children) while adult males and male children contributed 35% (ie 21% and 14% for adult males and male children respectively).

For those female-headed households, it was found that most of them (88%) hired labour for those male activities which they cannot carry out themselves and, in 12% of female headed households, those women were helped by either their neighbours or relatives.

Generally, women contributed more labour in *ngoro* farming (food crops) than men. Boserup (1989), Due (1982) and Mwanyika (1993), in their studies also found that women were highly involved in food crop production. However Mtenga (1993) in Mgeta, Morogoro came up with different results that there was equal division of labour in food crop production as well as cash crop production. This was due to the fact that the Luguru society is matrilineal, where women have a great influence on the affairs of the household.

The results also reveal that the agricultural activities which are done by women alone take more time compared to those activities which are done by men alone (see Table 5).

Making pits which is women's activity, on average, takes 10hrs per day for an average of 14 days per season, while slashing grass and arranging them which is a male activity, takes an average of 6 hours/day for an average of 5 days per season. Weeding which is also done by women and to which men contribute to some extent takes 9 hours/day for an average of 6 days per season and

harvesting which, although a shared activity, women have a greater contribution, takes an average of 9 hours/day for an average of 7 days per season. All these results were obtained through the observation checklist in one season for an average of a 2ha plot.

Table 5: Average time spent in *ngoro* agricultural activities

ACTIVITY	Hrs/Day	Days/season
Cutting grasses	5	4
Arranging grasses	1	1
Making Pits and planting	10	14
Weeding	9	6
Harvesting	9	7

Source: Survey (1996)

Therefore women spent more time in agricultural activities than their male counterparts. The same was observed by Lamming (1983), Hakangard (1990), Rwambali (1990) and Shayo (1991).

4.3.2.2 Labour contribution in coffee production

Apart from their involvement in *ngoro* farms, women are also involved in almost all activities in coffee production.

Table 6. shows that males contributed 66% of the labour in land preparation while women contributed 34%. Men also contributed 55% of the labour in transplanting while women contributed 45%, the same proportions for men and women were contributed during pruning. For weeding it was found that, men contributed 46% of the labour and women contributed 24%. Also men contributed 90% of labour during spraying and women contributed 10%. Harvesting was found to be equally shared between men and women (ie 15% each). Male and female children were not involved in most activities in coffee farming, except in weeding (15% each) and harvesting (30% each).

Table 6: Percentage labour contribution in coffee production

Activity	Percentage labour contribution				Total
	Am	Af	Mc	Fc	
Land prep.	66	34	-	-	100
Transplanting	55	45	-	-	100
Weeding	46	24	15	15	100
Pruning	55	45	-	-	100
Spraying	90	10	-	-	100
Harvesting	30	30	20	20	100

Source: Survey (1996)

¹Key: Am = Adult male, Af = Adult female, Mc = Male children, Fc = Female children

Children were found to be not involved in land preparation, transplanting, pruning and spraying because those activities need experience and skills.

Although the traditional division of labour claims that coffee farms are for men and *ngoro* farms are for women, the study found that women contributed significantly to the activities in the coffee farms and do most of the activities in the *ngoro* farms, as opposed to males who do some light activities in the *ngoro* farms while significantly helped by women in their coffee farms.

The same results of women being significantly involved in cash crops production was found by Bulow and Sorensen (1988).

4.3.2.3 *Labour contribution in livestock activities*

Cattle, pigs, goats, poultry and rabbits are kept in the study villages. Poultry formed the largest number. Goats were second in number followed by pigs and lastly rabbits. It was clearly demonstrated that the number of rabbits per household was negligible, although such animals could be raised cheaply and with minimum labour and feed demand relative to other livestock types in the household.

It was further observed that the number of livestock was higher in Litembo, Mahenge and Tukuzi than in Lupilo. This is because Lupilo is a new village and most of the people living there have migrated from other villages. The same results were found by Laswai *et al.*, (1995) who found that the number of livestock were higher in the highland areas compared to the lowland areas of Mbinga. The main livestock husbandry tasks were feeding and cleaning the housing.

Table 7: Labour contribution in each type of livestock

Animals	Percentage labour contribution				Total
	Am	Af	Mc	Fc	
Goat	50	1	49	-	100
Pig	-	90	-	10	100
Cattle	42	40	18	-	100
Chicken	-	70	10	20	100
Rabbits	10	7	83	-	100

Source: Survey (1996)

Key: Am = Adult male, Af = Adult female, Mc = Male children, Fc = Female children

Table 7. shows that men contributed more labour than women for animals like goats (50%) and cattle (42%) while women contributed more labour for animals like pigs (90%) and chicken (70%). Thus, women have significant

contribution to animals like cattle compared to the contribution of men to animals like chicken. However, overall, it is men who decide on how to dispose of those animals which are taken care by women.

Male children as well contributed more labour than females for all types of animals i.e. goats (49%), cattle (18%) and other animals like rabbits (83%). Female children contributed 20% to chicken and 7% to pigs. These are the types of animals which get most attention from the women. It is clear, therefore, that there is a gender division of labour in livestock activities since there are some animals which get more care from males and others from females.

Therefore the results agree with Shayo (1991) that although women are expected to produce and prepare the family's food, they also have a significant contribution to livestock activities, especially for domesticated animals.

4.3.3 Labour contribution in domestic activities.

In order to know the extent of women's contribution to the household's activities in addition to the farming activities, respondents were asked to what extent they were involved in each of the household or domestic activity.

The study found that all domestic tasks were mostly done by adult females and their female children with the exception of some activities like purchasing of domestic items which is equally shared between males and females. Fetching firewood is sometimes done by men when it becomes laborious and time consuming, when males leave their wives at home to do other household activities. Male children contribute to some extent to activities like household and compound cleaning, washing their own clothes and purchasing household items especially during weekends. These results are shown in Table 8.

Table 8: Percentage labour contribution in domestic activities

Activities	Am ¹	Af	Mc	Fc	Total
Food preparation and cooking	-	65	2	33	100
Household & compound cleaning	-	50	25	25	100
Washing clothes	-	54	21	25	100
Fetching water	-	60	9	31	100
Fetching firewood	25	45	11	19	100
Taking care of children	11	46	17	26	100
Purchasing household items	4	50	28	18	100

Source: Survey (1996).

¹Key: Am = Adult male, Af = Adult female, Mc = Male children, Fc = Female children

It is interesting to note that children worked in tasks similar to those of parents of the same gender. This is due to the socialization process which is mostly based on culture and tradition, that sons are trained to become like fathers and daughters like mothers.

Due and Mudenda (1982); Lijongwa (1981); Mtenga (1993); Polomack (1989); Shayo (1991) and Wennelholm and Sjoblom (1990) in their studies also found that women do almost all the domestic activities .

The study also found that these domestic activities take much of the women's time apart from their involvement in agricultural activities (Table 9). Food preparation on average takes 3 hours per day including preparation of breakfast, lunch and dinner. Child care takes an average of 4 hours per day. Fetching water takes an average of half an hour per day since fetching water is done near the house and is a shared activity between mother and her male and female children. Fetching firewood takes one and a half hours per day and cleaning household compound takes half an hour per day.

The study therefore shows that women spend much time in domestic activities, adding up with the time spent on agricultural activities it will be seen that women have very little time for resting as they are overburdened by domestic as well as agricultural activities.

Table 9: Average time spent by women in domestic activities

Activity	Time spent (hours)
Food preparation	3
Child care	4
Fetching water	0.5
Fetching firewood	1.5
Cleaning household compound	0.5
TOTAL	9.5

Source: Survey (1996)

These results agree with Rwambali (1990) and Mbilinyi (1980) that apart from the time spent in agricultural activities, women spend much of their time in domestic activities.

4.3.4 Decision making

In order to know the decision making pattern for people involved in the *ngoro* system of farming, respondents were asked to state who had the final say in the household in the production process, resource allocation and household income expenditure.

4.3.4.1 Decision making in the production process

In this study decision making in the production process was investigated in terms of choice of crops to be grown, decision on time to perform particular tasks (ploughing, sowing, weeding etc.), and adoption of new innovations like the use of fertilizers and pesticides.

Table 10: Distribution of respondents in production decision

Decision on	Men				Women			
	Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%
Choice of crops	52	100	-	-	17	33	35	67
Ploughing sowing, weeding etc.	52	100	-	-	22	42	30	58
Adoption of innovation	52	100	-	-	10	19	42	81

Source: Survey (1996)

Responses presented on Table 10, show that all male respondents were involved in all components of decision making in the production process. Those women involved in production decision were either separated, widowed or single. However some of married women seem to contribute to decision making in production process after reaching a consensus with their husbands.

The male domination in the production decisions was also reported by Njau and Mruma (1994); Beshara (1987); UNICEF (1991); UNICEF (1994) and Mung'ong'o *et al.* (1990), which confirms that decision making is vested in the male head of the household

However low involvement of women in decision making in production process in the case of Mbinga could be attributed to the Matengo culture which gives high responsibility to men.

4.3.4.2 *Decision making in resource allocation*

In this category of decision making the researcher wanted to know how much the women are involved in the allocation of resources which are land, labour and money. To achieve this several parameters of decision making were checked, these include: choice of field for particular crop, labour allocation, hiring labour, purchasing of a new plot, produce selling and the choice of market to sell the produce.

In all the above mentioned parameters men were the chief decision makers leaving women to be implementers of the decisions. These results are shown in Table 11. Even when women are involved in decision making yet they will have no final say about anything.

Table 11: Distribution of respondents in resource allocation decisions

Decision on	Men				Women			
	Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%
Choice of a plot for particular crop	38	74	14	26	14	26	38	74
Labour allocation	44	84	8	16	8	16	44	84
Hiring labour	49	94	3	6	3	6	49	94
Purchasing another plot	50	96	2	4	2	4	50	96
Amount of food to be sold	35	68	17	32	17	32	35	68
Choice of a market	51	98	1	2	1	2	51	98

Source: Survey (1996)

Despite their higher labour contribution, majority of women had no power to decide where to cultivate for which crop, how much labour to be spent and where to get the labour in case of labour shortage. Some few women who were either separated, widowed or single had the power to decide for themselves while other women were involved in decision making after reaching a compromise with their husbands.

After harvest, the majority of women were not involved in the marketing of the production as it was found that women contribute very little in how much to sell, how much to keep for family use and where to sell the produce.

Thus, as shown in Table 11, most of the resource allocation decisions are made by men. Women decision makers were either for those unmarried women or for married women when reaching a compromise with their husbands. This agrees with Ashby (1989), Beshara (1987), Njau and Mruma (1994) and Wennelholm and Sjoblom (1990). However the results disagree with Mtenga (1993) which found that decision making in resource allocation in Luguru society of Mgeta was based mostly on concensus between the spouses.

4.3.4.3 Decision making in income expenditure

During the study it was found that in this area of decision making women mainly have the freedom to decide on their own on some of the domestic expenditures. Household necessities such as soap, matches, fuel and cosmetics are generally decided by women. The same can be said for kitchen items such as sugar, salt, cooking oil and spices (Table 12). These domestic purchases are mostly done by women in collaboration with their daughters.

Table 12: Distribution of respondents in household and income expenditure decision

Decision on	Men				Women			
	Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%
Purchase of furniture	47	91	5	8	5	9	47	91
Purchase of clothes	27	52	25	48	25	48	27	52
Purchase of household items	21	41	31	59	29	56	23	44
Purchase of kitchen items	25	49	27	51	35	68	17	32

Source: Survey (1996)

It can therefore be concluded that despite all the efforts a woman would do on the farm to ensure higher production and income, it is only that amount kept for domestic use that she will have the freedom to decide what to do with. It should be recalled that how much of the income should be kept for domestic use is decided by men. This implies that it is that portion a man has decided for domestic use that a woman would enjoy allocating.

4.3.5 Access to services and ownership of resources

4.3.5.1 Accessibility to the extension services

Extension is one of the major components of agricultural development. It is responsible for passing on new knowledge as well as integrating indigenous knowledge into the most useful and productive systems of farming.

In the case of Mbinga it was found that about 40% of women compared to 60% of men got extension services by the visit of the village extension officers (see Table 13). Thus when comparison is done as to who receives extension services still majority of men receive extension services as compared to women. However respondents claimed that for the time being they are not frequently contacted by the extension workers in the villages.

4.3.5.2 Access to land

The study found that in the Matengo society land is individually owned mainly through customary inheritance. Matengo men are the ones supposed to inherit the land while women do not own land, except in very exceptional cases, for example, when a woman is the only child in the family. Additionally, it was

observed that people could still own land for agricultural production through purchase or borrowing (in some cases people or tenants pay tribute to land owners).

Table 13. shows that more than half (89%) of the male respondents own the land while very few women (11%) own the land. Therefore women were mostly using their husbands' land. The tendency of land ownership to be governed by customary law which precludes women from land ownership was also reported by the Ministry of Community Development, Culture, Youths and Sports (1988); Beshara (1987) and Njau and Mruma (1994).

Table 13: Distribution of respondents by their access to services and resource ownership

Resources and services	Men				Women			
	Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%
Land	45	89	7	11	6	11	46	89
Agric. extension	31	90	21	40	21	40	31	60
Agric. credit	52	100	-	-	-	-	52	100

Source: Survey (1996).

4.3.5.3 Access to agricultural credit

In this study access to credit was measured in terms of who have the knowledge on the availability of credit. The respondents had reported to receive credit in kind in the form of fertilizers, pesticides and other agricultural inputs. These loans are repaid upon selling the farm products eg. coffee.

Table 13. shows that, only male respondents in the study area had access to credit. This accessibility was mainly due to knowledge men have about the availability of credit. They acquire this knowledge through their participation in various village organisations and extension activities.

Therefore males have greater access to credit than women. Greater accessibility to credit for men has also been reported by FAO (1984); Mkapa (1994); Due (1987); Rwambali (1990); Ngalula (1977) and IBRD (1988).

4.3.6 Changes in the role of women in the *ngoro* system of farming

In order to know how the role of women in the indigenous farming system has changed over time, respondents mostly old women and men, were asked to indicate if there have been any changes in the role of women in the *ngoro* system of farming over the years.

Most of the respondents claimed that the role of women in *ngoro* system of farming is changing due to the disappearance of cooperative working system known as *ngokela* in Matengo language. In the past, the *ngoro* system of farming was done on a cooperative basis but now this tradition is disappearing due to the fact that farmers of today have a wide choice of crops to grow unlike in the past. For example, while somebody is preferring to grow wheat for a particular season other farmers may prefer to grow beans. Besides preference, shortage of seeds may make somebody not to grow a certain crop for that season and hence see no reason for joining the *ngokela* groups. Thus, this disappearance of *ngokela* has contributed to the increased agricultural work for farmers, especially those unable to hire labour. Since women are mostly involved in the tedious jobs of the *ngoro* system of farming they are highly affected by the disappearance of the *ngokela*.

Also in the past, nearly everybody followed the informal type of education (something which was transmitted from one generation to the next and this was the only type of education at that time) while today most people do not pay much attention to it due to availability of schools where formal education is provided, as a result even the *ngoro* knowledge is not transferred to new generations, especially women who are the main source of labour in *ngoro* system of farming.

The expansion of the *ngoro* farms in order to produce crops for sale in some villages especially Lupilo village has also led to the increase of women's labour in the *ngoro* farms, since making *ngoro* is the most tedious job in the *ngoro* farms and women alone are the chief *ngoro* makers. However some farmers tend to hire labourers, but most of these labourers make poor quality *ngoro*.

4.3.7 Respondents' opinion on the *ngoro* system of farming

This section discusses results on the respondents' opinion on the *ngoro* system of farming. Respondents were asked to mention the good and bad elements of the existing patterns of division of labour, decision making and land tenure system.

Most (90%) of the female respondents claimed that the disappearance of *ngokela* groups in the *ngoro* farming makes them have large proportion of work especially during the period of *ngoro* preparation. Female respondents also claimed that the tendency of hiring labour makes the system ~~to be~~ less productive since many of these hired labourers do not make effective pits since they are from outside the area.

Female respondents also suggested that their husbands should be taught how to make *ngoro* in order to help them during the process of making *ngoro*.

Female respondents seem to have no idea on how they can be more involved in land ownership, as they claimed that the system of male inheritance existed since their grand parents' time.

Owing to the land ownership pattern, most of the female respondents claimed that is not favourable to women since men are the ones supposed to inherit their fathers' land. Women had also claimed that the decision making pattern in the Matengo society does not favour them as they are not involved by their husbands in most of their family decisions

The majority of male respondents claimed that the division of labour, land ownership and decision making pattern in the Matengo society are good and they recommended that it should be continued. Such opinions are given perhaps because men are not in the disadvantaged side as they are the land owners, not the ones doing tedious activities in the *ngoro* system of farming and are the ones with final say in their families.

CHAPTER 5**CONCLUSIONS AND RECOMMENDATIONS**

The overall aim of the study was to assess the role of women in the indigenous farming system of the Matengo with the view to provide suggestions and recommendations for the sustainability of the *ngoro* system and raise standard of living for women farmers in Mbinga District. The overall aim was specifically accomplished by describing the indigenous farming system of the Matengo and determining the role of women in the indigenous farming system, how the role of women in the indigenous farming system has changed over time, and seeking the farmers' opinions on the existing gender division of labour. The results were obtained from the data collected using the researcher's observation, observation checklist and questionnaires for respondents.

This chapter summarizes the conclusions and recommendations derived from the study.

5.1 Conclusions

The following conclusions could be derived from the findings of this study:

- i) The gender distribution of work leaves women to do the most tedious tasks in the farm like making pits and men with what are considered to

be light and prestigious tasks like slashing grass and arranging them. On top of that the activities which are known to be shared like sowing and harvesting mostly depend on women.

- ii) Although *ngoro* farming is for women, their contribution in non *ngoro* farm activities such as in coffee production cannot be ignored. Coffee production is seen as prestigious production in Matengo highlands, hence done by men, however the women's contribution is high compare to that of men in the *ngoro* farming (women's farm).
- iii) Livestock keeping is another area that is dominated by gender division of work. As it is in crop production activities, men occupy activities for animals seen to be of higher value, and which are usually used as a source of income. Women are left to dominate domesticated animals such as chicken and pigs.
- iv) In addition to the long hours of toil in farm activities women are responsible for all domestic activities. Household activities are done by women helped by their daughters. It's in rare cases that men assist women in the purchase of domestic items (such as salt, sugar, soap and spices) and collection of firewood when it is seen to be too tedious and time consuming for women.
- v) With respect to the decision making, the study found that it is only in few domestic expenditures that women are left to decide on their own,

but all high income expenditures are decided by men e.g. buying furniture and clothes. This situation has left women to be producers who have no say on what they have produced. Women do not have even that freedom of deciding what and how much to produce.

- vi) Most of the respondents (especially females) had claimed that the role of women in *ngoro* system of farming is changing. This is due to the disappearance of the cooperative working system known as *ngokela*, the disappearance of informal type of education which makes it difficult for female children to be taught properly on how to make *ngoro* and the expansion of the *ngoro* farms in order to produce crops for sale.
- vii) Majority of women had negative attitudes towards the decision making pattern, land ownership pattern and the division of labour in the *ngoro* system of farming. However, they had no means of making changes to those patterns.

5.2 Recommendations

The following recommendations are put forward on the basis of the conclusions of the study:

- i) Women do most farm activities in Matengo society. This situation should be addressed by extensionists. Serious sensitization programmes

should be employed to open the minds of men towards equal contribution to the farm activities. Equal contribution to farm activities will, with no doubt, increase production. Women on the other hand, should educate their men towards cooperative production; that means women should not stay and wait for men's sympathy to help them or consider that the existing gender division of work is natural (God-created) that can not be changed. It is until this notion is removed that equal contribution in different activities will be achieved.

- ii) If majority of women join various village organizations like Political Parties, Primary Cooperative Societies and Baraza la Wanawake Tanzania, they can be easily educated about matters of gender distribution of work and land ownership. It is through these organizations that women can have access to information on various village policy matters and gain self confidence and hence increase their power in decision making. Therefore the local government should also insist on the issue of sensitizing women to join village organizations.
- iii) The dissemination of extension, credit and any other services in the villages should target women more deliberately. Many organizations target the services at men who are the family heads while they are not the implementers of the ideas. Therefore women should also be the target in the dissemination of farm knowledge.

- iv) The village organisations should deal with the elimination of customs and traditions which discriminate against women and which insist on decreasing the labour burden for women.
- v) The local government should be committed to the creation an regulatory environment which will enable women to be full participants in decision making over production processes as well as key actors and equal beneficiaries of the fruits of their labour.

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APPENDIX 1

QUESTIONNAIRE FOR FARMERS INVOLVED IN THE *NGORO* SYSTEM
OF FARMING IN THE MATENGO HIGHLAND

**Study Topic: The Role of women in the indigenous farming system of the Matengo
highlands, Mbinga District in Ruvuma Region, Tanzania.**

Village:.....

Sub-village.....

Name of the respondent.....

Name of Interviewer.....

Date of Interview.....

A. Personal Characteristics

Please tick (v) where appropriate

1a. Sex: Male..... 1

Female.....2

b. Age (years).....

c. Marital status:

Single.....1

Married.....2

widowed.....3

Separated...4

Divorced.....5

2. What is your level of education?

a. None.....1

b. Adult literacy.....2

c. Standard i-iv.....3

d. Standard v-vii.....4

e. Standard v-vii/viii.....5

f. Post primary.....6

3. What is the size of your household?

Persons	Number
Female adults
Maledults
Female children < 14 yrs
Male children < 14 yrs

4a. Indicate whether you are a member of the following institutions

Please tick (v) where appropriate

Institution	Membership
Political party
BAWATA

Primary Coop. Society

Other(s) specify

- b. Show the position which you might have if any?

Indicate leadership position:

Chairman...1; Secretary.....2;

Treasurer..3; Committee member....4.

Institution	Position
Political party
BAWATA
Primary Coop. Society

5. If you are a member of any of the above what benefit(s) did you get?

Institution	Benefit(s)
Political party
BAWATA
Primary Coop. Union

6. If you are not a member of any of the institution mentioned which reasons made you not be a member?

Institution	Reason
Political party
BAWATA
Primary Coop. Union

B. AGRICULTURAL ACTIVITIES

7 a. How many plots does your household have? (Please indicate distance travelled from home household to the plot, area of each plot and crops grown in each plot)

Plot No.	Distance km from household	Area (ha)	Crops grown	Cropping pattern (mono vs intercropped)	Tenure
1					
2					
3					
4					
5					

key: Tenure; 1 = own 2 = rented in 3 rented out 4 borrowed

b. Total acreage.....

c. which of the above mentioned plots are under fallow?

d. Indicate the fallow period for each plot which is under fallow

8. What types of crops do you grow using the *Ngoro* system of farming?.....

9. What types of crops do you grow without using *Ngoro* system of farming?.

1)

2)

3).....

4).....

10. When (month) do you perform the following activities for the crops which you grow using the *Ngoro* system of farming

crop	Land preparation	Planting	Weeding	Harvesting
1.				
2.				
3.				
4.				
5.				

11. How do you prepare land for a *Ngoro* system of farming
(probe if necessary)
12. What are the advantages of the *Ngoro* system of farming?
13. What are the disadvantages of the *Ngoro* system of farming?
- 14a. If you compare to the previous years (10-15 yrs) are there any changes in the *Ngoro* system of farming?

Yes 1 No 2

- b. If there are changes please explain (probe)

.....

.....

.....

15. How many members of your family work or don't work on the farm?

Member	Number	Number engaged in farm work	Household members who don't work at all	
			Number	Reason for not working
AM				
AF				
MC < 14yrs				
FC < 14yrs				

Key: AM = Adult male; AF = Adult female;

MC = Male Children < 14yrs; FC = Female Children < 14yrs.

16. Please indicate whether individual does 1/4, 1/2, 3/4 or 1 (whole) of the task in production of crops in *Ngoro* system of farming by filling the table below

Activities	Gender			
	AM	AF	MC < 14yrs	FC < 14yrs
Land preparation				
a. cutting grasses
b. arranging grasses
c. making pits

Sowing/Planting

Weeding

Harvesting

Key: AM = Adult male; AF = Adult female;

MC = Male Children <14yrs; FC = Female Children <14yrs.

17. Please indicate whether individual member in the household does 1/4, 1/2, 3/4 or 1 (whole) of the task in production of coffee

Activities	Gender			
	AM	AF	MC < 14yrs	FC* < 14yrs
Land preparation				
Transplanting				
Weeding				
Harvesting				

Key: AM Adult male; MC Male Children <14yrs; AF Adult female

FC Female Children <14yrs.

18. What are your opinions on the existing pattern of division of labour?

Livestock production activities

19. Please outline the type of livestock which you keep on the table below.

Type	Number	Purpose	Owner
1.			
2.			
3.			
4.			

20. Outline the activities involved in management of each livestock you keep and the person who performs in the table below.

Activi-ties	Livestock type	Gender			
		Male		Female	
		AM*	MC*	AF*	FC*
1.					
2.					
3.					
4.					
5.					

Key: AM* Adult male; MC* Male Children < 14yrs; AF* Adult female FC* Female Children < 14yrs.

C. Domestic Activities

21. Please indicate the role of each household member by filling the table below

KEY: Indicate whether the individual performs 1/4, 1/2, 3/4, or 1 (all) of the task.

Daily activity	Responsible individual
	AM* MC* AF* FC* Other(s)
1. Food preparation and cooking 2. Household and compound cleaning 3. Washing clothes 4. Taking care of children 5. Purchasing household items	

Key: AM* Adult male; MC* Male Children <14yrs; AF* Adult female FC* Female Children <14yrs.

D. Sources of income

22. What are other sources of income besides agricultural production?

- 1)
- 2)
- 3)
- 4)

E. Participation of men and women in decision making

23. Please indicate who usually makes decision in the following:

KEY: myself = 1; myspouse = 2; both = 3;

others (specify) = 4

a. Production decision

- i) choice of crops.....
- ii) when to perform particular task eg. ploughing, sowing, weeding etc
- iii) adoption of innovation eg. hybrid seeds, fertilizer application

b. Decision related to resource allocation

- i) choice of a field for particular crop
- ii) labour allocation
- iii) hiring labour
- iv) purchase of another plot
- v) amount of excess food to be sold
- vi) choice of market

d. Household income expenditure

- i) purchase of household items like furniture
- ii) purchase of clothes
- iii) purchase of household necessities eg. salt, sugar
- iv) purchase of kitchen items eg. saucepan and spoons

F. Access to resources

24. In your family who has access to each of the following

KEY: Tick(v) where appropriate

a) Land

- i) own
- ii) Family
- iii) hired

b) Inputs

- i) Agricultural extension
- ii) Agricultural credit
- iii) Other(s) specify

G. Resource ownership

25. Please tick (v) the asset(s) you own individually

- a. field..... ; b. house.....;
- c. forest.....; d. others (specify).....

26. Indicate the means of acquisition for each;

- Key :** 1. Purchase 2. Construction
3. Inheritance 4. Other(s) (specify)

- a. field; b. house.....
- c. forest.....; d. other(s) (specify).....

H. Accessibility to the Extension services

27. What kind of extension services do you usually get?

1)

2)

3)

4)

28 a. Are you contacted by extension service officer?

Yes..... 1 No 2

b. If yes how often are you in contact with extension service officers

1) About once a week

2) About once every month

3) About once every three months

4) About once every six months

I. Personal opinions

29. What are your opinions on the existing pattern of division of labour?

30. What are your opinions on the decision making pattern which exists?

31. What are your opinions on the existing land tenure system?

APPENDIX 2

**OBSERVATION CHECKLIST FOR FARMERS INVOLVED IN THE *NGORO*
SYSTEM IN THE MATENGO HIGHLAND**

KEY: Each activity will be observed for the period of 30 days

Activity	Who performs AM C AF C*O	Method of performing activity	Time spent hrs/day/wk
1. Land preparation - cutting down grasses - arranging grasses - making pits 2. Weeding 3. Looking for destructive birds 4. Harvesting 5. Threshing 6. Food preparation 7. Child care 8. Fetching water 9. Fetching firewood 10. Building 11. Beer brewing 12. Craft production 13. Other(s) Specify			

KEY: AM = Adult Male; C = Male Children <14yrs; AF = Adult Female; C* = Female Children <14YRS; O = Other(s) specify environmental conservation.