

TITLE:HOUSEHOLD GENDER ROLES AND  
ADOPTION OF AGROFORESTRY AMONG SM  
SCALE FARMERS IN KWANZA DIVISION, TR  
NZOIA DISTRICT, KENYA.

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REGISTRATION NUMBER: C/50/P/8245/200

A RESEARCH PROJECT SUBMITTED TO THE  
DEPARTMENT OF SOCIOLOGY, UNIVERSITY  
NAIROBI IN PARTIAL FULFILLMENT FOR THE  
CONFERMENT OF THE DEGREE OF MASTER  
ARTS IN SOCIOLOGY (RURAL SOCIOLOGY AND  
COMMUNITY DEVELOPMENT).

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DECLARATION.

This project is my original work and has not been presented to any other University for the conferment of a degree.

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## ACKNOWLEDGEMENT

I hereby extend my appreciation to all those whose efforts made this research project a success. First and foremost to my project supervisors Professor P.O Chitere and Professor E.N. Njeru of the Department of Sociology, University of Nairobi whose constructive criticism and valuable suggestions has made this research project a success. I would also like to extend my gratitude to my classmates and friends for their guidance, encouragement and support throughout the writing of this research project.

Thanks Again.

MUSA KIMOMO OKANGO.

## **ABSTRACT.**

Kenya is faced by the problem of degradation of forests, which in turn negatively affects agricultural productivity. Agroforestry is one of the strategies that the government and other stakeholders have used to try and curb forest destruction in the country.

Agroforestry is encouraged especially among small-scale farmers because they make the greater percentage of farmers and also because they play a leading role in agricultural production in the country. However in small-scale households, roles are organized according to sex, which tends to impede the practice of agroforestry. This study critically analyzes in what ways the organization of roles in the household according to sex affect the practice of agroforestry by focusing on the small scale households of Kwanza Division in Trans-Nzoia District this study also gives some recommendations on how farmers can be motivated to adopt the practice of agroforestry.

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## **1. INTRODUCTION.**

### **1.1 BACKGROUND.**

The agricultural sector plays an important role in Kenya's socio-economic development. Despite its important role the contribution of the agricultural sector to the gross domestic product (GDP) has progressively declined from 37% of the GDP in the early 1970's to about 25% at the end of the year 2000. (Republic of Kenya, 2002).

Kenya has been facing major challenges in sustaining high agricultural productivity as a result of wanton destruction of forests; currently forest cover is less than 2% of the Kenya's total land surface, which is against the recommended 10% of the forest covering the total land mass. (East African Standard, 2002). Deforestation has contributed to the problem of degradation of watersheds, unreliable rainfall, landslides, soil erosion, floods etc, all of which tend to undermine agricultural productivity. For instance soil degradation through deforestation has resulted in declining soil fertility and although soil can be improved through mineral fertilizers most small-scale farmers cannot afford sufficient quantities of fertilizers to replenish soil nutrients. This has negatively affected agricultural productivity in the country. In Kenya there is a high demand of woodfuel, according to the Ministry of Energy approximately 80% of Kenya's population is dependent on woodfuel for its domestic energy needs, it provides for 93% of rural household energy requirements and 80% of the household energy needs in the urban areas mainly in the form of charcoal. (Republic of Kenya, 2002). This high demand for woodfuel threatens the government's efforts in forest conservation.

The government and other stakeholders have responded to these challenges by encouraging agroforestry, agroforestry is the practice of growing trees on the same land

that one grows food and or cash crops. Agroforestry offers a wide range of benefits to farmers: According to Beets (1989) agroforestry helps maintain or improve soil fertility, trees recommended for agroforestry are able to add nutrients to the soil and hold the soil together thus preventing soil erosion. By improving soil fertility agroforestry helps in increasing substantially crop yields thereby helping in solving the problem of food insecurity, also by improving the productivity of land that has already been cleared agroforestry reduces the need to convert additional forestland into farmland thus helping to conserve forests, agroforestry trees produce several valuable commodities e.g green manure, firewood, timber, mulch, fruits, fodder etc. Through the production and the sale of these products, low-income households can meet their subsistence needs. Some of these trees are of medicinal value and some can be used as high quality substitute for commercial livestock feeds, using these feeds according to East African Standard (May, 2002) saves the Kenyan smallholder dairy farmer about 6240 to 9360 shillings per year, in addition these fodder trees have an added benefit because they are able to increase butterfat content of milk thereby increasing its marketability and nutritive value. Agroforestry therefore improves social and economic development, sustains agriculture, improves bio-diversity on farms and enhances the environment.

On the other hand some cultural and social norms exist in many communities in Kenya that have created division of labour along gender lines so that planned objectives to be achieved through agroforestry systems are likely to be thrown into jeopardy if gender issues and concerns are not addressed (Nwonwu, 1996).

## 1.2 PROBLEM STATEMENT.

The benefits of agroforestry are well documented and if widely adopted agroforestry promises a bright future for Kenyan farmers. In order to realize these benefits research in agroforestry should not only focus on the bio-physical aspects of agroforestry but also on the socio-cultural and economic conditions of farmers, because it is the farmers who understand better their situation, priorities and needs who based on their priorities, situation and needs will make a choice of whether to adopt or reject the practice of agroforestry. To realize the benefits of agroforestry there is need to encourage farmers to move away from planting a few trees on the household compound to planting trees on farms alongside crops and livestock, and this cannot be done effectively when agroforestry promoters do not know or understand the farmers' socio-economic conditions. This calls for an examination and deeper understanding of the farmers' social conditions so that obstacles to adoption of agroforestry emanating from the farmers socio-economic conditions can be unearthed and addressed by agroforestry promoters. This study seeks to contribute to deeper understanding of farmers' socio-economic conditions. Specifically this study seeks to understand the social organization of labour in the household in terms of household gender roles and its implication for agroforestry adoption among small-scale farmers in Kwanza Division of Trans-Nzoia District.

This study will attempt to establish:

- i. How does the number of roles performed by each sex affect the household's adoption of agroforestry?
- ii. How does the management of time by sex in the performance of household roles affect the adoption of agroforestry?

- (iii) How does the degree of differentiation of roles between men and women in the household affect the adoption of agroforestry?

### **1.3 OBJECTIVES.**

The broad objective of the study is to investigate the social organization of labour in the household in terms of household gender roles and its implication for agroforestry adoption among small-scale farmers.

The specific aims of the study are.

- i. To investigate how the number of roles performed in the household by sex affect the adoption of agroforestry.
- ii. To examine how the management of time by sex in the performance of household roles affect the adoption of agroforestry.
- iii. To find out how the degree of differentiation of roles between men and women in the household affect the adoption of agroforestry.

### **1.4 JUSTIFICATION**

Among the data to be generated from this study will be the percentage of households studied that have adopted the practice of agroforestry in Kwanza Division. The government or organizations that promote this practice in this region can use this information to evaluate the extent to which they have been successful or not in promoting agroforestry activities in Kwanza Division of Trans-Nzoia District.

Secondly this study will reveal how the organization of roles at the household level affects the adoption of agroforestry. This information will help those involved in agroforestry promotion to design measures to counter the negative influences of the organization of household roles on agroforestry activities and or to promote the positive

influence on agroforestry activities emanating from the organization of roles at the household level, by helping organizations design and take measures to enhance agroforestry adoption. This study will have contributed to the realization of the benefits of agroforestry to farmer's i.e. higher agricultural productivity, food security, and higher incomes to farmers, forest conservation and sustainable development. Findings from this study will help in reducing poverty levels in Trans-Nzoia District and Kenya at large.

Thirdly there are about three million smallholders farmers in Kenya of whom 80% have less than two hectares of land. Despite their small farm size smallholders account for over 75% of the total production and over 50% of the market production (Chemengich, 1996).

In order to improve and sustain the smallholders' vital contribution to agricultural production. There is need to focus on the constraints smallholders face in agricultural production, so that the government and other stakeholders can formulate appropriate and informed policies aimed at improving the smallholder agricultural production, by focusing on the smallholder this study will contribute to a deeper understanding of the challenges faced by small holder farmers' in agricultural production, that emanate from his\her social conditions.

Fourthly, although this study will focus on agroforestry adoption it will also give an insight into the adoption of other farming technologies e.g new varieties of maize, beans, bananas or new types of farm machinery. This will help change agents to anticipate the challenges they might face in introducing new technologies to farmers and prepare themselves appropriately for these challenges.

Finally this study is topical, the issues that this study seeks to address, gender issues and agroforestry are very critical for the success of many development projects and ensuring

sustainable development in Kenya and most developing countries. According to Emerton (1996) many development projects are bound to fail if they fail to recognize and address gender issues and implications. As for agroforestry it is according to Harrison (1988) "arguably the single most important discipline for the future of sustainable development in Africa. It should be given priority and resources that it deserves both nationally and internationally." Agroforestry can convert all of the Africa's smallholders into potential foresters and it is by far the speediest way to reforesting Kenya and Africa at large.

## CHAPTER TWO

### 2. LITERATURE REVIEW.

This section will focus in detail on the adoption process of farm practices before focusing on gender roles, household work burden, gender role differentiation and time management.

#### 2.1 ADOPTION PROCESS OF FARM PRACTICES

Adoption is the process through which individuals arrive at the decision to accept an innovation from the time he or she first became aware of it. For many practices people appear to go through a series of distinguishable stages. Lionberger (1960) and Rogers and Shoemaker (1971) identified five stages, which people follow in the adoption process.

**Awareness:** At this stage a person first learns about a new idea, product or practice, he or she has general information about it. He or she knows little or nothing about its qualities its potential usefulness or how it would likely work.

**Interest:** At this stage the individual develops an interest in the new idea or farm practice that he or she has learned about, he/she wants more detailed information about it and actively seeks the information desired.

**Evaluation:** At the stage of evaluation, a person weighs the information and the evidence accumulated in the previous stages in order to decide if the new practice is basically good. However evaluation is involved at all stages of the adoption process but it is at this stage that it is most evident.

**Trial stage:** At this stage the individual is confronted with the problem of putting the innovation into practice. It is the tentative trying out of the farm practice and acquisition of information of how to do it.

**Adoption stage:** At this stage the person decides that the farm practice is good for full-scale and continued use.

However Lionberger (1960) points out that these do not necessarily represent distinctly separate stages in the individual adoption process nor is it implied that they are universally followed by all people in all decisions they make or that these are the most useful and appropriate stages. These stages do represent a useful way of describing a relatively continuous sequence of actions, events and influences that intervene between knowledge about a farm practice and the actual adoption of it. Furthermore not all decisions involve a clear cut five stage sequences many are simply made on the basis of habit or traditions and even after the final adoption any issue may be re-opened for consideration and not all practices will result into adoption, farmers can reject a farm practice innovation.

Many factors influence the rate of adoption and diffusion of a farm practice including agroforestry. Most of these factors are non-technical and revolve around socio-cultural, economic and personal factors. (Noordin, 1996).

#### **(i) Social Factors**

People do not live apart from others and independent of their influence and we are all members of many social groups or systems. By belonging to various social groups we most of the time strive to conform to the expectations of the group. These social groups tend to establish norms that govern the group. Group pressure or social influence keep people in line with local expectations regarding many aspects of life including the adoption of farm practices. Conformity to the group may hinder initiation of new ideas and farm practices because individuals wait to see whether anybody else in the



community supports the new farm practice, conformity to the group could also facilitate the adoption of a new farm practice in an area where the farm practice is already popular.

### **(ii) Cultural Factors**

Culture is the accumulated experience of generations, expanded, adjusted and transmitted from one generation to the next. (Van Doorne, 2000). Culture is a way of life and people who share culture together form a society. The ideas and beliefs of human beings (non-material culture) and the things that he/she has to work with (material culture) set limits to what he/she can do at a given time and place and very often on how it may be done.

(Lionberger, 1960). Culture provides ready-made answers to many agricultural problems facing farmers. Culture determines which tools to use or what to grow in what season and which technology to be used.

### **(iii) Economic Factors**

Availability of resources is an important factor in the adoption of farm practices. These resources include among others income, the size of the farm and tenure status.

#### **a) Income**

High farm income is nearly always associated with high farm practice adoption levels higher income means that capital is available for the adoption of new farm practices.

#### **b) Size of the farm**

Size of the farm is nearly always positively related to the adoption of new farm practices.

Many technological advances require large-scale operations and substantial economic investment for their use. Also the use of improved farm practices produces economic benefits that permit expansion of farming operations that in turn makes it economically possible to use more and advanced improved farm practices.

### c) Tenure Status

Farm owners have a complete control over farming operations than tenants, owners can make decisions to adopt new farm practices but tenants must obtain permission from landowners before trial or use of a farm practice. Consequently adoption rates are usually higher for owners than for those who rent land. (Lionberger, 1960)

### (iv) Personal factors

The fact that some people adopt new ideas and practices more quickly than others relates in part to the individual. Individual and personal factors include; age, level of education, psychological characteristics such as attitude, rationality, mental flexibility, e.t.c. All these will determine the rate of adoption of farm practices or whether adoption will occur or not.

Finally, some unpredictable\ sudden happenings do occur that can enhance or retard the adoption of farm practices, for instance environmental phenomena such as earthquake floods or drought may provoke out-migration of individuals and thus retard the adoption of a farm practice. Similarly an outbreak of pests may force farmers to adopt measures that will ensure and enhance the control of pests.

Another important ingredient in the adoption process is the nature of the farm practice itself. The characteristics of a farm practice as perceived by individuals in the society affected its rate of adoption. Rogers and Shoemaker (1971) enumerated five attributes of a farm practice that could affect the rate and scale of its adoption.

**Relative advantage:** This is the degree to which a new farm practice is perceived to be better or superior than the old practice it seeks to replace in terms of economic profitability, low initial cost, lower perceived risk, decreasing discomfort or saving time

and effort and immediacy of the reward. Farm practices that are more advantageous than the previous ones will be adopted faster.

**Compatibility:** Compatibility is the degree to which a farm practice is perceived consistent with the existing values, past experiences and needs of the community. A farm practice may be compatible with the socio-cultural values and beliefs, the previously introduced ideas and the clients' needs.

**Complexity:** This is the degree to which a farm practice is perceived to be difficult to understand and use, some farm practices are clear in their meaning and use to potential adopters than others. Complexity of a farm innovation is more highly related in a negative direction to the rate of adoption.

**Triability:** This is the degree to which a farm innovation may be experimented on a limited scale to determine its efficacy before adopting it on a large scale. Innovation that can be tried on a limited scale are more likely to be adopted faster due to their lower risks to adopter.

**Observability:** This is the degree to which the results of a farm innovation is visible to others, for example the killing power of new pesticide can be easily, understandably and convincingly demonstrated and therefore one can easily convince people to adopt it.

Apart from the nature of the farm practice, **the communication process** plays an important role in the diffusion process of farm practices. Communication is the process through which ideas, innovations or messages are transmitted from the source to the ultimate users in order to modify the behaviour of the receivers in a desired direction. The process is continuous and has distinct elements such as communicator (researcher, scientist, extension worker, key communicator e.t.c) message (new discoveries,

innovation, new ideas etc) channel (media, interpersonal) and recipient (farmers, students, members of society) directed towards eliciting a specific intended response from the recipient. (Singh, 1981). Thus any element in the line of communication or diffusion of the farm innovation from the source of origin to the final destination of the message is in a position to exercise some control over what is transmitted how and in what form.

Effective communication is instrumental in determining farmers' needs, constraints and priorities, educating them on the values of agroforestry, recommending suitable trees for different agro-ecological zones, encouraging adoption of appropriate technical packages and evaluating farmers' reaction and attitudes towards the practice and the agroforestry promoter (Roling 1996).

In conclusion many of the factors considered are not independently related to the adoption of farm practices. One factor is interrelated with many others to determine whether an individual will adopt a farm practice or not.

## **2.2 GENDER**

Gender is a socio-cultural construct that refers to roles, responsibility, attitudes and beliefs about and towards men and women. These roles, responsibilities, attitudes and beliefs are defined, supported and reinforced by societal structures and institutions they are learned and change overtime and vary within and between cultures (Joldersma, 1996).

Gender focuses on women, men, girls and the elderly men and women. Gender roles are patterns of attitude and behaviour that a society expects of its members because of their sex. Tasks and roles assigned to men and women in most cultures are assumed to be highly correlated with anatomy and people have long viewed gender roles as natural,

innate, God-given and universal. However, Margaret Mead's (1935) research on gender roles in three societies of New Guinea in comparison with gender roles in USA has disproved this. In the USA she found that males were aggressive and independent, whereas females were gentle and passive. But among the Tchambuli people in New Guinea the females were dominant and aggressive and the girls were encouraged to take interest in economic activities whereas boys were not, males were sentimental, emotional, passive, took care of children, and did housework. Among the Arapesh both men and women behaved in similar ways, both displayed similar attitudes and behaviour, they were found to be cooperative, unaggressive, sensitive to each others' needs, they were gentle and males were as enthusiastic as the females in taking care of the family and bringing up children. Among the Mundugumor male and female alike were selfish, aggressive, insensitive and violent. They continually quarrel and Mundugumor mothers have little to do with their children. Mead's research indicates that gender roles vary from society to society and that culture and socialization are the major influences on gender roles.

### **2.2.1 THE DIVISION OF HOUSEHOLD GENDER ROLES**

Roles and responsibilities are designated according to gender in most of the cultures (Kabutha and Hambly, 1996). Each gender role has its own associated behaviour, expectations and status.

Moser (1993) divides gender roles into three categories. Reproductive roles, productive roles and community managing /community politics roles.

According to Moser (1993), "Reproductive roles comprise the child bearing /rearing responsibilities and domestic tasks undertaken by women required to guarantee the

maintenance and reproduction of labour force. They include not only biological reproduction but also the care and maintenance of the work force (husband and working children and future work force (infants and school going children).” The second category of gender roles is the productive role. “ Productive roles comprise work done by both women and men for payment in cash or in kind.” The third category of the gender roles is the community managing and community politics role. Community managing role comprise of “activities undertaken primarily by women at the community level as an extension of their reproductive role. This will ensure the provision and maintenance of scarce community resources such as water, health care, and education. It is voluntary unpaid work undertaken in free time.” The community politics role comprises “activities undertaken by men at the community level organizing at the formal political level. It is usually paid work, either directly or indirectly through wages or increases in status and power.” For Moser (1993) women have a triple role of productive, reproductive and community-managing role while men are only involved in the productive and community politics roles. And when women’s reproductive roles are many their productive roles are jeopardized.

Although patterns of division of labour run through all societies there is a wide variability in gender roles a cross cultures. The roles associated with being female or male are by no means universal. However a general pattern of gender roles can be observed a cross human cultures.

Generally men undertake work that require a lot of physical energy such land preparation and jobs which are specific to distant locations such as livestock herding and generally jobs that are perceived to be prestigious by members of the society. Women generally

carry out repetitious extremely boring, time consuming tasks like weeding and fetching water and firewood and those tasks that are located close to the home such as care of the kitchen garden, milking, nurturing of children e.t.c, women's work is generally perceived to be less prestigious than men's work. Some activities in the household are shared, for example looking after livestock, men can look after large animals and women look after smaller ones. Children may assist in these activities but in many circumstances male children would assist in tasks that are associated with males while females would assist in tasks that are associated with females, some tasks or roles are gender neutral and some roles may shift to the opposite sex, for example the introduction of new technology may cause a particular job to be reassigned to the opposite sex and men most often tend to assume tasks that become mechanized (Oppong, 1997).

### **2.3 HOUSEHOLD WORK BURDEN**

Women especially in rural areas in Kenya have a long and arduous working day. For instance the source of most of the domestic energy used in Kenya is wood fuel and it is the women who use woodfuel most of the time at home, e.g in cooking the responsibility of collecting or gathering fuelwood is placed on women .To collect fuelwood, women usually walk long distances looking for fire wood and carry heavy loads of it to home, where there is scarcity of woodfuel every dawn brings with it a long march in search of fuelwood. In addition women are involved in the cutting and drying of fuelwood sometimes illegally from protected forests. Men can assist in the cutting of fire wood and carrying of it using carts or bicycles. But most often men are involved in charcoal making which is in most for commercial purposes rather than for home use. Men also assist in the

collection of firewood in situations where there is extreme shortage of firewood that could threaten the survival of the family. Women are also involved in the collection of animal fodder especially among the sedentary communities in Kenya, in nomadic communities it is usually men who move out with animals to look for greener pastures and water. Women also assist to gather grass, branches, leaves and fruit to feed small domestic animals such as goats, rabbits, pigs and poultry.

The task of supplying and managing water falls squarely on women. It is the women who in most instances have the knowledge of the location reliability and the quality of the local water sources.

Collecting water is usually a tiring and arduous task that usually needs to be undertaken several times each day the nearest source of water may entail walking several kilometers and this walk usually become longer in the dry season (Rodda 1993). In addition to walking long distances the women have to carry this water to their homes and sometimes the paths to and or from the water sources may be steep thus increasing the burden of carrying the water. Men assist in ferrying water but usually men use bicycles, carts or donkeys to carry the water thus lessening the burden of carrying water for men. (Ibid)

In the agricultural sector women have made and continue to make a considerable contribution to agricultural production. In Africa rural women account for 60% of the agricultural labour force and up to 80% of the total food production (Jazairy et.al).

Men are increasingly relinquishing their managerial roles in farms to women either inadvertently through death or deliberately due to rural to urban migration in search of non-farm jobs or through nomadic livestock herding that calls for the occasional moving of bigger livestock away from homesteads in search of greener pastures in distant



locations, (Nwonwu, 1996). Women are increasingly assuming leadership roles and decision making status in the management of agricultural production. (Fortmann and Rocheleau, 1985). One study revealed that 27% of smallholdings are solely headed by women who are also the legal heads of the households and another 47% of the smallholdings are managed by women whose husbands are away from home (Thomas et.al, 1995). Housekeeping is essentially a woman's role. Women are responsible for the domestic chores, childcare, providing homecare for the sick and the elderly. Women in rural areas in Africa do up to 95% of housework (Rodda, 1993). The house is viewed as a woman's place even when women have a waged job outside the home, the women's allocation of domestic work particularly childcare remains extraordinarily rigid and persistent and at the global level (Moser, 1993). Men do not have clearly defined housekeeping roles but this does not mean that they cannot or do not assist in housekeeping. Men can be widowed or can be separated from their lives and thus assume the females roles and responsibilities in the house. Women have a heavier work and physical burden in the households than men, while men in most instances use bicycles, carts, donkeys, oxen or camels or other machines to make their work easier. Women generally use their heads, backs to carry fuel wood forage water or children. This has serious health implications on the women as frequent carrying of heavy loads on their heads and backs produces frequent headaches, fractures, bruises, chest pains, backaches or miscarriages in cases where the woman is pregnant. Poor health in turn affects the energy available for agricultural activities (Rodda, 1993).

Agroforestry is a labour intensive technology, which requires a lot of attention and management for it to yield the intended benefits (Nwonwu, 1996). As a labour intensive

technology, with its adoption agroforestry brings with it a heavier workload to farmers especially women farmers.

#### **2.4 HOUSEHOLD GENDER ROLE DIFFERENTIATION**

The extent of gender division of work in the household can vary from almost nil to very strictly defined separation of men and women's domains. The degree type and terms of division vary substantially between regions, ethnic groups, religions and classes. People hold different attitudes; negative or positive, strong or weak towards what society expects them to be or to do as a result of their anatomy. Male members of the family are generally less devoted to household chores than the female members of the family. The men and male children perceive certain farm and household chores such as firewood collection, planting vegetables, cooking, childcare as degrading and should be left to the females. Some men are afraid of ridicule from other men if they were seen assisting or doing what is perceived to be feminine. Men who assist with housekeeping duties are perceived to be dominated by the wife and many men are afraid to be labeled as such. Women may also perceive house chores to be the domain for women and may resist letting men perform these chores.

Men would rather cut and saw timber, burn charcoal, fetch poles or tend livestock. Most men do favour or involve themselves in activities or tasks that involve capital expenditure and in tasks that will bring to them high monetary gains or where they are able to control important resources.

Beliefs and social taboos exist in some communities that tend to enhance peoples perceptions and attitudes (positively and negatively) towards certain roles and activities.

Chavangi, Engelhard and Jones (1988) noted that several taboos and beliefs exist among the Maragoli of Western Kenya that restrains women's active participation in tree planting activities.

- . If a woman plants a tree she will become barren.
- . If a woman plants a tree her husband will die.
- . If a woman plants a tree it is viewed as a direct challenge to her husband and hence viewed as grounds for divorce.
- . Certain tree species are believed to be sensitive to women and if women were to carry the seedlings from the nursery to the planting site it is said that the seedlings will wither and die.

These strongly held beliefs affect people's effective participation in agroforestry activities. In situations where there is male out-migration agro forestry activities are bound to suffer.

Negative attitudes towards performance of household chores by men held by both men and women means that women cannot be assisted in the housework unless they hire somebody to assist them where they cannot or are unable to hire labor this leaves many women with a lot of time and physical burden and this effectively limits women participation in agroforestry projects. Generally farming activities especially agro forestry practices will suffer if gender related inhibiting rules and regulations are strictly observed and adhered to.

## **2.5 HOUSEHOLD TIME MANAGEMENT**

Among the key issues that need to be considered in any assessment of women's and men's access to resources is that of time (Greco, 1996). Time budget studies show that

women have a far longer hours of labor and therefore less leisure than men do in their households (Oppong, 1996).

According to rural labour survey in Kenya (1995) girls and women aged 8-85 perform economic activities to an average level of 26.5 hours a week compared to 24.5 hours for men per week. In addition women spend 6-7 hours daily on housework (Kabutha and Hambly 1996).

This pattern is not unique to Kenya as shown in Table1 below.

**Table1: Average Daily Working Hours in Economic Activities by Sex.**

		Agricultural	Non-Agricultural	Total
Burkina Faso	Men	7.0	1.7	8.7
	Women	8.3	6.0	14.3
Kenya	Men	4.3	3.8	8.1
	Women	6.2	6.1	12.3
Nigeria	Men	7.0	1.5	8.5
	Women	9.0	5.0	14.0
Zambia	Men	6.4	0.8	7.2
	Women	7.6	4.6	12.2

**Source: Saito et al:In Kabutha and Hambly: 1996.**

On average in African societies women put in 70% of all the time expended on food production, 100% of the time spent on food processing, 50% of that spend on food storage and animal husbandry, 60% of all marketing, 90% of time spent obtaining water and 80% of the time spent to obtain the fuel supply. (Sunday Nation, April 13, 2003).

It can be concluded that despite women's longer hours of work they receive much smaller incomes than do their husbands.

Women also use their time working on the men's fields without appropriate remuneration and this restricts the availability of women's labour on their own fields (Ardayfio-Schardorf: 1996). Such time burdens reduce both the time availability to women in their own fields on agroforestry activities as well as their ability to search for information necessary to improve agroforestry activities or to look for better markets for their produce.

## **2.6 THEORETICAL FRAME WORK:**

A theory is an explanation of the relationship between two or more facts.

In this study the following theories will be applied.

Social Behavioral Theory, Marxian Feminism and Adoption and Diffusion Theory.

### **2.6.1 Social Behavioral Theory.**

According to the social behaviour theory, people learn gender role behaviour, just as they learn other forms of behaviour. This theory suggests that observation learning and reinforcement histories are sufficient to explain the acquisition of gender roles. (Baron and Graziano 1991).

#### **(a) Reinforcement**

According Baron and Graziano 1991, reinforcement is the pattern of rewards and punishments one has encountered in the past in response to ones behaviour. Children are rewarded more by their parents and society for exhibiting behaviours appropriate to their

sex than exhibiting behaviours appropriate to the opposite sex. Children are also punished for engaging in behaviours stereotyped as more appropriate for members of the opposite sex, conformity to same sex roles is more insisted for male children than for female. Reinforcement provides children with information about which gender role behaviours will yield rewards and which will yield disapproval and rejection in the future, anticipated rewards and punishments in turn influences whether or not people engage in particular behaviours people are drawn towards behaviours and activities that will elicit positive consequences and are reluctant to engage in behaviours and activities that they believe will yield negative consequences.

#### **(b) Observational Learning**

Observational learning refers to the process of acquiring new patterns of behaviour by watching others perform them (also referred to as **modeling**). Observational learning occurs when children model the behaviours they observe. Children pay attention to the same-sex models and imitate the behaviours of same sex models especially if the child thinks that imitating this behaviour will have positive consequences (ibid).

Social behaviour theory views gender role acquisition as a social process. The process of socialization of individuals by significant institutions encountered in daily life. The most important of these institutions being the family, peer groups, schools, religion or mass media. Social behaviour theory also explains why gender roles differ from one society to another, because societies differ in the way they socialize its members this difference in the socialization process between societies also tend to produce differing gender roles

One criticism against behaviour theory is that it doesn't explain the origin of gender roles.

### **2.6.2 Marxian Feminism**

This theory was propounded by Friedrich Engels in 1884; Marxian Feminism laid the basis of a materialist analysis of gender inequality by locating it in the family and within the economic structure of society. According to this theory, the changes in the mode of production, i.e the way society organizes to produce the things needed for life affected the whole mode of human existence including the relationship between men and women. Engels (1884) wrote: "The determining factor in history is in the last resort, the production and reproduction of immediate life. But this itself is of a two-fold character. On the one hand, the production of means of subsistence of food clothing and shelter and tools requisite thereof, on the other the propagation of species."

Production and reproduction are therefore not independent of one another, the first, production, is decisive in shaping the second, reproduction, and the more society develops the more is this the case. According to Marxian Feminism women enjoyed a status equal to that of men in the primitive communist societies which preceded the emergency of classes. Under the mother right descent was traced through the mother and not the father. This was because in the group marriage that existed then ones link to the mother was far more easily demonstrated than ones ties to the father. Primitive communist societies were also matriarchal, with significant power resting in the hands of women who had great decision-making power and access to resources. As society advanced the primitive communism was replaced by slave-owning, feudal and capitalistic societies, with these changes there was an increase in productivity and accumulation of

private property, with these changes the social relations between men and women also changed. Gradually women who had been previously supreme within the home found their position eroded. As property accumulation increased men wanted to be able to pass it on to their own male children, children whom they had undisputed paternity and also to have a compliant labor force slaves captives women or children. Mother right stood on their way and so it was overthrown in its place was set the monogamous family which became the first form of family not founded on the natural but on the economic condition of society that is the victory of private property over primitive and natural collectivism, with monogamy one woman is bound to one man for life and subject to his will. The "overthrow of the mother right was the world historic defeat of the female sex." Since then there has been the exploitation of labour of women as housewives or mothers they are exploited through domestic labour to support the men. Domestic labour is unpaid for and its real cost cannot be quantified. There is need to destroy the class structure, property rights and exploitation of labour in order for women to attain social political economic and personal freedom to choose which roles to play or not to play.

In conclusion, although this theory has been challenged on the question of lack of evidence,

it, however, provides a very important analysis of gender roles and inequalities. The theory traces the origin of gender roles and inequalities to the changes that occur as societies advance from a primitive communist society to a capitalistic society, from a simple to a complex society; particularly the emergence of the monogamous marriage and the accumulation of private property.



### 2.6.3 Adoption and Diffusion Theory.

Diffusion is the process by which innovations spread to members of a social system (Rogers 1971). According to this theory ideas or technology is spread from the source of origin to the receiver via a medium. Diffusion of innovations has stimulated the growth of human culture as a whole and also has enriched the content of individual cultures (both material and non material culture) by allowing members of one society to come into contact and borrow or adopt ideas and technologies that are superior than the ones that already exist in the society. Rogers (1971) points out some principles of diffusion of innovations these include: An innovation will be taken up first by those societies that are closer to the point of origin than those at far of places. Secondly, an innovation may be diffused alone or with other elements that are functionally related. Thirdly, the presentation of a new innovation to the people does not necessarily mean acceptance of those innovations. Fourthly, material culture elements (artifacts, tools, technologies e.t.c) are more easily accepted than non-material culture elements (language, beliefs e.t.c). Finally, innovations are accepted on the basis of perceived utility and compatibility to the existing culture.

Adoption is the decision to make full use of a new idea as the best course of action available. Adoption of an innovation by farmers is a process rather than a single unit. According to Rogers (1971), farmers can be categorized according to the period they had taken to adopt a given farm practice these categories include: Innovators; these are the first people to adopt a new farm practice. They constitute 3% of all the potential adopters; Early adopters, are the second group to adopt a farm practice and constitute 13% of all the potential adopters; Early majority, follow the early adopters in the adoption of a farm

practice and they constitute 34% of all the potential adopters; Late majority, adopt a new farm practice after the early majority and constitute 34% of all the potential adopters; Laggards are the last group to adopt a farm practice they constitute 16% of all the potential adopters. The difference in the period of adoption can be attributed to the difference in the personal characteristics of the adopters. Many factors affect the rate of adoption of a farm practice after it has been introduced to the farmers. These factors include the nature of the farm practice the type of the innovation decision, the communication process, the nature of the social system, the extent of change agents promotion efforts; and the personal characteristics of the farmers (Rogers, 1971). The adoption and diffusion theory in this study will help to explain the diffusion or the spread and adoption of agroforestry technology by farmers.

In summary in this study the Marxian Feminism theory will help to explain the origin of gender roles, social behaviour theory explains how these roles are sustained from one generation to the next while the adoption and diffusion theory will help to explain both the adoption of agroforestry and new gender roles.

## **2.7 RESEARCH HYPOTHESES**

A hypothesis is a tentative answer to a research problem expressed in the form of a clearly stated relation between the independent and the dependent variable. (Singleton et.al 1988). In this study the following hypotheses will be put to test:

1.  $H_a$ , -- The more the household roles performed by women when compared to those performed by men in the household the less is the adoption of agroforestry.
2.  $H_a$ , -- The more the time utilized by women performing household roles when compared to that utilized by men the less is the adoption of agroforestry.

3. Ha, -- Rigid differentiation of household roles between men and women negatively affects agroforestry adoption.

### 2.8 OPERATIONALIZATION OF VARIABLES.

The aim of operationalizing variables in the hypothesis is to transform the variables from what cannot be observed and measured into what can be observed and measured. The researcher comes up with an observable and measurable concept that represents a basically unobservable phenomenon.

For the purpose of this study:

**Household.** This refers to a person or a group of people who are related in some way through blood marriage or adoption and who stay in the same homestead under one or several roofs in the compound and share food and other resources.

In the first hypothesis the independent variable is the **number of household roles.**

In this study it is defined as the number of roles performed by women when compared to the number performed by men in the household.

This will be indicated by:

The number of tasks allocated and performed by each sex in the household. :

Categories to respond to include.

More household roles, about the same number of household roles ,and less number of household roles

In the second hypothesis the independent variable is **time utilized performing**

**household roles:** It is defined as the number of hours spent by women performing household roles when compared to that spent by men. .

This will be indicated by the number of hours spent on each activity performed by each sex each day.

Categories to respond to are:

More time, about the same amount of time, and less amount of time

In the third hypothesis the independent variable is, **rigid differentiation of household roles** it is defined as the degree to which the household members are resistant towards change of traditional household sex roles.

The variable will be indicated by.

Resistance towards change of traditional household sex roles.

Categories to respond to include.

Rigid, somewhat rigid and not rigid.

In all these three hypotheses the dependent variable will be; **adoption of agroforestry:**

Is defined the number of trees on the land that one grows food and or cash crops or rear livestock as a percentage of the recommended tree carrying capacity of that land.

Tree carrying of land is given by dividing the recommended spacing area of a tree over the total area of land.

Indicated by.

(a) The number of trees in rows or column planted on the land that one grows food, cash crops and or rear

livestock. Categories to respond to are:

(i) High adoption (where the farmer has planted above 60% of the recommended number of trees on a specified acreage of land)

(ii) Average adoption (where the farmer has planted between 31% to 59 % of the recommended number of trees on a specified acreage of land).

(iii) Low adoption (where the farmer has planted between 5% to 30% of the recommended number of trees on a specified acreage of land).

(iv) None adoption (where the farmer has planted below 5% of the recommended number of trees on a specified acreage of land).

## **CHAPTER THREE**

### **3. METHODOLOGY**

This study took place between 12th July 2004 and 27th August 2004 in Kwanza Division of Trans-Nzoia District. The main objective of the study was to find out how the social organization of work in the household in terms of gender roles affects the adoption of agroforestry. A total of one hundred (100) small-scale farm households were surveyed.

#### **3.1 STUDY SITE.**

Kwanza Division in Trans-Nzoia District shares borders with West Pokot District to the North, Cherangani Division to the North East, Saboti Division to the East and to the West it borders the Republic of Uganda. Inhabitants of Kwanza Division engage in agriculture as the main economic activity.

#### **3.2 UNITS OF ANALYSIS**

In this study the units of analysis were:

- Households Roles.
- Adoption of Agroforestry

#### **3.3 UNITS OF OBSERVATION**

The units of observation were:

1. Household Heads
2. Agroforestry Extension Staff
3. Household Farms

#### **3.4 SAMPLING**

##### **3.4.1 Area Sampling**

The sub-location in Kwanza Division where the study was conducted was selected using purposive sampling.

The reasons for using purposive sampling to select the sub-location were:

Frequent cattle rustling and general insecurity in some parts of the division especially those parts that share border with the neighboring West Pokot District. People who live in this area have refused to initiate meaningful development projects on their land for fear of frequent attacks by cattle rustlers from the neighbouring district. If the researcher was to use random selection chances are that these uninhabited areas would be selected as the area where the study will be conducted. Data relating to this study cannot be easily obtained because farmers have abandoned agricultural activities in this area.

Secondly there was need to select areas where the idea and practice of agroforestry has already been introduced and people are aware of the practice of agroforestry the researcher can easily obtain data and rate the peoples' response towards agroforestry i.e. whether farmers have rejected or adopted the practice of agroforestry.

Finally due to lack of access to necessary records, information and an effective sampling list which necessitated the need to develop a sampling frame and due to limited availability of resources in terms of time, money and manpower. The researcher will select the sub-location in the Division for study where he can easily access and where the available resources can easily cater for.

The researcher with the help of key informants from VI Agroforestry Project, a local NGO that promotes the practice of agroforestry identified one sub-location, Bidii, which meets the above-mentioned criteria. Within Bidii sub-location five villages; Bidii Juu, Bidii Chini, Misemwa, Kewaa and N'gambo were identified as appropriate for the study. One village, Misemwa, within Bidii sub-location was selected using simple random sampling technique.

### **3.4.2 Sampling of Respondent Households.**

A list of households in the village was provided by the village head and from the assistant chief's office. The village had about three hundred and twenty households. In order to identify those households that were eligible for the study and to develop an effective sampling list, with the aid of the village head and a few knowledgeable people a sketch map of the village was drawn with approximate positions of some key features like main road, village paths, streams, shops and the village boundary that would be used as a guide around the village. With this sketch map together with the list of households residing in Misemwa village. Nearly every household in the village was visited in order to identify those households that were eligible for the study. In this preliminary study all those households with less than 5 acres of land, those whose main economic activity is subsistence agriculture, and those households who were familiar with the practice of agroforestry were identified and listed down on the sampling list. Households were also asked whether they were male or female headed. In total two hundred and ten (210) households were found to be eligible for the study. One hundred and seventy eight (178) households were found to be male headed while thirty two (32) were female headed. From the list of male-headed households 68 households were selected using simple random sampling technique. While all the 32 female headed households were all included for the study. A total of 100 households were sampled for the study.

### **3.5 METHODS OF DATA COLLECTION**

The researcher using scheduled questionnaires that contained both open and closed ended questions personally interviewed a total of one hundred (100) households. The farms of those households interviewed were also observed and with the permission of the



household head, trees on the farms were physically counted and recorded. Records and documents from a local NGO and from the village head and assistant chief office provided information that enabled the preliminary study to identify eligible households for the study possible.

## **CHAPTER FOUR**

### **4. DATA ANALYSIS AND INTERPRETATION**

#### **4.1 RESPONDENTS BACKGROUND**

A total of one hundred (100) households were surveyed, 68% of those interviewed were men, while 32% of those interviewed were women, those who were interviewed were also the household heads. Of those interviewed 5% were between the ages of 18 to 30 years and the rest 95% were over the age of 30 years. In the survey 41% of those interviewed had primary level education 52% had secondary level education while 7% of those interviewed had attained middle level college education. Among the households studied the average number of household members is seven (7). In all households family members assist in the performance of household duties although in 12% of the households they sometimes hire labour to assist with household duties. All the households studied engage in agriculture as the main economic activity, although they also engage in other income generating activities and own less than five acres of land,

#### **4.2 ROLE ALLOCATION**

Households were also asked to list roles performed by men and women in the household. Household roles were divided into three main sectors; farm sector, livestock sector and housework. Since the number and type of work varies from household to household a fourth section named 'other' was provided to cater for those household roles that had not been mentioned under the three main sectors. Households then listed roles according to who performed them i.e. whether the roles were performed by men, women or by both men and women. Household roles listed under the farm sector were listed as equally

shared between men and women except ploughing using oxen, which was consistently listed on the side of men. Cultivation of trees was listed as both men and women affair. In the Livestock sector most tasks like herding, dipping, milking and selling of milk were listed on the side of men. While poultry keeping was listed on the side of women. In the house all work was listed on the side of women except house repair and gardening, which was consistently listed on the side of men. Most of the 'other' activities were listed as equally shared between men and women of the household. Based on the list of roles performed by men and women provided by the respondents 58% of the respondents confirmed that women perform more roles than men in their household, 27% of those interviewed indicated that the number of roles allocated and performed by men and women are about the same while 15% indicated that men performed more roles than women in their household. Table 2 below summarizes these responses.

**TABLE 2.**  
**DISTRIBUTION OF THE NUMBER OF HOUSEHOLD ROLES PERFORMED BY WOMEN WHEN COMPARED TO THE NUMBER OF ROLES PERFORMED BY MEN.**

COMPARISON OF THE NUMBER OF ROLES	NUMBER OF HOUSEHOLDS	PERCENT
MORE ROLES	58	58
SAME AMOUNT OF ROLES	27	27
LESS NUMBER OF ROLES	15	15
<b>TOTAL</b>	100	100

The households studied were 68% male-headed and 32% female-headed.

In male headed households, in 44% of the households it was found that women perform more tasks than men, in 37% the number of roles performed by men and women were

about the same while in 19% of male-headed households, women were found to perform less number of household roles than men.

In female-headed households that were studied, in 88% of the households women perform more tasks than men, in 6% of the households the number of roles performed by men and women were about the same, while in the remaining 6% respondents indicated that women perform less number of roles than men in their households.

Table 3 below summarizes the above information.

**TABLE 3**  
**THE DISTRIBUTION OF THE NUMBER OF ROLES PERFORMED BY WOMEN WHEN COMPARED TO THE NUMBER OF ROLES PERFORMED BY MEN IN THE HOUSEHOLD.( according to the type of household)**

COMPARISON OF THE NUMBER OF ROLES	TYPE OF HOUSEHOLD			
	MALE HEADED		FEMALE HOUSEHOLD	
	NUMBER OF MALE HEADED HOUSEHOLD	PERCENT	NUMBER OF FEMALE HEADED HOUSEHOLD	PERCENT
MORE	30	44.1	28	87.4
SAME	25	36.8	2	6.3
LESS	13	19.1	2	6.3
	68	100	32	100

#### **4.3 TIME:**

The respondent households were asked to develop a schedule of how men and women spent their time on a typical day and based on what they had developed, the time spent by men performing household duties was compared to the time spent by women performing household duties in each household. 55% of the household studied indicated that women spent more time than men in performing household duties, 28% indicated that the amount of time spent by men and women performing household duties were basically the same

while 15% indicated that men spent more time than women performing household duties.

Table 4 below summarizes this information.

**TABLE 4:**  
THE DISTRIBUTION OF THE AMOUNT OF TIME WOMEN SPENT PERFORMING HOUSEHOLD DUTIES WHEN COMPARED TO THE AMOUNT OF TIME MEN SPENT ON HOUSEHOLD DUTIES

AMOUNT OF TIME	NUMBER OF HOUSEHOLDS	PERCENT
MORE TIME	55	55
SAME AMOUNT OF TIME	28	28
LESS AMOUNT OF TIME	17	17
<b>TOTAL</b>	100	100

It was found that in male-headed households 41% of the women in those households spent more time than men performing household duties, 37% of the male-headed households studied indicated that women spent about the same amount of time as men performing household duties, while in 22% of the male-headed households women spent less amount of time than men performing household duties.

Among the female-headed households studied, women spent more time than men performing household duties in 84% of the households, in 10% of the households the amount of time spent by men and women are about the same, while in 6% of the female headed households men spend more time than women performing household duties.

Table 5 below summarizes the above information.

**TABLE 5**

THE DISTRIBUTION OF THE AMOUNT OF TIME SPENT PERFORMING HOUSEHOLD ROLES BY WOMEN WHEN COMPARED TO THE AMOUNT OF TIME SPENT PERFORMING HOUSEHOLD ROLES BY MEN IN THE HOUSEHOLD (according to the type of household)

COMPARISON OF THE AMOUNT OF TIME	TYPE OF HOUSEHOLD			
	MALE HEADED		FEMALE HOUSEHOLD	
	NUMBER OF MALE HEADED HOUSEHOLD	PERCENT	NUMBER OF FEMALE HEADED HOUSEHOLD	PERCENT
MORE TIME	28	41.2	28	84.4
SAME	25	36.8	2	9.4
LESS TIME	15	22	2	6.2
	68	100	32	100

#### 4.4 DEGREE OF ROLE DIFFERENTIATION

On the issue of the degree of role differentiation, households were asked whether there were certain roles in the household that members cannot perform because of their sex. All 100% confirmed that indeed there were roles that one cannot perform because of their sex. The respondents also provided a list of what roles men and women cannot perform because of their sex. Some of the roles that cannot be performed by men include babysitting, cooking, collecting firewood, and milling. Some of the roles that are not performed by women include herding, milking, house construction etc. Based on this differentiation of roles in the household, respondents were asked to rate the degree or extent to which the distinction of roles between men and women is adhered to in the process of performing household roles. 29% of those interviewed indicated that the distinction of roles between men and women in their households were rigidly adhered to i.e. there was strict separation of men's and women's, roles, 40% confirmed that the degree of differentiation of roles was somewhat rigidly adhered to in the process of

performing household duties, while 31% indicated that the separation of roles between men and women in the household was not rigidly adhered to in the process of performing household duties. Table 6 below summarizes the above information.

**TABLE 6**  
**THE DISTRIBUTION OF THE DEGREE OF DIFFERENTIATION BETWEEN ROLES PERFORMED BY MEN AND THOSE PERFORMED BY WOMEN IN THE HOUSEHOLD.**

DEGREE OF ROLE DIFFERENTIATION	NUMBER OF HOUSEHOLDS	PERCENT
RIGIDLY ADHERED TO	29	29
SOMEWHAT RIGIDLY ADHERED TO	40	40
NOT RIGIDLY ADHERED TO	31	31
<b>TOTAL</b>	100	100

Rigid adherence to role differentiation between men and women is found in 37% and 13% of the male headed and female headed households respectively, in 44% of the male-headed and 31% of the female headed households the differentiation of roles between men and women is somewhat rigidly adhered to in the performance of household duties, while in 19% of male headed and 56% of female headed households when members perform household duties they do not rigidly adhere to the differentiation of roles between men and women.

Table 7 below summarizes the above information.

**Table 7**

THE DISTRIBUTION OF THE DEGREE OF DIFFERENTIATION BETWEEN ROLES PERFORMED BY MEN AND THOSE PERFORMED BY WOMEN IN THE HOUSEHOLD (according to the type of household.)

DEGREE OF ROLE DIFFERENTIATION	TYPE OF HOUSEHOLD			
	MALE HEADED		FEMALE HOUSEHOLD	
	NUMBER OF MALE HEADED HOUSEHOLD	PERCENT	NUMBER OF FEMALE HEADED HOUSEHOLD	PERCENT
RIGIDLY ADHERED TO	25	36.8	4	12.5
SOMEWHAT RIGIDLY ADHERED TO	30	44.1	10	31.3
NOT RIGIDLY ADHERED TO	13	19.1	18	56.2
	68	100	32	100

#### **4.5 ADOPTION OF AGROFORESTRY.**

In all the households studied no household had planted trees that one could characterize as high adoption i.e. no household had planted more than 60% of the recommended number of trees on its land. Only 14% had planted trees one could categorize as average adoption (they have planted between 31% to 59% of the recommended number of trees on its land). 26% of the households could be categorized as low level adopters of agroforestry (i.e. they have planted between 5% to 30% of the recommended number of trees on its land). The majority of households studied (60%) were categorized as having not adopted the practice of agroforestry i.e. they have planted less than 5% of the trees recommended number of trees on their land. Most households had just a few stems of trees on their farms.



In all households studied, duties and tasks relating to trees were performed by both men and women and that there were no restrictions. Table 8 below summarizes the above information.

**TABLE 8**  
**THE DISTRIBUTION OF THE LEVEL OF AGROFORESTRY ADOPTED BY THE HOUSEHOLDS.**

LEVEL OF AGROFORESTRY ADOPTION	NUMBER OF HOUSEHOLDS	PERCENT
HIGH	0	0
AVERAGE	14	14
LOW	26	26
NONE	60	60
	100	100

No male headed household had adopted the practice of agroforestry that one can characterize as high, 30% of male-headed households had adopted agroforestry at an average level, their was low level of adoption of agroforestry in 29%of male headed households while 55 % of male-headed households had not adopted the practice of agroforestry.

Among the female headed households studied their was no high level of adoption of agroforestry, 9% can be characterized as average adopters of agroforestry, 19% are characterized as low adopters and the majority 72 % had not incorporated agroforestry in their farming system.

Table 9 below summarizes the above information.

**TABLE 9**  
**THE DISTRIBUTION OF THE LEVEL OF AGROFORESTRY ADOPTED BY THE**  
**HOUSEHOLDS (according to the type of household).**

LEVEL OF AGROFORESTRY ADOPTION	TYPE OF HOUSEHOLD HEAD			
	MALE HEADED		FEMALE HEADED	
	NUMBER OF HOUSEHOLDS	PERCENT	NUMBER OF HOUSEHOLDS	PERCENT
HIGH	0	0	0	0
AVERAGE	11	16.2	3	9.4
LOW	20	29.4	6	18.7
NONE	37	54.4	23	71.9
	68	100	32	100

## 4.6 HYPOTHESIS TESTING.

In determining whether the relationships between the variables under the study are significant or not chi-square test was performed. The coefficient of correlation was calculated using the gamma method in order to determine the strength and direction of the association.

### **4.6.1 THE RELATIONSHIP BETWEEN THE NUMBER OF HOUSEHOLD ROLES PERFORMED BY WOMEN WHEN COMPARED TO THOSE PERFORMED BY MEN AND THE ADOPTION OF AGROFORESTRY.**

**TABLE:10**

THE DISTRIBUTION OF THE RELATIONSHIP BETWEEN THE NUMBER OF HOUSEHOLD ROLES PERFORMED BY WOMEN WHEN COMPARED TO THOSE PERFORMED BY MEN AND THE ADOPTION OF AGROFORESTRY.

DEGREE OF AGROFORESTRY ADOPTION	MORE	SAME	LESS	TOTAL
HIGH	0	0	0	0
AVERAGE	4	7	3	14
LOW	11	8	7	26
NONE	43	12	5	60
<b>TOTAL</b>	<b>58</b>	<b>27</b>	<b>15</b>	<b>100</b>

degrees of freedom = 6, level of confidence = 95%, chi-square = 13.11

From Table 10, the calculated chi-square is 13.11 and the tabulated chi-square at 6 degrees of freedom and 95% level of confidence is 12.59. Since the calculated chi-square is greater than the tabulated chi-square. The null hypothesis is rejected and the alternative hypothesis is accepted therefore it's concluded that there is a significant relationship between the number of roles performed by women when compared to those performed by men and the adoption of agroforestry.

The strength and direction of the correlation was calculated using gamma because the variables are measured at the ordinal level the coefficient of correlation was found to be 0.503 this means that there is a strong positive association between the amount of time

spent by women performing household duties when compared to that spent by men and the adoption of agroforestry.

#### 4.6.2 THE RELATIONSHIP BETWEEN THE AMOUNT OF TIME SPENT BY WOMEN PERFORMING HOUSEHOLD ROLES WHEN COMPARED TO THAT SPENT BY MEN AND THE ADOPTION OF AGROFORESTRY.

**TABLE:11**

THE DISTRIBUTION OF THE RELATIONSHIP BETWEEN THE AMOUNT OF TIME SPENT BY WOMEN PERFORMING HOUSEHOLD ROLES WHEN COMPARED TO THAT SPENT BY MEN AND THE ADOPTION OF AGROFORESTRY

DEGREE OF AGROFORESTRY ADOPTION	MORE TIME	SAME TIME	LESS TIME	TOTAL
HIGH	0	0	0	0
AVERAGE	4	6	4	14
LOW	17	10	9	26
NONE	44	12	4	60
<b>TOTAL</b>	<b>55</b>	<b>28</b>	<b>17</b>	<b>100</b>

level of confidence= 95%, degrees of freedom= 6, chi-square=22.22

From Table 11 above, the calculated chi-square is 22.22 while the tabulated chi-square at 6 degrees of freedom and 95% level of confidence is 12.92. Since the calculated chi-square is greater than the tabulated chi-square, the null hypothesis is rejected and the alternative hypothesis is accepted. This means that there is a significant relationship between the amount of time women spent performing household duties when compared to the amount of time men spent performing household duties and the adoption of agroforestry.

The strength and direction of the correlation was calculated using gamma because the variables are measured at the ordinal level the coefficient of correlation was found to be 0.6 this means that there is a strong positive association between the amount of time spent by women performing household duties when compared to that spent by men and the adoption of agroforestry.

#### 4.6.3. THE RELATIONSHIP BETWEEN THE DEGREE OF DIFFERENTIATION OF ROLES BETWEEN MEN AND WOMEN IN THE HOUSEHOLD AND THE ADOPTION OF AGROFORESTRY.

**TABLE:12**

THE DISTRIBUTION OF THE RELATIONSHIP BETWEEN THE DEGREE OF DIFFERENTIATION OF ROLES BETWEEN MEN AND WOMEN IN THE HOUSEHOLD AND THE ADOPTION OF AGROFORESTRY.

DEGREE OF AGROFORESTRY ADOPTION	RIGID	SOMEWHAT RIGID	NOT RIGID	TOTAL
HIGH	0	0	0	0
AVERAGE	2	7	5	14
LOW	8	12	6	26
NONE	19	21	20	60
<b>TOTAL</b>	29	40	31	100

degrees of freedom = 6, level of confidence = 95%, chi-square=2.93

From Table 12 above, the calculated chi-square is 2.93 while the tabulated chi-square at 6

degrees of freedom and 95% level of confidence is 12.59 the null hypothesis is accepted

and the alternative hypothesis is rejected. It's therefore concluded that there is no

significant relationship between the degree of differentiation of household gender roles

and the adoption of agroforestry.

The strength and direction of the correlation was calculated using gamma because the

variables are measured at the ordinal level the coefficient of correlation was found to be

0.05 this means that there is a very weak positive association between the degree of

differentiation of household roles between men and women and the adoption of

agroforestry.

## CHAPTER FIVE

### 5. SUMMARY AND CONCLUSION.

The number of roles performed by women and the amount time they spent performing these roles in the household when compared to the number of roles and the amount of time men use to perform these household roles affects the level and extent of agroforestry adoption. The more the number of roles and the amount of time women use to perform household duties the less is the time and energy devoted to agroforestry activities or tree planting activities. This kind of scenario has a negative implication for the environment as this means less and less number of trees will be planted to cater for household fuelwood and other needs. It also means continued degradation of forests because as farmers do not plant more trees they will continue to deplete the already existing trees.

Therefore farmers will continue experiencing the negative effects associated with destruction of forests or lack of tree planting.e.g low agricultural productivity.

Although it has been also shown that the degree of role differentiation has no effect on the level of agroforestry adoption. Strictly separating roles between men and women in the households means that members of the household cannot easily and willingly perform roles associated with the other sex these restrictive and rigid attitudes increases time and physical burden of household roles on one or both sexes as members of the opposite sex cannot assist each other in performing household duties less time and energy will therefore be available for agroforestry activities.

From the findings it can be concluded that the relationship between men and women affect agroforestry activities. Where the relationship between men and women is negative i.e. where one sex is overburdened with household duties, less time and energy will be

available to be spent on other vital productive and reproductive activities that will make the household adapt better to the environment and produce goods and provide services necessary for survival. Generally negative relationships between men and women negatively affect the capacity of households to engage in productive and reproductive activities.

## **5.1 RECOMMENDATIONS**

From the findings it is recommended that:

There is a need to encourage members of a household to negotiate for a more equitable sharing of workload at home so as to enable all the productive and reproductive activities to be performed and also lessen the burden of household duties on women and also relaxing the rules on strict differentiation of roles between men and women in the household this can be encouraged through the media both print and electronic.

Agroforestry programs, if they are to be successful and sustainable should incorporate into them gender issues and concerns and take into gender issues facilitate or impede agroforestry activities and therefore devise measures like agroforestry systems and technologies that are not only less time consuming but also those technologies that would not add extra burden to farmers, especially women farmers there is need for provision of effective advisory services and good agroforestry extension education to farmers that will focus on the importance and short term and long term benefits of agroforestry to farmers and the how to plant and take care of trees and also the types of trees to be planted in which season. Agroforestry promoters should aim at motivating farmers to plant trees and to create a tree planting culture among the small-scale farmers.

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## QUESTIONNAIRE

- 1.Name: \_\_\_\_\_
- 2.Sex: Man [i] Woman [ii]
- 3.Age: Under 18yrs [i] 18-30yrs[ii] Over 30yrs [iii]
- 4.Level of Education. None [i] Primary [ii] Secondary[iii] College [iv] Other Specify \_\_\_\_\_
- 5.Marital Status: Single[i] Married [ii] Divorced [iii] Widowed [iv]
- 6.Occupation \_\_\_\_\_
- 7.What is your relationship to the household head.  
Head[i] Spouse[ii] Child[iii] Relative[iv] Other(specify) \_\_\_\_\_
- 8.How many members are there in this household; by sex.  
Males [i] \_\_\_\_\_ Females[ii] \_\_\_\_\_
- 9.How many acres of land does this household own?  
[i] 0.1-2 [ii] 2.1-4 [iii] 4.1-5
- 10.What kind of economic activity or activities does this household derive there livelihood? \_\_\_\_\_

11.Do the members of this household assist in performing various activities in this household.

Yes [i] No [ii]

12.Are there other sources of labour apart from the family members?

Yes [i] No [ii]

13.Could you please indicate whether males, females or both male and female perform the following roles in this household?

Put a tick where appropriate.

SECTOR	ACTIVITY	MALES	FEMALES	BOTH MEN&WOMEN
FARM	Ploughing Oxen			
	Ploughing Hoe			
	Planting			
	Weeding			
	Chemical application			
	Harvesting			
	Processing/Winnowing			
	Storing			
	Selling Produce			
	Planting Trees			
LIVESTOCK	Herding			
	Fetching fodder			
	Dipping			
	Milking			
	Giving animals water			
	Selling Milk			
	Poultry Keeping			

HOUSEWORK	Cooking			
	Washing Cloths			
	Washing Utensils			
	Washing Children			
	House Cleaning			
	House Repair			
	Caring For the sick			
	Collecting Firewood			
	Splitting Firewood			
	Collecting Water			
	Milling			
	Gardening			
OTHERS				

14. Basing your answer on Question 13 above. Which of the following statements would you agree with?

Women perform more household roles than men in this household.

- The amount of household roles performed by women is the same as those performed by men in this household.
- The amount of household roles performed by women is less than that on men in this household.

15. Can you please indicate the kind of activity men and women in this household engage in at different times of a typical day starting from the time they wake up to the time they go to bed.

TIME OF THE DAY (IN HOURS)	MALES ACTIVITY	FEMALES ACTIVITY

16. Basing your answer on Question 15. Which of the following statement about this household would you agree with.

The amount of time women utilize performing household roles than that utilized by men performing household roles in this household.

The amount of time women utilize performing household roles is about the same amount of time men utilize performing household roles in this household.

The amount of time women utilize performing household roles is less than the amount of time men utilize performing household roles in this household.

17. Are there roles in the household that one cannot perform because of their sex?

Yes [i] No [ii]

18. If Yes in Question 17 above please can you list the roles that men and women cannot perform because of their sex.

MEN	WOMEN

19. In most households you will find that roles are divided between men and women. For instance in some communities women fetch water while men look for pasture for the cattle. When it comes to the performance of these roles in this household to what extent would you say that household members adhere to the differentiation of sex roles.

[i] Rigidly [ii] Somewhat Rigidly [iii] Not Rigidly

20. Would you say that trees are planted on the same land that crops are planted and or livestock reared in this household?

Yes[i] No[ii]

21. If YES above how would you rate the extent of to which this household plants trees on the land that you also grow and or rear of required livestock?

[i] High(Where over 60% of the recommended number of trees are planted on specified acreage of land)

[ii] Average (Where between 31% to 59% of the recommended number of trees are planted on specified acreage of land)

[iii] Low (Where below 30% of the recommended number of trees are planted on specified acreage of land)

22. In your own opinion what do you think should be done in order to increase or sustain the practice of growing trees on the same land that one grows crops and or rear livestock?

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**DIRECT OBSERVATION.**

**What to observe:**

- 1. Count the number of trees on the farm.**
  
- 2. Calculate the adoption level**