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Gender and the Value of Trees in Mutoko Communal Area, Zimbabwe

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Staff Paper 96-19

STAFF PAPER

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Abstract

This study examined the gender based differences in valuation of trees, as indicated by differences between men and women in the planting, care and use of tree resources. An analysis of differences in tree related behaviours between male headed households and female headed households was also undertaken. The study used a combination of quantitative and qualitative methodologies, incluiding an interview schedule and card sort, supplemented by open-ended interviews and observations. The survey data were analysed using SPSS Windows. The study results indicate that trees were being planted and cared for in both male and female headed households and the majority of heads of households preferred multipurpose, fruit bearing tree species. There were differences in the types of tasks undertaken by men and women in both male and female headed households, the locus of decision making authority in the two types of households, and the uses of tree resources by men and women.

Introduction

Tree planting and maintenance are vital to the success of social forestry and agroforestry. The trees planted on homesites comprise an important portion of the tree resources available to local people in Zimbabwe. In the years 1983 to 1988, the World Bank and the Government of Zimbabwe invested US$10.8 million into the Rural Afforestation Project (Kerkhof, 1990). However, in the planning and implementation of such projects, gender is all too often overlooked as a vital element in the forestry process.

Fortmann and Rocheleau (1985) have identified four commonly held myths that have contributed to the inattention paid to women's participation in agriculture, forestry and agroforestry in the past. These myths are: women are not heavily involved in agricultural production because of their responsibilities in the home; women are not major participants in tree production and use; most women have a husband or are part of a male dominated household, and; women are not influential or active in public affairs. There is now a growing awareness of the interdependence between women and forests in the developing world. Women are the primary users of the non-commercial aspects of forests and trees, and are thus in a position to understand the importance of the health of their environment and to implement conservation methods.

What is lacking is detailed information about how male and female values and activities differ in terms of access to and use of trees. The purpose of this research was to determine if there were differences in values and behaviors in female headed households[1] and male headed households in rural Zimbabwe with respect to the planting and maintenence of tree seedlings.

In order to create an appropriate context and rationale for this study, the literature on women, agriculture and forestry practices in Zimbabwe was reviewed and a brief summary is presented below.

Women in Zimbabwe

In pre-colonial times, Shona women were guaranteed their place in society through their roles as wife, mother, and food producer (Schmidt, 1990). Property rights were communal, with each household member having rights to use household property. The administration of most household property was the responsibility of the male head of household. The few items that women had control over were their yields of beans and groundnuts, income from pottery, gifts received for midwife services, and their cows of motherhood[2]. Thus, women were able to become property owners in their own right; however, the payment of bridewealth to the brides family upon marriage secured the husbands family rights over the wife's labour and child producing potential (Weinrich, 1979).

During the colonial era (1890-1980), economic and labour patterns changed, and Western notions of gender roles became enmeshed with local customs. A cash economy evolved and men left the homesites to seek paid employment. This resulted in the broadening of women's roles and responsibilities in the villages, while weakening their power within society (Schmidt, 1990; Weinrich, 1979; Weiss, 1986).

In 1981, the Zimbabwean government established the Ministry of Community Development and Women's Affairs in order to assist rural Zimbabweans in overcoming what were considered to

[1]Female headed household: Households headed by women who have never married, widows, divorcees, separated/abandoned women (*de jure* household heads) and women whose husbands have left the village to find employment in another area (*de facto* household heads).

[2]Upon the marriage of each of their daughters, Shona women would receive a cow of motherhood as a gift from the son-in-law.

be cultural barriers to development (Muchena, 1984). As a result of the reviews conducted by this Ministry, Zimbabwean women were granted legal status as adults in the Legal Age of Majority Act of 1982. Women over the age of 18 were then legally entitled to own land, open bank accounts, and access formal credit. A 1985 extension of this law entitled Zimbabwean women, in the event of a divorce to benefit from a share of the married couples' assets.

Unfortunately, accessing these rights has been problematic for Zimbabwean women. As they usually can not afford to pursue a complaint to the higher court levels, many women seek help only from the primary courts. The primary courts primarily apply customary law rather then general law, and customary law is frequently prejudiced against women (Stewart et al., 1990). In cases of divorce or widowhood, women are vulnerable under customary law to losing access to fields and resources they had been allocated by their husbands' (Jacobs, 1984). In such cases, the inability to access rights is tantamount to not having those rights at all. In respect to the planting of trees, womens' rights over land and resources are influential forces on behaviour.

Agriculture and Forestry in Zimbabwe

Since the independence of Zimbabwe from the British colonial government of Rhodesia in 1980, the Zimbabwean government has attempted to redress the inequalities of land and resource distribution characteristic of colonial policies. Included in these attempts are programs aimed at providing extension services to Zimbabwean farmers (Mtetwa, 1992). Such programs are claimed to not discriminate between male and female farmers, and are designed to work with women's groups to provide female farmers with the information they need for their farming activities (FAO, 1988).

According to traditional Shona culture, women worked in the fields and men were responsible for other aspects of production such as hunting and herding livestock (Beach, 1980). In contemporary times, the migration of men out of the communal areas to find paid employment has lead to an increase in responsibilities and work load of women.

Women are also the collectors of firewood in Shona society. Most women are acutely aware of the benefits of planting trees. In Zimbabwe, many farmers deliberately leave particular indigenous species growing in their fields (Campbell, 1987; Fortmann and Nabane, 1992a; Grundy

et al., 1993). Du Toit et al. (1984) found that 61% of households surveyed had planted at least one tree, while Grundy et al. (1993) report a figure of 74%. Neither of these studies found any relationship between household wealth and tree planting practices. Fortmann and Nabane (1992a) recorded a planting rate of 82% of households, with the poorer farmers planting their trees predominantly at the homesite. Wealth was thought to be an indicator of these tree planting practices, as wealthier households had planted more trees than the poorer households. Within Mutoko, Price (1994) found that 90% of households had planted exotic trees. In this area, wealth seemed to have a small effect on tree planting, with the wealthier households planting slightly more trees.

These studies done in Zimbabwe further indicate that the absence or presence of a male head of household had no discernable effect on tree planting (Du Toit et al., 1984), although more men seemed to plant trees than did women (Fortmann and Nabane, 1992a; Fortmann and Rocheleau, 1985). Price (1994) found that in Mutoko Communal Area, widows and divorcees had fewer exotic trees that did male headed households.

There is a growing body of literature addressing male and female uses of tree resources (see Hoskins, 1979; Rocheleau, 1985; Fortmann and Nabane, 1992b). These studies indicate that men and women not only have different uses and priority of uses for trees, but prefer different species. As a result, mens' and womens' species preferences in agroforestry programs often conflict (Khaleque, 1987).

This review of the literature formed the basis for this study and identified a few key points for consideration: Human behaviour often reflects values (Rokeach, 1968). Thus, the efforts of farmers to plant and maintain trees is taken to be a reflection of the value they place upon those trees. Tree planting may be constrained not only by low valuation of trees, but insecure property tenure, labour requirements, and the perceived benefits to be gained from planting and caring for trees. It was with these points in mind that the following study was designed.

The Research Procedure

This project utilized a questionnaire instrument as the primary means of data collection. A card sorting exercise to determine the relative importance of tree uses was included during the

questionnaire interviews. Preliminary qualitative interview material and observations were used to develop and pretest the questionnaire, to supplement and add further depth to the quantitative findings.

Research Site

The study was conducted in the Nyahunure Ward (NW) of the Mutoko Communal Area (MCA). Located in northeastern Zimbabwe, the NW is comprised of six Village Development Committees (VIDCOS). MCA is a frost free area with a mean annual temperature of 22 C. Thus, vegetables can be grown year round in this region. It is classified as a semi-extensive farming region with low rainfall and vulnerable to seasonal drought (Zimbabwe Map, 1984). Staple crops of maize, sorghum, rice, sunflowers, millet, groundnuts, tomatoes, cucumbers, squash and beans are grown on a subsistence scale. Surplus fruit, an important source of income, are sold through the Agricultural Development Authority, while surplus grains are sold through the Grain Marketing Board.

NW was chosen as the research site because, unlike other wards in the MCA, very little scientific research had been carried out there prior to this study. As well, a Belgian development agency had already been successful in establishing tree nurseries in NW. Thus, the research was thought to be more meaningful if carried out in an area with an established commitment to growing trees. Local household landholdings in the NW are not contiguous and they consist of three distinct parts: home compound; field(s); and garden. The home compound consisted of the space where buildings for cooking, sleeping and bathing were located. Many farmers utilized the land in and around compound structures to grow trees and plants. The field(s) were usually dry land with sandy soils used to grow staple crops following the rainy season, and left fallow for the remainder of the year. Garden lands were usually the best watered and most fertile land areas that were used to produce grains, fruits, and vegetables year round. Although trees may be planted in each type of landholding, this study focused on trees planted in the home compound.

Preliminary in-depth interviews and observations were carried out in the four closest VIDCOS to the townsite of Mushimbo. The interview schedule was administered in all four villages of the Nyapfura VIDCO.

Data Collection and Analysis

Since an acceptable community list was not available for four villages in the Nyapfura VIDCO, households were identified through a mini-census of the area conducted by Watson. The mini-census recorded 151 households; ninety three were female headed and 58 were male headed. From this sampling frame, 67 of the households (44%) completed the interview schedule.

The households were purposively selected in order to achieve adequate representation of male and female headed households. Thirty six female headed households and 31 male headed households were asked to participate. After choosing specific households, the questionnaire was administered to all willing and available household members over the age of 18, to a maximum of six household members. Since the sampling was not random, some caution should be used in interpreting the results.

The questionnaire closed ended and short answer responses were coded and analysed using SPSS Windows. The analysis was completed in three sections: 1. determining frequency and proportions of responses for each question; 2. identifying the relationship between gender and a host of independent variables using the Chi-square statistic, and; 3. examining relationships between independent variables using the Chi-square statistic. The responses to the card sorting exercise were also statistically analysed to produce weighted rankings of each tree use.

In-depth interview responses, observations, and long answer questionnaire responses were content analysed and used to illustrate the results of the statistical analysis. The presence of contradictions between observations and respondent statements are noted in the discussion of the research findings.

Research Findings

A total of 123 individuals participated in the survey. The survey participants ranged in age from 18 to 65+ years. The mean educational level for male respondents was 5.2 years, while for the female participants it was 3.6 years. Most households reported ownership of some parcels of land. Household cash needs to meet expenses such as clothing, school fees, and medical care were raised from a variety of activities. All of the respondents had lived in the household for at least one year. The majority of male respondents (62.5%) have lived in the VIDCO for more than 20

years, while most of the female respondents (63.8%) have moved into the VIDCO within the past 20 years[3]. More women (26.5% of the sample) than men (12.5% of the sample) respondents belonged to local tree nursery groups. The age, gender, educational, agricultural[4], and income characteristics of the respondents are summarized in Table 1.

Table 1. Age, Educational Attainment, Agricultural Wealth and Income Generating Activities of Questionnaire Respondents

	FEMALES (N = 83)	**MALES (N = 40)**	**TOTAL (N = 123)**
AGE CATEGORIES	%	%	%
< 25	19.3	22.5	20.3
26 - 45	**41.0**	**37.5**	**39.8**
46 - 65	**24.1**	**25.0**	**24.4**
> 65	15.7	15.0	15.4
YEARS OF SCHOOLING	%	%	%
0	**33.7**	20.0	**29.3**
1	4.8	--	3.3
2	4.8	7.5	5.7
3	7.2	15.0	9.8
4	10.8	5.0	8.9
5	4.8	5.0	4.9
6	9.6	2.5	7.3
7	14.5	12.5	13.8
8	--	7.5	2.4
9	3.6	2.5	3.3

[3]This difference in residency between males and females largely reflects the Shona patrilocal custom of newly married women leaving their home villages to join their husbands' village.

[4]Agricultural characteristics refers to land and agricultural implements owned by a household. All households in the area owned water buckets and hoes, while none had a tractor or bicycle in working order. The landholdings data provided by the respondents were unverified estimates and many respondents were unsure of the size of their holdings. Therefore, these estimates should be regarded with caution.

Table 1 Continued			
>9	6.0	**22.5**	11.4
mean	3.6 years	5.2 years	
REPORTED LANDHOLDINGS (ACRES)	range of reports in acres	mean reported size in acres	N[1]
Homesite	0.25 - 10	1.35	107
Field(s)	0.25 - 12	3.16	108
Garden	0.25 - 10	1.60	105
	FEMALES (N = 83)	**MALES (N = 40)**	**TOTAL**
AGRICULTURAL IMPLEMENTS OWNED BY THE HOUSEHOLD	%	%	%
plough	62.7	80.0	68.3
scotch cart	36.1	47.5	39.8
wheelbarrow	28.9	25.0	27.6
cultivator	14.5	27.5	18.7
chemical sprayer (backpack type with a hand pump)	3.6	2.5	3.3
INCOME GENERATING ACTIVITIES	%	%	%
selling produce	68.7 *	47.5	61.8
casual labour	57.8 *	22.5	46.3
selling handicrafts	24.1	27.5	25.2
making bricks/building construction	6.0	40.0 **	17.1
beer brewing	22.9 **	2.5	16.3
work in town	3.6	25.0 **	10.6
other	16.5	37.5	30.1
cash remittances sent by relatives	61.4 **	40.0	54.5

[1] Does not include those cases where respondents only provided an estimate of their total land holdings.
* Chi-square significant between gender at $p < 0.05$
** Chi-square significant between gender at $p < 0.01$

The findings of this study are presented and discussed in relation to three main concerns:

1. Perceived importance of trees;
2. Tree planting activities practiced by men and women in male and female headed households;
3. Gender differences in the use of trees and tree products.

In each of the discussion sections, the results of the questionnaire are supplemented by qualitative findings. The first section discusses the perceived importance of planting trees and what species the respondents reported favouring. Since actions often speak louder than words, self reports should be supplemented with data about *actual* behaviours; therefore, the type and frequency specific behaviours were also recorded. Further the perceived importance of trees to the Shona was measured through examining the tree planting and maintenance activities of household members, recording the different uses of trees and tree products. An emphasis was placed on identifying gender based differences within each of these topics.

Perceived Importance of Trees

Respondents were asked whether or not they felt it was important to plant trees around their homesite. Only one of the 123 survey participants answered "No" to this question, with the explanation that there were already enough trees planted around her homesite. When asked to give a rationale as to why it was important to plant trees, respondents provided a variety of answers. The frequency of the answers given varied according to the gender of the respondent. "Fruit" and "shade" were the most important reasons given by both men and women for planting trees, followed by "use as a windbreak" by men and "to please the children" and "income" for women. Other answers given were to provide firewood and building materials and to produce atmospheric oxygen. The frequency with which these answers were given by male and female respondents are summarized in Table 2.

Table 2. Reasons Given by Men and Women for Why it is Important to Plant Trees

	FEMALES (N = 125) %	**MALES (N = 63) %**	**TOTAL (N = 188) %**
fruit	43.2	33.3	39.9
shade	25.6	22.2	24.5
use as a windbreak	3.2	11.1	5.9
to please the children	7.2	1.6	5.3
income generation	7.2	1.6	5.3
firewood	4.0	7.9	5.3
building poles/planks	3.2	7.9	4.8
produce oxygen	1.6	6.4	3.2
other	4.8	6.4	5.8

Significant at $p = 0.02524$

Species was another factor that influenced the preference that men and women had for trees. Although respondents identified some species that are not technically defined as trees, for the purposes of this study, what the respondents called trees were taken to be trees. They were asked "If you were given a free tree seedling by the government, what species of seedling would you want to be given?". The most frequently preferred species were orange, mango, papaw, gum, avocado, peach, naches, and muhange. Other species mentioned included lemon, apple, guava, bougainvillaea, jacaranda, pine, cypress, and indigenous trees. No significant differences were found for species preference between men and women.

One indication of the value placed on trees can be found in the following statement made by an elderly widow;

> Trees are like children. They take time to grow and be useful. You have to take care of them when they are young and when they grow up they give you money.
> (Watson, 1994;119)

Tree Planting and Maintenance Activities Practiced by Men and Women in Male and Female Headed Households

This study focused on trees growing in homesites. Thus, the following section pertains to the planting and care of trees on homesite soil and excludes those growing in gardens and fields. The vast majority (88.4% of cases) of trees planted on homesites of both male and female headed households were exotic species, the most common being jacaranda, mango, papaw, and gum trees.

The survey indicated that the majority of tree planting activities in NW occurred within the last five years. The lowest levels of tree planting activities were reported during times of considerable political and social disruption, such as the liberation war and pre and post independence periods. Seventy-seven point two percent (77.2%) of all respondents reported planting trees at some time in their lives. While 95% of the male respondents reported planting trees, only 68.7% of female respondents stated that they had planted trees during their lifetime.

Many interesting reasons were given by study participants for planting or not planting trees. Men and women often differed in the statements they made regarding the planting of trees . A selection of these statements are listed below.

MEN: I see that trees can make you money. I want to plant many more trees!

Where I lived when I was a child there were no trees planted. Later I lived with white people who had fruit trees planted around their home.

A male household head with many fruit trees planted around his homesite claimed to have worked for people in the past who had beautiful trees around their house. I heard from ADA [Agricultural Development Authority] to plant trees and so I copied from other people who planted mango trees in this area. Now I have many beautiful trees to make my house pleasant and my wives and children happy.

(quotes reproduced from Watson, 1994;72)

WOMEN: If you get married you must plant trees so your children can remember you, no matter if you get sent away. I planted trees at my home and my children can (look at them and) remember me.

I planted trees at my first husband's home. When he divorced me I had to go away from the trees. I do not want to plant trees ever again.

I don't have any land. I am using this land (her nephew's) but I am afraid if I plant trees

> here that he will take the land away like he took away the garden. He took the garden away after I worked very, very hard in the garden and made it a good garden. If I plant trees he will like this land too and take it away.
>
> With the saving club I brewed beer which we sold for money. When COOPIBO [a Belgian NGO working in the area] started us to plant seeds in pockets to grow trees and said we could sell the trees for poles, I wanted to grow trees and make money.
>
> (quotes reproduced from Watson, 1994;73)

With respect to where farmers would like to plant trees, the majority of respondents (55.4%) stated that they would plant a seedling of a preferred species in the homesite. The homesite was believed to be a safer place for the seedling, as it would be easier to protect it from grazing by wild and domestic animals and the fruit from theft. Many respondents also stated that it would be easier to care for a seedling planted on the homesite, and these trees can provide valuable shade to the house and animal kraals.

Men appeared to be the decision makers regarding the planting of homesite trees in both male and female headed households, except in the case of exotic trees (see Table 3 and Table 4). In female headed households, 47.9% of the cases were decided by men, while 91.9% of cases in male headed households were decided by men. Women had more involvement in decisions to plant exotic tree species. Women made the decision to plant in 48.5% of the female headed households, as compared to 41.2% of cases where men made the decision to plant exotic trees in female headed households.

Tables 3 and 4 summarize the percentage of males, females, children or couples that make the decisions pertaining to the planting and use of trees in male and female headed households. Comparison of the data pertaining to the decision making control over planting of trees with the data about the use and sale of trees indicates that men have more control over the initial planting of trees than they do over the future use of the trees. This point will be revisited in greater detail in the section discussing the gender differences in uses of trees.

Any attempt to determine the value of trees to a local population must also take into account how much effort is put into caring for seedlings and trees, and who usually does this work. The amount of care put into raising tree seedlings was measured in this study by the amount of time each respondent put into collecting fertilizers such as manure, leaf litter and/or anthill soil and

Table 3. Proportions of Men, Women and Children in FEMALE Headed Households (FHH) Who Make the Decisions Regarding Planting of Trees, When to Sell or Use Trees and Tree Products, and Where/How to Sell Trees and Tree Products

	ALL TREES			EXOTIC TREES			INDIGENOUS TREES			FRUIT TREES			WOOD TREES		
FHH N = 32	when to plant %	when to sell %	where to sell %	when to plant %	when to sell %	where to sell %	when to plant %	when to sell %	where to sell %	when to plant %	when to sell %	where to sell %	when to plant %	when to sell %	where to sell %
FEMALE	44.8	65.6	71.9	48.5	69.0	75.9	35.7	33.3	33.3	46.6	62.5	70.8	40.7	75.0	75.0
MALE	47.92	18.8	18.7	41.2	17.3	17.2	64.3	33.3	33.3	48.3	20.8	20.8	44.5	12.5	12.5
BOTH M & F	4.2	12.5	9.4	5.9	10.3	6.9	nil	33.4	33.4	3.4	12.5	8.4	7.4	12.5	12.5
CHILDREN	3.1	3.1	nil	4.4	3.4	nil	nil	nil	nil	1.7	4.2	nil	7.4	nil	nil

Table 4. Proportions of Men, Women and Children in MALE Headed Households (MHH) Who Make the Decisions Regarding Planting of Trees, When to Sell or Use Trees and Tree Products, and Where/How to Sell Trees and Tree Products

	ALL TREES			EXOTIC TREES			INDIGENOUS TREES			FRUIT TREES			WOOD TREES		
MHH	when to plant %	when to sell %	where to sell %	when to plant %	when to sell %	where to sell %	when to plant %	when to sell %	where to sell %	when to plant %	when to sell %	where to sell %	when to plant %	when to sell %	where to sell %
FEMALE	6.3	7.9	5.3	7.9	8.8	5.9	nil	nil	nil	4.2	11.1	7.4	10.0	nil	nil
MALE	91.9	76.3	36.9	91.0	73.5	35.3	95.7	100	50	94.4	74.1	33.3	86.7	81.8	45.4
BOTH M & F	1.8	15.8	28.9	1.1	17.7	29.4	4.3	nil	25.0	1.4	14.8	26.0	3.3	18.2	36.4
CHILDREN	nil	nil	28.9	nil	nil	29.4	nil	nil	25.0	nil	nil	33.3	nil	nil	18.2

adding them to the gardens, watering, weeding, and fencing the area trees were planted. Data showing the proportion of males and females who engaged in these activities are presented in Table 5. Substantially more men (90.0%) than women (64.9%) reported using local fertilizers when caring for their trees.[5]

Table 5.

FEMALE HH	**FERTILIZING all tree types N=57 %[1]**	**PLANTING all tree types N=-96 %**	**WATERING all tree types N=63 %[2]**	**WEEDING all tree types N=65 %[3]**	**FENCING all tree types N=46 %[4]**
female	76.8	36.4	44.5	41.5	19.5
male	no data available	51.0	11.1	7.7	69.6
both	no data available	6.3	34.9	41.6	2.2
children	no data available	6.3	9.5	9.2	8.7
MALE HH	**N=38 %**	**N=110 %**	**N=64 %**	**N=79 %**	**N=73 %**
female	no data available	8.2	17.2	19.0	2.7
male	92.1	84.6	25.0	46.8	87.7
both	no data available	4.5	37.5	17.7	4.1
children	no data available	2.7	20.3	16.5	5.5

[1] The figures provided for fertizing refer only to the percentage of female and male headed households that use local fertilizers in the care of their trees.
[2] Significant at $p < 0.01$.
[3] Significant at $p < 0.001$.
[4] Significant at $p < 0.05$.

The majority of tree planters in both male and female headed households were men, although many more women planted trees in female headed households (36%) than in male headed households (8%). Children were found to have planted trees in nine cases, six of which were in female headed households. Typically, these trees were seedlings that the children had received at school.

As a general rule, trees were not watered except when they were planted. Otherwise, the trees relied on rains for water. Sometimes, dishwater was thrown out of the house window near the

[5]This difference is significant at $p = 0.01$

area where a tree was planted. This was considered watering. Specific tree species, such as lemon trees, may also have received some extra care in the form of watering. When trees were watered in female headed households, it was the women that did it 44.5% of cases. In male headed households, watering was most frequently done by both men and women (37.5% of cases).

Weeding was done primarily by men in male headed households, while in female headed households respondents reported similar numbers of cases where the women did most of the weeding and both men and women shared most of the weeding. Two explanations were given for the low number of cases in which children did the watering and weeding of trees. The first was that the children were in school and could not do the work. The other reason provided was that the children could not be trusted to do the work adequately for the tree to survive (Watson, 1994).

In keeping with traditional divisions of labour for men and women in Shona society, the fencing of seedlings to protect them from grazing animals was done primarily by men. In relation to this finding, an interesting aspect to note is that far more trees belonging to female headed households were not fenced than those trees belonging to male headed households. This finding suggests two potential situations: female headed households have less access to building materials than male headed households, or; in the absence of men, women do not have the time or will not assume this aspect of men's work.

Overall, it appears that the majority of tree planting and maintenance was done by men. However, the frequency of such activities has not been systematically recorded. Observations from the VIDCO officer indicate that these activities were done on an infrequent and irregular basis (Watson, 1994). Long answer and in-depth interview responses of study participants suggested that trees did not require a substantial amount of labour input to sustain them and people performed the minimum requirements in relation to other demands upon their time.

> No, trees are not much work. Just a bit of work to plant them, but I didn't plant all in one day. Only need to plant once and they grow fruit for many years. With crops, you must plant them every year (Watson, 1994;119).

Gender Differences in the Use of Trees and Tree Products

Tree usage was recorded through the use of a card sorting exercise. Ten cards with locally drawn pictures depicting ten different uses of trees were provided to the respondents. The

respondents were then asked to arrange the cards in order of importance of the activity depicted on the card.

Weighted averages for the frequency with which each use was reported indicated slight differences in the order of importance of each tree use stated by men and women. These differences are shown in Table 6. Chi-square analysis showed there to be a significant differences between firewood (ranked as more important by women than men) and medicines (also ranked as more important by women than men).

Table 6. Reported Use of Trees and Tree Products[1] and Relative Importance of Each Use

	FEMALES (N=80)		**MALES (N=38)**		**TOTAL (n=262) (N=118)**	
	%	**Rank[2]**	**%**	**Rank**	**%**	
planks	100	8.64		7.84	0.4	8.61
household implements		6.86	100	6.84	0.8	6.53
firewood	47.6	6.54	52.4	6.03	8.0	6.39
farm implements		6.74	100	6.61	0.4	6.39
building poles	55.6	6.15	44.4	6.00	6.9	6.10
fruit	34.5	5.25	65.5	6.18	21.0	5.55
livestock feed	40.7	4.19	59.3	5.53	10.3	4.93
shade for humans and animals	40.4	5.21	59.6	4.78	35.9	4.92
medicines	61.1	3.92	38.9	3.36	6.9	3.64
flowers	33.3	2.31	66.7	1.84	2.3	2.16
laundry posts[3]	52.6		47.4		7.3	

[1] The personal use of trees is reported as a percentage of male and female household heads out of the total number of household heads who reported using the items. Thus, the total percentages given are the number of respondents out of the entire sample that indicated a particular use, while the male and female percentages are the proportions of the total percentages.

[2] Ranked on a scale of 1 to 10, with 10 as the most important and 1 as the least important use.

[3] Ranking data not available.

Many respondents told stories with the cards as they completed their sort. Most of the people who did this were women over the age of 45. Examples of such stories are included below:

> In my house I need a door, then I need to pound maize so I can feed my family. To cook the food I've prepared I need a fire. Then I want to have flowers around my house.
>
> Sometimes the children will get ill after eating too much fruit so I give them medicines. Flowers are last because after my children eat the fruit they will be happy and plant flowers. (Watson, 1994; 95)

As each use was mentioned in the story, the respondent laid down the card as the order of priority for that particular use.

Respondents were also asked about their personal use of trees that were planted in the homesite. The results of this question are included in Table 6. Shade and fruit were stated as the most common uses of homesite trees, with more men than women reporting these uses. Medicines, listed as the sixth most common use, was reported as a use by more women (61.1% of respondents) than men (38.9%). Statistical analysis revealed no significant differences between male and female heads of household with respect to personal uses of trees.

The comparison of the results of the card sort with the results of the question about use indicate that while respondents stated a particular level importance for specific uses, this priority rating did not always correspond with the actual use of trees. For example, while "planks" was ranked as the most important use of trees by both male and female respondents, only 0.4% of the heads of household interviewed reported actually using their trees for planks. Thirty five point nine percent (35.9 %) of the respondents indicated using their homesite trees for shade (the largest proportion of responses for one use category), yet this use was most often ranked as the fifth or sixth most important use. No explanation was given for this difference, however one probable reason for the discrepancy is the nature of the kinds of trees planted in homesites. Fruit trees were commonly planted in homesites, while trees used to make planks may have been grown elsewhere. A second speculative reason is the respondents, in sorting cards were reflecting the uses of trees in general, rather than the specific trees at their homesite.

The issue of who has the decision making authority over the use and sale of tree products has been mentioned in a preceding section, however, it deserves further discussion here. The head of household was usually the person who held authority over the use and sale of tree products[6].

[6]During the course of data collection, only one respondent mentioned selling a tree product other than fruit. Therefore, the category for sale of tree products was restricted to fruit.

This was true for both male and female headed households; however, more men in female headed households tended to make these decisions than did women who were members of male headed households. The instances when men had least control was in the "where to sell" category. Children[7] and both men and women tended to have the say over where tree products were sold in male headed households, while in female headed households, it was the women who predominantly made these decisions (refer to Table 3 and Table 4). The following qualitative statements that lend context to the statistical evidence were provided by respondents.

> My husband has the authority to sell the pranga (gum tree). If someone wants planks, I need to talk to my husband and if he says so, then I can sell it. He decides everything for the gum trees. [However]...I sell papaws to small scale farmers because they don't have papaw trees. I make the decision and sell. We both share the money from the papaws. (Watson, 1994;122)

Ten female heads of household and five male heads of household reporting having exotic fruit trees from which they sold the surplus fruit. Other household members were also asked about the selling of excess fruit. Their responses did not correspond with the responses of other household members. More men reported the sale of fruit by someone else in the household than did female household members.

The recipients of the funds from the sale of fruit differed significantly between male and female headed households. Women received the proceeds from fruit sales in their own households (68.8% of the cases), while in male headed households, the proceeds were more often shared between the men and women (79.5% of the cases). While children were often involved in the sale of fruit, they were not the recipients of the income from the sale of fruit in both male and female headed households.

Summary and Conclusions

All but one of the respondents felt that it was important to plant trees. Of this group, 77% had actually planted one or more trees during their lifetime. This means that 87% of the households

[7]It is important to note that in households headed by elders, their children are adults.

surveyed had planted one or more trees. This figure is comparable to those found in other studies reviewed earlier. Most respondents preferred to plant their trees in the homesite, as it was easier to care for and protect the trees there. Most of the tree planting in NW had occurred within the previous five years and substantially more men than women had planted trees. The trees that most respondents preferred were multipurpose, fruit bearing species.

Men usually were the decision makers and planters of trees in both male and female headed households. Tree planting and fencing was also the work of men. Women tended to play a more active role in tree maintenence. Watering of seedlings and weeding of seedling beds was frequently the work of women, especially in the female headed households. In the male headed households, women did these maintenance tasks but were more likely to have help from a male household member.

Most people felt that the care of trees did not require much time, expense or labour. This was appealing to respondents, and many stated that they would like to learn more about trees and tree planting so they could plant more trees. This study, as well as other studies undertaken in Zimbabwe (see Campbell, 1987; Vermeulen and Lynam, 1991; Du Toit et al., 1984; Fortmann and Nabane, 1992a; Price, 1994) indicate that trees can be successfully planted and grown by households of many income levels.

The selling of surplus fruit was usually undertaken by women in female headed households, and children in male headed households. In the female headed households, the woman head usually kept the profits from the sale of fruit, while in male headed households, it was most common for the man and woman to share the proceeds.

In general, trees were being planted and maintained in both male and female headed households in NW. The occurrence of these practices indicates that the farmers highly value their trees, since the trees compete for attention with a host of other demands upon farmers' time and energy.

Conclusions and Recommendations

In addition to adding to the body of knowledge about women and forestry, this study can contribute practical advice to governments, extension agents and NGOs that are concerned with reforestation, afforestation, and agroforestry programs. The reported demands for information

about how to grow trees indicates that there needs to be greater access to information for local farmers. Specifically, there needs to be access to information about silvicultural techniques for seed selection, growing, and pruning at the local level (Watson, 1994). During the period of this study, all of the extension agents in NW were male. This situation may create a disincentive for women who wished to access information (Fortmann and Rocheleau, 1985; Seito and Weidemann, 1990).

While many respondents expressed an interest in planting more indigenous species, the seedlings species available from the Forestry Commission were mostly exotic. Planting indigenous species may also create additional sources of fuelwood for the village, therefore, the Forestry Commission should consider making available other indigenous seedlings to farmers and tree nursery groups.

A final note that emerged from the findings of this study was that tree planting initiatives do not necessarily have to be designed specifically for women, at the expense of excluding men. Rather, programs need to be designed that include both men and women and address the distinct *interests* and *needs* of men and women tree planters. These programs should take advantage of local, indigenous knowledge rather than relying on external knowledge and encouraging the use of unnecessary equipment. For example, during the course of the study, farmers frequently commented on the need to have specialized equipment for tree planting, such as polythene pockets for germinating seedlings (Watson, 1994). Encouraging the awareness and use of local knowledge and technology may help to decrease dependence on such external inputs. In this area, a distinction should be made between male and female knowledge, and efforts made to include and utilize both bodies of knowledge.

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