ECONOMIC ANALYSIS OF THE ROLE OF WOMEN IN THE TRADITIONAL FARMING SYSTEMS IN MBOZI DISTRICT TANZANIA

BY

DOROTHY STANLEY MWANYIKA

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ABSTRACT

This study evaluates the economic analysis of the role of women in the traditional farming systems in ten villages of Mbozi district. The specific objectives of the study are:(1) examining the contribution of women in the traditional agriculture production system and assess the distribution of output and income on gender basis; (2) examining the effect of mechanisation in agriculture on labour utilisation with respect to women; (3) identification of critical constraints in the production process where women are involved and (4) suggest ways of improving women's productivity and hence their contributions to rural development.

In each of the ten villages, five farmers were selected randomly. Descriptive statistics, tabulations and multiple regressions were used in the analyses. The results revealed that: (1) although women labour contribution to both agricultural production and off- farm activities in the study area is greater than that of men, they don't have control over income; (2) production of food crops is mostly the responsibility of females while that of cash crops is males'; (3) women's workload increases relative to men as agricultural mechanisation increases;

(4) the factors which affect women's productivity and accessibility to resources are economic and social

constraints. Lack of access to land, labour, capital, agricultural information and credit facilities hinder Mbozi women from achieving their maximum productivity levels and (5) Mbozi women have an equal say with their husbands on what is to be produced and sell in their families.

Policy recommendations include: (1) the provision of labour and time saving devices appropriate for women; (2) resources should be used much more efficiently by increasing the proportion directed to women's crops and tasks to reflect more accurately the importance of these crops and tasks to the food system; (3) gender related biases should be eradicated; (4) credit facilities should be provided to women farmers and (5) women should be encouraged to form economic units such as co operatives or associations so as to increase their productivity, awareness and self - confidence.

DECLARATION

I DOROTHY STANLEY MWANYIKA, do hereby declare to the Senate of Sokoine University of Agriculture that this dissertation is my original work and has never been submitted for a degree in any other University.

Signature---D.S.Mwanyika---

Date ----16/2/1993----

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DEDICATION

To my beloved parents, Sylvester and Florentina, who laid the foundation for my education.

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CHAPTER I

INTRODUCTION

Tanzania's economy is predominantly agrarian and is based on smallholder agricultural producers. This sector employs about 90 percent of the country's labour force. Although its contribution to the Gross Domestic Product (GDP) varies slightly from one year to the other, it ranges between 40 to 50 percent. Agriculture is the main foreign exchange generating sector, producing about 80 percent of the country's foreign exchange earnings. With the expansion of the industrialization it has also taken up the role of supplying raw materials for production of various consumer and producer goods(Bureau of Statistics 1988; Economic Research Bureau 1989).

Agricultural production in the rural sector is carried out by both female and male workers 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 crops production (Due1982; Mlambiti 1985;Mlay and Mlambiti 1989). It has been estimated that about 80 percent of the labour related to food production in Tanzania is done by women (Kokuhirwa 1980). For instance, in Dodoma, the Gogo women produce and control grain. On the Coast the Zaramo women produce all the rice. Women in Bukoba grow the annual crops while working on banana and coffee plantation as well

(Kokuhirwa 1980).

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 agriculture and food production. Conversely any development plan or strategy which neglects to recognise 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 (Nyerere 1969;Food and Agriculture Organisation (FAO) 1984). This research attempts to look into the role played by women in the traditional farming systems with a view of identifying problem areas and recommending possible solutions.

1.1 General Description of the study Area

1.1.1 Location

Mbozi is one of the six districts which make Mbeya region. Others are Chunya, Ileje, Mbeya, Kyela and Rungwe. The region is situated in Southwest Tanzania between Longitudes 32 and 35 degrees and Latitudes 7 and 9 degrees south of the Equator.

Mbozi district shares boundaries with other districts in the region. It is bordered in the south by Ileje district, in the east by Mbeya district separated by the Songwe river, in the west by Rukwa region, while it also has a common boundary with Zambia (figure 1).

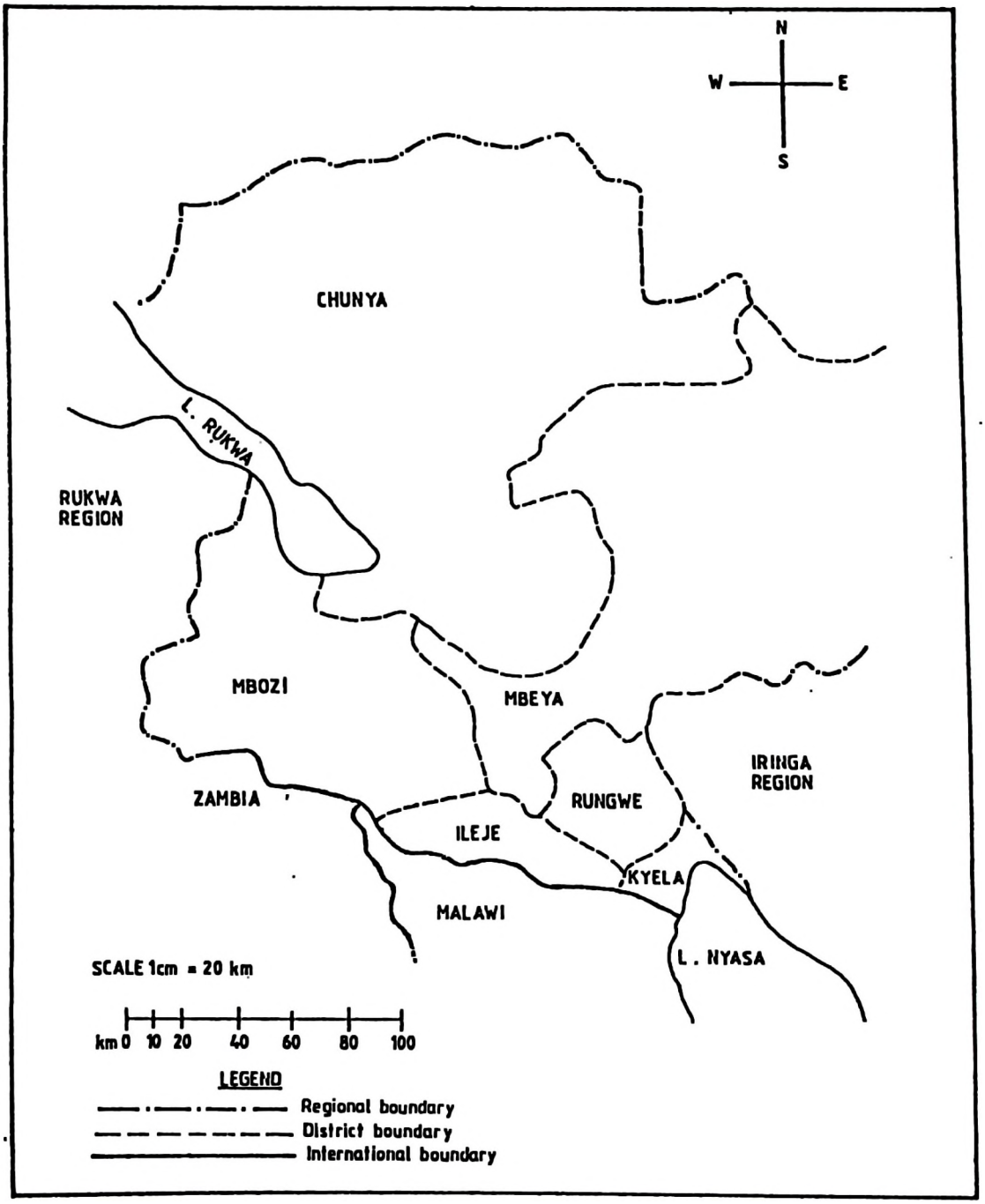

Figure 1 . Mbeya region : Location of Mbozi district

1.1.2 Human Population, Land Area and Use.

Mbozi district occupies a land area of 9583sq.km of which 9291sq.km is dry land and 292sq.km is water. It is divided into six divisions, 25 wards, and 142 registered villages. Based on the population census of 1988, Mbozi district has 330 146 inhabitants with a male:female ratio of 100:111(Bureau of Statistics 1988).

Smallholder farming is predominant in the highland and lowland areas but there are also coffee estates and maize state farms.

The district's economy depends on agriculture, fishing, livestock keeping,and small scale trade. About 90 percent of Mbozi residents depend on agriculture and the remaining 10 percent depend on non-agricultural activities.

1.1.3 Climate and Topography

Mbozi district is within the southern highlands of Tanzania with an altitude ranging from 914m through 2 743m above sea level. The East African Rift Valley passes through the district dividing it into lowland and highland areas.

The lowland area covers Kamsamba and Msangano divisions lying between altitude 914m and 1 372m above sea level. The highland areas covers Vwawa, Igamba, Iyula, and Ndalambo divisions lying between altitude 1 372m and 2 743m above sea level.

Temperatures range between 6.5 degrees centigrade in the cold season (June and July) to 26.5 degrees centigrade in the hot season (August to December).

The district enjoys abundant and reliable rainfall. Annual total rainfall varies between 1,350mm and 1,550mm which falls for an average period of 107 to 130 days per year. The rainy season starts in October and goes through to May, with a dry spell between June and July. It is unimodal i.e. one rainy season only.

1.1.4 Soils and Vegetation

The district has deep- well drained volcanic soils. They can be worked easily and this means ploughing can be done during the dry season. The low inherent fertility and loss of natural fertility regeneration, make farmers heavily dependent on chemical fertilisers for the production of crops especially maize. Under conditions of high rainfall, nitrogenous fertilisers cannot be used efficiently by maize crop because they are leached out very fast.Natural vegetation on the flat and gently rolling land has largely been removed and trees are scarce accompanied with wide plains.

1.1.5 Farming Systems and Agricultural Enterprises

The typical farming systems identified in the mbozi district are subsistence cropping and perennial cash crops. The cropping systems have been influenced by the impact of increasing population pressure. The main feature has been the change from shifting cultivation to permanent cropping (Bantje 1986). Shifting cultivation is at present impossible except in few pockets. The initial response to the decline of output resulting from permanent cropping was the cultivation of large fields. This was followed by a shift from growing finger millet to growing maize as a main grain crop which is now competing with coffee for land and labour resources. The use of ox-ploughs made expansion of cultivated area relatively easy but the high labour demand for other farm operations limits progressive expansion. Currently there is a vivid demand for herbicides so as to cope with the weeding bottleneck (Bantje 1986).

The second type of response is the intensification of the agricultural system. Farmers in Mbozi being already familiar with a number of farming techniques such as manuring, mulching and intercropping have rapidly adopted the use of chemical fertilisers. All farmers use fertilisers on maize and coffee plots. Income from coffee and maize gives the farmers the means to purchase fertilisers.

Coffee is the major perennial cash crop. In Mbozi, coffee is often intercropped with other crops although some few farmers intercrop coffee with bananas. Intercropping of coffee and bananas is a new innovation to the area that is why only few farmers practice it.

Subsistence food crops grown are maize, bananas, beans, cassava, sweet potatoes, finger millet, groundnuts and paddy. These are either intercropped or grown as pure stand. Most farmers grow paddy, cassava, finger millet and sweet potatoes on pure stand. Maize and beans are in general intercropped. Land preparation is mainly done by hand hoe, few farmers hire tractor and ox-ploughing services. Land preparation for maize coincides with that of bananas and cassava. For beans, land preparation normally starts after the planting of the main food crops.

Livestock keeping in the district is not a common practice. Most households do not keep cattle at all and among those which do, very few have large herds. Their main agricultural use is for ploughing and pulling sleighs or carts. Farmers without oxen try to borrow or hire them. Manure is applied to the fields, but not done very systematically. Milk plays a minor role in the diet, but provides income for those who have surplus to sell. Animals are only slaughtered for ceremonial occasions.

Standards of animal husbandry are low:cowsheds are very crude, and no attempts are made at fodder production,

stall feeding, or systematic grazing. Mortality rate is high since veterinary services have completely collapsed in recent years. (Mbozi district office; personal communication).In day time cattle are looked after by males and small boys. Many households also keep small stocks of pigs, goats and chickens which may be slaughtered for family use or sold for cash.

1.1.6 Economic Status of Mbeya Region

The economy of Mbeya region is closely related to the national economy and the current state of Mbeya region reflects to greater extent the current national situation. The per capita income of the region has been declining over years. It has been separately estimated that average per capita farm income in the region in 1982 was Tshs.1 700 i.e less than $200(FAO 1982), but in 1990 the per capita income fell to Tshs. 1 012 or $5.13 (Planning Commission 1990). Mbeya was estimated to have the ninth highest per capita income out of 20 mainland regions. This is shown in a table 1-1.

Table 1-1. Tanzania: Per capita income by regions by ranks 1990

region	per capita income(Tshs)	rank	region	per capita income(Tshs)	rank
Arusha	1 334	2	Mtwara	771	14
Coast	630	18	Mwanza	1 054	7
Dodoma	679	19	Ruvuma	1 081	6
Iringa	1 120	4	S'nyanga	779	13
Kigoma	821	11	Singida	814	12
K'njaro	1 037	8	Tabora	684	17
Lindi	704	16	Tanga	1 102	5
Mara	749	15	Kagera	842	10
Mbeya	1 012	9	D'salaam	4 235	1
Morogoro	1 196	3	Rukwa	598	20

Source:Planning Commission 1990

It is considered that around 90 percent of the region's population derive their income primarily from farming. However,family income is often supplemented by non-farm activities in most part of the region.

The most important cash crops in the region are coffee, tea, and pyrethrum. Other cash crops are cocoa and tobacco. The most important food crops are maize, bananas,beans,rice and irish potatoes. Other food crops include finger millet, sorghum, wheat, groundnuts, cassava and sweet potatoes.

Unofficial government estimates of sources of income by sector for Mbeya region are shown in table 1- 2.

Table 1-2. Mbeya region:Sources of income by sectors 1978- 1990 (in million)

Sector	1978	1979	1980	1981	1990
Agriculture	845	1093	1277	1434	1701
Livestock	47	42	165	175	210
Natural resources	34	23	134	150	179
Small industries	12	11	115	120	149
Total	949	1170	1691	1879	2239
Average income (Tshs.)	975	1085	1518	634	1012

Source:FAO 1982; Planning Commission 1990

Fishing is also done in the region. Tanzania's total fish production is estimated at around 300 000t of which about 85 percent is caught inland (FAO 1982). It has been estimated that around 10 percent of Mbeya region's population engage in fishing either as a full or part time activity.Fishing is mainly from lakes (Nyasa Rukwa),rivers e.g.Ruaha. Although the scale of the activity is small and localized to the water resources, the demand for fish as a supplementary source of protein is high. While national per capita fish consumption has averaged over 10 kg/person/annum, that of Mbeya is estimated at less than 0.5 kg/person/annum, being limited by the availability of fish in main population areas (FAO 1982).

The keeping of bees for honey in the region has been practised for many generations. Commercial production, however is carried out mainly in the Chunya, Mbozi and Mbeya districts, i.e. the miombo and other dedicious mixed woodland areas where malliferous tree species occur(Mbeya Regional Office; personal communication). The beekeeping industry appears to have considerable potential for development, since as its low labour requirements would make it complementary to farming systems which at present are constrained by labour availability. However investment need to be made in extension, the production of modern hives, better beeswax

marketing facilities and in the more productive use of beeswax.

Explorations carried out under the auspices of the Ministry of Water, Energy and Minerals have revealed the occurrence of a number of mineral deposits in Mbeya region including coal in Rungwe, gold in Chunya, travertine in Mbozi, kaolin in Chimala-Mbeya, copper in Mbozi, limestone in Chunya, iron ore in Chunya, salt in Mbozi, and apatite/niobium in Panda Hill-Mbeya (Mbeya Regional Office; personal communication).

There is comparatively little industrial activity in the region. Most industrial activity in the region is at a very small scale while some is run on a large scale and on communal basis. Important industries in the region are cement industry, soap industry, and farm implements industry. How ever there is a high potential for development of this sector in the region (Mbeya Regional Office; personal communication).

The region is self sufficient in food and supplies substantial amounts of irish potatoes, maize, beans, cabbages, bananas, peas, and tomatoes to the neighbouring regions and Dar es Salaam (Mbeya Regional office; personal communication).

1.2 Justification and Objectives of the Study

1.2.1 Justification

Declining per capita food production in many of Sub-Saharan Africa during the past two decades had led to a closer examination of traditional farming systems and the factors that may be impeding efforts to improve agricultural productivity. One of the factors which is beginning to receive increased attention on a theoretical level is gender differential treatment in farming households and their effects on the allocation of household resources (Burfisher and Horenstein 1985).

Although it is increasingly being recognised that women in developing countries are important in attaining objectives of national development, government provision often does not even begin to measure up the scale of women's participation. The African case provides startling statistics. In Botswana, analysis of 1984 production data showed while women contributed 70 percent of the value of arable production they received the benefit of less than 15 percent of government expenditures made to that sub sector (Doorenbos and Haverkort 1987). A study in Zimbabwe showed that improved women's access to services and production incentives helped to raise small farm output from 6 percent of the national total in 1982 to over 40 percent (Doorenbos and Haverkort 1987).

The agricultural production of African women is largely limited to satisfying immediate family needs. Their productivity is very low and hence contributing less to the gross value of output for the following reasons: Uncertainty in access to land and decision making, outdated farming methods, primitive tools, lack of access to inputs and credit and also the fact that in addition to farming, women undergo frequent pregnancies at the same time perform domestic duties aggravated the situation (Doorenbos and Haverkort 1987).

Most of the current agricultural researches are not adequately geared towards meeting the female farmer's requirements. Most researches do not take into account the complexity of women's roles within the household (FAO 1984;Elias 1990). Women contributions is hard to quantify because African countries generally do not have very accurate agricultural statistics and when they do, data concerning women are not singled out. the actual share of women's contribution is in fact not correctly measured by working rate because such statistics fail to measure total actual work (Economic Commission for Africa (ECA 1984).

For this reason, there was a need of trying to find out the cause of un-equal participation in agriculture and hence rural development between men and women and also find out ways of improving women's productivity.

1.2.2 Objectives

The main aim of this study is to evaluate the role of women in the traditional farming systems in Mbozi district.

1.2.3 Specific Objectives

1. To examine the contribution of women in the traditional agriculture production system and assess the distribution of output and income on gender basis.
2. To examine the effect of mechanisation in agriculture on labour utilisation with respect to women.
3. To identify critical constraints in the production process where women are involved.
4. Based on the above, to suggest ways of improving women's productivity and hence their contributions to rural development.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This section reviews some of the available literature on the role played by women in development. The first part gives a description of the changes in the role of women in Tanzania since colonization while the second part reviews the role of women in agricultural sector. The third part reviews the role played by women in other sectors of the economy. The fourth part reviews the women's semi-autonomy in production and consumption and the last section reviews the literature on women's limited access.

2.2 Changes in the Role of Women in Rural Tanzania Since Colonisation

With arrival of the Germans in 1890, the soils of Tanzania and her people began to feel pressure of demands from the rapidly expanding economies of Europe. This was the beggining of cash cropping era. Plantations of sisal, ceara rubber, cotton and coconuts were opened up along the coastal belt, and extended further inland as communications were improved(Moffet 1955; cited by Lijongwa 1980).

The new system of large estates called for an increased demand for labour. To make sure that there were a sufficient supply of labour from the reluctant indigenous population,camps were established on the estates to house 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. This obligation of providing for families in their husband's absence,was to result in women in rural Tanzania becoming the producers of subsistence food to present day (Lijongwa 1980).

The fall in prices of agricultural products in international markets particularly of sisal, resulted in a greatly reduced demand for labour, and a large number of Africans hitherto 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 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 e.g. acquiring a new wife, the wives got little benefit from their duties on the cash crop fields (Bryceson and Mbilinyi 1978).

It cannot be denied that some material development took place during the colonial era, which also benefited the rural women. The export sector did well and paid for foreign imports such as medicine. There was some technological advancement, particularly in the field of transport,which brought provisions, such as salt, oil etc. to the rural women. However on the whole,the nature, and the direction of agricultural development during the colonial era had the result of bringing interpersonal inequality not only between different households, but also within households. The men benefited from their control of proceeds from cash crops, leaving women the enormous responsibilities in the home and the field, which they previously shared with their husbands (Lijongwa 1980). For prior to the introduction of cash crops, there existed a complementary division of labour between the sexes. Men were engaged in hunting and fishing etc. to supplement the family diet.Men's involvement in cash crops meant that women increasingly not only had to produce the staple foods like rice and maize but also had to buy fish, oil etc. with money

earned from non-farm activities, such as local beer making. This meant that she had little money to spare either to buy herself clothes or improve her welfare generally (Lijongwa 1980).

Agricultural services which might have increased women's productivity and hence income were not available. This is because most of 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 1980) and hence emphasizing on the need of understanding the role of women in the whole agricultural production process under the traditional stem.

2.3 Women's work in Crop Production

Research on women in Africa mushroomed in the 1970s following the publication of Esther Boserup- Woman's Role in Economic Development in 1970. Boserup a Danish social scientist, provided evidence to show that women in the Third World play significant roles in agricultural and rural development. Boserup 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 par excellence'. She drew on several case studies to show

that women often do more than half of the agricultural work, in some cases they were found to do around 70 percent and in one case nearly 80 percent of the total, and thus providing 60 to 70 percent of the food (Boserup 1970;ECA 1984 and FAO 1987). This high proportion is achieved through high female labour inputs rather than female ownership. Women contribute their labour jointly with males, on their own or joint plots, on specific crops or specific cropping practices depending on the area, ethnicity, and other factors. She also showed that women play a major role in local trade in Africa, particularly in West Africa (Boserup 1970).

One of the most frequent requests of African rural females is the provision of labour-saving devices in agriculture to provide relief from the enormous burden of work (Due et al.1984; Cloud 1986). The devices include: oxen and ploughs, two-wheeled carts to transport water and firewood. They are also requesting better agricultural prices and inputs, more and better seeds for their gardens and training for disease diagnosis of small animals and poultry. The need for cash was also frequently mentioned.

Women's participation in agricultural labour does not necessarily translate into women's control over agricultural operations or resources (Boserup 1970). Ownership of oxen and ploughs by females is much lower

than by males in tropical Africa, however, it is not uncommon in southern Africa for female to operate oxen (Due 1987). Almost all the tractors for hire were owned by males.

Spencer (1976) evaluated the impact of development interventions on women's workload by interviewing 23 rural households in Sierra Leone twice a week for one year:14 of the 23 were rural households participating in a World Bank financed rice project, selected at random in the eastern province:while the other nine households were non participants selected at random in the same province. Spencer's results revealed that the workload for women in households participation in the rice project increased slightly while the workload of the men and male children was substantially increased during the first three years of the project. Spencer rejected the hypothesis that women's workload increases relative to men as commercialization of agriculture proceeds but noted that his sample was small and more research was needed on the impact of technical change on men and women in different ethnic groups and farming systems. Spencer's research is 'note worthy' because he moved beyond the typical one-shot survey and studied labour allocation of men, women and children in a micro-environment through repeated interviews over 12 month period. A problem in reporting on the effects of technical change on women is that

households which adopt new technologies are often structurally different from non-adopting households. For example, comparisons of mean hours worked may misrepresent differences in hours worked due to other factors, such as economies of scale in performing household tasks if the households adopting the technical change are larger in size than non-adopting households.

The role of women in the colonial period could be clarified through historical research. For example, Young's (1977) analysis of women's role during the colonial period in Mozambique questions the widely held stereotype thinking that women only produce food crops in Africa.Young showed that as terms of trade for food and cash crops changed and as more men pursued off-farm employment, women became important producers of both food and cash crop during the latter part of Mozambique's colonial history. Surdakasa's (1973) study of Yoruba market women in Nigeria is also an important reference. Surdakasa cautions against over generalization. She points out that women have played a perversive role in trading in West Africa but in East Africa men of Asian background dominated trading for many years.

In Malawi, tobacco and cotton production are often considered to be crops that are totally managed by men (Spring et al. 1983b). In all areas of Malawi, men are in charge of cotton but women contribute significantly to

various operations, and in some areas the cultivation of cotton is dependent on adult female labour. Women and children help in tobacco operations and in some areas the household head,whether male or female, is responsible for the crop. Rice, groundnuts and small holder coffee and tea production (as opposed to estate production) are more variable in terms of sexual division of labour. In some places men are responsible for rice production,in others whoever is head of the household takes care of the rice crop. In some areas groundnuts are grown by both men and women who perform different tasks but contribute equal amounts of work. In other areas, groundnuts is considered a crop that women grow and women do most of the work.In smallholder coffee and tea production,tasks are shared between sexes except that only men are responsible for pruning.Women are responsible for most subsistence production and contribute the most labour to food staples such as maize, cassava, or rice, depending on the crop grown in the area. In general women are involved in full range of cropping patterns, many of the farm operations that are commonly believed to be done only by men, such as cotton spraying and tobacco nursery planting (Spring 1983b).

Mudenda et al. (1982) carried out a study in Zambia and found out that farm females (of all ages) allocated more hours per day both to agriculture and household

duties than males during farming season. Females on average spent 8.5 hours per day in agricultural related activities and 5.0 hours for household giving a total of 13.5 hours. Children's hours were converted to adult equivalencies on the basis of children aged 8 to 11 years to 0.3 of adult hour and 12 to 17 to 0.5 of adult hour. Both males and females allocated more total hours of work in southern province where acreage in crops was also lowest than in other provinces. Thus on average, during the farming season, females contributed 53 percent of total hours while male contributed 47 percent. In household tasks, women contributed 82 percent while males of all ages contributed 18 percent. Again males assisted more in household tasks in southern province where commercialization of agriculture is greater.

Due et al. (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 percent of the agricultural labour in the most traditional area, 51 percent in the most commercial, and 58 percent on the intermediate smallholder farms. These Zambian studies were undertaken in areas in which food crop production was primary but there were some cotton, sunflower and other crops grown only for market. In areas where export crops are relatively more important, the distribution of labour by

gender would differ (Due et al. 1986).

Due (1987) documented that under traditional technology, where land and household labour are the major inputs, females contribute at least one-half of the agricultural labour. On the Zambian smallholder farms the percentages of female household labour fell only slightly as average farm size increased from 4.4 to 16.4 acres from 52 percent to 51 percent of the total labour days. In the Zambian sample hired labour was predominantly male in both traditional and more commercial areas.

Anandajayasekeram and Due (1984) carried out a study of farming systems in Morogoro, Tanzania. They found out that females provided 48 percent of the total labour requirements, but these varied significantly by crop. Also they found out that females provided 67 percent of the rice crop requirements, 59 percent of beans, 48 percent of maize, and about 40 percent of the sunflower, sorghum and cotton. Female contributed 55 percent of weeding, 52 percent of the harvesting.

In Moshi district, women are the major source of labour for livestock, and have almost equal share in coffee- banana production whereas in Pare district women supply most of the labour in coffee, banana, maize, cotton and livestock production (Mlambiti et al. 1982).

Due (1982) compared labour productivity of females

vs males in Kilosa and Mgeta districts. She observed that total labour requirements accounted for 12 percent of the variation, in value of total productivity (VTP) in Kilosa but only one percent in Mgeta: Male labour per family accounted for 6.5 percent and female labour 3.7 percent. Value of food consumption, acreage planted and farm operating expenses were the most significant variables in accounting for variation in VTP. It was observed that addition of one female labourer per family increased VTP by Tshs. 1 659.00 where as the addition of one adult male labourer increased VTP by Tshs. 1 571.00. This would estimate marginal female productivity at 106 percent of male, other things being equal. Average productivity of female labour was also 12 percent higher than male productivity.

Thus Due (1982) concluded and documented that women in traditional agricultural production in many parts of tropical Africa not only do the household tasks but contribute significantly to agricultural production. For instance in Kilosa female contributed 48 percent of total labour. Thus she substantiates the equality of female and male marginal labour productivity in Kilosa and documents more fully the importance of females in the farming systems.

Due (1987) documented that under traditional technology, where land and household labour are the major

inputs, females contribute at least one-half of the agricultural labour. Tanzanian data were desegregated by size of farm, and a comparison of factors was made for smallholder farms of less than 8 acres and 8 to 25 acres. The average size of farm was 4.8 acres for the smaller farms and 14.3 acres for larger and more mechanized ones; the percentage of family labour on the small farms of less than 8 acres was evenly distributed by gender. On the larger farms the percentage of female family labour fell to 43 percent and the male percentage increased to 57 percent.

But it was the amount of hired labour which increased dramatically as size of farm increased, this hired labour on larger farms was only 12.5 percent female while the hired labour on the smaller farms was 52 percent female in one area and only 22 percent female in the other area.

Non-crop income contributed a higher percentage of the net cash income in the traditional area than in more commercial area in both Tanzania and Zambia, 71 and 51 percent respectively. The smaller farms also had a higher percentage of total production consumed by the household than the larger farms, 64 percent compared to 36 percent respectively.

Thus (Due 1987) drew two conclusions: The first is that as farm size increases and ox tractor power are substituted for human energy, the average amount of hired

labour increases substantially but a smaller percentage of that labour is female. Second, non-crop income is a higher percentage of net income on smaller than on larger farms and a high percentage of that non-crop is generated by females.

2.4 Women Roles in Non-Crop Productive Roles

The economic role of women does not stop at crop production only. After the harvest, women process, store and market the produce. Cereals for example maize and rice require long hours of decortication and pounding (ECA 1984). Rural women put in about 70 percent of all time expended in food production, 100 percent of the time spent in food processing, 50 percent of the time spent in food storage and animal husbandry, 60 percent of the time for fetching water and 80 percent of the time spent in obtaining fuel (Lewis 1984).

Women's daily activities include a variety of tasks in addition to crop production.The crops produced by women farmers are not sufficient to meet all the household food and other requirements. The need for cash income to meet other basic needs is obvious. Where there is surplus in the food crops produced for household use, this is sold to get cash income. More often though, rural African women have to supplement their crop production by engaging in income-earning activities. Examples of

income supplemental earning activities by rural women are keeping of small animals, bees, making handcrafts, brewing etc. Normally rural and urban low income women depend entirely on these non-crop earning activities for the survival of their families.For many households this is the main source of income for food, shelter and meeting of other basic needs. These women operate at the lowest stratum of the informal sector. Therefore, women are caught up in vicious cycle of low income and low productivity despite long hours of toil (Elias 1990).

As in many parts of Africa, Tanzanian women also participate in other sectors of the economy like livestock keeping, industry etc. Women's labour force has a significant role in animal production which varies according to the type of animals and type of production system i.e whether nomadic, semi-nomadic,settled extensive or intensive. Their role is affected by cultural factors and economic constraints. Women's contribution in livestock keeping is closely interrelated with their own personal investment and marketing activities in this sector (United Republic of Tanzania (URT) 1988).

Studies show that in all existing types of animal production system, women's role have been one which involve waking up before dawn to milk cows, feed cattle, process milk products and collecting animal wastes for

fuel and manure (Tobisson 1980).In some areas women are also responsible for marketing of livestock products, eggs and to some extent in the sale of animals. A good example of women's role in livestock industry is found in Kilimanjaro region where a large stock of improved dairy cattle are kept on zero grazing. Women are mostly involved in fetching fodder for the cattle. Similar example can be seen in Mara region where women engage in all activities relating to animal husbandry. The roles which women play in sustaining this sector are not necessarily related to the ownership of animal products. For instance, among the nomadic Masai, women process, and market products but give the proceeds from sales to their husbands (Tobisson 1980).

Women also participate in small scale industries. This has been reflected through the emergence of women groups organised into economic groups that have undertaken small scale industrial activities supported by the Small Industries Development Organisation (SIDO). They also participate in fishing but limited to processing the catch e.g. smoking, drying and marketing (URT 1988).

The advancement of women in different fields of development has been constrained by lack of direct access to resources such as capital and credit, lack of opportunities for farming and acquiring affordable

technology, and limited access to market and inputs. In addition, there are constraints arising from their heavy workload, caring for children and other numerous tasks that these women have to perform every day (Elias 1990).Therefore there is need to find ways of easing the work of women in the household activities so as to release their labour for other development activities.

2.5 Women's Semi - Autonomous Production and Consumption

The extent to which household labour is allocated to the collective fields instead of the private fields, and the choice of food vs. cash crops grown on each type of field has usually been determined by traditional rules and rights, as is the distribution of cash income from cash cropping (Gladwin and Staudt 1983). Usually the household head has rights to the labour of all household members, who must work on cooperative fields at given times. However, women and other (younger) men in the household do not have these rights over the household member's labour (Koenig 1982). As labour is usually the most scarce resource for sub- saharan farm and thus the factor that mostly prevents expansion of farming, traditional rules about labour allocation determine total production and incomes generated by different household members (Koenig 1982).

While a woman has rights over the production from

her field(s), and thus has some semi - autonomy, she is also responsible for providing labour to the cooperative fields, which are given priority in the allocation of household labour. Moreover, she is responsible for certain kinds of household expenditures with little or no access to the head's cash income (Cloud 1983). For certain pastoral peoples, the division of labour was more extreme. For example, among Pokot, a pastoral people in west-central Kenya in the pre colonial period, there was no community of prosperity between husband and wife. Spouses cooperated, however, via a set of reciprocal rights and responsibilities necessary for survival. Men travelled with their cattle while women had virtual autonomy over the agricultural sphere " deciding what to grow, when to plant, and to whom to distribute grain from the stores" (Reynolds 1982 cited by Gladwin and Staudt 1983). A woman's autonomy depended in part on her ability to fulfil her economic responsibilities to her husband's satisfaction; and a husband had no right to interfere with the work of an industrious wife (Gladwin and Staudit 1983).

With the intervention of a rural development project introducing a new or recently - irrigated cash crop, or new land resettlement scheme, or the sedentarization of a previously nomadic population, however rules or rights were suddenly questioned and subject to negotiation

(Koenig 1982). Conflicts often developed between household members determined to take advantage of the new, enlarged set of economic resources, whether they were expanded surplus value from a new cash crop (peanut in Mali, rice in Cameroon), access to new lands of a resettlement scheme, or the increased cash income from a new sedentary way of life. When the Pokots for example, began to settle in the early 1930s, the British registered land and channelled agricultural inputs to men rather than to women. The results was that Pokot men had greater access to cash than did Pokot women, and changed value for cultivatable land. The implications for development programs and policies are clear. Policy makers and planners concerned with imminent food crisis must provide agricultural inputs, technology, and extension, advice to rural women, if a significant proportion of the labour input to food production is women's. Project funds or inputs that go to the household head whose main product is a cash crop will not improve yields of food crops or help alleviate a food crisis. Similarly, policies increase the area planted to a cooperatively worked, labour-intensive cash crop might increase total household labour requirements and income, but would probably be associated with a decline in the area of private fields with food crops and a decline in the autonomy of women, if intrahousehold transfers of

cash income are not the custom (Gladwin and Staudt 1983).

Project planners who aim to identify the constraints limiting food production must first know whether food crops are commonly produced by women. Second, they should understand what decisions are made by women in agricultural production, why and how they are made, how labour is allocated on the fields and how conflicts occur and are resolved in the household (Cloud 1983).

Regardless of the methodology used, however, policy makers who hope to increase the production of the semi-autonomous women must research their decision making processes and identify their goals and decision criteria, within the context of decisions made by the men. Value, perceptions, and attitudes of women farmers as well as those of men must be elicited by researchers (Mudenda et. al 1983).

An issue in the field of Women in Development concerns the benefit of separate or integrated projects for women (Rogers 1980; Charlton 1984). Charlton examined 32 projects and showed that projects that directed attention to women in particular, even if they were small, were more likely to benefit them.

Cloud (1986) evaluated a number of agricultural projects and concluded that if all the attention and resources appropriate to women's responsibilities are paid to them, then projects would help. She suggested

that there is a correlation between benefits to women and project success. When women's access to resources is high, project success is high. When women's access to resources is moderate or low, project success is low. However, targeting women does not automatically ensure a successful project, which in fact, requires explicit and accurate action.

2.6 Women's Limited Access to Resources and Services

Development opens up opportunities for women when it furthers women's access to capital, the market, and the political arena, but impedes it when access is blocked (Gladwin and Staudt 1983). Correspondingly, farm women in Zambia claim they want development interventions in the form of "farming improvements, credit, clinics, wells, improved transport and roads, and improved extension and farmer training centres" (Due et al 1983).

Notwithstanding the expressed wishes of African women farmers for farming improvements and the burgeoning number of research findings documenting women's extensive activities in agriculture, study after study also exposes women's limited access to government extension services, technological training, education, credit, time and land reform (Due et al 1983;Cloud 1983). Although agricultural development proceeds by making resources available for increasing farm productivity, African women farm managers

have experienced a persistent and pervasive bias in the delivery of agricultural services from their governments, and it makes no difference whether the women have high economic status, large farms or have shown willingness to adopt innovations (Staudt 1975).

Staudt's (1975) work in western Kenya shows:(1) agricultural instructors tend to visit farm jointly managed by men and women more often than farms managed solely by women;(2) more members of a jointly - managed farm received training at a local agricultural centre than did members of a female - managed farm and (3) more jointly - managed farmers knew about, had applied for, and acquired agricultural loans than did female farmers. Why ? Male technicians usually communicate with men and tend to provide information, technology, and credit to men, leaving the considerable number of women household heads who are already poor in resource and in difficult straits. When men appropriate the value of women's labour through cooperatives which reward them and not women producers, women market outside official channels, withdraw their labour or lack of incentives to continue their labour contributions. Such responses have direct effects on the achievement of development goals (Gladwin and Staudt 1983).

In similar vein, Esminger (1983) cited by Gladwin and Staudt (1983) tests the effect of Galole Orma

women's access to the market economy on their economic and political "status" with two sub samples of households in Kenya. One set of Galole households is settled and strongly integrated to market economy; the other is to a greater extent nomadic, more self-sufficient in meeting subsistence needs, and less involved in the market economy. Esminger demonstrates that although nomadic women engage in fewer domestic tasks and have greater prospects for maintaining ownership of cattle and producing ghee for sale, their lack of access to markets and political forum prevent them from taking advantage of these conditions. As a result, sedentarization improves the economic and political lot of a small, elite group of sedentary women. Her results suggest that economic and political change does not affect all women equally within a given society.

CHAPTER III

METHODOLOGY

3.1 Introduction

This chapter describes the methodology which is used to collect and analyze the data.The chapter presents the types and sources of data required, sampling procedure, preliminary survey, questionnaire design, administration of the survey and tools which are used to analyze the sample data.

3.2 Types and Source of Data Required

3.2.1 Primary Data

Primary data were obtained by interviewing people from selected households using a structured questionnaire. The questions were designed to collect basic information on typical farm households activities. The information and data sought include access and control of resources such as land and capital;labour supply and utilisation specifying sex and age, inputs such as fertilizer, seeds, pesticides, herbicides and extension services. Data on production e.g. output levels or yields and on disposal of the crop e.g selling price, nature of work, types of crops grown,distribution of output and activities done by women alone and problems faced by farmers and how they solve them were also sought.

3.2.2 Secondary Data

These were obtained from different government offices e.g. Mbozi district agricultural office, and community development. Other information on the role played by women from institutions dealing with women issues were also obtained. Reports from previous research conducted in the region were also sought. Data on population and production were collected, these helped to provide information on area and yields for crops grown in the area. Information on topography and agro-climatic were also collected e.g.rainfall and temperature. Soil data were collected from Mbeya regional agricultural offices which helped to explain the variation of soil types affecting cropping patterns as well as drainage and fertility problems. Information on the economic status of the region were also obtained from the regional offices. Information on price, market were also collected from the ministry of Agriculture, and Livestock Development.

3.3 Sampling Procedure

A multi- stage sampling technique was employed. Out of six divisions, four divisions were purposely selected on the basis of ease of communication. From each of the four divisions, two villages were selected randomly giving eight villages and the other two were selected randomly from a pool of all four divisions. Five

households were selected randomly from each of the ten village registers giving a total sample size of fifty farmers.

3.4 Preliminary Survey

A recoinnaisance survey was carried out to obtain a bird's eye view of the study in relation to farming systems, customs and traditions, communication net-work and also testing the relevancy of the questions which were contained in the draft of the questionnaire.

3.5 Administration of the Survey

Data collection was conducted by the researcher assisted by three enumerators who were agricultural extension agents. A single visit method was employed. Data collection involved visiting individual rural men and women in their fields and homesteads to administer the questionnaire.

The full survey started in late August and ended in mid October. Farmers especially women, were cooperative and anxious to learn what a researcher could provide to solve their problems. A time table was provided to each village listing farmers to be interviewed and dates with a break of two days between villages to make sure all farmers were interviewed. Agricultural extension agents accompanied the researcher to most of the villages, and

at each village the chairman and secretary were present to introduce the researcher to the selected farmers. All the selected farmers were available for interview.

Labour requirement per activity per crop was estimated on a per- farm basis and per hectare. To develop operations, farmers were asked how long it took to perform a given activity such as land preparation, weeding, fertiliser application, pruning and harvesting and how many people of different age groups were involved. Where farmers did not remember these details, they were asked to indicate how long it would take if that operation was performed then. Monthly labour allocation was estimated by asking them to indicate the months in which specified farm operations were mostly carried out. During the survey period, coffee, maize and beans were being sold and farmers easily indicated number of bags obtained.

A bag was estimated to weigh 100kg for maize, 100kg for beans, 50 kg for coffee, 100kg for fingermillet and 60kg for shelled groundnuts. Cassava harvesting continues throughout the year as does bananas.Farmers failed to estimate yields on cassava, bananas and sweet potatoes thus no record for the yields of those crops were obtained.

Family labour, hired casual labour and land were the major resource inputs identified for crop input-output

relations. Items of cost identified were fertilisers, farm tools and equipments, seeds, herbicides and transport.

Husbandry practices were investigated with respect to coffee, maize, cassava, beans, sweet potatoes, groundnuts, and finger millet. Other variables of influence include age of farmers, education level of farmers based maximum class reached or adult education, and contacts with extension agents.

Area of the crop, details with regard to family structure including adults available to supply farming labour, number of school children and those under school age and old parents in the family were recorded.

3.6 Tools of Analysis

Descriptive statistics such as frequency tables, percentages and proportions were used to summarize the data on resource allocation such as labour and capital.

Tabulation was also used to calculate equivalencies and labour contributions by gender and age, and to calculate value of total production (VTP) using government prices.

Multiple regressions were also used so as to aid in drawing inferences on the target population using the sample data. Multiple regression analysis provide a measure of relations among a set of variables for the purposes of predicting the dependent variable or

estimation of specified coefficients. Due (1982) used this analysis to compare productivity between women and men in Morogoro region. One way of comparing productivity is to look at those factors that influence the value of total production.

The independent variables (Xis) were those factors that seem important in affecting the value of total production. In this case they included land area, female and male labour, farm operating expenses and size of the household.

The regression model using cobb-Douglas production function, is specified as follows.

$Y = B0X1^{B1}\ X2^{B2}\ X3^{B3}\ X4^{B4}\ X5^{B5}\ UO$

Log Y= logBO+ B1logX1 +B2logX2+ B3logX3+ B4logX4+ B5logX5+logUO

where:

Y = Value of Total Product

X1 = Total Hacters

X2 = Farm operating expenses

X3 = Female labour

X4 = Male labour

X5 = Non-farm female labour

UO =Error term.

Unit of measure is Tshs.

Expected signs are as follows X1, X3 and X4 = positive

X2 and X5 =negative.

CHAPTER IV

RESULTS AND DISCUSSION

4.1 Introduction

This chapter is divided into four sections. Section one presents a description of the social and demographic characteristics of the sampled households. Section two discusses results on production patterns, distribution and control of income for the sampled farmers on gender basis while section three discusses effects of mechanisation on women. The last section identifies and explains economic and social constraints facing Mbozi women.

4.2 Social and Demographic Characteristics of Sampled Households.

The social mechanisms governing the access to, control over, and transmission of the means of production differ from society to society. To understand them one needs to have an insight into household organisation, system of land acquisition, inheritance rules, domestic organisation etc. The social system determines the availability and utilisation of labour resource in households which translate into production process.

4.2.1 Household Composition and Land Tenure.

Among the sampled households, 86 percent are male headed households(MHHs) and 14 percent female headed households.The FHHs include divorcees six percent, widows four percent and unmarried women four percent. Married sons usually form their own separate households even though they often live in close proximity to their parents. Old widowed women usually live with their married sons. Extended family relationship typical of African life is non - existence. This is rather strange in an African society indicating a departure from universally recorded phenomenon of extended African family.

4.2.1.1 Household Composition

Household size for MHHs is eleven persons on average while FHHs has an average of five persons.

The age distribution among the sampled farmers ranges between 18 and 68 years with an average of 35 years for women and 46 years for men. Male farmers above 65 years constitute 17 percent, whereas female farmers constitute 6 percent. Male farmers between the age groups of 46 - 64 years, 36 -45 years, and 18 -35 years are 35, 26, and 22 percent respectively while female farmers in the same age groups are 27, 41, and 26 percent respectively, table 4-1.

The results of the sample data show that farming in the district is mostly performed by middle aged members of the family which implies that youths especially males either migrate to urban areas to seek employment which consequently deprives the villages of strong labour force. Results in table 4 -1, suggest that women in the rural sector have an important role in agricultural production because they are the majority in terms of active labour force.

Table 4-1. Mbozi distrct:Age of the respondents

age group	male (%)	female (%)	both (%)
18 -35	22	26	24
36 -45	26	41	34
46 -64	35	27	31
65 and above	17	26	11

source:survey data, 1990.

4.2.1.2 Land Resource Acquisition

Traditionally land in Mbozi district is acquired by the head of the household (father), who portions out parts of it to the sons as they grow up. All MHHs surveyed stated that part of their land was inherited from their fathers. About 38 percent acquired additional land through purchase and 72 percent acquired additional land from village government.The situation with FHHs is rather different. About 57 percent of FHHs acquired land through purchase while 43 percent acquired land from village government and none from inheritance. Table 4-2 reveals that in MHHs, land is owned by the husbands thus wives work on their husbands' fields. Generally women in Mbozi district have no control over land and this adversely affects distribution of output which automatically favours men who are the land owners(table 4-2). Table 4-2 also reveals that village traditional way of allocating land favours men in terms of land distribution thus forcing women to purchase the required land if they decide to go farming. Limited accessibility to land by women has a negative impact on crop production because land is an important factor of production. In fact all customs and traditions in the district affect women's access to land because when a man dies land is distributed between his sons or relatives if the sons are still young, thus leaving the wife and daughters without

land. Table 4-2 shows the summary of land ownership and acquisition.

Table 4 - 2. Mbozi district:Land ownership and acquisition

	MHHs		FHHs
	male (%)	female (%)	female (%)
land ownership	91	9	100
land acquisition: 1>			
inheritance	100	-	-
purchase	38	9	57
village allocation	72	-	43

source:survey data, 1990.

1> a person can acquire land through all three sources.

4.2.2 Educational Characteristics

The level of education is still low in the district particularly for women. The results of the survey show that of the sampled women 56 percent had attained primary education whereas 18 percent had attended adult education. The results for the male counterpart are 65 and 35 percent respectively. Four percent of female respondents had attained secondary education and 22 percent had no formal education. There was no male in the sample who had no formal education. Table 4-3 summarises the educational level of the respondents.

Table 4-3 also shows that of the sampled farmers there are no male farmers with secondary education in the district while about four percent of the sampled women farmers had a secondary education. This reveals the fact that boys with at least secondary education are not engaged in farming whereas women with the same level of education are engaged in farming. Given the fact that women in Africa do a lot of agricultural production activities and that education is an indispensable factor for successful agricultural production, there is a need of educating women so as to enhance their productivity. Educated farmers can easily accept innovations and can read books and pamphlets on agricultural information.

Table 4-3 summarises the educational level of respondents.

Table 4-3. Mbozi district:Educational level of the sampled farmers

Educational level	male N=23	percentage of male	female N=27	percentage of female
Adult education	8	35	5	18
Primary education	15	65	15	56
Secondary education	0	0	1	4
No education	0	0	6	22
Total	23	100	27	100

Source: survey data, 1990

4.3 Land Use, Production and Income Distribution of Sample Farmers

4.3.1 Land Use by Livestock Enterprise

Domestic animals currently raised include cattle, goats, pigs and poultry. Table 4-4 shows the distribution of livestock in the district.

The results in table 4-4 suggest that modern livestock keeping is still new in the district. Only five percent of the MHH in the sample keep improved dairy cattle and their average number per farm household in the district is three animals while 58 percent of MHH in the sample keep local cattle with an average herd size of eight animals. About 95 percent of MHHs and 100 percent of FHHs in the sample keep poultry mostly of local breeds with an average size of 36 and 26 birds respectively of which 26 and 10 are usually consumed by the families respectively. Piggery is the third in importance because 32 percent of MHHs and 100 percent of FHHs of the sample keep piggery of which four and two animals are sold annually respectively to supplement the family income. Goats are kept by 30 percent of the MHHs and they are for both consumption and sale.

Extensive cattle keeping is mostly males' occupation in the district (table 4-4) . This could be due to the grazing of animals on natural pasture which involves walking for long distances and also time consuming hence hinders the performance of other activities such as domestic chores and crop production activities. Table 4-4 also reveals that FHHs do not keep improved cattle which could be due to lack of capital attributed by lack of big farming land and lack of credit facilities.

Table 4-4.Mbozi district:Type of livestock, and proportion of livestock ownership, size, average family consumption and sales by type of headship of household

Type of livestock	proportion of owners in MHH n=43 (%)	proportion of owners in FHH n=7 (%)	average number of livestock FHH	MHH	average annual family consumption FHH	MHH	average number of livestock sold FHH	MHH
improved cattle	5	0	0	3	-	-	-	-
local cattle	58	0	0	8	-	-	-	-
poultry	95	100	26	36	10	26	16	10
pigs	32	100	3	5	-	1	3	4
goats	30	0	0	4	0	2	0	2

Source:survey data, 1990

4.3.2 Land Use by Crop Enterprise

The major cash crop in Mbozi district is coffee. Food crops grown are maize, cassava, banana, beans, finger millet, sweet potatoes and groundnuts. A typical farm family in MHHs cultivates an average of 1.1 ha of maize, 0.3 ha of bananas, 0.6 ha of fingermillet, 0.7 ha of beans, 0.2 ha of sweet potatoes, 1.1 ha of coffee and 0.3 ha of groundnuts. In FHHs, a typical farmer cultivates 0.6 ha of maize, 0.4 ha of beans, 0.4 ha of fingermillet, and the same size for other crops in MHHs. FHHs do not grow coffee. One of the reasons why FHHs do not grow coffee is the heritage tradition which denies them acquisition of land planted with coffee from father's lineage. Table 4-5 shows the distribution of crops for the sampled households.

Table 4-5 reveals that coffee is an important cash crop grown by 88 percent of the sampled MHHs. The important food crops are maize and beans grown by all households in the sample. Groundnuts rank second after maize and beans in the MHHs whereas in FHHs groundnuts and bananas rank second after beans and maize. Bananas rank third after groundnuts in MHHs whereas finger millet and sweet potatoes rank third after groundnuts and bananas in the FHHs. Finger millet is mainly used for beer brewing.

Cassava ranks last in both categories of households mainly because it is not the staple food.

Table 4-5. Mbozi district:Distribution of crops for the sampled household by gender headship 1990

crop	percentage of growers in MHHs (%)	average area under cultivation ha	percentage of growers in FHHs (%)	average area under cultivation ha
coffee	88	1.1	-	-
maize	100	1.1	100	0.6
beans	100	0.7	100	0.4
cassava	7	0.4	29	0.4
s/potato	19	0.2	43	0.2
g'nuts	56	0.3	86	0.3
f/millet	23	0.6	43	0.4
bananas	47	0.3	86	0.3
average household size		4.5		2.5

Source:survey data, 1990
FHH = female headed household. MHH = male headed household

Table 4 - 5 shows uneven distribution of farm sizes between FHHs and MHHs. While in the MHHs the average cultivated farm area is 4.5 ha, in FHHs it is 2.5 ha. Some pieces of land were left uncultivated due to high costs of inputs mainly for maize production and inadequate time; this was stated by 46 percent of respondents in the MHHs.

4.3.3 Yield Levels of major Crops

The average yield levels of major crops with the recommended yield levels for comparison purposes, are shown in table 4-6.

Results from the table reveals that it is only maize which has satisfactory yield level. Beans yield is very low and this is because of traditional practice which does not use fertilisers. However the crop is grown twice a year. One would say that if the same farmers can achieve such high maize yields through employing technical packages, then the same efforts could be used for other crops with more likely better results.

Table 4-6. Mbozi district:Average yield levels for major crops

crop	average yield kg/ha	recommended yield level for improved farming practice kg/ha	average yield as percentage of recommended yield
coffee	347	1 000	35
maize	3 447	3 900	88
beans	302	2 100	14
f/millet	886	1 800	49

source: survey data, 1990

4.3.4 Labour Availability and utilisation

In the traditional farming, labour is often the limiting resource in the farming system particularly during peak periods (Mlambiti and Mlay 1989). Hence measures of its availability and requirements are critical in resource use planning. The availability of labour governs not only the size of farms for a particular area but also the scope of the improvements which can be introduced and successfully implemented (Mlambiti 1985).

Labour availability may be very high on average but actual supply may be limited because of the prevalence of such factors as rain and social events that greatly affect the labour supply. Hence, during dry season there is frequently an abundant labour supply relative to labour requirement for different activities, whereas in the rainy season available family labour is normally short of that required (Mlambiti and Mlay 1989).

4.3.4.1 Family Labour Availability

Household size average is eleven persons for the MHHs and five persons for the FHHs. The sizes of these two households i.e. MHHs and FHHs vary so much because MHHs have an average number of two wives. About 60 percent of the male respondents stated that additional wives were another source of labour, thus polygamy is a common practice in the district.

Table 4-7 which shows the average number of persons per family and the corresponding man-equivalent by heads of households reveals that a typical MHH has a man-equivalent of three. Children labour force on average - make about 20 percent of the average households, but in actual fact this is negligible because their labour is available only during vacations and male children are responsible for cattle grazing. In calculating labour inputs for different age groups three major groups have been categorized. Category one includes people between the ages 18-55 years whose man-equivalent value is taken to be one unit whereas category two is the people between 10 and 17 and category three is the people over 55 years. In category two and three the man-equivalent ratios are taken to be half a unit. For children with ages ten years and below, the contribution is taken as negligible. Mlambiti and Mlay used similar groupings for Ulanga resource utilization (Mlambiti and Mlay 1989,p 25).

The weakness of this approach is that for some tasks it does not hold true. For instance tasks involving physical strength like land clearing, men may perform faster than women, but for bird scaring, whether by men, women or children there is no difference.

Where no marked differences exist between adults and youth output, measurement is uniform.

Table 4-7. Mbozi district: Average number of persons per household by age group and the corresponding man- equivalent

age group	average no. per household in MHHs	man-equivalent	average no. per household in FHHs	man-equivalent
0-10	4	0	1	0
11-17	3	1.5	2	1.0
18-55	3	3.0	2	2.0
56+	1	0.5	0	0
total	11	5.0	5	3.0

source: survey data, 1990

Table 4-8. Mbozi district: Calculated available man-days per month for an average family

month	total days available	less rainy days	less sun-days	less holi-days, occa-ssions	net work-ing days	total man-days in MHHs1>	total man-days in FHHs1>
Jan	31	18	4	1	8	40	24
Feb	28	16	4	1	7	35	21
March	31	18	4	1	8	40	24
April	30	16	4	2	8	40	24
May	31	14	4	1	12	60	36
June	30	4	4	1	21	105	63
July	31	0	4	1	26	130	78
Aug	31	0	4	2	25	125	75
Sept	30	0	4	1	25	125	75
Oct	31	8	4	1	18	90	54
Nov	30	10	4	1	15	60	45
Dec	31	12	4	2	13	65	39
total	365	118	48	15	171	915	558

source: survey data, 1990:

1> net working days multiplied by available man-equivalent from table 4-7.

Table 4-8 shows the calculation of effective man-day of labour available per family by month taking into account the average adult equivalent of farm labour shown in table 4-7. Rainy days and social events like holidays, sundays, wedding, festivals, funerals, and travelling do affect labour availability per month for an average family so they were subtracted from the month total days to obtain net working days.

4.3.4.2 Labour requirement by Enterprises

Labour requirement for different operations for major crops is shown in table 4-9. The table shows that the crop which is most labour demanding in the district is coffee followed by fingermillet and maize. The least labour demanding crop is beans.

Labour requirements per crops by months are shown in table 4-10. From table 4-10 it can be observed that the most labour demanding month in July followed by June. This is because harvesting process is carried out during these months. The month of January also demands more labour in farm work. Table 4-10 further shows that no labour is used for farm work in August.

Table 4-11 compares total labour available versus labour requirement per months by types of households. The table indicates that MHHs experience labour constraints in the months of January, March, and July. FHHs experience labour constraints in the months of January, February, March, June and July. Results as they appear suggest that FHHs should hire more labour than MHHs but this is not always the case because FHHs as indicated in table 4-5 adjust themselves by having smaller farm sizes than MHHs thus the available labour is enough to accomplish the tasks (see appendix A).

Table 4-9. Mbozi district: Labour requirement for major crops by different operations

operation	coffee a> md/ha	maize md/ha	beans b> md/ha	fingermillet md/ha
land preparation	0	15	16	15
planting	-	22	12	22
weeding 1>	40	38	8	34
fertilisation 2>	10	8	-	-
pruning	13	-	-	-
spraying 3>	24	-	-	-
harvesting/ picking & sorting	63	55	34	76
puiping/ washing	15	-	-	-
total	165	138	70	147

source: survey data, 1990

a> coffee was mature crop and needed no labour for clearing and planting.

b> beans is grown twice per season.

1> weeding for maize is done twice per season and weeding for coffee is done three times per season.

2> fertilisation for maize is done twice per season. The first time is during planting and then after first weeding.

3> spraying is done four times per season

Table 4-10. Mbozi district: Labour requirements per crop by months

month	coffee	maize	beans	fingermillet	total
Jan	18	19	0	17	54
Feb	14	4	17	0	35
March	8	19	8	17	52
April	14	0	6	0	20
May	10	0	0	0	10
June	30	20	15	30	95
July	40	35	19	46	140
August	0	0	0	0	0
Sept	0	5	6	10	21
October	13	10	8	5	36
Nov	8	10	8	22	48
Dec	14	12	0	0	26
total	169	134	74	149	537

source: survey data, 1990.

Table 4-11. Mbozi district: Total labour available versus requirements per month by heads of households

Month	required MHH	available MHH	difference	required FHH 1>	available MHH	difference
Jan	54	40	- 14	36	24	12
Feb	35	35	0	35	21	14
March	52	40	-12	44	24	20
April	20	40	20	6	24	18
May	10	60	50	0	36	36
June	95	105	10	65	63	- 2
July	140	130	-10	100	78	12
Aug	0	125	125	0	75	75
Sept	21	125	104	21	75	54
Oct	36	90	54	23	54	21
Nov	48	60	12	40	45	5
Dec	26	65	39	12	39	27

source: survey data, 1990
1> coffee has been subtracted because FHH do not grow cash crop.

Although in MHHs labour availability is reasonably enough, the actual labour supplied is small because most of these activities are carried out solely by females (see tables 4-7 and 4-13).

Table 4-12 shows the sources and amount of labour required, the table indicates that family labour is the main source of labour for agricultural production followed by casual and communal labour. Operations which require relatively high proportion of casual labour is weeding (maize and coffee) and picking of coffee. Farmers depend very little on communal labour because of the poor quality of work done. It is only 28 percent of the sampled households which used communal labour.

Table 4-12. Mbozi district: Sources and amount of labour required by two major enterprises

crop	operations	family labour	casual labour	communal labour	total
coffee	weeding	34	5	1	40
	pruning	13	0	0	13
	spraying	22	2	0	24
	picking/ sorting	53	0	10	63
	pulping/ washing	15	0	0	15
	fertilisation	10	0	0	10
	total	147	7	11	165
maize	land preparation	15	0	0	15
	planting	22	0	0	22
	weeding	28	8	2	38
	fertilisation	8	0	0	8
	harvesting	55	0	0	55
	total	128	8	2	138

survey data, 1990.

4.3.4.3 Work Breakdown by Men and Women

Both males and females in Mbozi district have major roles in crop production activities and these roles are sharply differentiated by sex. While few farming activities are carried out solely by women or men like weeding beans and spraying, pruning, there are other tasks which are performed by both men and women. Table 4-13 shows labour distribution by sex by enterprises and operations as derived from the survey for the MHHs. From table.4-13 it can be seen that female labour contribution for coffee is 48 percent while that of male is 52 percent. In maize production, female labour contribution is 57 percent and that of male is 43 percent. In beans production female labour contribution is 84 percent whereas that of male is 16 percent and for finger millet production female labour contribution is 96 percent while that of male is four percent. Results in table 4-13 also show that overall, women labour contribution to agricultural production for food crops is greater than that of men, while the production of cash crop is males' responsibility.

Table 4-13. Mbozi district: Labour requirement per hactre for major crops by sex, and operations performed in 1990

crop	operation	male	female	total
coffee	weeding	20	20	40
	fertilisation	5	5	10
	pruning	13	0	13
	spraying	24	0	24
	picking and sorting	20	43	63
	pulping/ washing	3	12	15
	total	85	80	165
contributions as (%) of total.		52	48	100
maize	land preparation	7.5	7.5	15
	planting	9	13	22
	weeding	15	23	38
	fertilisation	3.6	4.4	8
	harvesting	26	29	55
	total	61	77	138
contributions as (%) of total.		43	57	100
beans	land preparation	7	9	16
	planting	0	12	12
	weeding	0	8	8
	harvesting	4	30	34
	total	11	59	70
contributions as (%) of total.		16	84	100
finger-millet	land preparation	6	9	15
	planting	0	22	22
	weeding	0	34	34
	harvesting	0	76	76
	total	6	141	147
contributions as (%) of total.		4	96	100

source: survey data, 1990

Further more, the results from table 4-13 suggest that labour saving technologies in production of food crops will release women labour while that of cash crop will release male labour. The suggested technologies for easing women's work should focus at simplifying the harvesting and weeding processes which have a high labour demand.

In FHHs, female labour contribution is 100 percent for all food crops. However, FHHs, do not grow coffee.

4.3.5 Gross Margins by Enterprise Based on 1990 Yields and Prices

Gross margins were calculated for the three major crops i.e. maize, beans and coffee. Table 4-14 shows the calculation of gross margins for the above mentioned crops. Returns per man-day for these three crops and returns per shillings were also calculated, based on 1990 yields and prices. From the table it can be seen that coffee gives the highest gross margins per hectare followed by maize and beans. Coffee crop seems to give the highest returns per man-day followed by beans and maize. Beans give the highest return per shilling followed by coffee and maize. this is because beans require less labour and capital compared to the other two crops.

From the results, one would recommend that beans should be grown in large quantities because in the district land suitable for beans is not a limiting factor. About 46 percent of the respondents stated that land is not a problem.

Table 4-14. Mbozi district: Gross margins for three crops per hectare per man-day based on 1990 yields and prices

item	unit	crops		
		maize	coffee	beans*
cropped farm size	ha	1.1	1.1	0.7
total output	kg	3 477.4	371.3	404.7
price	Tshs.	11.0	126.0	27.3
total revenue	Tshs.	3 251.3	46 782.0	11 047.0
variable costs:	Tshs.			
seeds	Tshs.	2 675.0	-	2 000.0
fertiliser	Tshs.	5 350.0	3 210.0	--
sub-total	Tshs.	8 025.0	3 210.0	2 000.0
other costs:	Tshs.			
tractor	Tshs.	2 675.0	3 210.0	-
ox-plough	Tshs.	2 140.0	-	-
herbicides	Tshs.	1 070.0	2 675.0	-
transport	Tshs.	-	5 350.0	1 000.0
sub-total	Tshs.	5 885.0	11 235.0	1 000.0
total costs	Tshs.	13 910.0	14 445.0	3 000.0
gross margin	Tshs.	24 341.3	32 337.0	8 047.0
gross margin per hectare	Tshs.	22 128.5	29 397.3	11 495.7
labour input	M-dy	138.0	165.0	70.0
returns per man-day	Tshs.	160.4	178.2	164.2
returns per shilling	Tshs.	1.6	2.0	3.8

source:survey data 1990.
* beans are grown twice per season

NB: This table reflects MHH only.

4.3.6 Results of Regression Model

Regressions were used to compare productivity between men and women in the district. The regression model used has been based on the Cobb- Douglas production function. The independent variables (Xis) were those factors that seem important in affecting the Value of Total Product (VTP). In this case they included land area, female and male labour, non-farm female labour, farm operating expenses and size of the household.

The estimated regression equation is:-

LnY= lnA +b1lnx1+ b2lnx2 +b3lnx3 +b4lnx4+ b5lnx5+ lnUO

where

Y= Value of Total Product

A= Constant term

b1....b6= elasticities of response

X1= Total hactares

X2= Farm operating expenses

X3= Female labour

X4= Male labour

X5= Non- farm female labour

UO = Error term.

The results for the least square regression as suggested by the specified model are given in table 4-15.

Table 4-15. Mbozi district: Results of the regression model.Value of total product as a dependent variable

variable	B	std error	t-values
A	9.06	3.61	1.01
X1	.37	.21	4.23**
X2	-.10	.16	-1.53
X3	.30	.35	5.57**
X4	.24	.24	2.56**
X5	-.07	.21	-1.77

R^2 = 0.65

Adjusted R^2 = 0.62

F-Statistics = 1.50

Regression DF 5

Residual 43

The value of t- tabulated using 43 degrees of freedom and 0.05 level of significance is 1.68

** - indicate significance level at 0.05 probability level

From these results altogether the independent variables account for 65 percent of the variation in Value of Total Product (VTP). This indicates a good fit for the model. The signs of the explanatory variables coefficients associated with VTP comform prior expectation. X1, X3 and X4 are positive; X2 and X5 are negative. Total hectrage (X1) Female labour (X3) and Male labour (X4) are statistically significant at 0.05 level of significance. Farm operating expenses (X2)and Non-farm female labour (X5) are not statistically significant at 0.05 significance level.

The land (X1) and labour resources (X3) and (X4) suggest that an increase in land will definitely lead to increased output and addtitional labour implies increased output. The results indicate that a one percent increase in land will increase output by 0.37 percent while a one percent increase in female labour (X3) will increase output by 0.30 percent and a one percent increase in male labour (X4) will increase output by 0.24 percent. Operating expenses though not statistically significant, implies that with a one percent increase in operating expenses will decrease output by 0.10 percent. This suggest that operating farm expenses have reached the level beyond the maximum total product in production curve. Here the marginal product per unit of operating expenses is negative, hence extra units of operating

expenses decrease total product so both the total product of the fixed input and the average product per unit of the variable input are falling at this stage. One percent increase in non-farm female labour will decrease output by 0.06 percent. This implies that if women labour is limited thus if they concentrate on Off-farm activities, time spent in agriculture will be reduced and thus reduce output.

A summation of the elasticities of production of the inputs in the production equation gives the scale of coefficient of 0.75. This figure means that a simultaneous increase in all inputs by one percent will increase total output by o.75 percent. This implies that farmers are producing where decreasing returns to scale are exhibited and hence producing economically.

The results also show that female marginal productivity is greater than that of male (0.30) and (0.24) percent respectively.

4.3.7 Off- Farm Activities

Farming activity is only one of the several main activities that demand time and labour of the rural society and which have to be undertaken in order to make rural life complete and comfortable. Thus, apart from collecting data related to agricultural information and resource utilisation, the sampled farmers were requested to provide information on off-farm activities that contribute to their income or labour utilisation. Table 4-16 shows the summary of other activities undertaken by both men and women and table 4-17 shows the sources and amounts of off-farm income. From the table one can observe that there are certain activities in the rural society which are carried or operated by females only. These include house work activities like: child care, (100 percent) housekeeping, (100 percent) collecting fire wood and fetching water for domestic use, (100 percent) cooking and economic activities like beer brewing (80 percent). Males apparently participate in very limited off- farm activities such as business/ trading, (30 percent) paid employment (8 percent) and village leadership(15 percent). These findings add to the fact that indeed women are the main pillars of rural development because their contribution in labour force is significantly greater in both agricultural production as well as off-farm activities.

Table 4-16. Mbozi district: Type of off-farm activities and time spent by sex

activities	M H H s			F H H s		
	M (%)	average time spent per week	F (%)	average time spent per week	F (%)	average time spent per week
government employees	8	42	4	42	-	-
business/ trading	10	18	67	18	100	18
food processing	30	2	100	2	100	2
care of children	-	-	100	14	100	14
house keeping	-	-	100	14	100	14
beer brewing	-	-	80	8	100	8
fetching water	-	-	100	14	100	14
collecting firewood	-	-	100	3	100	3
cooking	-	-	100	14	100	14
village leadership	15	18	-	-	-	-

source: survet data,1990

M = male
F = female
MHHs = male headed households
FHHs= female headed households

Table 4-17. Mbozi district: Sources and amounts of off-farm income

sources	male n =23 (%)	average income generated annually by males	female n = 27 (%)	average income generated annually by females
petty trade	30	12 000	67	9 000
employees	8	14 400	4	24 000
gifts	10	3 000	8	3 000
beer brewing	-	-	80	28 000
total		29 000		64 000

source: survey data, 1990.

4.3.8 Place of Women in Deciding What to Produce, How to sell and How to distribute the revenue.

4.3.8.1 Making a Decision on What to Produce

The Mbozi society seems to give more respect to their wives than is normally the case for many African societies. For example with respect to making a decision on which crop the family should undertake, 50 percent of the sampled farmers said that the decision is made jointly while 32 percent said the husband only and 18 percent the wife only. From these results one can comfortably say that women in Mbozi have an equal say with their husbands on what is to be produced for their respective families. Implicitly this could indicate their importance in overall performance in the production process. Table 4-18 summarises the data.

Table 4-18. Mbozi district : Decisions on what to produce and what to sell

Decision	husband only (%)	wife only (%)	husband and wife (%)
what to produce	32	18	50
what to sell	40	13	47

source: survey data, 1990

4.3.8.2. Making Decision on what to Sell

When asked who makes the decision on what to sell, 47 percent of the sampled household indicated that it is made jointly by the husbands and wives,while 40 percent said the husband only and 13 percent wife only

table 4-18.

Results again suggest that Mbozi women have an equal say with their husbands on what to sell than the average African family, and since the quantity stored for family use throughout the year is important, it implies that these women apart from farming also play a great role in household undertakings and insuring food security for their families as mothers.

4.3.8.3 Control of Income

Farmers were asked to provide information on who controls the income. Table 4-19 shows how the income is controlled. Results from the table are very discouraging. Contrary to a fair sharing of powers in decision making with regard to what to produce and to sell, the income control results show that the husbands in Mbozi district have the greater control over the income than their respective wives. According to the survey 56 percent of the sampled households stated that husbands control three quarters of the income while 28 percent said family income is controlled equally while 14 percent said wives have full control , these were mostly FHHs. Apparently only two percent of the sampled families said that husbands control the whole income. The results also revealed that FHHs male dominance is totally out. Despite the fact that women contribute more than men to both agricultural and off-farm income generating activities, the income control system favours males more than females. This naturally has a very demoralising effect on the part of females in the MHHs.

Given this situation it is advisable to educate the male farmers on the importance of fair control of income among family members so as to have a cordial work - relationship among family members in order to utilise efficiently the family resources for the benefit of all.

Table 4-19. Mbozi district: Income control between the family

proportion	husband (%)	wife (%)	total (%)
whole income	2	14	16
three- quarters of the income b>	56	0	56
half of the income	14	14	28
total	72	28	100

source: survey data, 1990

b> if the husband controls three-quarters of the income then automatically the wife controls a quarter of the income.

4.4 Effect of mechanisation on women

In order to evaluate the effect of mechanisation on women, farmers were asked to provide information on who benefit from tractor and ox- plough use. Table 4-20 shows the responses by the respondents on the effect of mechanisation i.e. tractor and ox- plough use in terms of labour utilisation. About 40 percent of the respondents stated that tractor and ox-plough use increased the work for women while 30 percent stated tractor and 0x- plough use increased the work for both men and women and five percent said that tractor use had no effect. Ten percent didn't know exactly how these farm implements affected farmers and 15 percent said that the use of these farm implements benefited women. It was observed from the survey data that although use of these farm implements releases both female and male labour from cultivation, females are more disadvantaged because tractor and ox-plough use, increase hactarege of cultivation area and automatically increasing weeding and harvesting which are predominantly women's activities (see table 4-13). Thus one would conclude that in a traditional farming system tractor use has a negative effect on women and positive effect on men. Thus there is a need for excercizing labour saving technologies to operations which are mainly perfomed by females e.g weeding and harvesting.

Table 4-20. Mbozi district: Household responses on the effect of mechanisation on farmers labour force

response	yes (%)	no (%)	total (%)
tractor and ox- plough use benefit women:	15	85	100
tractor and ox-plough use benefit men:	40	60	100
tractor and ox-plough use benefit both men and women:	30	70	100
tractor and ox-plough use do not benefit either side:	5	95	100
no idea:	10	90	100

source:survey data, 1990

4.5 Constraints Facing Women

What appears from the study of women's roles in Mbozi farming system is that women are involved in agriculture to a much greater extent than is usually acknowledged. This is demonstrated through their contribution and role in critical and labour demanding tasks of planting, weeding, harvesting and processing. The nature and extent of their agricultural productivity is affected, mostly in a negative manner, by the economic and social constraints. Economic constraints in this study refer to constraints related to resources of production i.e. land, labour, agricultural information and capital (income control). Social constraints refer to culture and traditional norms.

4.5.1 Land Tenure

Different problems associated with access to land were given by female respondents. About 62 percent of women in the sample complained that the existing traditions and norms inhibit their land ownership rights. Women are considered completely ineligible for land ownership. Land ownership in this sense usually refers to lifetime, heritable rights independent of marital status. Land ownership rights are assigned only to married men. Apparently this land ownership pattern limit women's access to sufficient land for farming.

The survey results show that the average size for the FHHs is 0.6ha of maize whereas that of MHHs is 1.07ha table 4-4. The results also show that 57 percent of the FHHs acquired land through purchase. In MHHs, it is only nine percent of females who own land. Limited accessibility to land by women does have a negative impact on food production since land is important factor of production.

4.5.2 Labour Utilisation

The different role expectations made on rural women as agricultural workers, wives and mothers, constitute a serious constraint to women's effective participation. According to survey results, about 70 percent of the married women complained that they were being overworked in both agricultural production and household chores. Analysis of labour force distribution shows that women contribute greatly to both agricultural and off-farm activities (see tables 4-12, 4-14 and 4-15).Women complained that this unfair division of labour leaves them with less spare time to engage effectively in carrying out household activities and very little time for leisure. They also complained that they don't have a control of their own labour because they have to work on their husbands' fields.

An equitable distribution of household duties would be the most effective solution, although that would be

resisted at least initially on cultural grounds.

4.5.3 Income Control

The survey results show that about 58 percent of women in MHHs complained of the unfair income distribution between husbands and wives in favour of husbands. The practice makes women in MHHs have little or no own savings from their production activities. This automatically means that women in MHHs have limited access to agricultural credit because they have little or no capital asset that could be used as security for loan acquisition.

The situation is more serious in families where husbands are extravagant spenders with no interest in investing in production activities. In such families, women are turned into pure suppliers of labour force having very little say on the economic progress of the household. In Mbozi district over 50 percent of the sampled households have such family problems.

4.5.4. Agricultural Information

Generally women in Mbozi district have poor access to agricultural information and extension services. About 65 percent of women in MHHs and 100 of FHHs complained that extension agents do not visit their fields especially fields which are said to be of 'women crops'

such as beans, finger millet, groundnuts etc. Respondents stated that crops which receive the services of extension agents are coffee and maize only. Agricultural extension services are deliberately and primarily aimed at men with notion that men will pass information along to their wives, which is not always the case. Taking into consideration that women do take the responsibility for such tasks as planting, weeding, harvesting and food processing etc, agricultural information should be geared to reach women first.

A comparison made between men and women respondents show that only 30 percent of women in MHHs had extension agents as a source of agricultural information 15 percent mentioned radio as a source of information and 55 percent from family members. In FHHs 35 percent had an extension agents as a source of agricultural information while 65 percent received information through radio and neighbours.

Lack of exposure to agricultural information and services has a negative impact on farmers' knowledge on modern farming techniques. This may lead to farmers practising traditional methods of agriculture which eventually results into lower yields. Table 5-5 shows that beans and fingermillet which are grown purely using traditional methods have relative low yields compared to coffee and maize.

4.5.5 Culture and Traditional Norms

The subordinate status of women arising out of certain customary practices such as types of marriage and role expectations that dictate particular modes of behaviour and tasks, act as constraints to the achievement of equity between men and women and negatively affect women's contribution to growth in agricultural sector. Thus the assignment of weeding and other such tasks to women over burdens them and this is unfair especially where the men are present but choose to spend time relaxing as about 50 percent of women in MHHs complained during interview. This is partly an attitudinal problem requiring a long term solution which probably will have to include some educational component. In this instance, the distribution of "each according to his/her input" might have to be practised. Here input refers to the time and labour an individual spends in the field.

CHAPTER V

CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Intoduction

This chapter summarises the survey results and the model results of the Mbozi district and suggest areas of improvement in the farming system. The chapter illustrates what policy makers can learn from a study of this type and ends by giving some policy recommendations based on the study.

5.2 Study Design and Data Analyses

The objective of this study was to evaluate the role of women in the traditional farming systems in Mbozi district. More specifically this study focused on three objectives. The first objective was to examine the contribution of women in the traditional agriculture production system and asses the distribution of output and income on gender basis. Second was to examine the effect of mechanisation in agriculture on labour utilisation with respect to women and the third, was to identify critical constraints in the production process where women are involved. Based on the above, to suggest ways of improving women's productivity and hence their contribution to rural development.

Data required for the study were obtained by interviewing 50 farm households in ten villages. Five households were randomly selected from each of the ten villages. Data collected included: information on access and control of resources such as land, labour and capital, total labour employed permanent and casual, labour requirements for different farm and non-farm operations by sex and age, power used by each activity and other inputs such as fertiliser, seeds, pesticides, herbicides and extension services. Information on production e.g. output levels and yields and disposal of crops e.g.selling price, nature of work,types of crops grown, distribution of output and activities done by women alone and problems faced by farmers were also collected. Other data included population, soils, topography and agro- climate.

Tools used for data analyses for all ten villages included descriptive statistics such as percentages and proportions. Tabulations was used to calculate equivalencies and contributions by gender and to calculate value of total product (VTP) using goverment prices. Regressions were also used so as to aid in drawing inferences on the target population using sample data. Multiple regression analysis was used because it provides a measure of the relations among a set of variables for the purpose of predicting the independent

variable coefficients. The dependent variable (Y) was the VTP and independent variables (Xis) were those factors that seemed important in affecting the VTP. In this case they included land area, female and male labour, farm operating expenses and size of the household.

5.3 Research Findings

5.3.1 Women Productivity and Control of Income

Multiple regressions analysis and the analysis of labour force distribution indicate that women labour contribution in both agricultural production and off-farm activities in the study area is greater than that of men (tables 4-13,4-15 and 4-10). It has also been observed that the production of food crops is mostly the responsibility of females and that of cash crop is males' - though women also contribute greatly to cash crop production.

It has been further observed that both females and males have major roles in crop production activities and these roles are sharply differentiated by sex. While few farming activities are carried out solely by women or men like weeding beans and spraying, pruning, respectively, there are other tasks which are performed by both men and women. Results show that in coffee men contribute 52 percent of total labour while women contribute 48 percent. In maize men contribute 43 percent whereas women

contribute 57 percent, in beans men contribute 16 percent while men contribute 84 percent and in fingermillet men contribute 4 percent while women contribute 96 percent. Multiple regression analysis show that overall, (agricultural production) marginal female productivity is 123.3 percent of male.

Results indicate that there are certain off -farm activities in Mbozi district which are operated or carried out by females only. These include child care, housekeeping, collecting firewood, fetching water for domestic use, beer brewing and cooking. Males apparently participate in very limited off-farm activities such as business/ trading, getting paid employment and village leadership.

These findings add to the fact that indeed women are the main pillars of rural development because their contribution in labour is significantly greater in both agricultural production as well as off-farm activities.

In spite of greater contribution of labour force in both agricultural and off-farm activities analysis on how income is controlled shows that husbands in Mbozi district have a greater control over income than their wives. According to the survey results 56 percent of the sampled households stated that husbands control three-quarters of the income, while 28 percent said that family income is controlled equally and 14 percent said wives

control the whole income but these were mostly the FHHs.

Given this situation it is advisable to educate the male farmers on the importance of fair control of income among family members so as to have a cordial work-relationship among family members in order to utilise efficiently the family resouces for the benefit of all.

5.3.2 Effect of Mechanisation on Women

The level of mechanisation in Mbozi district is a bit high. Farmers are employing tractors and ox- ploughs for cultivation. However, the use of these farm implements has a negative effect on women and a positive effect on men - these farm implements increase the cultivated land area which means that labour demand for planting, weeding and harvesting areas increase which are predominantly women's activities.

According to the survey results 40 percent of sampled farmers stated that the use of these farm implements inreased work for women while 30 percent said that work was increased for both men and women. About 5 percent said that these farm implements benefited neither side while 15 percent said the implements benefited women and 10 percent did'nt know exactly how these farm implements affected farmers.

From these findings, it can be stated that there is

a need of looking for technologies which will benefit women particularly labour saving technologies in weeding, harvesting given the fact that rural women contribute greatly to agricultural production.

5.3.3 Women's Constraints

The factors which constrain women's productivity and accessibility to resources and services vary from general economic to culture and traditions. Lack of access to land, labour, capital, agricultural information and credit facilities hinder Mbozi women from achieving their productivity levels.

As women remain the largest agricultural producers their needs should be considered and planned for when devising and implementing agricultural production in rural areas where farm and non-farm work is largely in the domain of women. The same holds true for farmer education and extension programming and accessibilty to land and credit facilities.

5.4 Policy Recommendations

5.4.1 Women's Tasks

Technical and financial support should be provided for tasks often assigned to women. The provisions of labour and time saving devices appropriate for women are essential in order to release women's labour from less productive and ardous activities so that they can expend their efforts on vital development projects.

5.4.2 Women's crops

Loan and fertiliser programs currently in place for cereal and cash crop production should be extended to cover women's crops. Extension agents should cocentrate on ensuring wide access to infrormation on cultivation techniques and improved varieties currently available for women's crops pending further research.

In short resources should be used much more efficitiently by increasing the proportion directed to women's crops to reflect more accurately the importance of these crops to the food system.

5.4.3 Other Recommendations

1. Gender related biased should be eradicated

2. Credit facilities should be provided to women farmers.

3. Women should be encouraged to form economic cooperatives and other formal and informal associations so as to raise a strong desire among rural women to increase their productivity awareness and self-confidence.

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Appendix A. Mbozi district: Actual labour required by enterprise by months by type of households

month	mz FHH	bn FHH	fml FHH	total FHH	cof MHH	mz MHH	bn MHH	fml MHH.	total MHH
Jan	11	0	7	18	19	21	0	10	50
Feb	3	7	0	10	15	5	12	0	32
March	11	4	7	22	9	21	6	10	46
April	0	3	0	3	15	0	4	0	19
May	0	0	0	0	11	0	0	0	11
June	12	6	12	30	32	22	10	18	82
July	22	8	18	48	43	37	13	28	121
Aug	0	0	0	0	0	0	0	0	0
Sept	4	3	4	11	0	6	4	6	16
Oct	7	4	2	13	14	11	6	3	37
Nov	7	4	9	20	9	11	6	13	39
Dec	9	0	0	9	15	13	0	0	28

source: survey data, 1990.

mz =maize

bn =beans

fml=fingermillet; cof= coffee.