THE RURAL AFFORESTATION PROJECT IN ZIMBABWE: PROJECT EFFECTIVENESS AND THE REALITY OF WOMEN'S PARTICIPATION

BY

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A PRACTICUM SUBMITTED

IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE DEGREE,

MASTER OF NATURAL RESOURCES MANAGEMENT

NATURAL RESOURCES INSTITUTE

UNIVERSITY OF MANITOBA

R3T 2N2

1991

ISBN 0-315-76783-9

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A practicum submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements of the degree of Master of Natural Resources Management.

MASTER OF NATURAL RESOURCES MANAGEMENT

ABSTRACT

Concerns about the consequences of deforestation in communal areas of Zimbabwe formed the justification for the study conducted by the Whitsun Foundation and the implementation of its recommendations. The Rural Afforestation Project (RAP) Phase I was thus initiated and implemented in 1982 using the Foundation's recommendations as a blue-print for its strategy.

This study was undertaken to assess the extent to which the RAP Phase I had been successful in meeting its objectives of providing education, information and extension services to promote tree planting and management by communal farmers. In assessing the RAP success or effectiveness, the study focused on the woodlot approach, its constraints and opportunities.

The issue of women's participation has been raised as a central factor in the effectiveness of any afforestation effort in the Communal Areas (CAs). This contention is based on the fact that women constitute the majority in the CAs. This is a result of the historical processes linked to colonialism and land expropriation which encouraged and coerced African males to migrate to urban centres in pursuit of opportunities. Consequently, the majority of women in the CAs became de facto heads of households. Thus, women keep the subsistence economy going by producing and processing food, fetching water and collecting firewood. Because afforestation competes with other productive activities for land, a link

exists between women as food producers and as participants in the afforestation effort.

The study, therefore, sought to determine the role of women in the RAP as well as constraints or impediments to their participation. In addition, the technical support provided to women, that is, training and information was assessed to determine whether it was adequate to sustain the afforestation effort in the future.

The process of obtaining the necessary data to address these issues included a literature search as well as individual and group interviews over a ten week period (June 24 - August 31, 1990). Although respondents perceived fuelwood shortages in their areas, they seemed to view the woodlots as a source of building materials rather than a source of firewood. This is probably the result of the focus by the FC and the Department of Natural Resources on selling the afforestation idea as an economically beneficial activity; rather than an activity aimed primarily at conservation and the provision of firewood to meet the energy needs of the community.

However, it should be noted that the RAP has generated a lot of awareness and enthusiasm about tree planting nation-wide. In addition, its implementation in the CAs of Zimbabwe has also attracted the participation of non-government organizations such as the Association of Women's Clubs, Enda-Zimbabwe and a host of others.

A number of conclusions have been drawn from the literature search and observations made by the different categories of respondents. Most importantly is the realization that women, because of their objective conditions in the CAs, are in fact the agents through which the afforestation effort has to be channelled. Their basic knowledge of the local environment, their preferences of tree species informed by uses to which trees are being put in their daily lives, coupled with their enthusiasm to participate in efforts that will improve the quality of their lives; constitute important elements in making afforestation efforts effective. What is needed is the political will to address constraints such as women's lack of access and control over land through the implementation of land reforms that entail distributive justice and are accompanied by land-use management and conservation education.

ACKNOWLEDGEMENTS

I would like to extend my appreciation to the following members of my committee for the guidance and advice given to me in the process of conducting this study:

Professor Thomas Henley as my advisor in the Natural Resources Institute,

Professor David Young for his valuable input into the forestry and energy aspects of the study,

Ms. Susan White for her positive input into the area of women and development; and

Professor Jim MacMillan who has found time to send in his comments from Zimbabwe.

My sincere gratitude is extended to the NRI faculty staff, Dr. Baydack and Dr. Henson, who reviewed my drafts and made instructive comments; and to our supportive faculty secretary, Ms. Darlene Krahn, for all the work she put into producing the drafts and arranging an array of meetings.

I would also like to thank my research assistant, Mrs. Rose Mujati, who even after our horrifying accident, was as committed as ever to the research process. Also, the Association of Women's Clubs and the Department of Natural Resources for providing me with secretarial services and office space.

Financial assistance was provided by the Natural Resources Institute (NRI), the African Non-Government Environment Network (ANEN) and the Forum of African Voluntary

Development Organization (FAVDO). My sincere thanks to these agencies.

This study could not have been completed without the unfailing support of my husband Mandisi, and the understanding of my three daughters Matla, Chimu and Ziki.

TABLE OF CONTENTS

CHAPTER V

CHAPTER VI

APPENDICES

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

AGRITEX - Department of Agriculture, Technical and Extension Services

ANEN - African Non-Government Environment Network

AWC - Association of Women's Clubs

CAs - Communal Areas (see under definition of terms)

ENDA - Environment and Development in the Third World

FC - Forestry Commission, a parastatal under the Minister of Natural Resources and Tourism

NCS - National Conservation Strategy

RAP - Rural Afforestation Project

VIDCO - Village Development Committee

CHAPTER I

1.0 INTRODUCTION

1.10 ZIMBABWE

Zimbabwe is a landlocked country with a population of about 8.4 million (1983 census) and an annual growth rate of 3.4%. The country covers a surface area of 39 million hectares divided into the following categories:

Communal Farming Land	16,35 million ha;
Resettlement Land	2,64 million ha;
Commercial Farming Land	14,24 million ha;
National Parks Estates	4,7 million ha;
State Forest Land	0,92 million ha; and
Urban and State land	0,22 million ha.

(See Figure 1.1)

The communal farming land, on which approximately 6 million people reside, constitutes 41.8% of the total land area. Just over 2 million hectares of this land is cropped. Approximately 76% of the total communal farming land is located in natural regions IV and V, characterized by low erratic rainfall ranging between 450 - 800 mm per annum (Figure 1.2).

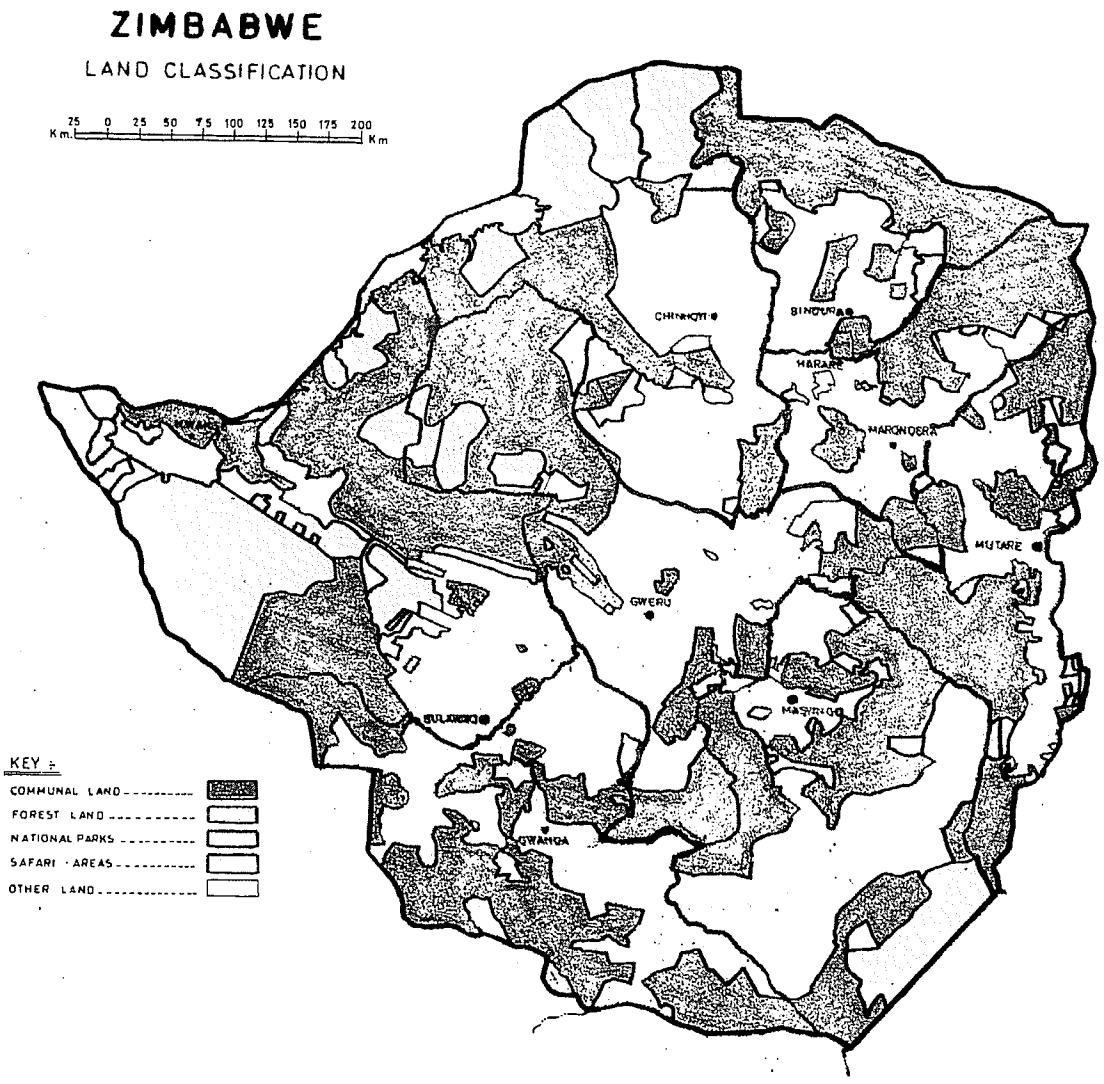

Figure 1.1 Zimbabwe Land Classification

(Source: Whitlow, 1988)

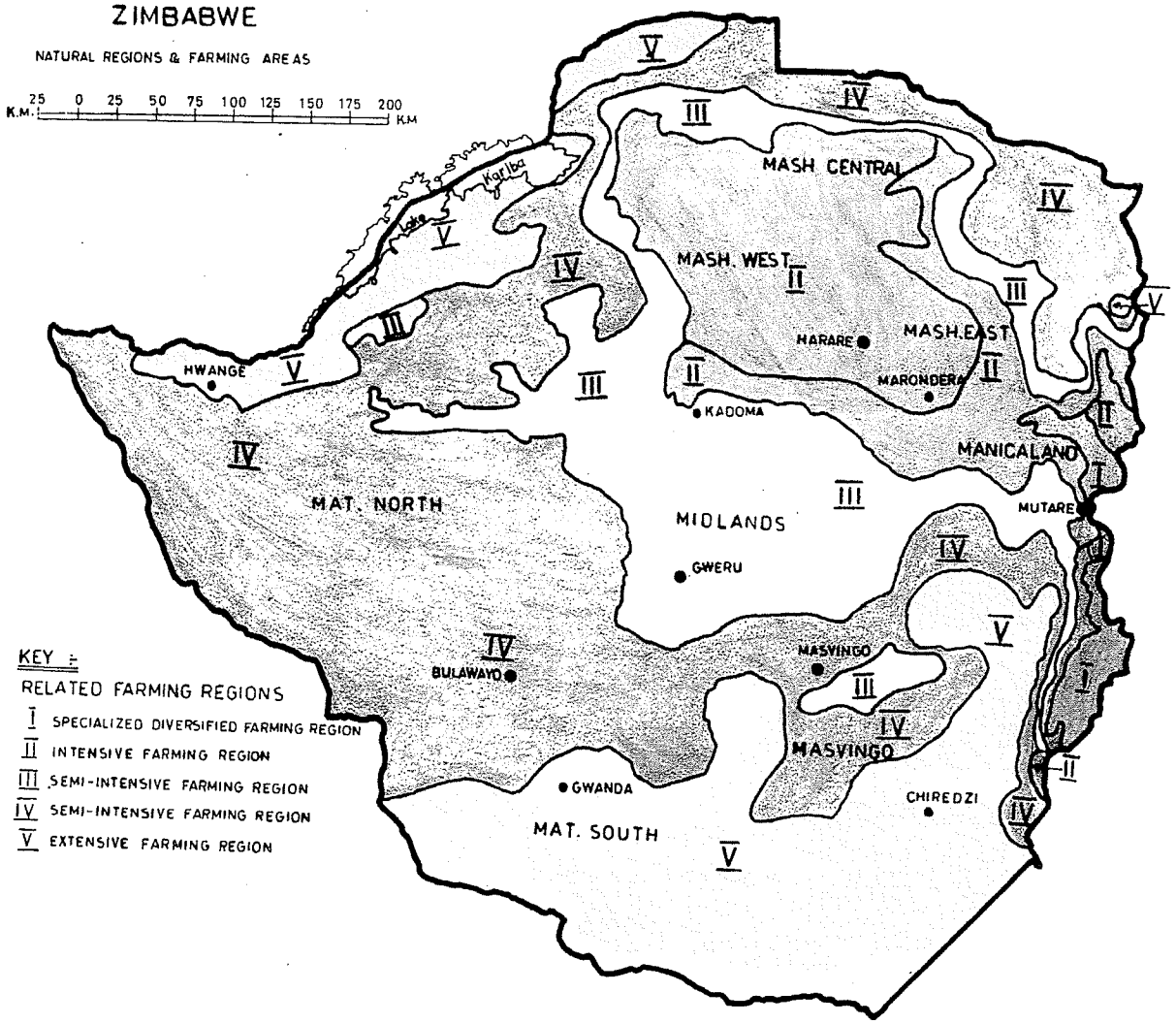

Figure 1.2 Zimbabwe Natural Regions & Farming Areas

(Source: National Conservation Strategy, 1987)

1.11 DEFORESTATION AND ITS CAUSES

Deforestation in the communal areas of Zimbabwe has generated concern among policy-makers and development workers generally; firstly, because of the depletion of the woody biomass on which the communal farmer depends for firewood; and secondly, because of environmental and socio-economic effects of deforestation.

The National Conservation Strategy (NCS) of Zimbabwe (1985) attributes deforestation in the communal lands to land clearing for cultivation; increased demands for fuelwood without adequate replacement; increased demands for building materials and fences by both the rural and urban people; overgrazing by domestic animals; localized destruction of woodlands by over-population of elephants, and damage caused to forests by fire (Figure 1.2). It is estimated that in areas of high population density, the land has been stripped completely bare of trees with as many as 2.5 million people facing critical shortages of firewood.

1.12 THE RURAL AFFORESTATION PROJECT PHASE I

The Rural Afforestation Project (RAP) Phase I was started in 1982 following a study by the Whitsun Foundation on the extent of deforestation in Zimbabwe. The Foundation recommended that the Forestry Commission (FC) and the Department of Agriculture, Technical and Extension Services

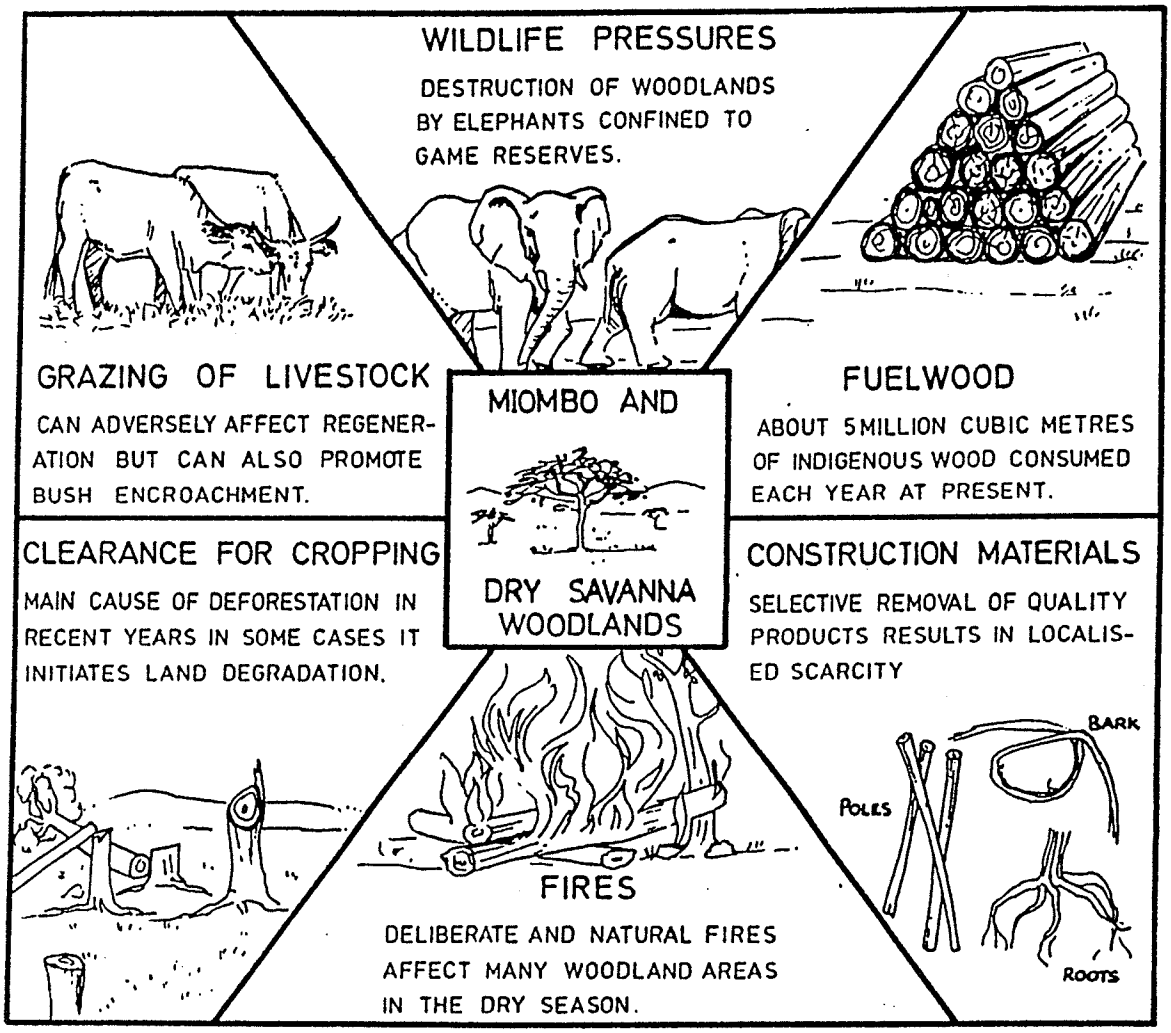

Figure 1.3 Some Causes of Deforestation in Zimbabwe

(Source: Whitlow, 1988)

(Agritex) initiate a project to avert the impending firewood crisis. The main objectives of the project were as follows:

1. To develop an infrastructure for the production and distribution of seedlings and the planting of demonstration woodlots;
2. To provide education, information and extension services necessary to promote tree planting and management by communal farmers; and
3. To undertake research into many aspects of rural afforestation and wood as an energy source.

1.13 THE ROLE OF WOMEN

The cost of deforestation such as firewood shortages, land degradation and, in some cases desertification, are borne by women because they are responsible for food production, collecting firewood and fetching water. Consequently, the costs of deforestation are specific to people and place (Munslow et al: 1988) and solutions to deforestation have to include the active participation of those directly impacted upon.

This study, then, proposes to examine and evaluate the RAP Phase I, its effectiveness and the reality of women's participation.

1.2 PROBLEM STATEMENT

The government of Zimbabwe, through the Ministry of Natural Resources and Tourism, has undertaken the task of stemming deforestation and promoting conservation in the communal areas; hence, the RAP. Several other non-profit organizations, commonly known as Non-government Organizations (NGO's), have also become involved in afforestation activities with rural communities.

It has been argued that for this innovation to succeed in the communal areas, conditions have to be created for their active participation. To address this concern, the following questions were posed:

1. What role has the RAP afforded to the communal farmers in general, and women in particular?
2. What factors have impeded or enhanced women's participation in afforestation?
3. To what extent has the RAP addressed the issue of women's access and usufructory rights to land?
4. What technical support regarding afforestation and conservation have women in the communal areas received?
5. What relationship exists between the effectiveness of the project and women's participation?

1.3 OBJECTIVES

The primary purpose of this study was to describe and evaluate the RAP, its effectiveness and the reality of women's participation in the project.

The specific objectives were:

1. To describe the historical development of the RAP in Zimbabwe;
2. To assess the impact and sustainability of the project on the basis of its implementation in two provinces, namely, Masvingo and Mashonaland East;
3. To identify and evaluate the role played by women in the identification, planning and implementation of the project;
4. To determine what factors impeded or enhanced women's participation; and
5. To propose policy alternatives aimed at enhancing women's participation.

1.4 DEFINITION OF TERMS

1.41 RURAL AFFORESTATION

Refers to the planting of trees, their maintenance and restoration in farming areas; on farm boundaries, near dwellings, in village woodlots, in watersheds and shelterbelts.

1.42 COMMUNAL LAND TENURE

Refers to a system of land allocation and use in which land is owned by the community. The community, through the Chief, allocates land to the head of the family according to the family's needs and its capacity to work the land. The communal land tenure system also provides community control and access to common grazing land, water and forests. The community has the right to re-allocate family land that is not being put into productive use to another member of the community.

Regulations governing the allocation and use of land in the communal areas underwent significant changes during the National Liberation war (1972-1980) in Zimbabwe. The absence of an effective government administration in many areas and varying local political experiences over that period, have resulted in non-uniformity in regulations relating to the allocation and use of land. In some cases, community leadership is still in the hands of chiefs while in others, community leadership is vested in Village Development Committees (VIDCOs).

1.43 WOMEN'S PARTICIPATION

Refers to the involvement of women in all stages of the projects -- in the identification and planning of strategies for local implementation; and in monitoring and evaluating the project. For women to undertake this

task effectively, it is necessary that the issue of ownership and use rights be clarified. As well, information and training on the different aspects of afforestation should be availed to them.

1.5 DELIMITATION

This study was limited to two provinces in Zimbabwe, namely, Mashonaland and Masvingo. Two villages in each province were sampled for interviews. The study focused on women already organized in a group or club and village woodlots were the major focus of the study.

1.6 INSTITUTIONAL ARRANGEMENTS

The lead institutions involved in the research process are the Natural Resources Institute at the University of Manitoba, Canada; and the African Non-Government Environment Network in Nairobi, Kenya.

In addition, the Association of Women's Clubs in Zimbabwe assisted in arranging for meetings with women's groups and gave other logistical support. The Department of Natural Resources and Tourism in Zimbabwe was the host institution. It arranged for my research permit and provided office space from which I worked.

1.7 ORGANIZATION OF THE STUDY

Chapter I constitutes an introductory overview of the key elements of the study, namely, causes of deforestation in Zimbabwe, the Rural Afforestation Project and the role of women. Chapter II reviews the literature related to the subject under study while Chapter III covers methods used in collecting data, its analysis and interpretation. Chapters IV, V, and VI deal with research findings, discussion, conclusions and recommendations respectively.

CHAPTER II

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

Whitlow (1988) defines deforestation as the removal or destruction of woody plant species or of forest and woody vegetation types. Deforestation in some of the densely populated communal areas (CAs) has given rise to widespread land degradation as well as varying degrees of shortage of fuelwood and building materials. Studies have shown that CAs of Zimbabwe will become deficient in fuelwood unless deforestation is halted. The loss of forest cover could result in high fuel costs and the diversion of manure and crop residues from the land to use as fuel, thus depriving the soil of much needed organic inputs. In order to prevent such an eventuality, the Rural Afforestation Project (RAP) was conceived in 1982 and implemented in 1983.

The Forestry Commission of Zimbabwe estimates Zimbabwe's forests as covering about 23 million ha or 59% of the country's total land area. Approximately 10 million ha of forest area is open indigenous woodland located in the Communal areas. About 6 million ha are protected forest areas and forest reserves which include 100,530 ha of Pine and Eucalyptus industrial plantations. Two-thirds of these plantations are privately owned and managed while the rest are state-owned and managed by the Forestry Commission. The

remaining 7 million ha of indigenous woodland are owned by large-scale commercial farmers.

The Forestry Commission of Zimbabwe was established in 1954 as a parastatal organization. Its mandate is to implement the government's forestry strategy which includes the administration of state forests, conservation of timber resources and regulation and control of forest products. The Rural Afforestation Division (RAD) established under the FC was charged with the management of forests in the Communal areas. This division was subsequently changed to State Forestry Division (SFD) in 1987 as a result of the evaluation of the Rural Afforestation Project (Phase I) and in concert with the strategies that were envisaged for the RAP Phase II. The SFD, then, was given additional responsibilities including, among others, the management of indigenous forests.

At present, the FC has two main operational divisions, namely, State Forestry and Commercial Forestry. The FC's primary activities have been the establishment, maintenance and exploitation of softwood plantations in the eastern districts and the management and protection of indigenous forest resources in northwestern Matebeleland and Midlands.

The adoption of the RAP in 1982 brought about the need for reorganization within this organization. (For organizational structure see Appendix 1.)

2.2 EARLIER AFFORESTATION EFFORTS

Afforestation in the CAs of Zimbabwe started in the 1930's with the establishment of eucalyptus plantations to replace the dwindling indigenous timber resources (Spicer, 1984). In the late sixties, a forest policy was drawn up to establish nurseries and a number of small localized plantations for building poles and fuelwood production. The Forestry Commission started training forest rangers in extension and development work in the rural areas as part of this new approach. However, very little or no new planting was actually done and it was decided to shift emphasis from plantations to 'kraal' or family woodlots. This approach did not seem to have any noticeable change in people's willingness to adopt tree-planting. Spicer (ibid) maintains that, although by 1978 34 nurseries were established in six provinces, only 7 of these were still in operation by independence in 1980.

Katerere (1988) argues that tree planting in CAs failed prior to independence because wood was still relatively abundant and could be collected with less difficulty. Thus, people did not appreciate the need to plant trees. Secondly, the colonial government did not have a clear policy on development in the CAs. Thirdly, socio-economic and cultural issues that impact upon woodfuel and pole supply and demand were never considered. Also, because tree-planting activities were accompanied by regulations prohibiting communities from

cutting down trees in certain designated areas, communities perceived themselves as mere observers in a primarily government effort.

2.3 THE RAP PHASE I

The recommendations made by the Whitsun Foundation report of 1981 with respect to arresting and reversing deforestation in the CAs laid the foundation for the conception and implementation of the RAP Phase I. Whitsun (ibid) estimated the average fuelwood deficit in the CAs at 4.5 cubic meters per annum. According to Whitsun, all districts with an average deficit of over four cubic meters per annum were in a critical situation. The following estimations of family fuelwood and building poles requirements, woodlot sizes required to meet a range of deficit needs and the number of seedlings required to meet the deficit are indicated in the RAP Main Report (1982).

Family Fuelwood and Building Poles Requirements

It was estimated that the average rural family of 8 people required the following amounts of timber per year:

	Building pole requirements	1.52 m^3 p.a.
*	Fuelwood requirements	8.00 m^3 p.a.
	Fence Posts etc.	0.34 m^3 p.a.

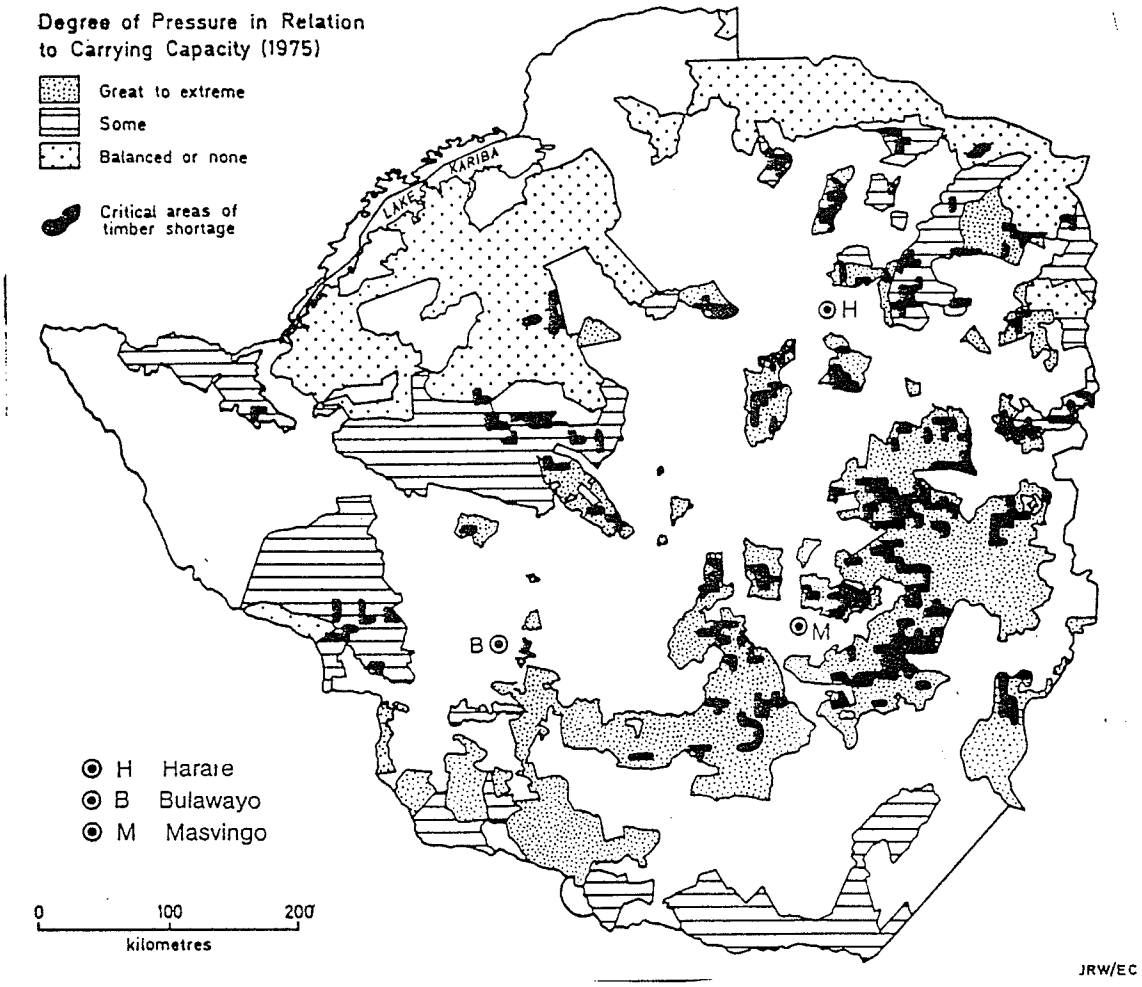

Figure 2.1 Critical Areas of Timber Shortages and Population Pressure in the CAs - 1975

(Source: Whitlow, 1988)

Total timber requirements per family	9.86 m^3 p.a.

* 1 cord = 2.5 m^3 p.a. therefore fuelwood requirements of 8.00 m^3 p.a. ≃ 3.2 cords

In terms of energy requirements, it is estimated that an average rural family will require
8.00 m^3 x 1,524 kwh = 12,192 kwh per annum

Woodlot Sizes Required to Meet a Range of Deficit Needs

1 ha of woodlot will yield 49 m^3 after a 7 year cycle with an average mean annual increment of 7 m^3/ha/year. Thus, to meet a minimum average deficit demand of 4.5 m^3 per year (that is 31.5 m^3 over 7 years), a woodlot area of 4.5 x 1/7 = 0.643 ha is required.

If total needs (i.e. 9.86 m^3 p.a.) are to be met, the total woodlot area required is 9.86 m^3/7 = 1.41 ha per family. Therefore, in a village of 100 households, to meet total needs a total woodlot area required is 100 x 1.41 ha = 141 ha.

To meet average minimum deficit needs of 4.5 m^3 per year, the village family must plant 0.643 x 1 ha/7 = 0.092 ha per year for seven years.

To meet total needs of 9.86 m^3 p.a. the village family will have to plant 1.41 ha p.a./7 - 0.21 ha p.a. for 7 years.

Number of Seedlings Required

If a stocking of 1,600 trees per ha is assumed (i.e. 2.5 m spacing), then to meet average minimum deficit needs of 4.5 m^3 p.a., 147 seedlings are required for 0.092 ha. However, 30% mortality in the field is assumed. Therefore, 191 seedlings p.a. are required to achieve average deficit yields. These are either planted over a slightly larger area of up to 0.12 ha or with blanking up of losses.

The main aims of the RAP were stated as:

1. to commence to meet the demands for wood (poles and fuelwood) of up to 50% of the population in the CAs;
2. to conserve the indigenous sources of timber by providing alternative wood resources; and
3. to improve the physical environment of the CAs by the planting and growing of trees (RAP Main Report).

In pursuing these objectives, the RAP was to involve communal area dwellers and other people in the growing, planting and managing of trees. The project was to encompass a number of activities. These were the establishment of rural nurseries, namely, main nurseries and flying nurseries, pole treatment plants, demonstration woodlots, villagers' fuelwood and pole woodlots, communal woodlots, block plantations and

urban plantations. A national tree planting programme was also incorporated. In addition, the project made provision for staffing, training, research and extension activities critical to project management.

The proponents of the RAP recognized that a lot of flexibility was needed in the implementation of the project. It was recognized that not every farmer would be willing or able to plant trees individually given the prevailing availability of land in the CAs. As a result, it was important to look at a number of planting and management options such as communal woodlots.

Casey (1986) posits that the RAP began and still exists on a narrow technical base of essentially three eucalyptus species, namely, E. grandis, E. camuldulensis and E. tereticornis. He argues that although these varieties are undoubtedly suitable for the provision of poles, they are not suitable for an integrated long-term agroforestry system unless carefully managed.

The RAP envisaged the main impact of the project to be the lessening of the extent and seriousness of soil erosion and other environmental consequences resulting from deforestation. In addition, the extension and educational aspects of the project were to assist in the realization of government policy of bringing all people in the CAs into participation in conservation of natural resources. Thus, since the major objective of the RAP Phase I was to develop a

national rural afforestation programme, it had to address comprehensively, issues of 'soil conservation and improvement, agroforestry, fruit tree production and management of indigenous woodland' (ibid, 14).

Land was recognized as a limiting factor in afforestation. The RAP main report argued that land constraints could not be overcome by purchasing land but could be overcome through the promotion of better land-use, including the integration of forestry with agriculture and employing marginal and otherwise wasted land for afforestation. Land tenure and land availability were thus regarded as major constraints to any rural afforestation effort.

2.4 LAND TENURE AND AFFORESTATION

Krogh (1989) postulates that the land tenure system and population pressures found in the CAs today should be analyzed from a historical perspective. Colonialism in Zimbabwe, like in so many other African countries, affected land management and land tenure systems. While in the pre-colonial era land management was a collective responsibility in the hands of the village, the clan, council or chief, the colonialists transferred collective land tenure to private and government land tenure. Land laws that were introduced in the process of taking over management of this resource changed land tenure as well as farming systems drastically. About three quarters of the African population were forced to live and engage in

agricultural production on 43% of the total land area, most of which is situated in agro-ecological regions IV and V which are the least productive. The concentration of the indigenous population on these marginal lands created tremendous pressure on the natural resource base which has continued to deteriorate as the population increases.

Shopo (1985), for instance, postulates that population pressure and widespread land degradation are major problems in the CAs. He argues that between 1961 and 1977 the number of cultivators in the CAs increased by 88% from 349,000 to 675,000. The total area under cultivation rose by 91% from 1.15 to 2.2 million ha. This means that the land that was previously used for grazing was now being placed under crop production. At the same time, cattle numbers increased by 70% from 2 million to 3.4 million with the resultant overstocking of the reduced grazing area.

The issue of ownership and control over land is said to have a direct bearing on land tenure and effective afforestation. For instance, Bruce and Fortmann (1988) argue that groups and individuals have distinctly proprietary attitudes about forest and other tree resources. People and communities assert rights in trees and the land that sustains the trees. These rights, the tenure, in which the trees and the land are held, affect incentives to participate in afforestation and determine how resources are utilized.

Pankhurst and Jacobs (1988, 2) take the argument further and observe that an incentive to invest in agriculture (and by extension afforestation) increases 'with exclusivity and security of tenure'. Some studies of land tenure, however, have shown that people farming land in accordance with custom rarely consider themselves as lacking in security. In reality, cultivators possess land as long as it is cultivated and their heirs inherit rights to cultivate the land. Along the same lines, Bruce and Fortmann (ibid) observe that tenure rules may, in some cases, provide incentives for tree cutting. They argue that, for example, a tenure system which confers tenure on a person who clears the land encourages deforestation driven by land hunger.

It is important to note, though, that the problem of deforestation is not a result of tenure as such, but the result of a dilemma faced by the CA dwellers of a finite land resource and an increasing population, leading to land scarcity. Thus, in order to increase food production to meet the needs of the growing population, more land has to be cleared.

Two important issues relating to land tenure, afforestation and conservation have been raised. One is that while degraded commons exist, their degradation has not been a simple and direct result of common ownership. Secondly, preservation and protection of the environment have also occurred under common management which has been practised with

considerable success to accomplish ecological ends (Munslow et al, 1988). Thus, the tragedy of the commons hypothesis, in as far as it applies to conservation, is increasingly being questioned on the basis that it assumes no cooperative behaviour and no emergence of local leadership to manage communal affairs (Anderson, 1987). This hypothesis precludes larger issues of political organization and the framework for popular participation in decision-making which is found in some of the communally held areas. In a study documenting experiences in other Southern African states, it is noted that traditional authorities have taken an active role in *mobilizing communities in preventing the destruction of the* resources upon which they depend for their livelihood.

2.5 THE NEED FOR A SOCIAL STRATEGY IN AFFORESTATION: WOMEN'S PARTICIPATION

In recent times there has been a proliferation of writings on the need for a social strategy in afforestation which encompasses implicitly the role of women in afforestation. This has been an important development basically because in Zimbabwe, for instance, 80% of the 4.4 million women live and work in the rural areas. Historical forces have brought about the incidence of out-migration of adult males to the towns, mines and commercial farms to seek greener pastures. As a result, 51% of the 800,000 families living in the CAs are female headed (Krogh, ibid). These

women, who are the de facto heads of households, constitute the marginalized food producers in the predominantly subsistence economies of rural Africa. Thus, women bear a large burden of the work within the household unit. They carry the responsibility for household chores, collect firewood and water, rear children and the majority of them provide the physical labour needed in crop production. In general, women produce 70% of the crops and almost all of the household energy requirements.

Since Rural Afforestation is an approach to forestry aimed at inducing a large number of small farmers to plant fuelwood trees on their land or land set aside for such a purpose, it has to meet a number of social prerequisites. These prerequisites, according to Rocheleau (1988) and Cernea (1985), go beyond the individual adoption of an innovation regarding tree-growing and encompasses more complex processes of collective adoption. One of the social prerequisites is the existence of a social organization or structure capable of sustaining such an innovation. In addition, other social factors, including purposeful patterns of social organization for conserving natural resources or for producing new resources; existing land tenure systems that are conducive to the success of the innovation; ownership rights to the newly developed resources, for instance woodlots; authority mechanisms for collective decision-making and for mobilizing group action as well as social perceptions and attitudes; are

crucial to the success of an innovation -- in this case, rural afforestation.

What is important in designing a social strategy for afforestation, therefore, is the identification of the unit of social organization likely to undertake a project or programme and do so successfully. Such social units of organization can either be existing social groupings, for instance, the family household, or groups specifically organized for tree-planting and protection such as women's clubs (West, 1983). The criteria for bringing together women into a social unit or organization should be a willingness on their part to associate and participate, and a perception of both self-advantage and co-responsibility (ibid).

Women's participation in afforestation is in a very significant way linked to their right of access to land. Pankhurst and Jacobs (op cit) and Chimedza (1988) from their studies conducted in Zimbabwe, found that women perceive themselves as having no power to influence decisions about what crops to plant on the family plot and are frustrated by the lack of access to land which they can control for cultivation of crops they prefer. While women are the <u>de facto</u> heads of households, men still remain the <u>de jure</u> heads of households. Accordingly, decisions regarding which crops to grow are made by their husbands who work and reside in urban centres. The women, in effect, implement directives about which crops to grow from their husbands. It is within

this context that Mvududu (1990) argues that gender is of fundamental importance to forestry (as it is to agriculture) since it shapes the division of labour within the larger society in general, as well as within forestry itself. That is, there is a link between the nature of gender relations and the levels and forms of agricultural production -- and by extension, forestry. Gender also influences the division of resources such as money, land and education -- all of which influence the use of forest resources. She further observes that gender-based differences in land tenure and use rights often constitute a major constraint to women's participation in afforestation and determine the legal context for control of social forestry systems.

Gender-based differences in land tenure and use rights have undergone changes from the pre-colonial period, through the colonial period to independence. In the pre-colonial period, a lineage-based land tenure system assured women use rights to land. Women had access to a socially defined minimum amount of land, parcelled out from the family land, on which they could grow food crops of their choice ranging from beans, grains, ground nuts and vegetables. Colonialism affected women's rights to land by confining the African population to the 'Native reserves' thus creating artificial land shortages within these reserves. This had the effect of heightening competition between men and women's access to land (Pankhurst & Jacobs, ibid). Also, colonial policies in some

of the reserves changed men's rights to land -- guaranteeing individual tenure and inheritance rights (as in Purchased Lands). At the same time, these policies did not define women's access rights to land.

For Williams (1985) women are important in forestry as contributors to the effectiveness of resource management and development. Their participation also broadens forestry to encompass the total range of human use of forest resources. Rocheleau (1988) argues that women as farmers, are perceived as fuelwood cutters and consumers, as forest 'invaders' and as mothers, and are therefore seen as acting against the national global environment. They are, thus, targeted for environmental education and regulatory action -- programmes which emphasize negative goals, prohibiting women's access and use of forest products, changing traditional methods of firewood use and limiting family size. What is significant in Rocheleau's input is that the negative perceptions of women as destroyers of the environment through their activities for survival is translated into policies that deal with environment and conservation issues.

Thus, while researchers and workers in forestry have recognized the potential of women in solving resource management problems, their approach has been that of using women as free or cheap labour to work on social forestry projects. A more positive approach would be to analyze the historical processes that have given rise to the prevailing

situation, namely land expropriation and alienation from decision-making of the African communities in general and women in particular, and incorporate these in developing strategies on environment and conservation. Women have also been targeted as individuals or women's groups and not as members of a community. Such an exclusionist approach, argues Rocheleau (ibid), has in some cases led to the alienation of men who could have played a significant role in afforestation.

The idea of seeking community participation in any development venture is not new. However, the history of limited participation, particularly by women, calls for an approach which empowers women for effective participation in afforestation. The process of identifying the unit of social organization as part of the strategy for afforestation should also include empowerment of the identified social unit. The greatest challenge to the RAP is the extent to which it can empower women, by not only focusing on issues of land tenure, ownership and accessibility, but also legal and social constraints to women's access to this important resource.

2.6 WOMEN'S OWNERSHIP AND CONTROL

Women in Africa have contributed to agricultural production by providing 70% or more of the total agricultural labour (Boserup, 1970:22). Women, therefore, form the

backbone of the subsistence economy and are required to make decisions regarding land preparation, when to plant, seed, harvest and sell their surplus produce. Their participation in subsistence production is therefore crucial in terms of labour input and management abilities. However, of importance is their ability to make decisions about the utilization of one of the major factors of production -- land. Chimedza (op cit), in a study conducted in Ruwambwe area, Zimbabwe, found that contrary to the belief that women whose husbands are in wage employment away from home had more decision-making power and control over land they tilled, men still exerted a lot of influence on the allocation of land. Also, in the case of widows, male relatives made decisions regarding land allocation. This state of affairs is due to the fact that men are recognized by the women and by law as custodians of usufruct rights even in their absence.

The nature and extent of women's access to and control over land has important implications for rural afforestation. It is, therefore, important that in analyzing the effectiveness of afforestation efforts, special attention be given to the implications for afforestation of women's relationship to land. The lack of women's access to land has been defined as the absence of title to use or ownership rights which excludes women from controlling land utilization through decision-making processes (Chimedza, op cit). For instance, in the case of agricultural production (which is a

major production activity for women in the rural areas), men make allocational decisions with regard to which crops to grow. Their decisions have tended to undermine food production and promote cash crop production. This shift has been achieved through the allocation of more land and more labour time to the latter.

In addition, because women lack access and control over decisions regarding land utilization, they also lack control over cash proceeds from their agricultural produce. The experience of afforestation using the woodlot method has at least demonstrated that where women have usufruct rights to land, as a collective, they also have control over decisions regarding proceeds from the woodlot. The question that remains to be answered is how women can proceed to have control over decisions regarding which trees to grow and for what purpose. The answer lies in the fact that women lack the power to make decisions regarding the allocation of resources. Consequently, arguments that the communal land tenure system poses a constraint to effective afforestation should be reviewed. What seems to be at stake here is the issue of equality and social justice which requires the alteration of patterns of allocation and redistribution of property rights and, consequently, the power structure and women's status within the household and society at large. Such changes require the political will to implement radical changes such as land reform accompanied by changes in the processes of

socialization which have, through legal and other social mechanisms, defined women as perpetual minors in society. Land reform thus implies the distribution of access rights to achieve more equitable access to land, water and forests.

CHAPTER III

3.0 METHODS

3.1 INTRODUCTION

In pursuing the objectives outlined in Chapter I, various methods were used. Most of the information was obtained through existing sources and through interviews and dialogue with women, extension workers and government officials. Interviews with extension workers, government and non-government officials were used to supplement the literature search.

3.2 THE STUDY POPULATION

The population under study consisted of all women involved in afforestation projects in four villages, two in the Seke district of Mashonaland East Province and two others in the Zaka and Masvingo districts of Masvingo Province. Each village consisted of, on average, approximately 100 households.

3.3 SAMPLE SIZE

The sample size was 50 households -- 25 from two villages in Seke district and 25 from two other villages in Zaka and Masvingo districts. Since personal interviews were conducted with respondents, 50 households were the maximum number that

Figure 3.1 Mashonaland East Province

(Source: CSO, 1988)

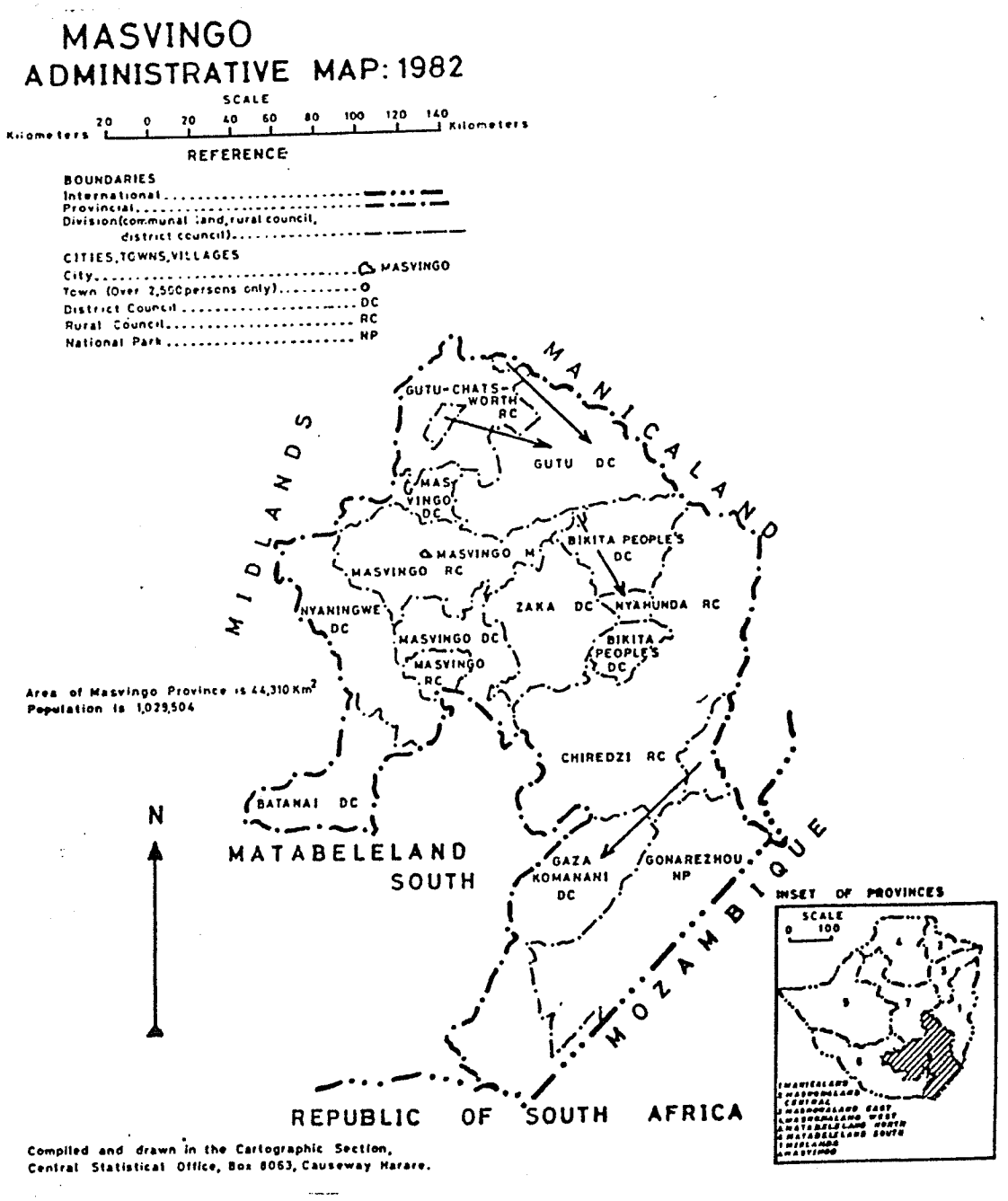

Figure 3.2 Masvingo Province

(Source: CSO, 1989).

the researcher was able to interview given time and financial constraints.

3.4 SAMPLE DESIGN

A judgemental or purposive sample design was used because projects for study were selected on the basis of prior knowledge of their existence and their conditions. Villages with the following attributes were selected:

- afforestation projects established with the involvement of women;
- different agro-ecological regions;
- women participants in these projects were also participants in community development initiatives.

3.5 DATA COLLECTION

A survey design constituted the primary method of data collection. This included personal interviews, as well as a literature survey.

I. Personal Interviews

Personal interviews were conducted with the following respondents:

- 50 women participants in the afforestation projects in the four villages mentioned;
- selected government officials and extension workers from the Department of Natural Resources and the Rural Afforestation Project;

Figure 3.3 Individual Interviews at Nago Village, Masvingo District

- selected non-government organizations' officials and extension workers from Enda-Zimbabwe and the Association of Women's Clubs.

In total, 50 interviews were conducted in four villages. The interviewees were selected on the basis of availability since during the dry season women visit their husbands in the cities. The method of data gathering was both complementary and interactive with techniques used being a combination of structured and unstructured interviews to allow for participation in the interview by respondents. The unstructured interviews which allowed for probing were particularly useful, taking into consideration the particular characteristics of the respondents. That is, rural women, the majority of whom have low levels of education and are very reluctant to share their attitudes and beliefs with people external to their community and family network. Because of these characteristics, structured interviews, on their own, tended not to generate accurate information.

A mixture of group and individual interviews were carried out. Those informants who did not readily give their opinions in a group setting were able to do so when individually interviewed. On the other hand, group interviews enabled women to discuss certain incidents, correct discrepancies and reach consensus on issues. Also, since women have had contact at various times with service organizations, the approach

used, which was in essence participatory, was important in that I had been involved with some of their projects before as a programme officer for the Association of Women's Clubs, a non-government organization involved in community development activities throughout the country. I, therefore, brought into the study my experiences in working with the respondents on a number of development projects including water provision, vegetable gardening, other income-generating projects and afforestation.

In addition, a research assistant from the Association of Women's Clubs was used in interviewing respondents individually and in groups. The choice of this particular research assistant was deliberate and was in line with the researcher's commitment to sharing research experiences with a functionary from a women's organization. In effect, biases stemming from prior knowledge of the issues involved were brought to bear on the research outcome. Women were able to ask questions and I was able to clarify my position as a student researcher and not a representative of a donor or service agency. This was very important in terms of getting responses that reflected their real situation rather than giving information which they thought was expected of them.

Information from respondents was obtained through the use of nonschedule-structured interviews which is an informal tool for gathering data. The nonschedule-structured interview is applied to respondents who are known to have been involved in

Figure 3.4 Group Interviews in Madzivire Village, Zaka

a particular experience. The nonschedule-structured interviews provided for a structured encounter between the interviewer and respondents, but at the same time, it allowed respondents to express their opinions, elaborate their answers and seek clarifications.

With the nonschedule-structured interview, a data collection schedule was used. This schedule included:

1. demographic information such as age, source of income and marital status of the respondents; and
2. instruments such as the ordinal level of measurement which were used in the ranking of responses for comparative purposes.

II. Literature Survey

The literature survey included:

- government documents such as the National Conservation Strategy, the Rural Afforestation Project document; as well as progress reports compiled by field staff;
- reports and records of the extent of deforestation and, therefore, fuelwood shortages in the two wards under study prior to the implementation of the Rural Afforestation Project;
- records indicating the number of trees planted and the acreage covered; the species planted, its growth and survival rate; as well as the rationale for

choosing that type of tree species as opposed to others.

3.6 DATA ANALYSIS

Descriptive statistics were used as the primary method of data analysis.

Under descriptive statistics, two univariate techniques were used, namely, the frequency distribution and the mean.

Because the study focused on multiple group comparisons, within-site and cross-site matrices were used for purposes of identifying emerging patterns in responses.

CHAPTER IV

4.0 FINDINGS

4.1 THE RESEARCH AREA

A sample was drawn from four villages in two provinces. These were the Madzivire and Nago villages in Masvingo Province and the Bwoni and Murape villages in the Mashonaland East Province. On average, each village had a hundred households. However, not every woman in the village was actively involved in the project. Table 1 shows the age distribution of project participants in the sampled areas. Respondents' age distribution ranged between 16 and 60 and those in the 30 to 39 age category were in the majority.

All the villages sampled were in agro-ecological region IV which is suitable for growing Rapoko (Millet), Mhunga (Sorghum), Sunflowers and early maturing Maize. Trees that are indigenous to the area are Mupane (Colosphospermum mopane), Muchakata (Parinari curatellifolia), Acacia and Mutohwe (Azanza Garckeana). The villages in both Mashonaland East Province and Masvingo Province lie within areas characterized by low, erratic rainfall ranging between 800-1000 mm p.a. for Mashonaland East and 500 mm p.a. for Masvingo (Figure 4.1). The soils are sandy and granitic and are therefore marginal for agriculture. Eucalyptus species suitable for these areas are Eucalyptus Grandis and Eucalyptus tereticornis.

TABLE 1

AGE DISTRIBUTION OF PARTICIPANTS IN THE FOUR PROJECT AREAS

AGE (years)	No. of Respondents
16 to 29	13
30 to 39	20
40 to 49	8
50 to 59	6
60 and over	3

n = 50

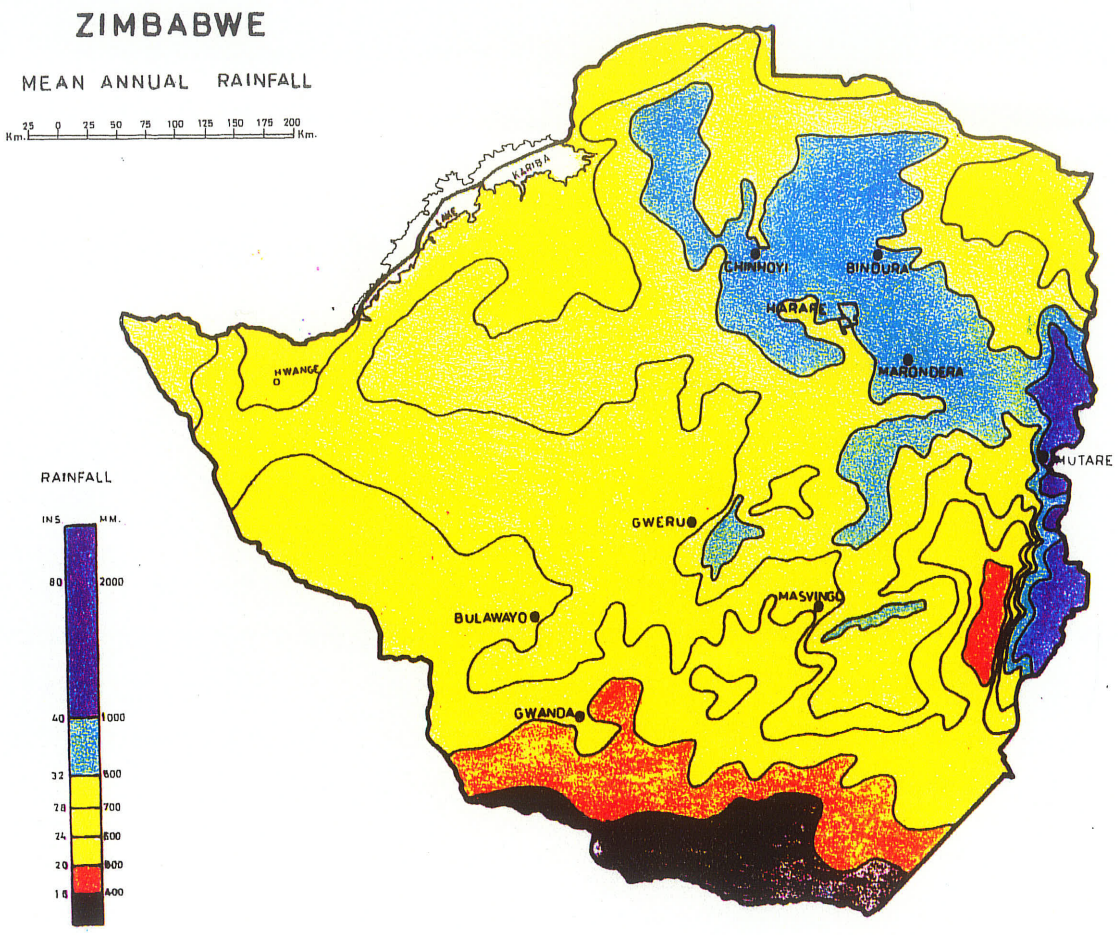

Figure 4.1 Zimbabwe Mean Annual Rainfall

(Source: National Conservation Strategy, 1987)

The Madzivire village is in Zaka district within Masvingo Province and is situated approximately 7 km from Jerera growth point. Project participants were approximately 100. Nago village is in Masvingo district and is situated approximately 35 km from Masvingo. The Nago project is unique among all the four project groups interviewed in that members of the Nago project all belong to the same extended family and both men and women participate in the project. More than half of the project members were women married to the chief of the village who is also a Village Development Committee (Vidco) chairman and a master farmer in the area. Active project members were 14, 10 women and 4 men. This group did not start out as a club organized by women in the village, but a family grouping organized by the chief to engage in a number of development projects. The women later joined AWC to have access to skills training programmes offered by the organization.

The Kuwirirana and Karengwa clubs are approximately 60 km from Harare. Both clubs have 10 active members. All the groups interviewed were involved in other projects in addition to the woodlot project, the most prevalent being vegetable gardening.

4.2 COMMUNITY FUELWOOD NEEDS

Respondents were asked to indicate the type of energy they used for cooking and heating, how much firewood they

TABLE 2

POPULATION DENSITY DISTRIBUTION IN THE THREE DISTRICTS

DISTRICT	POPULATION	AREA (square km)	DENSITY
Harava	26 066	328	76.3
Masvingo	38 496	3 884	9.8
Zaka	136 886	2 751	49.8

(Adapted from CSO 1982 Population Census)

TABLE 3

AMOUNT OF FIREWOOD USED PER FAMILY PER MONTH

1 scotchcart = 1 cord = 2.5 m^3

# OF RESPONDENTS	# OF FAMILY MEMBERS	AMOUNT (Scotchcart)
4	less than 5	1
17	5	1
23	7	1
6	15	4

n = 50

used, where that firewood came from; and also indicate if they perceived any firewood scarcity.

Almost all groups interviewed were using firewood exclusively for cooking and heating with the exception of a few members of the Kuwirirana project. These women supplemented firewood with maizecobs and gas, which are used mainly for cooking. The rest of the women interviewed indicated their awareness of other energy sources such as paraffin (Kerosene) and gas. However, they contended that they could not afford these even if they were available in the villages.

The amount of firewood used varied by the number of persons in the family (see Table 3). On average, these women collected wood 2 to 3 times a week and spent between three to eight hours collecting firewood, depending on their proximity to the forest and the number of family members. If a woman collected firewood twice a week and spent 5 hours doing so, then she spent a total of 2 x 5 x 52 = 520 person hours per annum collecting firewood.

If the total needs for firewood for an average rural family are 8.0 m^3 per annum, then the family's energy needs derived from this need would be 8.0 m^3 x 1,524 kwh = 12,192 kwh per annum. Thus, a woman spends 520 person hours per annum to meet this deficit, that is, 520 person hours are spent by a rural woman per annum to meet energy needs of 12,192 kwh.

Assuming that the cost of electricity is 7 cents per kwh, then the cost of 12,192 kwh (i.e. 520 person hours) will be $853.44. Thus, the value of labour and time put into collecting firewood is estimated at $853.44 per year.

The government of Zimbabwe has, in its Five-Year National Development Plan (1986-1990) recognized the need to avail the use of coal and electricity to the rural areas to raise the quality of life while at the same time reducing the degradation of the environment as a result of the destruction of forests. The above calculations, therefore, give an indication/estimate of the amount of energy required to meet rural family's needs and its costs.

In general, all respondents were of the opinion that they had difficulty in getting firewood. Respondents from the Kuwirirana and Karengwa clubs said they purchased the bulk of their firewood and supplemented that by collecting firewood. The other two groups, that is, the Nago and Madzivire groups depended entirely on collecting firewood.

Despite the fact that all these groups had Eucalyptus woodlots at various stages of development, all of them did not regard them as a major source of firewood. They still went out to collect indigenous trees which they supplemented with off-cuts from eucalyptus.

TABLE 4

NUMBER OF DAYS SPENT COLLECTING FIREWOOD

NUMBER OF DAYS	NUMBER OF HOUSEHOLDS
1	4
1.5	17
2	20
2.5	9
	n = 50

TABLE 5

TIME SPENT COLLECTING FIREWOOD

TIME	NUMBER OF HOUSEHOLDS
Less than 1 hour	10
1 - 2 hours	29
2 - 4 hours	9
4 - 6 hours	2
	n = 50

4.3 THE RURAL AFFORESTATION PROJECT

Respondents were asked to indicate how they first learned about the project, what they knew to be the objectives of the project, their views on the training they received and the species used in the woodlot project.

Respondents maintained that they found out about the project from different sources. Some learned about the project from their neighbours who were already involved in the project; others were informed by the forestry extension officers; and yet others learned about the project from the agritex extension workers. In addition, all members had learned about tree-planting from the activities surrounding the National tree-planting day, which falls on the first Saturday of December. Respondents understood the objectives of the project as encouraging communities to plant trees to have future supplies of firewood and roofing timber.

Woodlot projects in the areas of study were started between 1983 and 1986 and their acreage ranged between 1 acre and 8 acres (see Table 6). In all cases, the site for the woodlot was chosen by the Headman and the Agritex worker.

All respondents felt that they had been consulted in making the decision about where the woodlot would be located and were satisfied with the location. Three out of four sites needed preparation, such as destumping and ploughing using oxen. The one site that did not need preparation had been

TABLE 6

WOODLOT PROJECT SIZE (in acres)

1 acre = 0.4 hectares

1 hectare = 2.5 acres

PROJECT NAME	WOODLOT SIZE	# OF PARTICIPANTS
Karengwa	5.0	10
Kuwirirana	1.5	10
Madzivire	5.5	100
Nago	8.0	14

(approximate acreage)

used before by a community member for crop production but was abandoned because it was no longer productive.

The work of preparing the site and subsequently planting trees was done by women and some men in the community. Only two groups had kept a record of how many seedlings were actually planted and none knew how many had survived. In all cases, seedlings planted in the first year of the project were bought for 3 cents a seedling from the Forestry Commission nurseries. Only one project was able to raise its own seedlings for subsequent years, although each group had some members trained in raising seedlings by the forestry extension officers. The reason mentioned for not being able to raise seedlings was lack of water. The Eucalyptus species used in all four projects are E. camuldulensis and E. tereticornis. Respondents maintained that since they had no prior experience in tree planting, with the exception of a limited variety of fruit trees, they left it to the agritex and forestry extension workers to educate them on tree-planting and this included the choice of species for the woodlot.

The extension workers carried out on-site training on raising seedlings and woodlot management. With regard to raising seedlings, the respondents felt that although they had the techniques, they were constrained by the problem of water which affected all groups. The majority of respondents felt that they only had information and training on raising eucalyptus seedlings, establishing and managing eucalyptus

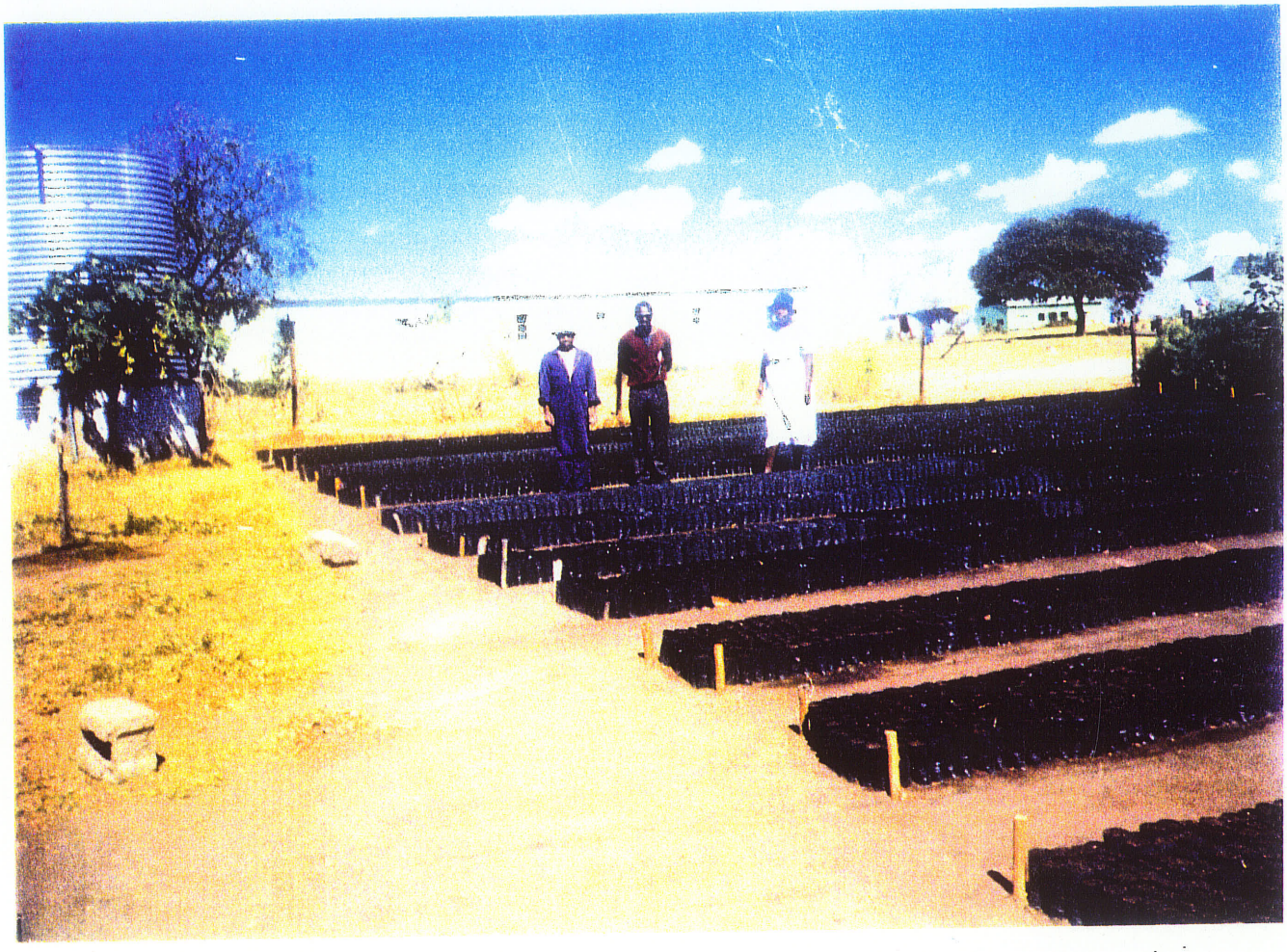

Figure 4.2 F.C. Central Nursery in Jerera Growth Point, Zaka

woodlots. Not much information had been availed on these aspects with respect to the trees that they were familiar with in their own area, for example, Mutamba, Mutohwe, Muhnondo and Msasa trees. In addition, only 4 out of 50 respondents had ever heard of fuelwood saving devices and none of them had actually seen one or been told how it worked.

With regard to the choice of species, all respondents said they would choose both indigenous and exotic species for woodlots. They argued that, in their experience, the eucalypts were good as building poles and that indigenous trees made good firewood.

4.4 FREQUENCY OF ATTENDING TO WOODLOT

We wanted to find out whether the frequency of attending to the woodlot was determined by the distance of the respondents from the woodlot. All respondents lived within 2.5 km of the woodlot and did not express any concern over the distance (see Table 7). The number of times the respondents attended to the woodlot did not appear to be linked to the distance, but appeared to be linked to the tasks that needed to be done depending on the size of the seedlings, the need for watering and preparation of a fire-guard in the dry season.

TABLE 7

DISTANCE OF RESPONDENTS FROM WOODLOT

DISTANCE	NUMBER OF HOUSEHOLDS
500 m	23
1 km	12
more than 1 km	15
	n = 50

4.5 HARVESTING

Questions regarding harvesting were posed to determine whether respondents had a perception of how long it would take before they could actually harvest the woodlot, who was in control of harvesting and if any of the groups had benefitted from the woodlots and what the benefits were.

All the groups expected the trees to mature between ages 5 and 7 in line with what they were told by the extension officers. Two out of the four groups had actually harvested building poles from the woodlots. The harvesting was done mainly by men. One of the male respondents pointed out that the poles were sold to members of the community and that the money which was as yet not divided among members was kept by the female treasurer. No record was kept by the groups of how many trees were harvested. Women respondents said that after the trees were harvested for building poles, off-cuts were left in the woodlot to dry and would later be collected for firewood.

4.6 WOMEN'S OWNERSHIP AND CONTROL

Questions were asked to determine women's perception of their ownership and control of the project and whether issues of ownership and control posed a constraint to the sustainability of the project.

Respondents were unanimous in the conviction that they owned the woodlot. They also concurred that, as individual

women, they did not own land and did not even know how to go about acquiring land. But as mothers in the household, they were responsible for producing food from the land and sustaining the family. One respondent expressed women's unspoken concerns over land ownership this way:

"The question of ownership pains me a lot because when I separate from or get divorced by my husband, or he passes away, I go home empty-handed because I don't own anything. Attending meetings will help us women help each other understand our situation as women with regard to ownership of land." (Amai Chiedza Madzivire)

Whereas respondents expressed these concerns, they felt that the question of ownership did not affect their enthusiasm over the project and the application of what they learned in the woodlot project to their own individual plots. Neither did the women think that woodlots were an additional burden to their already heavy workload. Respondents maintained that woodlots were going to benefit them in the future.

"We believe that we do not exhaust our energies by working. When I work in my field, plant trees to make my field more productive and my homestead look beautiful, I am working for myself and my children." (Amai Evelyn Zimuto)

Figure 4.3 Eucalyptus Woodlot in Madzivire Village

4.7 ATTITUDE TOWARDS PROJECT

Respondents were asked to rank a number of projects according to their importance and also express their opinions about the project. None of the respondents mentioned the woodlot as a priority. Instead, poultry-keeping and vegetable gardening featured high on the list and woodlots came last. The argument presented was that it took a long time, 5 years or more, for the eucalyptus woodlot to have any tangible benefits, while poultry-keeping and vegetable gardening had quick financial returns.

Woodlots were not seen as a source of firewood but as a source of building poles. Respondents observed that eucalypts burn fast and do not provide charcoal and that they have a bad smell which sends the family spirits away. However, they argued that they would continue to plant eucalypts given land availability because they provided building poles. In addition, the woodlots encouraged the community to stop cutting down young indigenous trees, thus giving them an opportunity to grow and provide a source of firewood.

A significant number of respondents said that the project has increased their awareness of the importance of trees to their subsistence in terms of providing rain, preventing soil erosion and providing firewood, and most importantly, the project has helped them understand that they can do something to keep trees on the landscape. Table 8 summarizes women's perceived benefits of the woodlots. Of interest to note is

that the majority saw woodlots as a source of construction material rather than provision of firewood.

4.8 FORESTRY OFFICERS' VIEWS

In general, the forestry extension workers in the project areas regarded the woodlot projects as a learning exercise from which they had learned methods of approaching communities to participate in activities. They also felt that through the woodlot projects they had developed on-the-field working relationships with Agritex and a number of other government agencies working in the area of rural development, as well as with non-government organizations, notably the Association of Women's Clubs and Enda (Zimbabwe). Inputs which were provided under the programme, namely training (on-site and training centres), seedlings, pesticides and wire for fencing, were seen to have contributed to a large extent to the enthusiasm with which project participants adopted the project. In addition, these inputs contributed towards better management of woodlots, seedling survival and, consequently, the expected yield of wood.

Forestry workers did indicate that the monitoring aspect of their activities was weak. For example, they were not able to keep track of the actual numbers of seedlings that did not survive. However, from their observation of the woodlot and also from the project participants' own observations, seedling mortality rate was negligible. The Information and Extension

Officer of the F.C. felt that in view of the fact that the RAP was implemented as a pilot project, it has been a success in the sense that it has brought out the strengths and weaknesses of approaches to afforestation such as woodlots and has availed to the F.C. the experience of working closely with rural communities.

4.9 THE ROLE OF NON-GOVERNMENT ORGANIZATIONS

Non-Government Organizations in Zimbabwe have had some significant inputs into the afforestation efforts in the CAs. The contribution of NGOs such as the Christian Care and the Red Cross has been in supporting seedling production and distribution to schools. The Association of Women's Clubs provided a channel through which the training of women from the CAs could be conducted on-site or at training centres around the country. With funding from the African Non-Government Environment Network (ANEN) and the Canadian High Commission in Zimbabwe, A.W.C. was able to purchase seedlings from the F.C. nurseries which were distributed to women's clubs on request for starting woodlots or planting them around the homesteads. Enda-Zimbabwe has gone further in its contribution to the afforestation effort to include research in the collection of seeds from indigenous trees and raising seedlings with the participation of communities. Communities have also been mobilized to assist in the identification of indigenous trees in their communities and to participate in

enrichment planting, that is, planting seedlings within existing gaps in the woodland.

This collaboration between the F.C. workers and NGOs has been commended on both sides and is seen as one of the elements in the afforestation effort which needs to be strengthened.

Figure 4.4 Interview with the Provincial Forestry Offices, Masvingo

TABLE 8

PERCEIVED BENEFITS OF EUCALYPTUS WOODLOTS

BENEFIT	# OF RESPONDENTS	TOTAL # RESPONDENTS
Provision of firewood	20	50
Provision of construction material	46	50
Prevention of social erosion	22	50
Provision of shelter	15	50
Aesthetic value	43	50

CHAPTER V

5.0 DISCUSSION

5.1 INTRODUCTION

The implementation of the RAP (Phase I) in the communal areas has provided extension workers and policy-makers alike with experience from which lessons can be derived for the implementation of RAP Phase II. One such lesson is the success that the forestry extension officers had in working collaboratively with the Agritex officers at the field level, something which has eluded their seniors at the head office level. For instance, agritex extension workers are responsible for motivating villagers to plant trees while the forestry extension workers teach women about the uses of trees, how to plant trees, how to manage a woodlot and also provide fencing and pesticides to the community.

Forestry extension workers had to adapt strategies of getting communities involved in afforestation to fit in with existing conditions in the community. A point to note here is that foresters traditionally are not trained in extension. However, in collaborating with Agritex workers and out of experiences gained in working with rural communities, they were able to appreciate that processes involved in mobilizing communities to plant trees include not only being able to identify the site for the woodlot and availing seedlings; but identifying the power block in the village. In two of the

villages sampled, political and social authority was vested in the headman who was also the VIDCO chairman working hand-in-hand with the community development workers who is a woman. The RAP provided for the training of both the leaders in the community and women participants. However, training could not be provided to all participants since some of the women visited their husband in the urban areas during the dry season. Also, communities were given fencing material and pesticides as incentives. This was catered for in the RAP project document.

Out of their experiences in working with communities in tree-planting, the forestry extension officers have come to realize that there is a need to diversify their activities to include agroforestry. To this end, agroforestry trials have been conducted in Zaka district with Lucaena and maize and also sesbania sesban which is a legume.

5.2 WOMEN'S PARTICIPATION

The importance of women in the implementation and success of the project was captured by Mr. Maposa who stated:

"If there were no women, this woodlot would not exist. Men will accept an innovation but will not do the work."

What came through clearly was the fact that government and non-government officers alike recognized that women were

central to the success of the RAP since they were the ones most affected by deforestation and, therefore, shortages of firewood and building materials. As a result, although benefits from the woodlots take some time to be realized, women were motivated to participate in order to get these benefits in the future.

The fact that women became central to the implementation of the RAP was not because the RAP had specifically targeted women. It was a result of the socio-economic realities of the communal areas where men have to go to the cities to find employment because the land no longer suffices to provide for the needs of the household. Women, then, are left to till the land and they are the same people agritex and forestry extension workers have to work with.

It was relatively easy for women to adopt the innovation of tree-planting because in all cases women had existing structures through which they collaborated in community development activities. For instance, women were already organized around income-generating projects or social clubs. To facilitate their participation, approximately two-thirds of the women in the project areas were trained in conservation, nursery practices, that is, raising eucalyptus seedlings, and methods of establishing and managing woodlots. This training was made possible by the collaboration between the RAP personnel at the field level and field officers from Agritex, Natural Resources, local government officers and non-

government organizations such as the Association of Women's Clubs and Enda-Zimbabwe.

The tree species propagated was the eucalyptus since the RAP had prior knowledge and experiences with eucalypts. No mechanism was in place within the RAP to get women's input into tree-planting before actual implementation. This was probably because the project was responding to a perceived fuelwood crisis as reflected in the Whitsun report and the recommendation that fast-growing exotics be planted as a response to this crisis. Also, there is no history of community involvement, at least within the Forestry Commission, in the planning of activities. The women themselves acknowledged that they had no prior knowledge of tree-planting other than fruit trees.

Where women have participated in establishing woodlots as a social club or income-generating grouping, benefits from the woodlot accrued to them directly. What they received from the woodlot, whether it be money from the poles sold or firewood from off-cuts, was used in their household. So, in effect, by participating in the woodlot projects, women save time which would otherwise be spent collecting firewood and they also gained money from poles sold. In addition, they developed a sense of independence and confidence in being able to work with other women outside the home and make decisions without having to have that decision sanctioned by their husbands.

However, the question that still needs to be asked is whether women can carry on and sustain this innovation. Officers from the RAP, Agritex and non-government organizations consistently pointed out the need to be able to identify local structures that were able to motivate communities to adopt the innovation and sustain it. Such an approach, it is argued, was significant in that it highlights to the outsider (NGO and Government Officers) the nature of organization in the community and, more importantly, who in the community has the ability to mobilize the community around any task that needs to be performed.

5.3 CONSTRAINTS TO SUCCESSFUL AFFORESTATION

What emerged from the study with respect to women's participation was the fact that women had in fact shouldered the responsibility of woodlot establishment. In all four villages sampled, women constituted the only participants with the exception of the two men in two villages who were accepted and respected by the community as authority figures and took the role of organizers and motivaters. This reality vindicates Rocheleau's position that afforestation should be introduced as a community effort rather than focus on women for such an activity. Change agents such as extension workers could persuade these people in authority to involve those men residing in the villages to actively participate.

The proponents of Rural Afforestation have raised the issue of land tenure as a constraint to effective afforestation. However, the issue of land tenure did not emerge as a matter of concern in the long-term sustainability of tree-planting efforts in the sample areas, but rather the issue of land availability, access and management. At present, woodlots are established on marginal lands allocated to an organized group. Given the population density in the sampled areas, there is a real constraint to establishing more communal woodlots to meet the needs of the community. Possibilities of moving from communal to individual woodlots were ruled out by women and extension officers alike as not feasible given the perceived land shortages. There are areas where communities do not have enough land to grow their food. Others graze their animals between contours of approximately 45 m strips. Pressure on the land for grazing, food production and afforestation is increasingly felt as the population continues to grow in the CAs. The government of Zimbabwe has attempted to relieve this pressure by embarking upon a resettlement scheme which has of late been criticized for paying little attention to land management issues. As a result, resettlement areas are already experiencing rapid environmental deterioration. In these areas, land-use management techniques could be used to allocate land for various uses.

Water also emerged as a constraint to successful afforestation. The sampled villages are in a region of low, erratic rainfall, as indicated earlier on. Thus, although people have been encouraged to plant trees during the rainy season, they still need water to grow seedlings, for example. Both women respondents, forestry and Agritex officers pointed out that for communities to grow their own seedlings and not depend on the F.C. nurseries for their supplies, they have to have access to reliable sources of water. In all the villages sampled, women raised the issue of water as one of the major problems facing them in their daily lives. Although attempts have been made to provide the villages with clean water through boreholes, only one borehole services a village of approximately one hundred households. Given the prevailing conditions in the CAs, the argument that has been raised that rural afforestation should be viewed as a rural development strategy has to be seriously attended to.

Other issues that have emerged as constraints to successful rural afforestation have to do with the slow decision-making processes which are almost always vested in men; also shortages of extension officers within the F.C. For example, in one instance a forestry extension officer had to service a district covering 378 hectares on a motorcycle limited to a mileage of 400-500 km.

In view of the preceding constraints, respondents have pointed out that they are willing to plant trees around their

homesteads and in their field -- something that most of them have practised for some time. Under such circumstances, agroforestry techniques could be introduced to complement woodlots. Otherwise, given the perceived shortage of land to engage in food production and provide grazing land, woodlots, if continued, are bound to encroach on land used for food production and grazing. The answer seems to lie in agroforestry which is presently conducted on trial bases. Agroforestry includes the dispersal of trees in cropland, either singly or in clumps, contour vegetation strips with multipurpose trees, alleycropping and windbreaks between properties or field (Rocheleau et al, 1988:16). In looking at alternatives to woodlots, for example, it becomes evident that the training women have so far received from the RAP Phase I has not equipped them with the necessary knowledge to be able to make choices that are in line with their objective conditions. Herein lies concern for the sustainability of afforestation efforts.

Although some extension officers did indicate that they were experimenting with leucaena and sesbania sesban, these experiments are still in their infancy and have not as yet reached the stage of dissemination to the community. Also, research into indigenous species and their uses is still in its infancy. The success of these efforts depends, not only on the departments of forestry, agritex and some NGO's, but on the input of women who are the ultimate users.

CHAPTER VI

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

One of the RAP's objectives was to 'provide education, information and extension services necessary to promote tree planting and management communal farmers'. Communal farmers, therefore, were, in effect, assigned the role of tree planting and management backed by training and extension from the forestry extension officers. They were not seen as having a role in determining the approach to afforestation which would be in line with their knowledge of their conditions and their preferences in terms of choice of species. Given this background and the preceding discussion, some conclusions can be reached with regard to rural afforestation, its effectiveness and the reality of women's participation. These conclusions are based primarily on data gathered in four villages in which woodlots were established primarily by women's clubs.

The main conclusion that can be drawn from this study is that women's access and control over land constrains their effective participation in rural afforestation. Another important conclusion that can be drawn from discussions with women participants is that the RAP has succeeded in raising awareness about the need to plant trees in response to perceived shortages of firewood and building materials. This

success can be attributed, to a large extent, to the collaboration at the field level between the FC workers and Agritex and NGO workers. The latter have a long history of working with these communities and have, over time, gained the confidence and respect of these communities. The RAP has also played a crucial role in generating an interest in afforestation among NGO's which otherwise were engaged in rural development projects to the exclusion of afforestation. Because of the stress laid on income-generating potentials of the woodlots by the extension workers, communities tend to view woodlots, not as a major source of firewood, but as a source of timber for building purposes. This perception is further endorsed by the preferences of women for indigenous wood for cooking and heating over eucalypts because of the purported negative qualities, namely, that it burns fast and does not provide charcoal.

The RAP did not incorporate the propagation of fuelwood saving devices as a complementary strategy to afforestation, in view of the fact that the areas covered by the project were defined as wood deficit areas. Some government departments and non-government organizations, notably the Department of Energy Resources and Development and Zimbabwe Energy Resource Organization have developed fuel-efficient woodstoves (see Appendix for Tsotso stove). However, none of the project participants had actually seen the stoves and some had not even heard about them. This observation points to the

constraints relating to propagation and distribution that still need to be addressed by these agencies. Also, it does not appear that in implementing the project, any effort was made to introduce to the project participants an understanding of trees and their multiple uses -- trees as nitrogen fixers, as preventers of soil erosion and as providers of food and fodder and medicine (see Figure 6.1). The technical support received by women does not seem to be a sufficient tool for addressing, in a holistic fashion, all the different facets of afforestation. Taking such an approach would enable the RAP to achieve the sustainability of afforestation in the CAs.

The failure to address rural afforestation as an integral part of rural development and, therefore, a narrow focus on tree planting, led to the propagation of the eucalypts. As a result, afforestation in the communal areas has taken the form of planting trees for firewood and building materials, rather than an approach to land use which incorporates trees into the production system of the communal areas. This is particularly important from both an environmental point of view as well as from a land-use point of view given the prevailing situation of continuing land degradation in the CAs. Also, the propagation of eucalypts for afforestation and the accompanying training provided has not equipped women to sustain tree planting in their communities and also adopt it on an individual basis. The research and experiments that are presently undertaken will, if properly conducted and

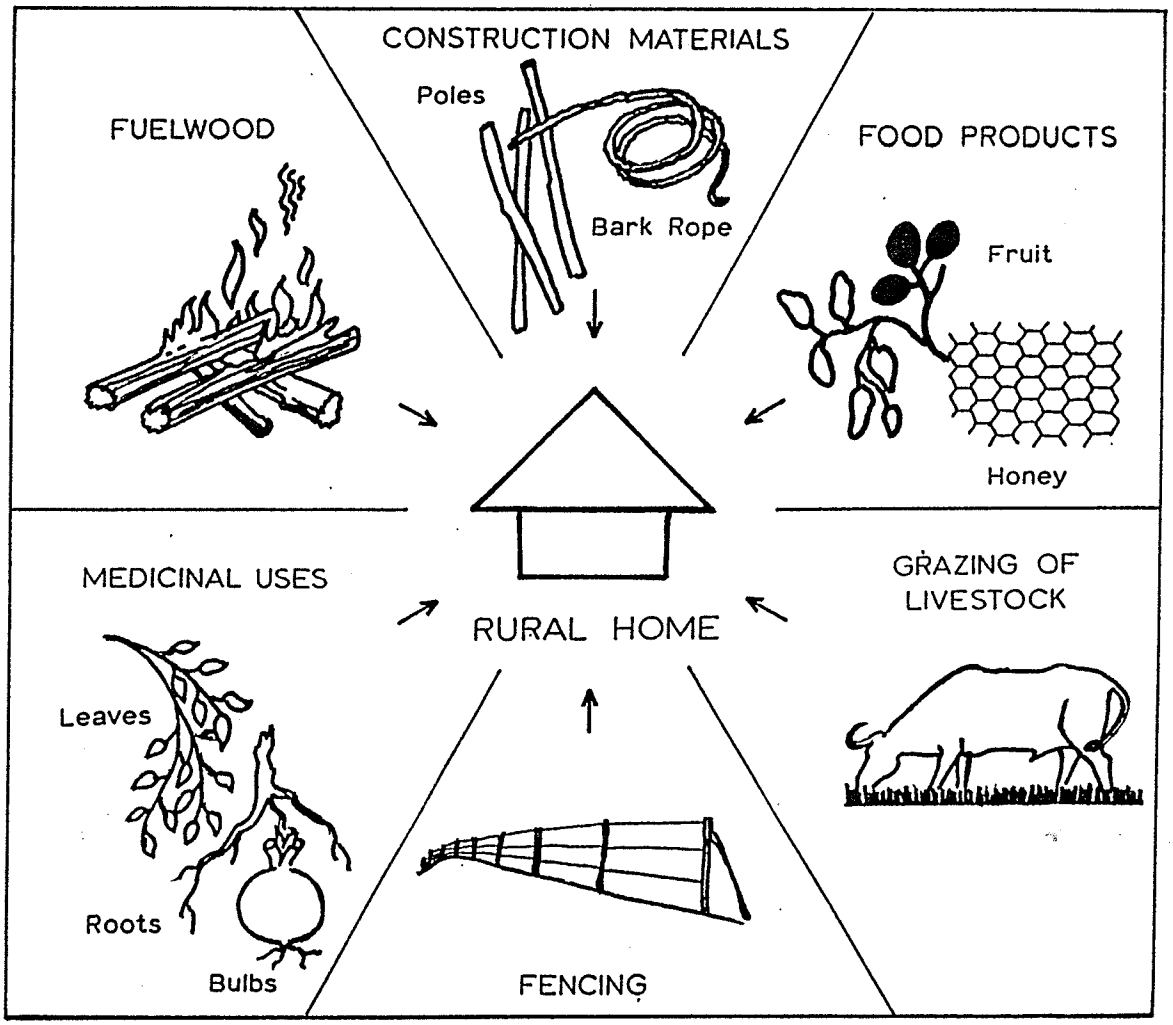

Figure 6.1 Multiple Uses of Woodland Resources In Rural Areas

disseminated to women groups, go a long way in providing women with tools to sustain afforestation in their communities.

Although the RAP's intentions were to focus on the community and women were therefore not targeted to carry the innovation through, it was through actual implementation that it was realized that women, in effect, played a significant role. This recognition was translated into closer working relationships with the Association of Women's Clubs, for instance. The participation of women in the design and monitoring of the project, rather than just as implementers, can be expected to result in a more effective afforestation project in terms of its approach and output. This effectiveness would be a result of the basic knowledge about the local environment that women bring into the project; also, their knowledge of local requirements for tree growth and people's preferences for particular species for cooking and heating purposes. In facilitating women's input into the project, the F.C. would be availing itself of a resource on which to build a comprehensive afforestation strategy which takes into account the needs and preferences of communities.

While the Whitsun Foundation went to great lengths in calculating the minimum average deficit demand for firewood per family in the affected areas, it does not appear that this analysis was incorporated in the planning of woodlots. The range of hectarage for the woodlots in the study areas does

not meet the requirements of 0,643 ha per village family to meet deficit demands.

The total size of the woodlots in the four project areas sampled came to 20 ha. These woodlots are meant to meet the minimum average deficit demand for firewood of the 134 families active in the projects. If to meet the minimum average deficit demand of 4.5 m^3 (that is, 31.5 m^3 over 7 years) requires a woodlot of 0.643 ha per family, then for 134 families, 134 x 0.643 ha are required to meet the deficit, that is, 86.16 ha over 7 years. Given that the 134 families have 20 ha under woodlots, each family would require an additional 0.05 ha to be able to meet minimum average deficit demand. We can thus conclude that while woodlots cannot be said to provide for the fuelwood needs of the project participants, let alone all the households in the villages (i.e. approximately 100 households per village), their implementation has served to demonstrate what could be achieved given the constraints of resources such as land and other inputs. Lessons learned from this experience can serve as catalysts for policy development which addresses constraints such as land and the status of women in the household; and the development of mechanisms to overcome them.

Non-government organizations, although initially engaged in afforestation utilizing methods prescribed by the FC, have now succeeded in establishing dialogue with the FC and

complementing the FC's work by carrying out localized research on indigenous seed collection and seedling production and afforestation. Because of the nature of their operations, that is, small-scale and site-specific, NGO's have been able to keep track of afforestation efforts, identified problems and worked at solutions with project participants. Their experiences can go a long way in providing feedback to the FC which, at the moment, is very thinly spread on the ground.

6.2 RECOMMENDATIONS

In view of the preceding discussion and conclusions, the following recommendations are made to the ANEN, the FC, the Association of Women's Clubs and other agencies involved in afforestation.

1. In the process of doing research for this study it became apparent that further research has to be conducted to determine the long-term feasibility of afforestation using woodlots in the communal areas. Research should be conducted focusing on how afforestation can be integrated into land-use management techniques that are being examined in Zaka district, for example.

2. The FC, in conjunction with Agritex and NGO's such as ENDA (Zimbabwe) and the Association of Women's Clubs, should develop an education program which

stresses the importance of trees to the communities' long-term subsistence as part of the training that is being carried out.

3. The FC has to develop clear guidelines which address, in a systematic fashion, the way in which women will participate in the implementation of Phase II of the RAP. So far, women's participation has been incidental rather than planned.

4. In addition, guidelines have to be developed that stipulate how the FC proposes to liaise and collaborate with NGO's that have proved to have the resources and the will to complement government activities in the area of afforestation. To this end, NGO's should take the initiative and develop such guidelines in consultation with the FC, Agritex and other interested parties.

5. In developing and reviewing the RAP Phase II, the focus on woodlots and the production of fuelwood and building materials should be expanded to include afforestation based on a variety of trees which address the objectives of conservation and increased land productivity.

6. Additional work needs to be done in the area of propagation and distribution of fuelwood saving devices. Also, the opportunity cost of alternative energy supplies such as coal and electricity to the rural households should be measured against the cost of collecting firewood and strategies developed accordingly.

7. Since it is evident that constraints to rural development are directly a result of women's lack of access and control over land, the issue of land reform entailing redistributive justice should be the ideal to strive for in developing strategies of development - afforestation being just one of them.

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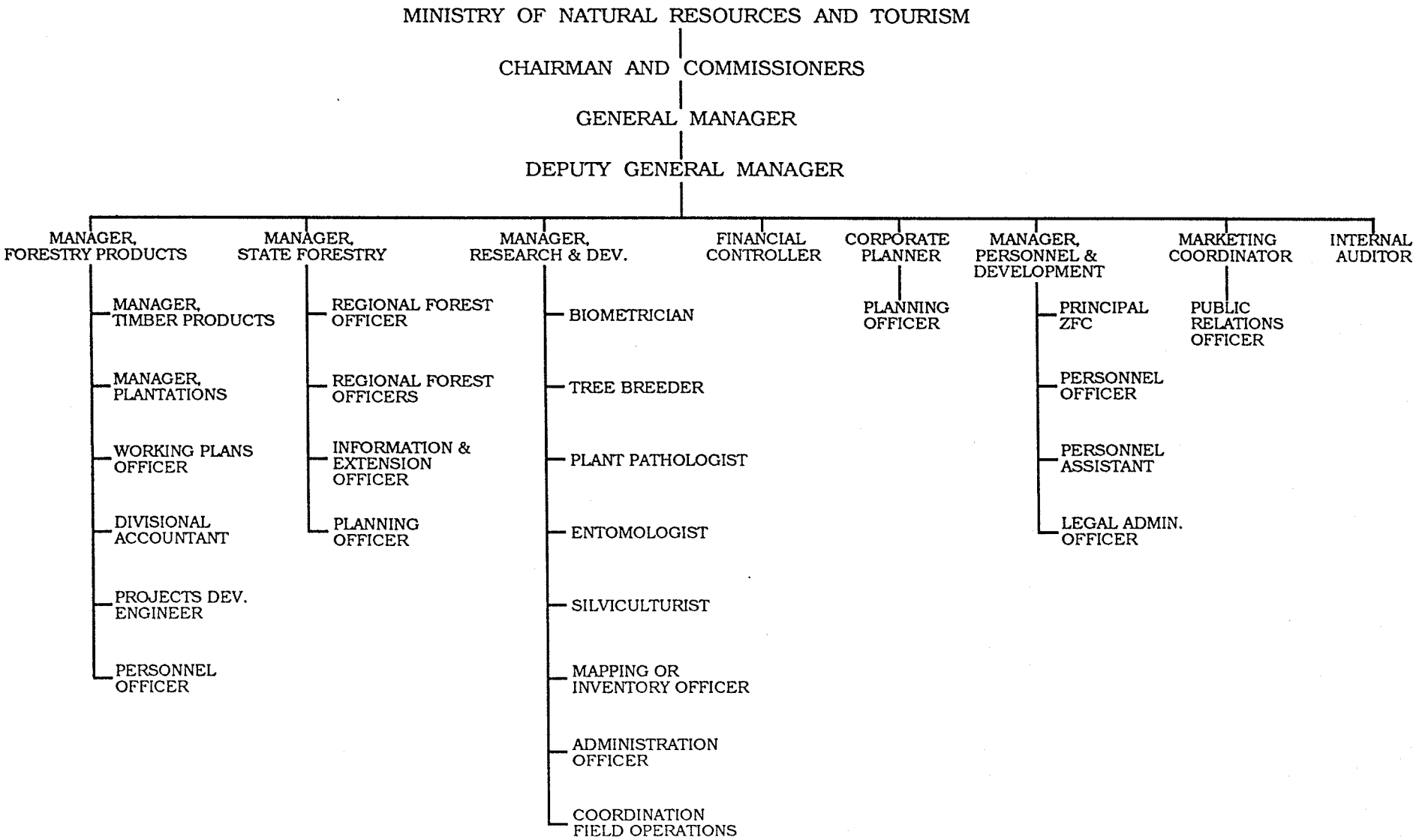
APPENDIX 1

FORESTRY COMMISSION ORGANIZATIONAL CHART

ZIMBABWE FORESTRY COMMISSION ORGANIZATIONAL CHART



APPENDIX 2

LAND ALLOCATION BETWEEN EUROPEANS AND AFRICANS IN ZIMBABWE PRIOR TO INDEPENDENCE

Total land area of Zimbabwe: 389,195 sq km (150,333 sq mls)

African Areas		European Areas	
Tribal Trust Lands	41.3%	General	40.1%
Purchase Land	3.8%	Other*	6.5%
Other	1.5%		
Total	46.6%	Total	46.6%
		National Area	6.8%
African Pop (1969)	4.8 million	European Pop (1969)	228,000

APPENDIX 3

List of Indigenous Trees of Zimbabwe for Domestic and Commercial Uses

AFRICAN NAME	BOTANICAL NAME
Mupani (Mopane)	Colophospermum mopane
Munhondo	Combretum molle
Muhacha (Muchakata)	Parinari curatellifolia
Munhondo	Julbernardia globiflora
Mupfuti (Mufuti)	Brachystegia boehmii
Murwiti	Dalbergia melanoxylon
Musasa (Msasa)	Brachystegia spiciformis
Mususu (Umsusu)	Terminalia sericea
Muvunga (Munanga)	Acacia spp
Mukwa	Ptecocarpus Angolensis
Mutsviri	Combretum imberbe
Mubvumira	Kirkia acuminata
Musesetu	Faurea saugna
Marula	Sclerocarya caffra
Mupaka	Bolusanthus speciosus
Muzeze	Peltophorum africanum
Muwora	Albizia amara
Munyunya	Monotes glaber
Muunze	Brachystegia glaucescens
Mutohwe	Azanza garckeana
Mutamba	Afzelia quanzensis

(Sources: G. Shepherd & J.R. Whitlow)

APPENDIX 4

INTERVIEW GUIDES

INTERVIEW GUIDE I
(For Project Participants)

We are doing research to find out your views and attitudes about the Rural Afforestation Programme which you may know as the tree-planting project. We would also want to know what you perceive your role to be in these projects and what you will ultimately benefit by participating.

Please give us your honest and full answers to the questions we shall ask and feel free to elaborate on any point if you so wish.

The findings from this research will be communicated to you through your clubs.

Date of Interview _____
Interview # _____
Taped Y _____ **N** _____
Cassette # _____

C.1 PERSONAL INFORMATION

Name _____

Age Category 16 - 29 _____
30 - 39 _____
40 - 49 _____
50 - 59 _____
60 - 65 _____

Marital Status:

Single _____ Married _____ Separated _____

Divorced _____ Widowed _____

Source of Income: Husband employed _____

Market gardening (collective/individual) _____

Crafts (collective/individual) _____

Other _____

Participation in community organizations: Y _____ N _____

C.2 COMMUNITY FUELWOOD NEEDS

2.1 What do you use for cooking or heating?

1.	Fuelwood	46
2.	Fuelwood and maizecobs	3
3.	Fuelwood and cowdung	-
4.	Paraffin	-
5.	Gas	1
6.	Other	-

2.2 How much fuelwood do you use a month?

1.	1 scotch-cart	44
2.	2 scotch-carts	-
3.	3 scotch-carts	-
4.	More than 3 scotch-carts	6

2.3 Where do you get your fuelwood from:

1.	Purchase	18
2.	Collect	32

2.4 How long does it take you to collect your firewood? (Probe)

2.5 In your view, is there any difficulty in getting firewood in your area?

C.3 THE RURAL AFFORESTATION PROJECT

3.1 How did you learn about the Rural Afforestation Project?
(Probe)

3.2 What do you think are the objectives of the project? (Probe)

C.4 PROJECT IMPLEMENTATION

4.1 When was your woodlot established?

4.2 How big is your woodlot?

4.3 Who chose the site for the woodlot?

1.	Self	-
2.	Agritex worker and VIDCO Chairman	20
3.	Headman and Agritex worker	30

4.4 Who prepared the site for the woodlot?

1.	Self	36
2.	Other	14

4.5 When were the first seedlings planted?

4.6 When were the last seedlings planted?

4.7 Who planted the seedlings? How?

1. Self	50
2. Other	-

4.8 How many seedlings were planted? How many survived?

4.9 Where did you get the seedlings from?

1. Self-raised	-
2. Purchased from FC	50
3. Donated by FC	-

4.10 Do you know how to raise seedlings?

1. Yes	46
2. No	4

4.11 If yes, for which tree species? How do you know?

1. Trained by Forester/Agritex workers	46
2. Other	-

4.12 Do you know how to manage your woodlot?

1. Yes	50
2. No	-

4.13 If yes, how do you know?

1. Trained by Forester/Agritex worker	50
2. Other	-

4.14 Did you receive any information about other tree species that you can plant in the woodlot?

1. Yes	2
2. No	48

4.15 Did you receive any information about other tree species that you can plant with your crops?

1. Yes	-
2. No	50

4.16 Did you receive any information about fuelwood saving devices?

1. Yes	-
2. No	46

4.17 If you were to choose a tree species for establishing a woodlot, which one would you choose?

1. Indigenous	-
2. Exotic (eucalyptus)	-
3. Exotic and Indigenous	50

C. 5 FREQUENCY OF ATTENDING TO WOODLOT

5.1 How far is your woodlot from your house?

1.	500 m	23
2.	1 km	12
3.	More than 1 km	15

5.2 Where would you have liked the woodlot to be? (Probe)

5.3 How many times a week do you work in the woodlot?

1.	Once	34
2.	Twice	16
3.	More than twice	-

5.4 When was the last time you worked in the woodlot?

C.6 HARVESTING

6.1 How long does it take for the trees to mature - from the time of planting to harvesting?

6.2 Have any trees been harvested?

1.	Yes	30
2.	No	20

6.3 If yes, how many trees have been harvested? By whom? For what purpose?

6.4 How much income have you earned from the harvested trees?

C.7 WOMEN'S OWNERSHIP/CONTROL

7.1 Who owns the woodlot, that is, the land and the trees?

1.	Self	46
2.	Other	-

7.2 Do you know if you have any rights to land?

1.	Yes	46
2.	No	-

7.3 What are your rights to land? (Probe)

7.4 What are your views about the existing rights of women to land? (Probe)

7.5 In your view, do these rights affect your commitment to the woodlot?

1.	Yes	-
2.	No	46

7.6 Do these rights affect tree-planting on your individual field?

1.	Yes	-
2.	No	46

7.7 Who in your household makes decisions regarding
- which crop to grow?
- buying fertilizer?
- planting pattern?
- asking for credit?

1.	Self	-
2.	Husband	-
3.	Husband and Self	46

C.8 ATTITUDE TOWARDS PROJECT

8.1 What do you regard as the most important activity for you and your group to undertake?

1.	Sinking well	8
2.	Vegetable gardening	13
3.	Poultry	25
4.	Woodlot	3
5.	Other	-

8.2 Do you feel that the existing woodlot has provided you with much needed firewood?

1.	Yes	12
2.	No	38

8.3 Do you feel that the existing woodlot has provided you with much needed building poles?

1.	Yes	50
2.	No	-

8.4 Do you feel that your participation in the woodlot project has increased your awareness of the importance of trees to your subsistence?

1.	Yes	43
2.	No	7

8.5 Do you feel that the woodlot project has increased your work burden?

8.6 What are your views about the project in general? (Probe)

8.7 What are your views about the eucalypts as a source of firewood? (Probe)

8.8 If you had the power to change things about the project, what would you do differently? (Probe)

THANK YOU FOR YOUR TIME

INTERVIEW GUIDE II
(Government/Ngo Officials & Extension Workers)

Name of respondent _____

Position _____

Date of interview _____

Taped Y _____ **N** _____

Cassette # _____

A. AFFORESTATION PROGRAMME

- Historical Background
- Goals
- Objectives
- How do these goals and objectives fit in with the goals and objectives of the National Conservation Strategy?

B. PROGRAMME IMPLEMENTATION

- Fuelwood required by each household per annum to meet cooking and heating needs
- Numbers of trees planted
- When trees planted
- Translation of trees planted into fuelwood requirements per household per annum
- Programme targets
- Types of inputs into programme - financial, seedlings, land clearing
- Any modifications from original plan

C. WOMEN'S PARTICIPATION

- Information/training on tree-planting and harvesting
- Choice of species
- Any other input into programme by women
- Who benefits
- How much women control over programme
- Incentives to participate
- What do you think women think about the programme?

D. LAND REFORMS

- Prior to programme implementation
- Introduced with programme
- Constraints

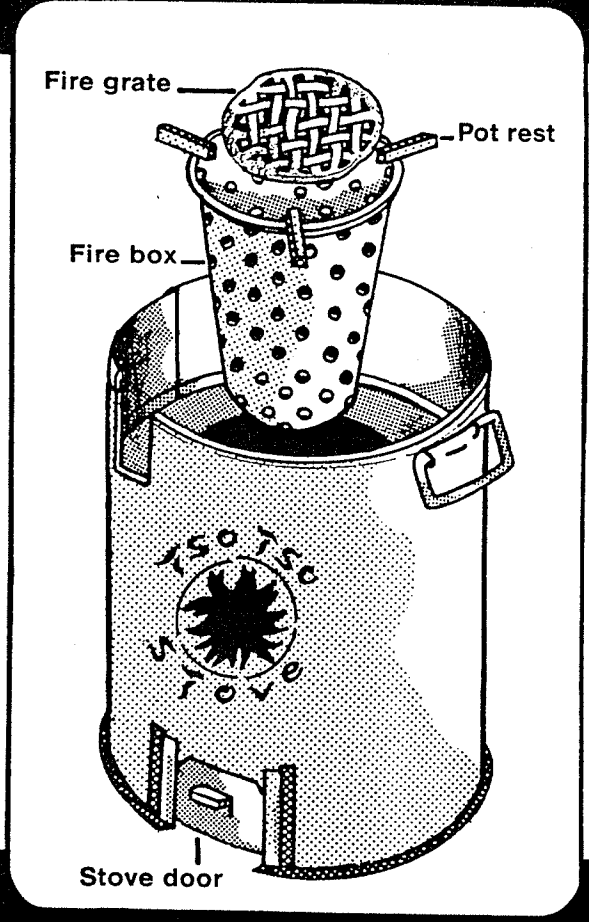
E. FUTURE PLANS

- Any lessons learned from implementation of first phase
- Things to be changed/done differently/why?

APPENDIX 5

THE TSOTSO STOVE

THE TSOTSO STOVE



- Uses only half as much wood as an open fire.
- Cuts down on the time you spend collecting firewood.
- Is portable, so can be used inside or outside.
- Smokes less than an open fire.
- Is easy to use and easy to clean.
- Can be controlled to give the heat you need.

Available in three different models
– portable single plate
– portable double plate
– built in double plate

Save time and energy - Cook the best way.

APPENDIX 6

WOOD VOLUME AND WOOD ENERGY CONVERSIONS (ESTIMATIONS)

Wood Volume

1 cord = 1 scotchcart = 2.5 m^3

Wood Energy

1 m^3 = 1,524 kwh
2.5 m^3 = 3,810 kwh

APPENDIX 7

LIST OF GOVERNMENT AND NON-GOVERNMENT OFFICERS INTERVIEWED

1.	Mr. P.C. Chirenje -	Agriculturalist, Association of Women's Clubs
2.	Mr. T. Gumbo -	Enda-Zimbabwe
3.	Mr. Gilbert Maphosa -	District Forestry Assistant, Zaka
4.	Mr. Marufu -	Provincial Forestry Officer, Masvingo
5.	Mrs. Florence Mutanda -	Agritex Extension Officer, Zaka
6.	Ms. T. Nyoni -	Zimbabwe Energy Resource Organization
7.	Mrs. Nyika -	Community Development Worker, Seke
8.	Mr. Colin Phiri -	Information and Extension Officer, F.C., Harare
9.	Ms. B. Sithole -	Ecologist, Department of Natural Resources