Transgressing boundaries

Gendered Spaces, Species, and Indigenous Forest Management in Uganda

Gorettie Nsubuga Nabanoga K.

Tropical Resource Management Papers
Documents sur la Gestion des Ressources Tropicales

60

All correspondence related to the above volumes should be directed to the Wageningen address of the first author as mentioned on the in side front cover of each volume

Tropical Resource Management Papers are published by Wageningen University and Research Centre (Wageningen UR). Main objective of this series is to allow a wider distribution than the circuit of international scientific journals for the results of research on (sub)tropical resource management obtained by researchers and graduate students working within the framework of Wageningen research projects. A broad range of research topics with respect to the (integrated) management of vegetation, fauna, soil and water may be included in these papers. Final responsibility for each contribution rests with the authors.

Les Documents sur la Gestion des Ressources Tropicales sont publiés par Wageningen Université et Centre de Recherche (Wageningen UR). Cette série a pour but principal de permettre - au-delà du circuit des journaux scientifiques internationaux - la diffusion des résultats de la recherche dans le domaine de la gestion des ressources naturelles dans les régions (sub)tropicales, tels qu'ils ont été obtenus par les chercheurs et les étudiants de troisième cycle travaillant dans le cadre des projets de recherche de Wageningen. Cette série comprend en outre de nombreux thèmes de recherche, relatifs à la gestion (intégrée) de la végétation, de la faune, du sol et des eaux. La responsabilité finale de chaque publication incombe aux auteurs en question.

Tropical Resource Management Papers,
ISSN 0926-9495

Correspondence on this particular volume:

Wageningen University and Research Centre, Department of Environmental Sciences
Forest and Nature Conservation Policy Group
P.O. Box 47
6700 AA Wageningen
The Netherlands
Tel: +31 (0)317 478004
Fax: +31 (0)317 478005
barbara.kolijn@wur.nl
http://www.dow.wur.nl/fnp/

Documents sur la Gestion des Ressources Tropicales, ISSN 0926-9495

Pour toute correspondance au sujet de la présente publication, s'adresser à:

Wageningen Université et Centre de Recherche, Département des Sciences de l'Environnement,
Groupe d'études de la Politique de la Forêt et de la Conservation de la Nature
Boite Postal 47
6700 AA Wageningen
The Netherlands
Tel: +31 (0)317 478004
Fax: +31 (0)317 478005
barbara.kolijn@wur.nl
http://www.dow.wur.nl/fnp/

Tropical Resource Management Papers, No. 60 (2005); ISBN 90-6754-902-9
Also published as thesis (2005), Wageningen University ISBN 90-8504-160-0

TRANSGRESSING BOUNDARIES

GENDERED SPACES, SPECIES, AND INDIGENOUS FOREST MANAGEMENT IN UGANDA

To

My parents Mr. Nsubuga Remegio and Mrs. Nsubuga Nalubega Tereza

My husband Engineer Kalanda Kizza Mathias

TABLE OF CONTENTS

ACKNOWLEDGEMENTS

First and foremost, I would like to praise the almighty God for the opportunity and the necessary strength He has provided for the realisation of this thesis.

Special words of thanks go to Prof. Patricia Howard and Dr. Freerk Wiersum for their never ending guidance, support, cooperation, friendship and patience throughout the different steps of the study. I highly appreciate your devoted availability. Freerk, I am profoundly grateful for your warm-hearted welcome in Wageningen and your professional tutelage. Patricia and Freerk, the support and tutelage I received from you made my four study visits to Wageningen socially and scientifically fruitful.

This study was carried out with the scientific and logistic support of the Forest and Nature Conservation Policy Group (FNP) and the Department of Social Sciences, Wageningen University. Many thanks to the former Chairgroup Professor, Prof. Heiner Schanz, and to all the colleagues of the FNP chair group for the enthusiastic welcome and collaboration.

The study and fieldwork were conducted under the auspices of NORAD (Norwegian Agency for Development) through Makerere University. I am grateful to NORAD and to the Royal Nowegian Government for the scholarship that has enabled me to complete this study. I am also thankful to the Vice Chancellor of Makerere University for giving me this study opportunity and the study leave to enable me to accomplish this research. I am thankful to the Dean, Faculty of Forestry and Nature Conservation (FFNC), who also doubles as coordinator of the NORAD project, for his encouragement, parental guidance, friendship, moral, scientific and administrative support; you have been a great inspiration. The co-operation, stimulating discussions, constructive criticisms and encouragement of all of the FFNC staff are highly appreciated.

The cooperation of the FFNC with the communities of Butto-buvuma and Mabira forest reserves is acknowledged with thanks. I thank all the community members that tirelessly participated in this study. I am indebted to Betty Nakawungu of Kisamula/Malube village and Kato Ben of Sanga village for their invaluable support during my stay in the communities for data collection. I am equally indebted to Charlotte Jjunju, Justine Namaalwa, Damalie Lubwama, Harriet Namutebi, Michael Mbogga and Cliff Kisitu for their enthusiastic contribution to field data collection. My gratitude also goes to Mr. Sekindi for his assistance in plant species identification.

My profound gratitude is due to my dear husband for his love, patience, moral, spiritual and material support, endurance and encouragement during the many years that I have been away from him. Thank you for those weekly telephone calls; you gave me all the reasons to persevere while away from home. Many thanks to my parents, sisters and brothers and all the relatives and friends who have contributed through their moral and spiritual support to the completion of this dissertation.

1 INTRODUCTION

1.1 BACKGROUND AND PROBLEM STATEMENT

Forest policy in Uganda

Uganda is a country known for its extensive tropical high forests. It is estimated that 24 percent (5 million ha) of Uganda's land is under forest cover (MWLE 2001). Local people are known to greatly depend on these forest resources (Cunningham 1996). Uganda's forest resources are thus expected to contribute to poverty eradication, wealth creation and the modernisation of the country (MWLE 2001). However, past forest management policies in Uganda led to increasing State control over the approximately 700 forest reserves that cover about 30 percent of all forested area in the country (Ndemere 1997; Kayanja and Byarugaba 2001). For decades the Government has taken a strong conservationist stance and its main goals in managing the reserves were to conserve these forests and generate revenues for the State. The Forest Department, a State agency, controlled and managed about 61percent of the total forest area under State control, with the main objectives of producing timber and providing of environmental services, presumably for the benefit of the nation as a whole (Howard 1991). It issued and regulated permits and concessions for the harvest of forest products. Only a small percentage (less than 20 percent) of the revenues was reinvested in forest conservation. Moreover, the government imposed restrictions on local people's collection of forest products (Uganda Government 1988; Kiwanuka 1991). Functionaries of the State Forest Department considered that conservation involved protecting forest against people rather than managing forests for people's needs (UFD 1997). Successive forest policies have restricted local people's rights to enter, use and manage forest reserves in the name of forest conservation, leaving a limited number of non-gazetted forest areas that cover a total of about 20,000 km^2 in which local communities exercise relatively independent use and management. In addition to the forest reserves, private forest lands constitute about 70 percent of all forested landscapes in Uganda. The use of these forests is formally overseen by local governments and communities, but little attention has been given by the government to developing forest management policies for these lands. With such a state-dominated approach to forest management, local communities' forest management practices, which are primarily geared towards local subsistence and cultural values, have been largely ignored. Policy makers generally overlook local management approaches and rarely contemplate them in policies geared towards forested landscape management.

Across the globe over the past three decades it has been found that forest conservation policies that exclude local people tend not to work, and increasing poverty of those who depend on forest resources is often the result. People tend to exploit forest resources illegally and conflict between locals and forest officials is often high. It is now argued that policies that focus mainly on forest conservation rather than on sustaining local livelihoods have resulted in inefficient forest management that has encouraged forest degradation (UFD 1997; Langoya and Long 1997; Ndemere 1997). Indeed, studies conducted in some forest reserves in Uganda show that to curb forest degradation on the part of local communities living close to forests, it is essential to recognize indigenous or local rights to forest resource use and management (Banana and Gombya-Ssembajjwe 2000; Nakakaawa 1999; Nabanoga 1998).

Studies of forest resources in Uganda indicate the importance of involving local communities in conservation strategies to ensure successful conservation of forest resources (Cunningham 1996; Banana and Turiho-Habwe 1998; Nakakaawa 1999). The following data are illustrative of the dependence of local people on forests in Uganda:

- Around 85 percent of the Ugandan population lives in rural areas (World Bank 2001).
- It is estimated that the population will double in the next twenty years from twenty-three million to forty-six million (FAO 2001).
- Each year there is a net decline in the amount of forests at a rate that is considerably higher than the sub-Saharan African average. Uganda now has less than one-twentieth of its original amount of forest cover (WRI 2001).
- For every thousand people in Uganda, it is estimated that there are three hundred and forty hectares of land being used for crops. This is significantly higher than the average for sub-Saharan Africa, which is two hundred and eighty-eight hectares (WRI 2001). However, crop production is insufficient and thus the continued dependence on forest resources.
- Over 90 percent of Uganda's energy demand is met from wood fuels (MWLE 2001).

The implications of the above are that the use and management of forest resources should both help to support rural livelihoods and be conducive to forest resource conservation. Sustainable local forest use and management is *sine qua non*. To be socially-oriented, forest conservation strategies must focus beyond protection issues, to include strategies that impact positively on the livelihoods of local forest resources users. Considering communities that live close to forests, it is logical to assume that they have a historical, cultural and material relationship with the resources and that they significantly depend on forests for their subsistence, income and social security by virtue of their proximity. It can then also be assumed that local residents not only have a significant interest in the use of these resources, but also in their sustainable management. Also, the processes of management or mismanagement of the same resource will impart losses, damages or benefits to the resource base and to the livelihoods of the people who depend on it.

In 2001, the Government of Uganda adopted a new forest policy, which is based on the recognition of the need to involve local communities in forest conservation. One of the main goals of this policy is to achieve forest conservation while at the same time sustaining the local livelihoods that depend on forest resources. The policy includes statements on the need to develop forestry on private land and on the need to manage the state forest reserves in collaboration with local communities. Some of the key issues that are addressed in the policy include (MWLE 2001):

- needs and means to improve the management of forest resources on private and customary land;
- means to encourage local communities to improve their livelihoods through forestry;
- means to ensure that improved land and tree tenure act as an incentive for communities, individuals and women in particular to undertake sustainable forest management; and
- means to strengthen and make the best use of the capacity and skills of local communities and non-governmental organisations to sustainably manage forest resources.

However, there is a general lack of information and documentation on local people's use and management practices and their related knowledge, which would enhance the implementation of this forest policy.

Forest use and management by local people

It is now recognised that tribal communities have been managing local forest resources for hundreds if not thousands of years. Since the early 1980s, a number of studies on forest management practices involving local communities have been undertaken in several tropical countries. As a result, foresters, ecologists and rural development experts have recently begun to acknowledge the existence of 'local' or 'indigenous' forest management systems, which only now are beginning to be taken seriously by scientists and professionals (Wiersum 1997a). Several ethnobotanical studies have indicated that local people not only gather forest products but also actively manage forests with the aim to safeguard the continuous availability of the forest resources on which they depend. Anthropologists in particular have documented the importance of forest resources for peoples' ways of life, and the existence of people-forest interactions through which local people manipulate forests and rural landscapes, thereby forming forested landscapes enriched by resources useful to them (Ellen 1998).

Over decades and even centuries of continual use, local people have often developed elaborate and detailed practices based on local knowledge about resources (Brodt 1998; Wiersum 1997; Ellen 1996). In procuring resources for subsistence, forest dwellers have always relied on local knowledge for the use and management of forest resources that has been passed from generation to generation through cultural and material practices. Several researchers (Agarwal 1995; Munyanziza and Wiersum 1999; Singhal 2000; Wiersum 2000a) have argued that indigenous knowledge of forest resources and their management, and local interest in continuing forest resource access and hence in sustainability, could form an important component of community-based

forest management. However, this idea is still not widely accepted among foresters. What is often questioned is whether local people have adequate and appropriate knowledge and skills for the management of the resources that are at stake. The compatibility between local people's interests and objectives and national conservation and development policies is also often questioned. Yet there is a need to have in place a sustainable management system that neither results in conflicts between objectives and interests of diverse stakeholders, nor compromises the ability to sustain the resources in question. With the increased call for people's participation in the sustainable management and conservation of forested landscapes that they depend upon, it is crucial to understand and document existing local forested landscape use and management patterns, and to identify the social, environmental, cultural and economic factors that shape them.

Forest dwellers' concepts of forests and forested landscapes are shaped culturally and materially, and very often do not conform to the views of professional foresters. Hence, with increasing recognition of local people's management systems and with greater emphasis on community participation in local forest resource management, it is important to consider *emic* concepts of forests and forest management. Forests are scientifically defined as bounded ecosystems in which trees play a dominant role. This implies that 'professional' forest management is restricted to ecosystems. According to Ellen (1996), local people do not perceive forested landscapes as uniform systems of vegetation, but rather view forested landscapes as biotic patches or mosaics of useful species wherever they are encountered, forming several boundaries and a network of resources and meanings. Local management practices are predominantly directed at specific forest resources considered relevant for human needs, which are either material, cultural or religious in nature (Wiersum 1997a). The protection and manipulation of useful species often creates a mosaic of managed forested landscapes (Posey 1985; Leach and Fairhead 1993; McKey *et al*. 1993; De-Jong 1995; Ellen 1996; Posey 2000).

In this view, the official distinction between resource boundaries that define forest reserves and private lands becomes academic, with limited meaning to the local resource users for whom '*Forests are…. complex and differential, concurrently materially useful and culturally significant*' (Ellen 1996:4). Several factors shape and condition differences and similarities both within and between forest communities' use and management practices. Ellen further emphasizes the need to consider variation between different populations especially in terms of their modes of subsistence and degree of interaction with the forest. This determines the need to explore intra-community and inter-community differences in forest resource dependency and how they relate to variables such as wealth, landholdings, education, household demographic structure, and livelihood activities. In addition, Rocheleau and Edmunds (1997) and Howard (2003) argue that intra-household differences, particularly the gender division of labour and gendered access to resources such as land, trees and plants, impact on forest resource dependency between the sexes, as well between male and female-headed households.

Aim of the study

Within Uganda there are only a limited number of studies relating to indigenous use and management of forest resources and of gender differentiation in such practices. In view of the new 2001 Forest Policy, it is important that better insights into such practices are obtained. The study and documentation of gendered local knowledge and management of forest resources in Uganda can contribute to the body of scientific knowledge on local plant and tree management systems that are ecologically and socio-culturally specific. This is important in the era of widespread failure of many top-down, 'scientifically' designed forest resource conservation schemes to alleviate third world poverty and improve local livelihoods and welfare. Such research will provide new insights into the nature of local forest resource management, especially as it relates to gender issues and to the dynamic nature of these systems. This study aims to contribute towards such insights into the diversity of indigenous practices of using and managing forest resources in forested landscapes. Further, it will evaluate how property rights impact on the gendered nature of local forest management strategies given the socio-cultural context of the resource users and managers. The study will provide baseline information necessary for the identification of knowledgeable local forest resource managers. The research will also provide basic information on local people's knowledge and management practices that can be used to focus forest policies.

1.2 ORIGIN OF THE RESEARCH

In my involvement with local resource users as a Ugandan forester, I not only noticed that local people actively manage forest resources, but as well that that management practices and strategies are gender-differentiated. These observations are what led me to begin an investigation into the relationship between gender and local forest resource use and management. I initially adopted a broad forest resource use approach. My intention was to carry out biophysical inventories of species used by men and women as well as the management practices carried out by each sex. In this respect, I conducted an initial reconnaissance survey in which I had assumed that sex-differentiated local use and management of plant resources was conditioned by differential household dependencies on forest products related to socio-economic and demographic characteristics, gender-differentiated household tasks as well as the local knowledge possessed by men and women. During this work, I also observed that men and women use different niches within the same forested landscapes as well as different plant species from various landscape niches. Where both sexes were observed to exploit the same spaces and species, I found that the end use often differed. This reconnaissance work also began to raise issues that I did not initially anticipate would be important. Initially, I did not consider resource access as a crucial determinant of forested landscape use and management. Neither did I anticipate that informal rules and social-cultural factors such as cosmology and social status would greatly affect local use and management of plant resources in local landscapes. As these factors became increasingly apparent through field research, I started to reconsider the conceptual basis for my study.

Drawing from various theories and concepts related to forest management, indigenous knowledge, gender, land and tree tenure, social norms and cosmology, I discovered that there is no clearly mapped relationship between the concepts to explain why management, knowledge and forest landscape spaces are gendered. Professional foresters often assume that forested landscape management and the related knowledge are homogeneous and gender neutral. In an effort to understand the interrelationships between these concepts, a multi-disciplinary approach was sought. In the quest to explain and map why and how knowledge and management practices in forested landscapes are gendered, I drew extensively upon the work of Fortmann, Rocheleau, Howard, Wiersum, and Ellen. Their ideas guided the development of the second phase of my research and the subsequent analysis of the findings presented in this thesis. The analytical frame within which I investigated the hypothesised linkages between gender, local knowledge and management of forested landscapes took the form of a tree (Figure 1.1).

As illustrated in Figure 1.1, the architecture of a tree may serve to explain the various links between the different concepts used in this study. Like the crown of the tree, clearly visible to outsiders, what is conspicuously observed in practice are gender differences in use and management skills that reflect the local knowledge possessed, which I term gendered management practices and gendered knowledge and use. Also, there appears to be sex-differentiated use of niches or spaces as well as of species within the forested landscape, which is highlighted mainly in the work of gender specialists (Fortmann 1998; Rocheleau and Edmunds 1997; Price 2001, 2003; Goebel 2003; Howard 2003; Turner 2003). Each of these concepts are inter-linked and intertwined as shall be discussed in this thesis.

But further, I was curious to understand what supports the more visible tree crown – what relationships influence the gendered management, knowledge, species and spaces. My initial thoughts concerned the access rights to resources as characterised by Fortmann and Bruce (1988) and Fortmann (1987, 1988). My research revealed that access to resources is determined by several factors, most of which are entrenched within local gender relations and the gender division of labour, all of which are embedded within social and sometimes political institutions, cosmologies and power relations that create status. Several of these social norms were not specifically addressed by Fortmann.

I also considered that, in order to understand local people's management practices, I had to investigate who was permitted to do what, where and when. This also entailed investigating social norms as well as the rules and regulations that are manifest in access rights, which I considered to form the trunk of the tree. With insights from the work of Rocheleau and Edmunds (1997), Price (2001, 2003), Goebel (2003), Howard (2003) and Turner (2003), I finally hypothesised that underneath what is externally observed – the roots of the tree – were factors such as social and political institutions, social status and power relations, as well as cosmologies or belief systems.

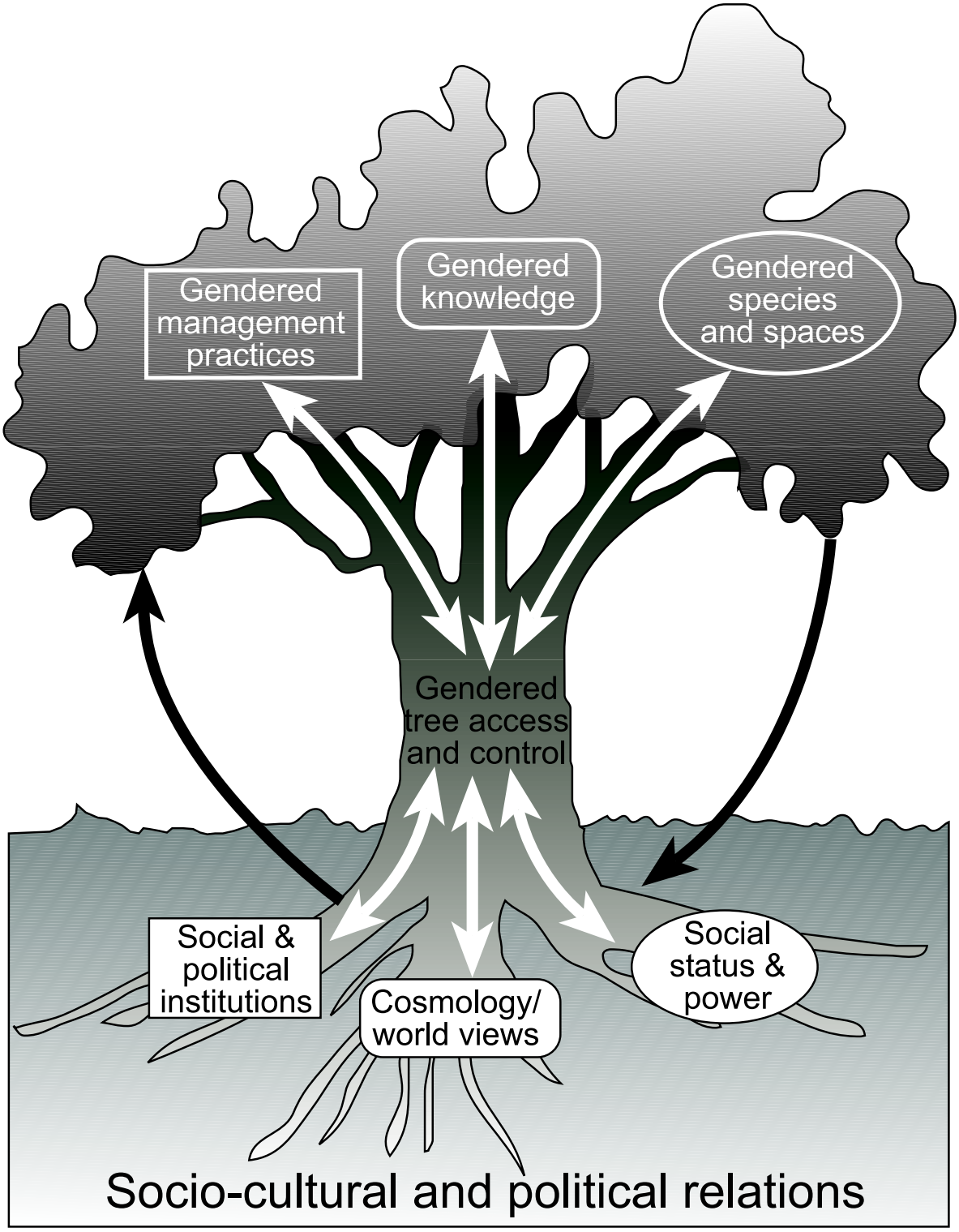


Figure 1.1 The analytical tree

Due to the fact that the links between these concepts are not lineal and the whole social system is dynamic, it would take a far greater amount of time than that which was available to me during this research to investigate all of the concepts in equal depth. I therefore chose to take use and management practices, which may be considered to reflect the knowledge possessed (what is visible – the tree crown), as well as access rights and the gender relations entailed therein (the tree trunk), as my focal points. Local knowledge and cosmology were also investigated, although not in great detail, while the remaining concepts shown in the tree were only used to explain and understand the gendered practices encountered. This therefore led to the definition of the aim and objectives of the study.

1.3 RESEARCH OBJECTIVES AND APPROACH

The overall goal of this research was to clarify how local access, use and management of plant resources in forested landscapes are gendered and which factors condition these relations. This was investigated through an analysis of two communities close to forest reserves in central Uganda. The research had the following specific objectives:

1 To investigate local people's socio-economic and cultural characteristics and how these condition forest resource dependencies, and to analyze how such dependencies condition the use and management of plant resources in forested landscapes,
2 To analyze and understand how and why access to and use of plant species in specific spaces are gendered,
3 To analyze and understand how and why local management practices of forest resources are gendered,
4 To investigate the implications of gendered access, use and management of spaces and species for local forest management.

The study proceeded in a reiterative process of conceptual development and data collection and analysis, where Figure 1.2 illustrates the sequence of research activities. The initially adopted broad forest resource use approach aimed at demonstrating 'general principles' related to forest resource use and management, as well as norms, beliefs, and rights regimes that condition the use and management of specific species and landscape areas, as well as the distribution of benefits among community members.

On the basis of theories regarding forest dependency (Nabanoga and Gombya Sembajjwe 2001) and indigenous forest management (Wiersum 1997a), the first phase of the study aimed at investigating factors that influence the level of dependence on these resources and on spaces within forested landscapes, and how these factors shape and condition differences and similarities both within and between forest communities' use and management practices. This phase explored intra- and inter-community differences in forest resource dependency and use and related these to socio-cultural characteristics such as wealth, landholdings, education, household demographic structure, and livelihood activities, giving an indication of the plant-based local livelihoods in the different communities. The main methods employed entailed Participatory Rural Appraisal (PRA) techniques and a household survey. The PRA

techniques were used to obtain qualitative information on local forest use and management. The household survey was used to generate further quantitative data in a structured, replicable, valid and reliable form that could serve comparative descriptive analyses.

Based on the findings of Phase I, further investigations relating to household use, management and dependence on tree and plant resources in the forested landscapes were conducted in Phase II. For this phase, a second household survey was conducted. Drawing from the experiences of Howard (2003), Price (2003) and Goebel (2003), detailed interviews were conducted in order to elicit information of the use and management of trees and plants in different landscape spaces from both sexes, and especially from women. These interviews segregated women and men, as it is known that women are often introverted in the presence of men. This phase revealed general patterns of gendered use, knowledge and management of specific products, species and spaces within the forested landscape, which led to Phase III of the study that entailed case studies on selected tree and plant species. This species-level approach is often used by ethnobotanists and was crucial in understanding and unveiling the nuances entailed in gendered plant resource access, use and management within a specific socio-cultural context. The species-level approach demonstrated that different species are associated with different rights, beliefs, cultural and material forms of use and associations according to sex and social status, and different management practices

The results of this study suggest that physical and socio-cultural boundaries at different levels are continually transgressed as rural people endeavour to access, use and manage plant resources to maintain both local livelihoods and cultural identity. Local people's use and management of plant species in forested landscapes is conditioned by formal land and tree rights regimes as well as by informal rights established by socio-cultural norms and beliefs related to gender and manifest in gender division of labour in the local context.

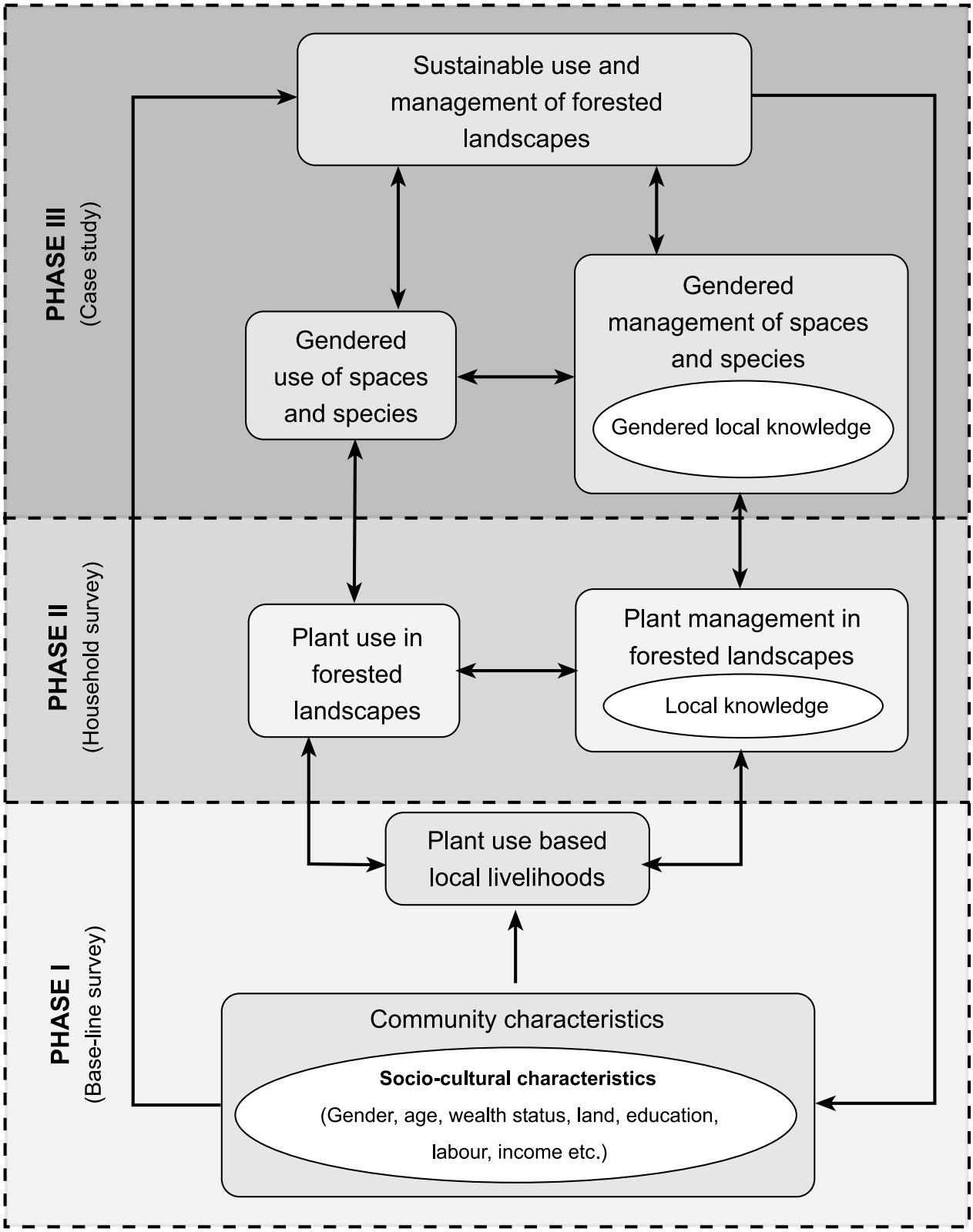


Figure 1.2 Analytical frame and methodological data collection process

1.4 THE STRUCTURE OF THE THESIS

Chapter 2 provides an overview of the conceptual framework which includes property rights regimes, indigenous or local knowledge systems and social and gender relations. In the beginning of Chapter 2, I argue that local use and management of tree and plant species in forested landscapes is important to achieving forest resource conservation and sustained local livelihoods. Then, I present an overview of the debate on local forest management paying special attention to the need to highlight gendered access, use and management of plants in forested landscape spaces. I also argue that attention should be given to a holistic conceptualisation of people-forest relationships, and a multi-disciplinary approach to understanding gendered use and management of plants in forested landscapes is introduced. The conceptualisation of forests from both *emic* and *etic* perspectives was taken as the point of departure; this resulted in the use of the concept of forested landscapes rather than assuming a dichotomy between forests or agricultural landscapes. The concept of forested landscapes focuses on the diversity of land-use zones including forest resources as well as the heterogeneity and complex characteristics of forest-people relations and the effects of local people's livelihoods and forest resource management practices at a general level. Important dimensions in people-forest relationships are access rights (entailed in formal and informal systems), local knowledge, as well as social-cultural and gender relations, which to a large extent condition the perceptions, use and management of trees and plants in forested landscapes.

In Chapter 3, the methods used for the study are discussed and the sampling frame presented. The chapter describes the methods used during both the broad forest resource use research (foresters' approach), as well as during the species level research using selected case studies (ethnobotanists' approach). Using both approaches helped produce rich insights for understanding people–forest resource relations within a specific socio-cultural context by revealing the complexities, subtleties and nuances that could not be attained while using only one approach.

Chapter 4 presents a general description of the research area and conceptualizes the study particularly in relation to the local context. In this chapter, an overview of the study area in terms of geographical location and climate are presented, as well as a brief description of the forests in the study location. Also, a general overview of forest management in Uganda is presented, outlining the historical changes in land and tree tenure since these condition forest management. The chapter argues that indigenous use and management of forest and tree resources in Buganda not only depends on tenure regulations but also on socio-cultural organisation. Thus, a general overview of the nature of the socio-cultural features as well as the gender relations and interactions in the research area are presented.

Chapters 5-7 present the main results of the fieldwork. Chapter 5 presents the empirical description of the socio-economic and cultural characteristics of the two studied villages. The chapter also presents the findings of a comparative analysis of both villages with respect to variations in socio-economic characteristics and endowments at both village and household level. Chapter 6 presents the results of the case study in terms of access to and use of selected plant species in specific landscape spaces. It presents an in-depth analysis of species-specific patterns adding further nuances to the overall conditions of local forest use as described in Chapter 4. It also describes the extent to which species-specific rights are similar to, or different from, more general patterns of forest resource access evident in the studied communities. Chapter 7 presents the results of the case study on local management practices of selected plant species in specific landscape spaces. In this chapter, local forest resource management practices and their rationales, which reflect the knowledge possessed by local people in the specific cultural context, are presented. Focusing on individual species, the type of knowledge held by whom and why different groups hold different or similar knowledge at the species level are investigated and presented. Both chapters 6 and 7 give insights into the nature of gendered use, access and management of plant species and address factors conditioning these aspects.

Finally, in Chapter 8, the main findings of the research are discussed in relation to the theoretical suppositions, and final conclusions and policy implications of the study presented.

2 A CONCEPTUAL FRAMEWORK FOR ANALYSING GENDERED FOREST RESOURCE MANAGEMENT

2.1 INTRODUCTION

Professional and local perspectives on forest resources

Forest management has been defined as the practical application of scientific, economic and social principles to the administration and use of any area used for forestry for specific objectives (Ford-Robertson and Winters 1983). Forest management has been seen as primarily a task of the State and its designated entities, where the main objectives for such activities from colonial times onwards have been to manipulate forests for timber production and to provide environmental services ostensibly for the benefit of the nation-state as a whole (Wiersum 1999). This concept of forest management has meant that, historically and contemporarily, local communities' forest management practices that are related primarily to local subsistence and cultural values have been largely ignored.

During the early 1980s, a variety of forest management approaches involving local communities were undertaken in tropical countries. There has since been a growing interest in community participation in forest management, which emerged in response to concerns that have arisen relatively independently in the fields of forestry, nature conservation and development of tribal peoples (Arnold 1991). Foresters, ecologists and rural development experts have thus recently begun to acknowledge the existence of 'local' or 'indigenous' forest management systems, which only now are beginning to be taken seriously by scientists and professionals (Wiersum 2000).

An increasing number of ethnobotanical studies have indicated that local people living in or near forests are not only gatherers of forest products but are also active forest managers involved in purposeful activities that are meant to safeguard the continuous availability of the valuable forest resources on which they depend (Wiersum 1997a). Anthropologists in particular have studied the importance of forest resources for particular groups of indigenous peoples' ways of life. In his work with rainforest people, Ellen (1998) describes how people influence the forest consciously and unconsciously. For example, he observes:

> *'We are sometimes persuaded to think that rainforest is a fragment of some vast unchanging past which has intruded into the present …… we now have plenty of evidence to the contrary, and although the rainforest does indeed have a long ecological history, it is far from being stable and unchanging. Moreover, its history, at least for the last 10,000 years, has also been a cultural history: not only the context in which human social and ecological change has taken place but an*

> *environment which humans may have been instrumental in, by turns, maintaining and altering*' (Ellen 1998:1).

He illustrates ways that humans have altered the rainforest:

> *'There is now plenty of evidence for the manipulation and regulation of plant resources … in ways which maintain or increase yield … At which point management becomes cultivation is a major scientific puzzle'* (*Ibid*.: 2-3).

According to Ellen, some groups of rainforest people, from an ecological point of view, are more like agriculturists in the way that they extract, protect and ensure future supplies of plant resources. Thus, local people have over time used and manipulated forests and rural landscapes, thereby forming forested landscapes enriched by resources that are useful to them. Indeed, local people's *emic*1 concepts of forests and forested landscapes are shaped culturally and materially, and very often do not conform to the etic views of professional foresters. With increasing recognition that forest resources are crucial for meeting the livelihood needs of the poor, and with greater emphasis on community participation in local forest resources management, broader definitions of forest management have emerged (Wiersum 1999). For example, Anderson (1990) defined forest management as the deliberate manipulation of the environment to promote the maintenance and/or productivity of forest resources. However, this implies that forest management is mainly characterised by purposeful manipulation of vegetation, where any extraction of forest products without silvicultural treatment of the forest would not be considered as forest management. A broader definition of forest management is required if local or indigenous practices are to be considered, which cannot be defined only in terms of silvicultural practices but should include all conscious human activities directed at maintaining forest production capacity. Forest management could then be defined as the process of making and implementing decisions about the use and maintenance of forest resources and the organisation of the related activities (Duerr *et al*. 1979). Such a definition, it is argued, entails the total set of technical and social arrangements involved in the protection and maintenance of forest resources for specific purposes, and the harvesting and distribution of forest products (Wiersum 1997a). Further, these activities occur within a local territory, where the organisation of these activities is based on social interactions and the shared norms and interests of the people living within this territory (Fisher 1989; Wiersum 1999). Within such a definition, local management may consist of biologically-oriented practices aimed at protecting and modifying a forested landscape with a specific utilitarian goal in mind. But it may also consist of human interventions in the forested landscape that are based on cultural customs which are associated with group, kin or cultural identity (Renkema 2003). The protection of sacred forests primarily based on religious or spiritual values rather than biological concerns is one such example, where such practices may also function as a de facto

---

[1] *Emic* is defined as…. of, relating to, or involving analysis of linguistic or behavioural phenomena in terms of the internal structural or functional elements of a particular system; *etic* is defined as ….of, relating to, or having linguistic or behavioural characteristics considered without regard to their structural significance http://www.m-w.com/cgi-bin/dictionary.

forest conservation strategy. Such management activities cannot be strictly considered as 'conscious', nor can their rationales be considered to be based upon the deliberate conservation and protection of resources. Further, Ellen cautions that effect should not be confused with purpose:

> *'Much of what appears to be 'ecological balance' amongst rainforest peoples is either illusory or simply a beneficial function of low population densities and benign subsistence practices'* (1996:6).

Although forests are scientifically defined as bounded ecosystems in which trees play a dominant role, a concept of forest management that considers an *emic* perspective should not be restricted to ecosystems. Often, management practices are primarily directed at specific forest resources, particularly at those attributes of a forest that are considered relevant for fulfilling human needs, which can be material or cultural and religious in nature. In professional forestry, the ecological value of a forest ecosystem is a major concern. It has been argued that local people also view forest management in such a holistic way (Posey 1985). But, as is illustrated above, many indigenous forest management systems involve management practices directed at selected forest resources rather than at the integral forest ecosystem. Such valued forest resources may not only be present in natural forests, but also in anthropogenic land-use systems such as home gardens or other agroforestry systems (Wiersum 1997a)

Local people's perceptions, use and management of forest resources and forested landscapes have gradually co-evolved (McKey *et al.* 1993; Dove 1994; Ellen 1996; Wiersum 1997b). The protection and manipulation of useful species often leads to the transformation of a forest landscape into an agricultural landscape, but may also result in a forested landscape characterised by a mosaic of managed forests and agroforestry systems (Posey 1985; Leach and Fairhead 1993; McKey *et al*. 1993; De-Jong 1995; Ellen 1996; Posey 2000). Ellen noted that indigenous environmental knowledge and perceptions are analysable at three levels:

> *'species level (resulting in species-specific knowledge), across species (resulting in 'general principles'), and within folk models (reflecting an ability to connect observations at species level with informed perceptions about forest structure and dynamics)'* (1996:4).

Local people's perceptions of forested landscapes are based less on uniform systems of vegetation (e.g. western concepts of 'forest'), but more on biotic patches or mosaics of useful species wherever they are encountered, forming several boundaries and a network of resources and meanings. In this view, simple distinctions between resource boundaries look 'pretty academic', with limited meaning to the local resource users.

> *'Forests are therefore complex and differential, concurrently materially useful and culturally significant'* (*Ibid*.).

Community-based use and management of forest resources

The forest forms a dominant part of physical, material, economic, and spiritual aspects of life for millions of people living in and around forested environments. It is therefore not sufficient to describe and assess the importance of forests in terms of the individual

products or services that the forest provides (Byron and Arnold 1999). For local people living within or close to the forest, the forest not only forms an integral part of their habitat and material lives, but also of their social and cultural frameworks. Forested landscapes provide cultural, spiritual and religious services such as places of worship and meditation, dwelling places of (ancestral) spirits, as well as sites for traditional sacred ceremonies (Shepherd 1992). Such cultural and spiritual services are important for cultural identity.

To understand how local people use and manage forested landscapes, it is important to first consider the importance of such landscapes to local livelihoods. The forest is the basis for livelihood systems that depend primarily on hunting and gathering or on rotational agriculture systems that require fallow periods to rejuvenate land productivity, or on some combination of the two (Falconer and Arnold 1989; Arnold 1998; Byron and Arnold 1999). Even when people do not live near large forests or depend upon hunting and gathering or on swidden agriculture, forests and trees continue to be the sources of a variety of foods that supplement and complement what is obtained from agriculture, of fuels with which to cook food and carry out artesanal activities, and of a wide range of medicines and other products that contribute to health and hygiene (Falconer 1989; Cecelski 1987). The majority of rural households in developing countries depend on plant products from forested landscapes to meet some part of their nutritional, cooking and/or health needs. According to the World Development Indicators (World Bank 2003), 90 percent of the world's 1.2 billion extremely poor (living in developing countries; living on one USD $ a day) depend on forests for products for their livelihoods.

A large number of households in developing countries also generate some of their income from selling forest products. Most such commercial forest product activities are carried out part-time by farm households that cannot produce enough food to be self-sufficient year-round. Often, the income from forest activities is used to supplement household income from other non-forestry activities (CIFOR 2004). Forest products can also provide an important supplemental source of income or subsistence products for people to fall back on in times of crop failure or shortfall, or in order to cope with different forms of emergency. Forests are therefore often very important as an economic buffer and safety net, especially for poor households. However, it is often the wealthier households in a community that have more resources to devote to forest product gathering and production and are the heaviest users (Madge 1990; Cavendish 1996; Ogle 1996), although the poor usually derive a greater share of their overall subsistence needs from forest products and activities (Hecht *et al.* 1988; Nabanoga 1998; Nabanoga and Gombya Sembajjwe 2001).

Nearly everywhere, forest product users are faced with a decline in the availability or quality of forest resources. Forest products therefore, although important, form a lesser role in household livelihood systems. Subsistence use of forest resources appears to be decreasing as people rely more on food crops produced in agricultural systems, increasingly participate in markets where exotic food products can be obtained, change tastes for and perceived status of wild food products, and experience decreased

availability of labour as well as the physical shortage of forest resources (Byron and Arnold 1999). Particularly as pressures on women's time increases, they may no longer have as much time for gathering forest resources, especially forest foods (*Ibid*.). A decline in consumption of forest products can also lead to, or reflect, reduced knowledge about forest product use. The decrease in forest resources is related to land clearance for agriculture, timber harvesting that damages other components of the forest, increasing state control over forest land, and other measures that result in *de facto* privatisation by wealthier and more powerful user groups. As access to forest resources declines, many users are increasingly growing trees on private land (Arnorld and Dewees 1995).

For purposes of this research, local management refers to individual or group efforts in which the utilisation of forest resources is organised in such a way as to attempt to ensure that the resources will likely continue to be available in the future or will produce or perform better than if the management practice did not occur. In this respect, any planned, deliberate, or unconscious activity or practice on the part of local people that has an impact on forest resources shall be defined as local forest management. Such activities may entail norms and behaviours that are culturally transmitted through taboos or other beliefs that form the local 'rationale' for forest management, where such 'rationale' is not embedded in empirical experience of trial and error but rather 'makes sense' in a spiritual or cultural context (Shepherd 1992; Agarwal 1995; Ellen 1996; Wiersum 1997a; Ellen 1998; Agarwal and Gibson 1999). Ellen noted that knowledge of plants does not exist apart from a broader socially-informed understanding of the world, but co-exists with beliefs about the world: '…. *everything is seen as connected through claims of mutual causation to give rise to a complex notion of nature*' (1998:5) that is related to local culture. Thus, '*the interconnections between social and environmental knowledge can be very important and it is often the case that subsistence practices triggered by cultural beliefs ..... appear to regulate resources*' (Ellen 1996:5-6), hence giving forested landscapes a cultural value.

Major factors that are considered to influence local forest management include: the types of forest use and degree of dependence on forest products and related objectives for managing forest resources, patterns of ownership and resource management organisation, and economic, cultural and political environments in which resources are managed (Ellen 1996; Wiersum 1997a).

Conceptualisation of community forest management

As discussed above, conventional forestry approaches often assumed that professional organisations, mostly under state control, are needed for effective forest management (Fairfax and Fortmann 1990). Consequently, the nature and functioning of community-level institutions for forest management have been relatively neglected in the literature and in practice are often ignored. However, the local utilisation of forested landscape is governed by indigenous institutions that are socio-culturally entrenched. Local peoples' forested landscape management strategies not only consist of the implementation of biological and technical practices, but also of cultural and social

institutions that implicitly or explicitly define the objectives of forested landscape management, the groups that are appropriately involved, the kind of activities that are carried out by different groups of people, and how derived products are distributed. In addition, social sanctions are necessary, which ensure that norms are effectively implemented.

However, the conceptualisation of forest 'communities' is in itself problematic. A community may be characterised as a human settlement with a fixed and bounded local territory in which there exists a social system involving interrelationships among individuals living in this territory characterised by a sense of shared identity (Lee *et al.* 1990). Communities have often been assumed to be groups of similar and relatively homogeneous households that possess common characteristics. However, many others have argued that communities are not homogenous entities possessing common characteristics related to religion, kinship, and cultural or ethnic heritages, but rather are heterogeneous entities with individuals having varying interests, preferences and perceptions regarding resource use and management. Homogeneity may be considered as only a desirable goal that community members may strive toward achieving through their social interactions (Agarwal and Gibson 1999; Botes and Rensburg 2000). Agarwal (1994b) further argued that it is when shared interests exist that even highly differentiated communities may be able to manage local resources sustainably.

Shared interests are not the only factor that may contribute to socially accepted norms around forest management within heterogeneous communities: social norms and ideologies also serve to create heterogeneity by assigning specific sets of tasks and resources to specific groups in ways that are inegalitarian and that serve to maintain the privilege of other groups. Such divisions of resources and labour may be complementary or may result in conflicts over resource use and management (Skutsch 2000). While these conflicts are one factor that makes management systems dynamic, major periods of upheaval and crisis also may result in shifting norms, divisions of labour and resources, which in turn have impacts on forest management.

In conclusion, the organisation of community-based forest management activities is based on social interactions and cultural norms and interests of people living within specific territories (Fisher 1989; Shepherd 1992; Wiersum 1997a). Some have argued that local people's forest management practices are related to increasing scarcity of forest resources which compels populations to regulate access and enhance productivity (Fisher 1989), however this obviates the fact that, in all societies, there are measures to ensure equitable distribution of products or preferred access of specific groups to certain products, continued availability of specific resources, and improved production of the desired products (Shepherd 1992; Howard 2003a; Ellen 1998). These are obviously entailed in the definition and sanctioning of what may be conceptualised as 'user rights', which are designated by custom or law and that refer to specific groups as well as specific types of resources. Besides cultural norms about user rights, biologically-oriented practices are also entailed in forest resource management, including practices (Shepherd 1992; Wiersum 1997a). Biological management practices may be considered as falling into the following categories: those directed

towards the tree resource itself (e.g. pruning, pollarding and coppicing), those aimed at reducing or eliminating competition from undesired components of natural vegetation (e.g. weeding, thinning and trimming); and those aimed at balancing the production of various useful resources (e.g. trees, fruits and food or fodder crops) (Shepherd 1992). Table 2.1 summarises the various kinds of technical and biological management practices.

Table 2.1 Biological management practices for tree resources

Category	*Practices*
Controlled utilisation	Leaf harvesting Fruit harvesting Bark harvesting Coppicing Pollarding of stems or branches Lopping of stems or branches Bending or partial cutting of branches
Protection and maintenance	Fencing around trees Weeding around young trees Watering young trees Sanitary pruning Application of locally prepared pesticides Fire management (prescribed burning and fire control strips)
Stimulating production of desired products	Selecting coppice shoots Ringing Rejuvenation pruning
Regeneration	Protecting natural regeneration Stimulating root sprouting Seeding Transplanting wildlings Planting cuttings Nursery raising and transplanting of seedlings Planting of bought seedlings
Interface management	Cutting low branches Root cutting Canopy pruning to reduce shade Mulching with tree leaves

Modified from Shepherd (1992) and Wiersum and Slingerland (1996)

2.2 ACCESS TO FORESTED LANDSCAPES AND THEIR RESOURCES

As discussed above, local forest management not only concerns the social organisation of communities, but as well the means by which access to land and tree resources are regulated. This entails a link between land access or tenure, tree or plant tenure, and use of plant and tree resources in forested landscapes, all of which clearly affect management practices. The regulation of forest resource access can be conceptualised as a 'bundle of rights' that are held by different social groups at different times (Bruce 1998). Using the Merriam-Webster's collegiate dictionary, a 'right' is something to

which one has a just claim, entailing: a) 'power or privilege to which one is justly entitled'; b) 'interest that one has in a piece of property' (http://www.m-w.com/cgi-bin/dictionary).

Indigenous or local peoples may or may not have an equivalent concept of rights or tenure, but apparently all do recognise norms or what Ellen (1993, 1996) refers to as 'morals' that regulate access to land and other resources found in various landscape niches, which may or may not be encoded in customary or formal legal codes, but which undoubtedly affect social action and behaviour. Further, irrespective of whether there is a concept of land 'ownership' or 'tenure' per se, land-based resources such as plants, trees, crops or pastures can be 'owned' separate from any rights in land that may exist, or may be considered as part of the landholding (Conklin 1959 cited in Howard 2003; Bruce and Fortmann 1988). Individuals, groups and communities assert rights to resources and to the land or territories that sustain them, and these rights affect incentives and therefore in part determine how these resources are used and managed (Maine 1920; Bruce and Fortmann 1988; Bruce 1998). While the concept of 'tree tenure' has been recognised by foresters for quite some time, what is less commonly recognised is that rights often extend to other wild or domesticated plants as well, and may be conferred upon specific individuals or groups for a multitude of reasons:

> *'Rights and obligations are often conferred upon individuals or groups who manage, use, conserve or have knowledge about specific types of plants'* (Howard 2003a:11).

Understanding who is permitted to do what, when, and where and the dynamics of these rights arrangements is essential for any understanding of local forest resources management.

An important feature of the 'bundle of rights' that characterise forest resource access is that various tenure regimes may exist in parallel and may overlap for different individuals, groups, spaces and species. The rights to own land and the rights to specific landscape spaces, the rights to own trees and the rights to access tree and plant products, may be distinct from each other and may be conferred on different individuals and social groups, depending on factors such as final use of forest products, individual competency, age and sex. Further, such rights may depend upon management practices carried out by individuals that act as obligations to ensure continuity of rights over time.

2.2.1 LAND TENURE

Land tenure can be categorised into bundles of property rights that commonly entail use rights, investment rights, exclusion rights and transfer rights. Based on these categories of rights, land tenure is commonly translated into four major regimes, namely: communal ownership, common property, state ownership and individual or private ownership (Bruce 1998).

Communal land ownership means that land is communally owned but controlled by an authority such as a village chief, clan or family lineage head. In this arrangement, the chief or head of the clan allocates exclusive use rights to cultivated land to households

pertaining to the community or village, but ownership rights are retained by the clan, extended family or community. Under this land tenure regime, individual land rights are restricted. However, individual usufruct rights are established or defined, but rights to transfer, sell, or lease land are often vested in the clan or extended family or community. Communal ownership of cultivated land often evolves over time towards more individualised systems of ownership.

Common property is usually defined by the joint use of resources by a group of community or village members as in the case of forestlands, woodlands or rangelands. Property is usually jointly owned (e.g. community woodlots or rangeland) but it can also be individually owned and jointly used (e.g. a rangeland owned by an individual but used by an entire village).

State ownership is a situation where property rights are assigned to some authority in the public sector. For example, in some countries, forest lands may fall under the mandate of the state, whether at a central or decentralised level.

Individual or private ownership entails the assignment of rights to a private party who may be an individual, a group of people or an organisation. For example, within a community, individual families may have exclusive rights to residential and agricultural parcels. Other members of the community can be excluded from using these resources without the consent of those who hold the rights.

Theoretically, it is relatively easy and feasible to distinguish between the four tenure regimes discussed above (see also Figure 2-1A below), especially if very well defined property boundaries based on *de jure* rights exist. In practice, however, it is often difficult to identify the boundaries of each property regime, in part because formal and customary tenure systems often differ and exist in parallel, and in part because *de jure* customary or formal rights may differ from *de facto* access, whether this *de facto* access is recognised by a particular community or not. *De facto* access may exist with or without a corresponding set of norms that in fact recognise or permit such access: for example, when children are recognised as having a 'right' to pick fruit from trees formally owned by neighbours or kin, as long as the fruit collected is for own consumption. Resource users may lack *de jure* rights but may have *de facto* rights that are based upon a number of 'moral' concepts about what is appropriate or just behaviour, making the four categories of tenure and the rights entailed nested, layered and overlapping (Figure 2-1B).

In the defined-boundary scenario that often typifies professional foresters' approaches (Fig. 2-1A), *de jure* rights holders may invest in physically marking boundaries that signal exclusion of non-owners. The owners then assume that such marked boundaries will prevent access of unauthorised groups or individuals to the property or resource. This scenario, however, overlooks the fact that there are socio-cultural and political considerations that transgress physical property boundaries.

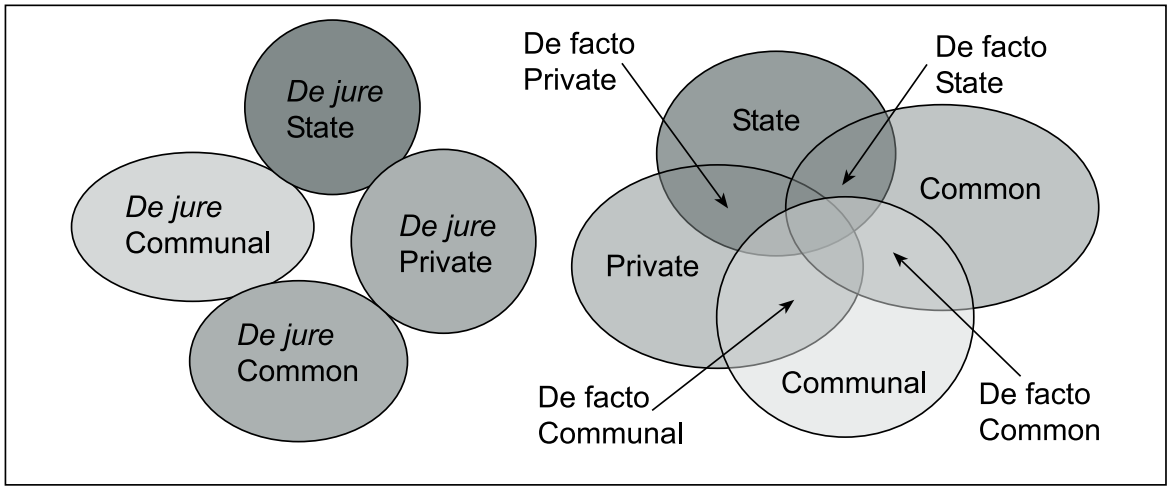


Figure 2.1 A Defined boundaries of rights Figure 2.1B Overlapping boundaries of rights

Figure 2.1 Theoretically defined boundaries and de facto overlapping boundaries

Thus, *de facto* rights are created through various social-political relations that in practice do not only recognise legal or formal boundaries but instead result in informal, layered, nested and overlapping access regimes (Fig. 2-1B). Also, land access may not automatically translate into exclusive access to resources on the land, although land access rights may certainly act to strongly condition access to resources found upon that land. It is therefore important to considered access to resources such as trees and plants and to understand their relation to *de jure* and *de facto* land access, keeping in mind the described ownership regimes and the overlaps that exist.

2.2.2 TREE TENURE

It has been noted that, in many Sub-Saharan African countries, property rights and land tenure systems that govern the use, allocation and management of natural resources are closely related to tree tenure which, if overlooked, may cause conflicts in the use, allocation and management of resources (Fortmann and Bruce 1988; Fortmann and Rocheleau 1985; Rocheleau and Edmunds 1997; Quisumbing *et al.* 2001). The use and management of plants and trees in any landscape depends on people's rights and obligations to use and manage trees, which depend at least in part on the prevailing system of land and tree tenure (Fortmann 1988). 'Tree tenure' consists of the rights to own or inherit, plant, use and dispose of a tree or tree part. Tree tenure systems do not always correspond to land tenure systems, although each affects and often complements the other (Fortmann 1988; Fortmann and Bruce 1988; Rocheleau 1987). This implies that the strength of an individual's rights to trees may depend on the strength of that individual's rights to the land upon which the tree is growing. The reverse can also be true: in sub-Saharan Africa, it is common that land rights may be established by planting trees. Fortmann (1988) has observed that, where land tenure is communal and tree rights are strong, tree planters are advantaged in their rights to trees. However, where private rights to land are strong, the strength of one's rights to trees may well depend on the strength of one's rights to land. This stresses the need to consider the different land and tree tenure regimes that exist in specific contexts. It also

calls for clearly defining the different categories of land and tree tenure in order to understand context-specific plant and tree use and management approaches, since both are usually contingent upon having recognised rights to use and to manage specific resources.

As indicated above, 'tree tenure' itself consists of a bundle of rights, where different rights may be held by different people at different times (Fortmann 1988:17). According to Fortmann and Bruce (1988), it is possible to separate trees as property when there are special tree rules that are different from those of the land on which they occur. Access and control rights over trees and other plants are dependent on factors such as the specific tree species, who owns the tree, where it is growing, and who controls the land on which it grows (land tenure). It also depends on whether the tree was purposefully planted or grew naturally, as well as the division of labour related to tree management and use or to the management and use of tree parts. In addition, it depends on cultural or spiritual beliefs that prescribe or proscribe activities and resource (e.g. to particular landscapes such as sacred groves or hill-top forests); to specific groups of people, e.g. in the form of taboos). Fortmann summarises numerous means by which rights can be established:

> *'…rights can be established to trees or their products through planting, providing labour, capital, or other resources needed to make them productive; inheritance, through various temporary arrangements such as leasing, through religious custom, or through ownership of the land on which they grow; or through any combination of the above. It is therefore important to note the distinction between land and tree tenure'* (1988:14).

In addition, the multiplicity of uses to which a tree or tree product may be put and the degree to which different uses are in conflict (e.g., for timber versus fuelwood) also influence access rights (*Ibid*.).

It becomes obvious that tree planting can be used by insecure groups to secure their claims to land. This may occur where rights to trees are given effective legal protection independent of land, or where rights to land depend upon proof of continuous and unambiguous use. In many cultures, tree planting has often been seen as a way of establishing long-term rights to land (Fortmann and Bruce 1988). Land tenure considerations may affect where trees are planted to the extent that trees may be planted in undesirable ecological niches within a landscape (*Ibid.).*

Fortmann (1988) identifies four major categories of rights that define tree tenure, namely ownership or inheritance rights, planting rights, use rights and disposal rights, described below. As indicated by the above description, still a fifth category should be added, i.e. management rights (Figure 2.2)

Ownership or inheritance rights: a person owns the trees and controls their usufruct (right of use or enjoyment of a product). Although these rights are usually vested in individuals, studies have shown that such rights may also be vested in households, communities or clan groups. Other studies have shown tendencies toward tree

ownership on land that cannot be owned, and yet others show that trees cannot be owned individually (*Ibid.*).

Planting rights: In most parts of Africa, as Fortmann (1988) reported for Tanzania, Nigeria, Kenya and Zambia, planting trees may secure one's rights to the land on which they are planted. However, the planter may retain tree ownership and access even where land rights are not secured (*Ibid.*).

Use rights: These may entail:

a the right to gather or lop off dead branches, as well as the right to gather other things growing on the tree such as fungi, insects, birds' nests, honey, etc.;
b the use of the stranding tree, for example for curing hides or hanging bee hives;
c the right to cut all or part of living tree for timber, poles or fuel;
d the right to harvest tree products such as fruit, nuts, pods, bark, branches, etc., and
e the right to use tree products found under the tree, such as branches, twigs, leaves, or fallen fruit (*Ibid.*).

Disposal rights: These entail

a the right to destroy the tree either by uprooting or chopping down individual trees or by clearing a patch of the forest;
b the right to lend the use of the tree to someone else;
c the right to lease, pledge, or mortgage the tree; and
d the right to give away or sell the tree either together with or separate from the land (*Ibid.*).

Management rights: These entail

a the rights to decide to manipulate individual trees or groups of trees to improve their appearance, health or productivity;
b the right to implement the decision to manipulate trees in ways that are intended to improve them.

In practice all of these rights may or may not be held by one and the same person. As indicated in Figure 2.2 by solid arrows, if one has tree ownership rights, he/she may have all of the other rights. However, having ownership rights may not guarantee the other rights (indicated by the dotted arrows in Figure 2.2). For example, planting a tree may not confer rights to dispose of a tree. Also, depending on several factors such as the tree species, its location, type, etc., possessing use rights may not grant rights to dispose of a tree. The actual combination of rights is also determined by several other factors (such as who holds what rights and the factors that affect these rights) that have not been included in Figure 2.2, and therefore the arrows should not be seen to result in linear relationships.

According to Fortmann (1988:19), there are four categories of rights holders: the state, social groups, households and individuals within households. All of these categories may exercise rights simultaneously in several different ways.

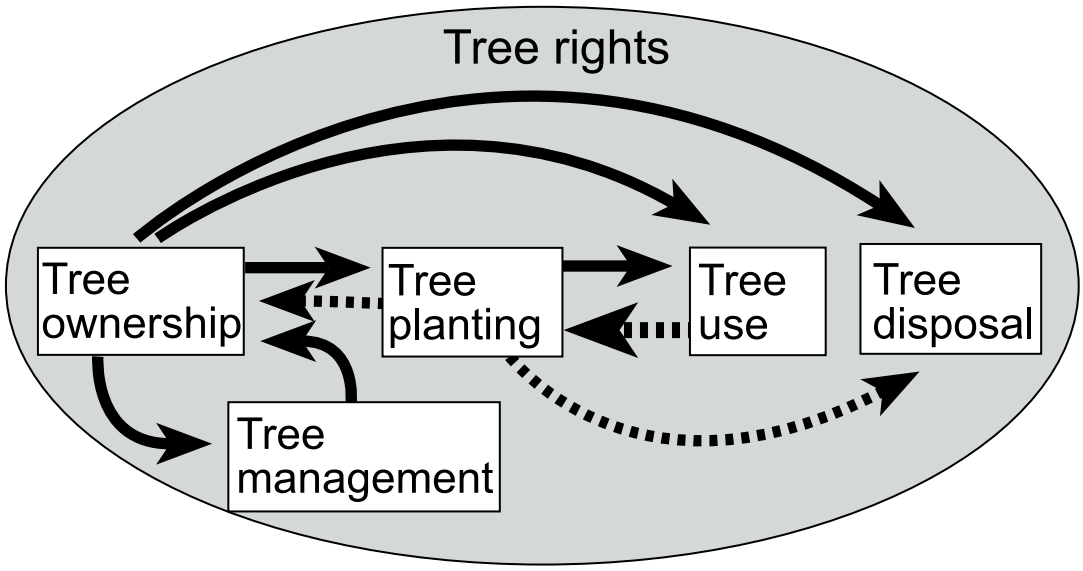


Figure 2.2 Categories of rights that define tree tenure

When the state is a rights holder, it can try to regulate the use of and access to trees owned by others as in the case of protected species (Fortmann and Bruce 1988; Paudel and Wiersum 2002). The state may also prohibit or restrict the use of trees in state-owned gazetted forest reserves, or allow limited use of gazetted forest reserve land, for example, to meet subsistence needs for firewood, poles, fodder or other non-timber products.

In the second category, groups are often defined in terms of geographical location – for instance, only residents of communities or villages close to or within a particular forest may be permitted to use the forest. Kinship may also define groups, such that only a clan holding a piece of land on which a sacred grove is found may use it. Kinship may define gathering rights for specific plants, as in the case of acorn gathering rights reported by (Dick-Bissonnette 2003; Price 2003), or non-kin groups (e.g. saw milling co-operatives) may have harvesting concessions within a forest reserve, and friends may be allowed to harvest products on the basis of reciprocity. Other distinctions may be based on competency, for example only herbalists or traditional healers may be allowed to collect medicinal products from specified areas (Howard 2003a).

Households, as a third category, may also have rights depending upon their religious, class or caste affiliations, or according to ethnicity or geographic location. And, finally, individuals within a household may also have different rights according to sex, age, birth order, kinship, and other determinants of intra-family status. Other groups may be defined based on sex, e.g. women and men may have different access to restricted spaces for the collection of products for subsistence as in the case of the Shona women and men in rural Zimbabwe, where divorced women may not be allowed to use former husbands' spaces for collecting plants and plant products (Goebel 2003).

Fortmann and Bruce (1988) recognise three major factors thought to influence rights to specific trees and forested spaces: the nature of tree, of use, and of land tenure.

The nature of the tree: is the tree planted or self-sown? This distinction is based on the principle that 'labour creates rights' (Michon *et al.* 1983). Hence, planted trees generally formally belong to either the planter or to the landowner. It is often thought that wild or self-sown trees are open access resources or community property (Fortmann and Bruce 1988). However, it is hypothesised in this research that this is generally not the case. The concept that labour creates rights may be extended to naturally regenerating trees if labour is invested in making the tree or plant usable. To this I add that the nature of the tree alone is insufficient to determine the rights, but rather, social relations such as kinship and inherited rights to use or exploit naturally regenerating trees and rights to exploit resources in particular gathering territories, as well as the fact that rights are usually gendered, must also be considered (Dick Bissonnette 2003; Price 2003; Howard 2003a).

The nature of use: norms and regulations regarding subsistence resource use have been found to differ from those for commercial resource use, where there is often less restriction placed on subsistence use than on commercial use. Other non-consumptive uses of trees or forest landscape spaces (such as forest groves used for spiritual healing or religious grounds; provision of services such as shade, water catchment and soil improvement etc.) may entail special access rights, which may apply even on privately owned land (Fortmann and Bruce 1988; Price 2003).

The nature of land tenure: As discussed earlier, tree and land tenure, although distinct, affect each other. For example, planting trees can create *de facto* private ownership of land; also rights to land can affect rights to trees growing on that land.

The above discussion indicates that the link between land, tree tenure, and plant and tree resource use and management is not simple, but complex, and not linear but layered, nested and overlapping. As illustrated in Figure 2-3 tree rights are embedded in and mutually reinforced by both land tenure and social-cultural and political relations. In this respect, two issues are most important: namely people's knowledge and gender relations. Both issues are in turn embedded in other socio-cultural relations and are context specific. Thus, an understanding of these complex links is crucial for understanding how local people use and manage forested landscape resources.

The relations indicated in Figure 2.3 can also help to explain how local knowledge for the use and management of forested landscapes is acquired, transmitted and changing over time, since access to resources influences access to knowledge about the resources and *vice versa*, and hence rights, local knowledge and management are intertwined.

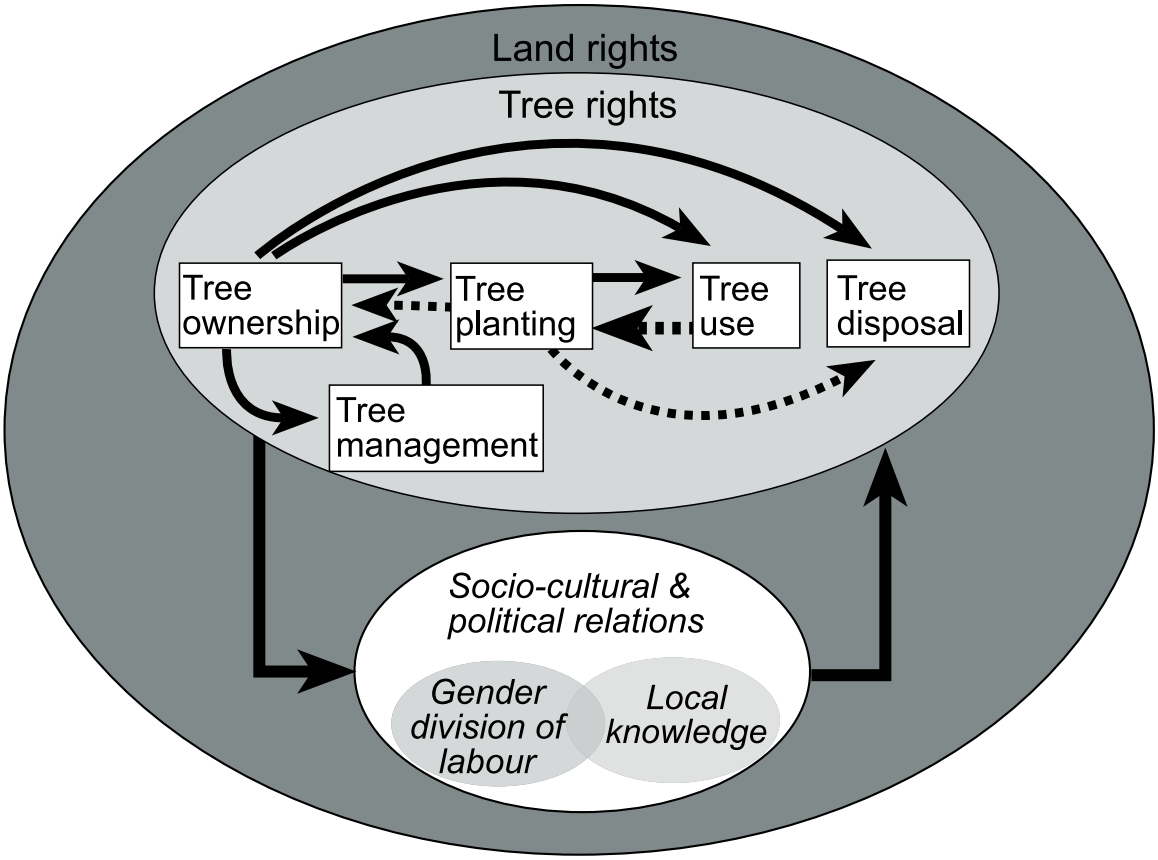


Figure 2.3 Linking land, tree rights and social relations

2.3 INDIGENOUS KNOWLEDGE SYSTEMS AND FORESTED LANDSCAPE MANAGEMENT

Local forest landscape management is based on local knowledge systems relating to forest resources. Generally, knowledge systems concern the way that people understand the world, and the way in which they interpret and attach meaning to their experiences. Knowledge systems are developed through complex processes involving selection, rejection, creation and transformation of information (Warren and Cashman 1988; Altieri 1991). These processes are inextricably linked to the social, environmental and institutional context (Kalland 2000).

Knowledge generated endogenously by local people is commonly referred to in the literature as 'indigenous' or 'local' knowledge. This is knowledge generated and transmitted within communities and introduced from outside the community that is adapted over time to local cultural, agro-ecological and socio-economic conditions. Local knowledge is generated and transformed through a systematic process of observing local conditions, experimenting with solutions and readapting previously identified solutions to modified environmental, socio-economic and technological situations (Brouwer 1993; Leeuwen 1998).

Warren and Cashman (1988) characterise local knowledge as the sum of experience and knowledge within a given group, which forms the basis for decision-making related to familiar and unfamiliar problems and challenges. Local knowledge systems

are strategic resources for decision-making in societies seeking to maintain their priorities with respect to sustainable production and to preserve those elements that are essential for social and demographic stability within a larger environment, which is itself being transformed (Wilson 1991). However, local knowledge systems have their limits (Rau 1991): for example, one study reported that farmers tend to know more about plants than about pests, soil chemistry and plant pathology (Bentley 1989). Yet a remarkable array of local technical and environmental knowledge is being put into practice in such diverse areas as ethno-veterinary medicine (Mathias-Mundy and McCorkle 1989) and the management of fodder trees (Kilahama 1994; Rusten 1989), agroforestry (Wiersum 2000) and management of wild food plants (Price 2003; Turner 2003).

Local knowledge is inextricably linked to a large and complex cultural system that is society specific, which determines how the same knowledge is acquired and transmitted. Specific knowledge and management practices of this type are recognised as reflecting agro-ecological and socio-economic factors embedded cultural traditions and preferences. They are even more fundamentally embedded in the conceptual system in which members of a particular culture have learned to think, and in terms of which they gradually interpret their society and environment (Breemer 1989; Goldman 1991). In this respect, Ellen and Harris noted that all knowledge systems are culture-bound '… *all indigenous knowledge is relative and parochial; no two societies perceive or act upon the environment in the same way*' (2000: 15).

Until recently, these knowledge systems have been seen as 'backward', 'static' and a 'hindrance to modernisation', in contrast to modern scientific knowledge. Terms such as 'objective', 'rigorous', 'control' and 'tested' have helped to develop the perception that scientific knowledge and technology are value-free, and that they operate outside of the societies in which they are rooted (Hill 1993). Limited attention was given to local knowledge within the mainstream of agricultural development and environmental management. It was not recognised as knowledge that contributes to our understanding of agricultural production and the maintenance and use of environmental systems (Titilola 1994). This attitude has undermined the capacity of indigenous knowledge systems to innovate, and lowered the status of grass-roots innovators, whose contribution to technology development has been undervalued.

However, there is now increasing recognition of local knowledge and skills in managing forest resources, as well as of social organisations that focus on knowledge and management practices of particular forest resources. Management of forest resources requires a particular kind of knowledge. As discussed above, forest resources not only have utilitarian value, but are also incorporated into cultural value systems. Thus, forest-related knowledge systems should not only be conceived as incorporating cognitive elements, but also as including a basic world-view cosmology (Wiersum 2000), or 'cognitive geometries' (Ellen and Harris 2000).

Local cultural norms, specifically spiritual beliefs and taboos, frequently have the effect of preventing human demands from exceeding the environmental resources that are required to support them (McNeely 2000). Some have argued that traditional

societies have an inherent notion of sustainability, which is manifest through the notions of inter-generational continuity (Posey 2000). More fundamentally, it has been argued that cosmologies provide a complex holistic view of how to use natural resources, supporting this knowledge with an ethical perspective that is built on the implicit social contract that enables communication to function (Kalland 2000). Cosmology is a difficult concept to define, however, using the Merriam-Webster's collegiate dictionary, cosmology is 'a theory or doctrine describing the natural order of the universe' (http://www.m-w.com/cgi-bin/dictionary). Thus, cosmology can be interpreted as relating to the way that local people interpret the environment, forming an explanation of what they do and how they behave in relation to it.

In sub-Saharan Africa, the use and management of forest resources are still often at least partly based on a cosmology related to worldviews of animism. Animism is a belief system and way of knowing that focuses on numerous spiritual beings that can inhabit animals, plants and spaces such as forests or springs, and that are concerned with human affairs and are capable of either helping or harming people. Animism is a cosmological system found among many traditional people who conceptualise an intrinsic spiritual connection between humans and nature. Many traditional approaches to conservation are supported by religious beliefs based on various kinds of animism that have the effect of fostering respect for plants and animals. In Africa, as in many other parts of the world, people have established sacred sites on the basis of inherent spiritual or religious significance. Such sacred sites, based ultimately on animistic beliefs, are often sanctuaries for biodiversity (Gombya-Ssembajjwe 1994). They may well survive substantial cultural changes; e.g., the Parliament of Kenya voted in 1990 to protect all the country's remaining sacred forests, known as the *Kaya*. Many animistic belief systems are accompanied by the idea of taboo, or that, which is forbidden; breaking a taboo can bring sanctions such as illness, social exclusion, or even death (McNeely 2000; 2001). Taboos often apply to certain natural resources that are particularly vulnerable to over-exploitation. Animism is also often associated with totemism, a complex of ideas and practices based on the belief in a mystical relationship (often kinship) between people and certain animals or plants; these relationships often include respectful and descent relationships between social groups or individuals and the totems (McNeely 2001).

Within traditional or indigenous societies, cosmological knowledge is often required for the successful manipulation of one's environment. This type of knowledge may be explicit or implicit, conscious or unconscious, and may contain principles that are effective in controlling or managing specific resources or landscape spaces. Just as readily, such knowledge may be dysfunctional, particularly if environmental, social, economic or cultural conditions change (Ellen 1998).

With respect to forest management, then, local knowledge can be categorised into seven different forms (Munyanziza and Wiersum 1999; Singhal 2000; Turner 2003):

- Ethnobotanical knowledge (e.g. on species characteristics and use properties)
- Ethnoecological knowledge (e.g. on growing conditions of trees)
- Technical knowledge (e.g. on silvicultural management practices)

- Cultural/religious/spiritual knowledge concerning forests and trees
- Behavioural knowledge (e.g. on community needs and use patterns)
- Organisational/institutional and legal knowledge (on norms and regulations for using and managing forest resources)
- Market related knowledge (on economic benefits and values of forest products, especially those related to commercial products)

The possession of these kinds of knowledge is not uniform among local people. Thus, when considering the role of local knowledge and practices in natural resource management programmes, not only agro-ecological specificity should be considered but also socio-cultural diversity and intra-community knowledge distribution, which includes gender and age differentiated knowledge, practices and skills, as well as other factors such as wealth, social status, kinship, specialisation, and individual competency (Howard 2003a). The failure to recognise such intra-community differences means that much local knowledge is simply overlooked, especially that pertaining to women. Howard noted that this kind of blindness towards local knowledge, and specifically towards gendered knowledge, is due to

> *'…...assumptions that knowledge is evenly distributed within communities …assumptions that there are specialists that are more knowledgeable about particular subjects….limited access to knowledgeable individuals or groups due to cultural proscriptions… and the fact that women's contribution to subsistence is often overlooked'* (2003a:20-21).

Researchers on indigenous knowledge often take 'plant knowledge of a few people, particularly of men, to be representative of the knowledge of entire cultures' (2003a:19).

In the search for generalisability, the risk is that diversity and the possible contribution of knowledge and practices from different systems and social groups to sustainable resource management will be overlooked. Further, even when local knowledge is recognised, there is very often little or no reference to gender differences in the knowledge, use and management of forest resources. The significance of gender relations in is conceptualised in the following section.

2.4 GENDER RELATIONS, GENDERED NORMS, AND THE GENDER DIVISION OF LABOUR AND RESPONSIBILITIES

Gender is defined in this research as the socio-cultural construction of the relations between men and women that affect in a substantial way how each are expected to behave within a specific social group. In most societies, these relations are seen as 'natural' or otherwise pre-determined; however, gender relations are socially, historically, and spatially specific. They vary according to age, kinship status, religion, ethnicity, caste, and class situation within a given society. Differences between men and women are related to their biological differences, which make men and women experience life differently (Howard 2003).

Gender relations are constructed and shaped through social rules and practices. The socio-cultural relationships that structure gender relations include kinship and family, both of which are systems for organising rights, responsibilities and resources for different categories of people in different social groups. According to Whitehead (1979), kin and family domains are everywhere gendered; thus, to be described as a husband, wife, mother, father, uncle, aunt, niece, cousin etc., is to be either a man or a women, which demarcates an individual's identity. Kinship and family are the main institutions through which gender relationships are normalised and structured. According to Kabeer, these relationships are

> *'governed by social rules and norms which determine how assets are distributed between occupants of different relationships, how authority and status are assigned, and how labour is allocated'* (1994:58).

Social norms are orientations that guide individuals' behaviour. When the majority of society's members share an orientation, that orientation is regarded as a social norm (Matsui 1996). Social norms are expressed within social institutions, which are the devised constraints that structure political, economic, and social interactions (North 1990). Social institutions consist of informal constraints (sanctions, taboos, customs, traditions, codes of conduct) and formal regulations (constitutions, laws, property rights), and they can have opposing or congruent goals and values. Norms regulate access to and excesses in resource use and management and can therefore help to reduce inequalities, as well as create discrimination and exclusion.

Kabeer (1994) argues that social regulations and familial norms are the principle mechanisms through which social meanings are revealed and social controls instituted over women's labour, reproductive capacity and life choices. Most of the social rules and norms governing kinship, such as marriage, procreation, parenting and inheritance, ensure almost universally that the care and nurture of the family is seen primarily as women's responsibility, while men provide for the entitlement of material resources (*Ibid*.) Every society has its own set of social norms and those who do not conform to the social norms are considered as deviants.

Gender relations reflect asymmetrical relations of power between women and men (Whitehead 1979; Kabeer 1994; European Commission 1998). Kabeer notes that such asymmetries have disadvantaged women particularly in sub-Saharan Africa, where 'in female farming systems….women were deprived of access to training, land rights, education and technology.' She further observed that, 'where women were confined primarily to reproductive work, their status was likely to be low' (1994:20). However, Howard (2003a) notes that such asymmetries vary in different societies depending on whether they are patriarchal and or more egalitarian.

Norms regarding gender are expressed in part in the gender division of labour, which refers to the allocation of particular tasks, roles and responsibilities according to sex, was probably the first division of labour that arose in human society. In most contemporary societies, women are mainly responsible for childcare, cooking and other 'domestic' tasks, but there are also variations in this pattern. Frequently, women's contributions to subsistence are hardly recognised as such, even though they may

contribute the majority of subsistence resources (Howard 2003). However, women's involvement varies considerably over time and space. Thus, gender relations are 'homogenous in their heterogeneity' (Howard-Borjas 2001: 3). Often, women's work is considered to fall within the 'domestic' domain, which in turn is depicted as a 'reproductive' sphere where women, as the main actors, carry out unpaid, house-based activities that ensure the maintenance and functioning of people within households, which are the main units of consumption. However, what is characterised as the reproductive domestic domain is in reality highly productive and contributes the majority of subsistence resources to households (Howard 2003). The blindness to women's productive work is entrenched in patriarchal norms that attempt to confine women to the sphere of consumption.

Also related to sex are the rights, duties, freedoms, and obligations of individuals in customary and formal legal systems across the world. Men and women have almost always different and unequal rights to land, inheritance, credit, education, physical mobility, and political and religious participation. The combination of these differences means that women's and men's daily tasks, opportunities, benefits, and life experiences are nearly always different within the same society, village, and family (Howard 2003a). This results in inequalities relating to benefits, thus affecting women's well-being, welfare, and hence their status *vis-à-vis* men. In sub-Saharan Africa, for instance, men are regarded as the owners of major resources and more knowledgeable than their female counterparts on their management. Therefore they are the major target for most of the interventions such as extension and provision of credit.. Consequently, women have less or no opportunity to improve their access to resources and hence limited chances of improving their well-being. Also, such bias may have adverse consequences for women and their families by reducing women's ability to produce and retain enough to maintain an adequate livelihood for their family due to lack of access to such resources as land reduced access to credit, lack of control of land use and management decisions, lack of control over produce and insecure tenure (Rocheleau and Edmunds 1997).

2.4.1 GENDER AND FORESTRY

Fortmann and Rocheleau (1985) argued that women traditionally perform important roles in the use and management of forests and trees, but that these have been masked by 'myths' held about the roles and status of women. 'Women are not significantly involved in tree production and use' is one such myth (1985:254-255). Although there are differences between men and women's rights to plant, use, own and manage forests and trees in traditional societies (Biggelaar 1995:13), in the past most literature on forest resource use and management not only overlooked women's use and management of tree resources, but considered that only men are involved with trees (Fortmann and Bruce 1988). Moreover, even studies that attempt to compare and differentiate men and women's forest and tree use and management practices often consider women as a homogenous group (Obi Chinwuba 1988; Rocheleau 1988). Yet women differ in terms of age, marital and kinship status, roles and responsibilities in the household (Biggelaar 1995), education, ethnicity, religion and wealth (Meinzen-

Dick *et al.* 1997). For example, Biggelaar (1995) shows that, in Rwanda, men more likely to plant trees than are women, but female heads of household or widows and separated women are more likely to plant trees than married women.

This gender bias in the perceptions of local people's use and management of trees is related to the 'cult of domesticity' (Howard 2003). Women's plant and tree related activities that take place within the largely non-monetised 'domestic' realm are hardly recognised by outsiders. Women are often primarily responsible for productive activities within this 'domestic' realm, especially for ensuring supplies of food, water and fuel and a multitude of other subsistence resources (e.g. medicinals, handicrafts, clothing, basketry, utensils) and for storage and processing of subsistence resources, as well as being responsible for childcare and care for the elderly. To fulfil their obligations, women rely extensively on forest plant resources, especially non-timber forest products for the provision of foods and fruits, medicine, crafts and fuel with which they meet the nutritional, health, energy and socio-cultural requirements of their households. A large amount of literature on gender and forestry indicates that women typically utilise a wider range of forest resources in comparison with men. Easy access to forest resources due to a low entry thresholds to a variety of forested landscape spaces ranging from multi-storeyed home gardens to natural forests enable many women to generate income from these resources. Such activities are often an important source of the income that women need to meet the costs of feeding and clothing the family, and women are usually more dependent on such income than men (Hopkins, Scherr, and Gruhn 1994).

There is a growing body of literature (Leach 1994; Rocheleau and Edmunds 1997; Fortmann 1998; Howard-Borjas 2002; Howard 2003) that discusses how gender relations affect plant and tree knowledge and management. Such understanding is necessary both to improve women's livelihoods, welfare, status, and equity in resource access and benefits, and also to enhance the sustainability of forest resource management.

The use and management of plants and tree resources in forested landscapes is dependent on resource access mechanisms that are socially and politically determined, as discussed earlier. Such mechanisms simultaneously prescribe access according to sex. Access to land is one of the very crucial determinants of access to other resources.

2.4.2 GENDER AND ACCESS TO LAND

The issue of security of access to land and trees is especially relevant with respect to gender differentiated use and management of trees in the landscape. In African societies, land is primarily transferred inter-generationally through the male lineage. This means that women gain access and use rights to land indirectly through male kin (Rocheleau and Edmunds 1997; Goebel 2003). Women's rights to land are affected by the difference between customary and statutory laws, the difference between *de jure* and *de facto* rights, and the spatial distribution of women's rights (Rocheleau 1988; Rocheleau and Edmunds 1997).

In most Sub-Saharan countries, and in Uganda as well, land legislation does not discriminate against women in land ownership (Fortmann 1998). *De jure*, women can own land, but *de facto*, men are much more likely to own land because customary tenure regimes do not recognize women's land ownership rights (Fortmann 1998). However, in some cases and increasingly as customary tenure systems break down, women have begun to acquire and own land. However, they are also expected to pass this land to male heirs, hence the need to distinguish between legal ownership and effective control over land and trees. In Uganda, for instance, *mailo* land tenure law (see Chapter 4) did not discriminate against women. However, according to Mukwaya (1953), very few women were given land under this system. Considering that, in most societies, land ownership greatly influences rights to the resources thereon, it would be logical to assume that women's access to resources found on the land, especially tree resources, will be greatly constrained by their limited rights to land.

It is within customary law in most African societies that women's resource use and ownership rights are determined (Rocheleau and Edmunds 1997:1354). In the same context, customary law stipulates that women can access land through their fathers, brothers, husbands and sons, implying that any change in these relationships can and does in most cases alter women's access and rights to land (Fortmann 1988; 1998; Goebel 2003; Mukwaya 1953). However, customary systems have generally guaranteed women's access to land by ensuring that men and male relatives have a social obligation to ensure that women have the basic means to produce food for their households, including land.

The fact remains that most of the land in traditional societies of Africa belongs to men: very few women own land and in some instances even women's access to land is severely limited, for example when women are divorced or widowed. Further, women's limited rights to land mean that, although they provide the lion's share of labour for household subsistence, they gain fewer benefits in comparison with men from their own labour. This reduces women's motivation to invest in the land (Fortmann 1998) since their benefits are uncertain (Gombya-Ssembajjwe and Banana 1998).

Gendered 'rights' or norms and rules regarding trees may also be restricted in societies where women are not permitted to own land. Where planting trees establishes rights to land, women may be forbidden to plant trees to prevent them from obtaining land in this manner (Fortmann and Bruce 1988). Women's lack of land ownership in customary systems further reduces their control over decisions regarding when and where trees are planted and managed. Women have to depend on 'social adherence to norms of behaviour which support their access rights to land, trees, and other resources, which are again often enforced by male leaders' (Rocheleau and Edmunds 1997:1357). However, in many African countries, women's right to collect non-timber products such as fruit, vegetables, medicinal plants and dead wood for firewood, even from men's trees, are well established (Rocheleau and Edmunds 1997; Rocheleau 1988; Goebel 2003).

The customary access to land that sub-Saharan African women have had for centuries is breaking down for several reasons, including commercialisation of agriculture and associated land resources, male out-migration, increasing divorce, poverty, population pressure on land and resources, land ownership restructuring programs, urbanisation, and AIDS, among others which lead to individualisation of land tenure systems and increasing competition among individuals, releasing the family and the community from customary obligations to some of their members, especially women. There has also been a tendency for fathers and household heads to decrease their contributions for children, leaving it to women to increase their economic support to their families, which increases the burden of women.

Women do not remain passive while their rights are being eroded. If they perceive that they have lost their rights, they have, under certain circumstances, struggled to regain them. Women have successfully formed informal groups, associations, or co-operatives to secure their rights, protect or acquire more land, or mobilise labour and other inputs. Individually, women have utilised whatever social and political influence they have to protect their rights to land. However, some women have strategically remained subordinated to men due to lack of alternatives, as they are sure to lose their de facto rights or face undesired social sanctions in efforts to seek equality and sometimes equity.

2.4.3 GENDER AND ACCESS TO FOREST AND TREE RESOURCES

As discussed earlier, tree tenure is characterised by nested and overlapping rights that are products of social and ecological diversity as well as the relationship between various groups of people and their rights to resources. Women's rights to trees generally depend on their relationship to the individual or group that 'owns' the tree, that is, has the right to dispose of and exclude as well as control tree resources, generally upon their relationships with men within their households. However, their access rights may also be recognised outside of the family based on local norms, for example of neighbourliness, reciprocity and membership in formal and informal organisations within the community (Edmunds 1997). For instance, as is the case with land, divorced or widowed women can lose access to tree resources belonging to their former husbands, particularly in places where social norms ensuring such access have eroded. However, where customary law is still widely respected, women can call on male elders to enforce their access rights to trees and forest products when they are challenged by their husbands or male relatives (Rocheleau and Edmunds 1997; Warner 1993).

The gendered access rights to tree resources are very relevant when considering tree planting. In most African societies, men dominate tree planting since they are the landowners and tree planting increases the security of land tenure. For this reason, men must be involved in decisions around women's tree planting (Rocheleau and Edmunds 1997). This may create limited incentives for women to plant trees since their access to the benefits is uncertain. When women are allowed to plant trees, this appears to be restricted mainly to trees for fruit and firewood that are destined for domestic

consumption, while men plant economically important tree species. Even where men give permission to women to plant trees, it is often the men who define the spaces in which trees are planted.

When considering forest resources, not only tree resources need consideration, but also other plant species. These non-tree forest resources are often important for providing a variety of products such as vegetables and edible root crops, medicines, animal fodder, etc. The collection of such crops is usually regulated through norms that identify specific resources that women or men must contribute to households, and that give women or men rights to a resource, whether growing in a forest or outside. In sub-Saharan Africa, women often have specific responsibilities that require the use of forest plant resources – e.g. to provide staple crops which are considered to be 'women's crops' to provide relishes that are often made from indigenous vegetables and wild plant resources, to care for their families health which means that they are the main providers of herbal medicines, to provide household energy which means that they are the main fuelwood collectors, as well as other domestic requirements that entail procurement of fodder, mulch, and a multitude of materials for handicrafts etc. (Howard 2003a).

In a similar manner as is the case with trees, plant gathering rights are also often gendered (Howard 2003a). For example Price (2003) found that women's rights to gather wild plants in Thailand depended on legal land tenure as well as perceived plant 'value' (locally defined in terms of taste, rarity and marketability), which defines plants as 'forbidden or not forbidden to gather on the fields of others'. On private lands, the gathering rights were directly linked to the senior women who hold land in trust for generations of their daughters; these gathering rights are passed on to their daughters and granddaughters. Women's access to other women's land and plant resources was often permitted for domestic consumption but not for marketing. Also, Dick-Bissonnette (2003) describes a matrilineal system where mothers pass their harvesting rights to species and spaces to their daughters and not to their daughters-in-law, except under very special circumstances.

2.5 GENDER RELATIONS AND LOCAL KNOWLEDGE SYSTEMS

According to Howard (2003a:22) '*gendered knowledge is that which is held either by men or by women, but not by both*'. It is frequently stated that gendered knowledge is a direct reflection of the gender division of labour. This assumes that the main sources of knowledge are experience and practice, and the only practical knowledge and skills transmitted is that which is required to carry out different tasks. Given this line of reasoning, plant (or tree) knowledge is gendered to the extent that a gender division of labour exists with respect to the use, management, and conservation of plants (Ibid.). However, it has also been argued that gender differences in knowledge and practices are not only attributable to the gender division of labour, but as well to cosmology and concepts and norms about gender, which in turn influence the gender division of labour (Howard 2003a). Not all knowledge is practical and experiential – much has to

do with rules of behaviour and social institutions, and much is also cosmological (see also Turner 2003).

Much research on indigenous knowledge and related practices in forest management systems has been carried out (e.g. Shepherd 1992; Kilahama 1994; Kajembe 1994; Wiersum 1997a), but with little or no mention of the critical attributes of gender in indigenous knowledge systems. However, several other authors (e.g. Howard 2003a; Goebels 2003; Turner 2003; Wilson 2003; Kothari 1996; Rusten 1989) have articulated the need to understand gendered local knowledge in plant and tree use and management. An understanding of gendered knowledge is crucial to the solution of situation-specific problems related to plant use and management. Leach (1994), Fernandez (1994) and Rusten (1989) have documented various aspects of local gendered knowledge and management systems in forestry: they stress that these knowledge systems are ecologically and socio-culturally specific. Their findings reinforce the notion that differences in men and women's local knowledge are entrenched in the norms that define gender divisions of responsibilities. Thus, part of gender differentiated knowledge comes about as a result of the specific experiences, knowledge and skills which women and men develop as they carry out their responsibilities and tasks (Feldstein and Poats 1989; Howard-Borjas 1999).

Gendered knowledge is also determined by religious beliefs or cosmologies that influence ideas about plants, the prevailing types of kinship and marriage structures, concepts of femininity and masculinity, and men's and women's association with specific spaces that further influences their ecological knowledge and relations (Howard 2003a). Further, belief systems and social norms prescribe who can interact with whom in turn determines in part the type and quality of knowledge held. Howard (2003a:23) noted that 'if men and women relate differently to different groups of people (e.g. 'mother-in-laws', 'male outsiders') implying that they have different social networks, then their 'knowledge networks' also differ, which affects they type and quality of knowledge and knowledge transmitted'. Within such networks knowledge is often transmitted from one generation to the other through stories, songs and games. Through such processes the knowledge is passed down from women to children of both sexes or through the female line (Howard 2003a; Turner 2003).

There are at least four ways to think about gender differences in knowledge systems (Norem *et al.* 1988). Women and men have:

- different knowledge of similar things;
- different knowledge of different things;
- different ways of organising knowledge; and
- different ways of preserving and transferring knowledge.

Within these domains, the degree of gender specificity depends not only on the way in which responsibilities are allocated among men and women, but also on the degree of flexibility men and women have to carry out the other's work (Fernandez 1992).

2.6 GENDERED SPACES AND SPECIES

The foregoing discussion indicates that local use of forest resources, access rights to land and other natural resources, local knowledge and gendered norms and the division of labour are intertwined. The interplay between these processes can be expressed by the concept of gendered spaces and gendered species. This concept can serve to understand phenomena encountered empirically in many different social contexts. Regarding indigenous management of forest resources, the concept refers to the notion that gendered rights to access land and tree resources, coupled with the gendered norms and the division of labour and associated differences in knowledge, experience and skills, are related to specified spaces within landscapes and to specific animal, plant and tree species and products. Gendered 'species' (e.g. 'women's crops') are commonly those that are associated with women's obligations to provide certain subsistence products (e.g. cassava, relishes that accompany staple crops), but they may also be associated with other gendered norms or concepts, for example that certain crops are 'feminine' or 'masculine' by nature. Men's production or gathering of women's species or *vice versa* may be proscribed by taboos or by other, more unconscious cognitive constructs. For example, Sillitoe (2003) reported that, among the Wola in Papua New Guinea, plants are categorised as male, female or neutral depending on who has the rights to plant and harvest the plants: '….crops which only men may plant and tend e.g. sugar cane, bananas …others which only women can cultivate e.g. sweet potatoes, cucurbits and green vegetables; and some which any member of either sex can cultivate e.g. yams' (*ibid*:165). He further notes that transgression of such categories by either sex could not only lead to ridicule but also to physical sanctions.

Similarly, the concept of gendered 'spaces' refers to the notion that certain spaces are associated with women's obligations to provide certain products. Particular spaces may be associated with 'women's species' and hence mainly frequented by women; on the other hand, particular spaces may be considered as male domains, and the species occurring therein are by association 'male' species. However, it is common that women's spaces are not recognised, particularly by outsiders but even by males, since they are often located in the 'in-between places' that are not as attractive to men but crucial for women (Rocheleau and Edmunds 1997; Leach 1992; Rocheleau 1988; Fortmann and Bruce 1988). Such spaces may include roadside bush lands, fence lines, the interstices above, below and between men's trees and crops, or land that men consider to be generally degraded and unproductive. These kinds of spaces are created through *de facto* rights based on customary norms and everyday practice. As earlier discussed, the access to such spaces may greatly depend on the relationships women hold with the individual or group owners of the resources.

The differences in men and women's use of landscape spaces may also be related to the gender division of labour as well as gendered power relations. Although Leach (1994) argues that there are rarely if ever spaces that are clearly marked as 'women's spaces', others show that there are spaces in the landscapes where women are the primary users of resources therein (Rocheleau 1997; Goebel 2003). For example,

Goebel (2003:121) reported that, in Zimbabwe, 'bush' is defined as a 'male space' for gathering plant resources and that '….women fear to venture into such areas for fear of being assaulted…thus bush emerges as a male dominated sphere not only because of the division of labour, but as an expression of male dominance and power over women'. She also shows that not only do men and women use different spaces, they use the same spaces differently.

In strictly patriarchal societies, norms that tend to seclude women or confine them to the domestic sphere (close to the home) explain why it is mainly women who manage plants and tree resources in spaces close to the home such as home gardens (Wilson 2003). Women also often have different degrees of mobility than men. This is linked to the gender division of labour, which defines women's roles as keeper of the hearth, a notion is deeply embedded in the 'cult of domesticity'. For example, in rain forest ecosystems, men tend to gather from primary forest areas (often located far from the homestead), while women gather or harvest plants from secondary forests closer to settled areas (Pfeiffer and Butz forthcoming). Also, the 'cult of domesticity' refers to the people whom women can interact with, as well as the physical confinement with a given space (Howard 2003a). In hunting-gathering societies, women's mobility in search for plant resources is similar to or even greater than men's. However, in many cultures, women are excluded from several spaces based on cultural norms and beliefs. For example, in sub-Saharan Africa, women's access to sacred groves is often proscribed.

Given men's predominance in land ownership in sub-Saharan Africa, many landscape spaces controlled by them may contain interstitial resources used by women and, alternatively, land designed for women's control may contain resources used or 'owned' by men. Often men lay claims to timber trees and cash crops whether they are located in women's spaces or not (Schroeder 1993). Also, women claim resources used for subsistence irrespective of their location. This suggests that the function of the trees and plant resources are tied to prevailing norms around the gender division of labour and authority, which substantially influences the interpretation and enforcement of gendered property rights in trees resources.

A phenomena that is closely related to the idea of 'women's crops' or 'species' is that particular tree products such as timber, fuelwood, fruits, fodder, craft making materials, etc., may also be associated with a specific sex, which influences rights of access to trees and to the spaces in which these grow. In many parts of Africa, for example, women have rights to collect subsistence products such as fruit, dead wood for fuel, and leaves from men's trees, plants, spaces or even from state forest reserves. All of these examples demonstrate how cultural constructions of gender are pervasive at all levels of a social order: from the level of individuals, households and communities, to the aggregate level of the nation-state. Thus, the concept of gendered spaces and species denote how local cultural norms, household, kinship and community relations, socio-economic formation and national legal-political frameworks all come together to influence local people's management of forest resources.

2.7 CONCLUSION

On the basis of the above considerations, my research focused on three major issues. In the first place, an assessment of *emic* views on forests was made and the patterns of forest resource use and management were ascertained. In the second place, the nature of rights to different forest spaces and species was studied. Finally, a detailed study on the management practices of different species in different spaces was made. Throughout these studies, particular attention was given to gender differentiation in forest resource use and management.

3 METHODOLOGY

3.1 INTRODUCTION

In the previous chapters, a conceptual framework for understanding local people's plant and tree use and management in forested landscapes was presented. Based on this framework the problem statement, objectives and research questions for this study were formulated. The research questions formed the basis for the selection of various methods of data collection, which in turn determined how the data was analysed. This chapter describes the various research methods and justifies the selection of the research area and villages, the sampling procedures, interview procedures and data collection exercises.

3.2 STUDY DESIGN

A stepwise approach was used in the research. The study began with a general reconnaissance of the area that was carried out between August and November 2000. This reconnaissance was oriented toward gaining a general understanding of the characteristics of the study area, and permitted an overview to be obtained of the environmental, socio-economic, political, and cultural patterns within the communities and households in the study region. The survey was important as a basis for the collection of a wide range of information at varying depths and provided the framework for further in-depth investigation. During the reconnaissance, information was obtained through dialogue and interviews with community members, unstructured interviews and general discussions. The collected information was not to be used for statistical testing, but was used to provide information for the selection of the research techniques, instruments and questions, and to select the sample for in-depth interviewing in the subsequent research phases. The reconnaissance revealed two situations relating to community location *vis-à-vis* forests. Communities were either inside the forest (forest enclave communities; forest surrounding the communities) or surrounded the forest (communities at the forest fringes). This raised questions regarding whether there were significant differences in the socio-economic characteristics of households in these different types of villages and in the use and management of tree and plant resources within the different types of landscapes. After this reconnaissance survey, the study proceeded in three phases of detailed research, i.e. base-line survey, household survey and species case studies (see Figure 1.2). The fieldwork for phases one and two was carried out between February and November 2001 and for phase three between January and August 2002.

The first phase of the study – the baseline survey – adopted a comparative approach involving two contrasting village locations. The aim was to establish whether there were differences in relation to the socio-economic and cultural characteristics of the communities and main landscape zonation given their location in relation to the forest. Data on village infrastructure and land-use and on household characteristics were collected. The main household characteristics considered were composition, wealth status and endowments such as education, income, land and labour, as these were thought to be the most important characteristics that conditioned households' and individuals' use and management of plant and tree resources within forested landscapes. To generate information about community organisation, land use zonation and locally-defined landscape use boundaries, participatory (PRA) techniques, mainly mapping exercises, and transects walks were used (Fielding and Fielding 1986; Chambers 1992; FAO 1990). These techniques served to collect information on local representations in a participatory manner from community members (Dovie 2003). Data on household characteristics were collected by a systematic household survey. This survey was used to generate information for comparing households' endowments and livelihood activities in each location. This method is the only way in which useful, structured, replicable, valid and reliable quantitative data for comparative descriptive analysis could be collected (Van-Willingen and Dewalt 1985; May 1997). The findings of this research phase, presented in Chapter 5, showed that there were significant differences within locations and relatively minor differences between locations with respect to socio-economic characteristics and household endowments. These findings formed the starting point for the second phase of research in which further investigation of household use, management and dependence on plant and tree resources in the forested landscapes were conducted. As no significant differences within household characteristics between locations were found, the same households surveyed in phase one were used for the household survey in this subsequent phase. Since it was no longer important to compare locations, the household survey data was used for the qualitative and quantitative analysis of local people's use and dependence on forested landscape species and spaces. The findings of this phase, also presented in Chapter 5, showed general patterns of gendered use, knowledge and management of specific products, species and spaces within the forested landscape. These findings led to the third phase of the study that involved case-studies of selected plant and tree species, where individual interviews and focus group discussions were used to generate data. The case study approach was preferred because it is one of the best approaches to investigate social processes and their context (Brodt 1998). In this research, the use, knowledge and management practices and the context in which they occurred were both important aspects of the investigation. This phase generated information related to specific aspects such as access rights, gender relations, and socio-cultural norms and beliefs that condition the use and management of selected species and spaces in the forested landscape. The findings of this phase are presented in Chapter 6, dealing with ownership and right conditions impacting on the use of species and spaces, and Chapter 7 focusing on plant and tree management issues.

3.3 SELECTION OF RESEARCH AREAS AND PLANT AND TREE SPECIES

3.3.1 RESEARCH LOCATIONS

Two locations were selected for this research: Buttobuvuma Forest Reserve and communities close to it, and Mabira Forest Reserve and its enclave communities. Both areas are located in central Uganda in Mpigi and Mukono districts, respectively. The two areas were selected since they were considered to be representative of the various land-use conditions in the major agricultural production zone in central Uganda. Specifically, the selection of the two areas was based on the following:

- They are located within the same agro-ecological and cultural zone. The coffee/banana belt inhabited by the Ganda tribe was selected because of the fact that this region is most densely populated, leading to high pressure on forested landscapes. Moreover, the prevalent cultivation system includes tree growing and consequently a fair degree of indigenous tree resource management practices are present.
- Contrasting socio-economic conditions. The selected research area surrounding the Buttobuvuma forest has a higher degree of market integration than the selected village enclave within Mabira forest.
- Contrasting forest vegetation. Mabira forest is still reasonably intact and local villagers mostly use this forest for subsistence purposes, whereas Buttobuvuma forest is rather degraded due to (illegal) timber, charcoal and commercial fuelwood cutting.
- Another significant reason for selecting these study sites is that the Faculty of Forestry and Nature Conservation at Makerere University (FFNC-MAK) is already engaged in studies in both research areas, and thus use could be made of previously existing data from these areas, e.g. concerning the structure and composition of forest vegetation. Further, the researcher had already carried out a study on forest dependency in this area (Nabanoga and Gombya Sembajjwe 2001). The Buttobuvuma forest is a research site for a collaborative forest management development project pertaining to FFNC-MAK; the Ph.D. study data can thus be used for further project development. Moreover, the researcher is able to communicate fluently in the local language – Luganda – which is common to both study sites.

3.3.2 RESEARCH COMMUNITIES

In selecting the communities that would serve as the main study areas, the following process was adopted:

- A list of all settlements surrounding Buttobuvuma and those surrounded by Mabira forests was compiled with the reference to county land use maps and with support from the local councils.
- A rapid preliminary survey in communities surrounding and surrounded by Buttobuvuma and Mabira forests was carried out to confirm accessibility of potential study communities. Because of transport and financial limitations, it was not possible to visit all communities that are close to the selected forests.

- Using the list of communities and the information obtained during the reconnaissance survey, several communities were considered for subsequent selection for the main study. For a community to qualify as a study site, the following conditions were identified in order to generate representative information:
  i) Close proximity to the forest(s),
  ii) Socio-economically differentiated with respect to education level, size of land holdings, wealth, household size and ethnic groups, which permits examination of variations and similarities in local knowledge and practices;
  iii) Rural but not remote, to enable the influence of urbanisation on the dynamics of local knowledge to be minimised,
  iv) Presence of some collaborative or joint forest management activities. This was important because this research in part aimed to inform decisions on local people's involvement in joint forest management approaches crafted to improve management of forest resources while sustaining local livelihoods,
  v) Easily accessible and free from insecurity.

After characterisation of the communities in each region, two villages from each District were randomly selected from those that fulfilled the requirements. The Mabira Forest Reserve, located in Buikwe and Nakifuma counties of Mukono District, has over 15 village enclaves, from which Sanga village was randomly selected for the study. This village enclave is located at about 56 km along the Kampala-Jinja highway and is four km off the highway into the Mabira Forest Reserve. Sanga village, with a population of 610 individuals in 124 households,1 is divided into four sub-villages, namely Sanga Central, Kazinga, Mubaakikele and Wabikokooma. The Buttobuvuma Forest Reserve, located in Kiringente and Muduma sub-counties of Mawookota County, Mpigi District, has about 10 villages surrounding it that constitute its boundary, from which Malube/Kisamula village was randomly selected for the study. This village is located about 46 km along the Kampala-Mityana highway and is 3-6 km off the highway. Malube/Kisamula village, with a population of about 1300 individuals in 177 households, is divided into two sub-villages, namely Malube LC zone and Kisamula LC zone.

3.3.3 SPECIES FOR CASE STUDIES

The aim of the case studies was to assess the use of local people's knowledge and their ability to manage plant and tree resources in forested landscape. After having conducted the base-line and household survey, through a participatory process, local participants together with the researcher developed species selection criterion. It was decided that, for species to qualify for selection for the case study, they had to have some or all of the following characteristics:

- Multi-purpose in nature – a species that provides a range of products or services to local people,

[1] A household is defined as a group of people consisting of a husband, wife, children and any other dependent(s) living under the same roof, cooking and eating together.

- Species that hold socio-cultural significance for local people, with cosmological dimensions,
- The species and or their products is locally marketed to generate some income for local people,
- The species is both collected in the wild and is domesticated,
- The species should have some level of sex differences in use and management.

On the basis of these criteria four species were selected for the detailed case studies of which three were trees: Fig (Ficus natalensis), Jackfruit (Artocarpus heterophyllus), Palm (Phoenix reclinata) and Cat's whiskers (Cleome gynandra). All of the species were multipurpose in nature, could be marketed and had sex differences in use and management. The Fig and Jackfruit species are domesticated while Palm and to a certain extent Cat's whiskers are wild species.

3.4 METHODS FOR DATA COLLECTION

Data were gathered from both primary and secondary sources. Quantitative and qualitative primary data were obtained from informants through structured and unstructured interviews. These were supplemented with participant observation and informal discussions with local residents as well as discussions with key informants.

3.4.1 COLLECTION OF SECONDARY DATA

Background information was extracted from existing records at Makerere University libraries, the Makerere Institute of Social Research (MISR), the Ministry of Planning, the Institute of Gender Studies, and the Uganda National Council for Science and Technology. Climatic data were obtained from the archives of the Meteorological Department, Entebbe. These were updated with more recent information found in the state of the environment reports for Uganda as well as district profiles. Information regarding current levels and trends in forestry and land-use activities for Mpigi and Mukono districts was obtained from the respective district offices. Study village data were obtained from the village council offices.

3.4.2 BASELINE SURVEY

The base-line survey involved two research activities, i.e. a community survey and a household survey. In this section only the community survey will be described. A description of the household survey will be given in section 3.4.3.

Selection of respondents for community survey

The approach and entry to each community was through the Village Local Council (LC1) leadership, mainly the Chairman, the Secretary and the Women's Representative, by presenting introductory letters from the University, the National Research Council, and the Forest Department. These leaders assisted in convening a general village meeting at which the council members explained to the local residents my presence in the area and the importance and relevance of the study. Most of the

local people were co-operative in all aspects except when discussing issues that related to illegal activities within the forest.

While the first general meeting at Sanga consisted of 80 individuals representing about 70 households, that of Kisamula-Malube consisted of 87 individuals representing 74 households. The participants of both villages included men and women, youths, adults and the elderly. It was at these general meeting that the LC1 village members introduced me to the local residents and that I explained to them my research activities. I requested the local readership to grant permission to hold group discussions with the residents in order to: obtain a general overview of their villages; explore their activities in both the communities and the forest; identify and understand their livelihoods; and understand their land use conditions, the resources harvested and used in various landscape niches, and the management practices carried in those locations. In consultation with the local residents, the LC1 councils granted me permission to work with the local people.

For the subsequent village group meetings, discussions were held with those who showed up voluntarily. Although the number of participants fluctuated depending on the day of the week and the season, 40 individuals representing an equal number of households in Sanga and 36 individuals representing the same number of households in Kisamula-Malube on average attended the group discussions. The local council members consistently attended all of the meetings and became some of my key informants. A total of eight meetings, four in each village, were held over a period of eight months and all meetings were held at the LC1 village meeting places.

Data collection methods

In order to obtain information about the socio-economic characteristics of local households and people's views on the landscape at each research location, participatory research methods were used: participatory mapping, group interviews, open interviews with key informants and participant observations.

Participatory mapping

In order to gain some understanding of local people's view of the landscape and their degree of knowledge, particularly about forest plant and tree resources, participatory resource mapping sessions (Dovie 2003) were conducted with small groups of volunteers taking the lead. I tried to ensure that groups represented the social-cultural and political differentiation of the community (FAO 1990; Dovie 2003). The groups consisted of men and women of various age groups ranging from 20-65 years. The four main religions (Catholics, Protestants, Muslims and the traditional practitioner) were represented. Also the three main ethnic groups (Baganda, Basoga and Bakiga) were also represented. The entire group of about 40 individuals, lead by a group of three volunteers (usually two men and a woman) in each location participated in the development of the resource map. The lead group was responsible for putting into the drawing everything that was discussed during the session. The local people drew the maps on the ground using a stick, stones of different sizes and leaves of different

colours to mark features within the map. At the end of the session, the researcher transferred the map onto paper. The generated maps are presented in Chapter 5.

Participant and field observation

Participant observation is a data gathering technique that is central to the ethnographic process, and is almost synonymous with anthropological fieldwork. Participant observation is about engaging in a social scene, experiencing it and seeking to understand and explain it. By listening and experiencing, impressions are formed and theories considered, reflected upon, developed and modified (May 1997). The purpose of carrying out participant observation in this research was to produce comprehensive accounts (May 1997) of differences related to men's and women's practices, knowledge, access to resources, and how roles and tasks are assigned in resource use and management in forested landscapes. The principle means of collecting information was both by direct observation/watching and, in some cases, by requesting someone to tell me what happened if the event occurred in my absence. Therefore, there are two types of observation:

- watching what people do and recording what they say, and
- asking people about their own actions and the behaviour of others.

This method was used to triangulate information obtained from interviews. I observed people engaged in the harvesting and management of various plant and tree resources in the landscape on several occasions. Also, two people were observed processing Ficus natalensis bark into cloth, while over ten women were observed processing various craft materials. In some instances, local people were asked to narrate how some management practices are executed.

Open-ended interviews – individuals, focus groups and key informants

In-depth, open-ended interviews were conducted with samples of men and women resource users and managers to understand the critical issues related to their knowledge and management practices, their household and community responsibilities, decision making options, resource acquisition and wealth, and their social organisation. In order to gain insights into use, management and local knowledge relating to forest plant and tree resources, open-ended interviews were employed that prompted informants to speak about given topics without structuring their responses. Closed-ended questions were avoided because, according to (Schoonmaker 1994), they reduce the chances of obtaining insights about the multiple construction of local knowledge in a given research setting. Sets of basic questions and topics were specified before field visits, which were referred to during the interviews. An interactive process between the interviewer and interviewee was adopted.

Both group and individual interviews were carried out. For the group interviews, attention was given to the duration of the interview and such factors as size, composition, psychological state of the group, and social, economic, and cultural factors, which according to (Maundu 1995), have a strong bearing on the quality and quantity of the information provided. The sex and age ratios can determine the degree of involvement and freedom of expression. The rate of information generation was

found to be higher for group than for individual interviews, especially where listing and clarification was of importance. Group interviews are also particularly useful when time is limited, as was the case in my base-line survey. From triangulation with observations it became clear that information from group interviews were more reliable in case they took place with the more knowledgeable members of the group. Group interviews were also used to identify more knowledgeable individuals with whom follow-up interviews were held. It is also important to be aware that some individuals may dominate the discussion during group interviews and some knowledgeable elderly, young or shy members of the group may not participate fully, so that some of the required information is withheld. In many instances, women speak less in the presence of men. This was the main reason for having several gender-segregated group meetings.

3.4.3 HOUSEHOLD SURVEY

In order to obtain information about household characteristics and about local households' and individuals' use and dependence on plant and tree resources and on various spaces or niches within the landscape, a household survey was carried out. The collection of information on the household characteristics was part of the research phase 1 and the collection of information on plant and tree use was part of research phase 2. The same households were used for research phase 1 and 2. Semi-structured interviews were used to gather quantitative information.

To facilitate data collection at household level, four local research assistants (two males and two females) were recruited in the study area to assist in the interviews. Since informants preferred to express themselves in Luganda, having assistants fluent in Luganda was mandatory and the assistants were selected on the basis of their fluency. Being fluent in English was an added advantage. It was a requirement that they be from the study areas (i.e. grew up no more than 10 km from the study villages), understood the local conditions quite well and were acceptable to the villagers. All assistants had completed primary education. No forestry training background was required.

In order to ensure some degree of consistency in the information collected, the assistants were given training on conducting interviews, particularly with regard to the manner in which questions should be asked. It was stressed that informants should not be pressured into responding and that direct questions should be avoided so that responses were not reduced to yes/no status. All discussions with the local people were conducted in Luganda and interview responses were recorded in notebooks. After each day's interviews, the assistants and the researcher reviewed what was said by the informants to make preliminary identification of the main issues raised during the interviews. This facilitated monitoring of progress and the extent to which the information sought was being generated. The joint review was further used to discuss issues arising and how to ask in-depth questions to qualify the questionnaire. The researcher personally attended all of the interviews.

Selection of respondents
Using a 30 percent sampling intensity, 53 households from Kisamula-Malube and 38 households from Sanga villages were randomly selected for the survey. Attention was given to the fact that, during the PRA sessions, the local people differentiated households, in terms of age and sex of the household head, wealth and marital status. The randomly-selected households were therefore grouped according to these characteristics.

Data collection methods
The household data was generated through using a checklist and a semi-structured questionnaire. The questionnaire contained questions in three categories: the socio-economic setting, forest plant and tree use and management, and the related local/indigenous knowledge of use and management of the forest plants and trees in designated landscape areas. The checklist contained open-ended questions to generate discussion with the respondents. The investigator led the discussion by asking questions and the major responses of the discussion based on the checklist were immediately recorded. Probing was also done to further clarify the responses and triangulate the information given by the respondent.

Basic information relating to social characteristics of household members (age, sex, marital status, education, etc), which was pre-coded, was sought from the heads of the selected households. Further information concerning household livelihoods, income, endowments, gender differentiation of tasks and responsibilities, products harvested from various locations in the landscape, management practices and cultural beliefs, was generated through discussions using open-ended questions posed to household members who were present as a group at the interviews. The group of household members who were interviewed consisted of the household head and the other household members who, in most cases, included the spouse, older children and any elderly relatives living in the household. During the household group interviews, each member of the household who was present was given an equal chance to respond to the posed question. Some specific questions such as what each member does in the household or what each member collects from the forested landscape were directed to each member present and their individual responses were recorded. The researcher and the two assistants visited each of the selected households and all interviews took place on the selected household's premises, mostly under the shade of a tree. Each informant was first made aware of the objectives of the study. The generated information is presented in Chapter 5 and part of Chapter 7.

3.4.4 CASE STUDIES ON SPECIFIC SPECIES

For the third phase of the research, I used a case study approach. This approach is considered appropriate for forming as comprehensive a picture as possible of intangible aspects such as individual knowledge, the relationships of knowledge to management practices, and the influence of various social, economic and cultural factors on management practices and knowledge (Brodt 1998). An investigation of these kinds of issues is best accomplished using an integrated approach in which the

real-life context of knowledge and practices and the knowledge and practices themselves are part of the study (Brodt 1998). This approach is coherent with current thinking in farmer research and extension theory, in which farmers' knowledge is considered to be one part of their broader 'life-world', the sum of their personal experiences and social inheritance (Drinkwater 1994). Due to the embeddedness of knowledge, one should not always expect farmers to provide simple, direct accounts of their actions and knowledge, but these must obtained through more contextualised and sometimes indirect means. Drinkwater (1994:39) explains that, '*by engaging with farmers for long enough, our understanding of them… will gradually emerge*'. This kind of research is best implemented through case studies which do not require separating a phenomenon from its context (Yin 1994) or making too many prior assumptions about the context in question formulation. Furthermore, a study of local knowledge and management practices requires a situation in which informants can be consulted interactively, thus rendering a case study of a smaller, more defined group of people more practical than a survey conducted over many dispersed communities (Brodt 1998).

The aim of the case studies was to investigate in detail:

1 Whether women and men have different rights to specific products, species and spaces and what conditions such rights;
2 Whether there are gendered patterns of use of tree/plant products and tree/plant species and spaces, and what conditions these patterns;
3 Whether there are gendered management practices for specific species and spaces and whether the knowledge for such management practices is gender-differentiated.

The study of gendered access and control, gendered management practices and gendered knowledge for managing trees and wild plants found in forested landscapes was carried out using several methods, including both focus group discussions, individual interviews, participant observation and field observations. The results are presented in chapters 6 and 7.

The case-studies were carried out in two stages. The first stage entailed several focus group discussions with individuals who were knowledgeable about selected species, whereas the second stage involved individual interviews with people who were knowledgeable about the selected species.

Stage 1: Focus group discussions about selected species

The aim of the exercises in this stage was to investigate patterns of access and control over the use and management of the selected plant and tree species in specific locations. It also aimed at obtaining a description of the various management practices related with the selected plant and tree species and the rationale behind the practices that reflect the knowledge of management of such species.

Selection of respondents

The participants for these sessions were selected from a list of villagers obtained from the local village council office. A sample of respondents was selected with the help of

key informants that included the Local Council (LC1) Chairman, LC1 Secretary, LC1 Women's Representative, LC1 Environment Representative, LC1 Information Representative, a village elder and a youth who was regarded as one of the experts in various plant- and tree-related activities. The numbers of participants in the focus group discussions for each species are shown in Table 3.1.

Table 3.1 Participants for the selected species group discussions

	Number of participants		
Species	*Women*	*Men*	*Total*
Jackfruit (*Artocarpus heterophyllus*)	7	8	15
Fig (*Ficus natalensis*)	5	7	12
Cat's whiskers (*Cleome gynandra*)	8	5	13
Palm (*Phoenix reclinata*)	8	4	12
Total	28	24	52

Data collection methods

Two discussion sessions were held. Thirteen individuals participated in the men's focus group discussion and nine individuals participated in the women's focus group discussion.

Women's and men's discussion sessions were held separately to enable each sex to express their views without reservations. In the study area, women are less free to discuss issues in the presence of men and therefore joint discussions would not have adequately represent women's views. A checklist was used to generate the general information from both focus groups.

It was the same four species that were used for both focus group discussions in stage one and individual interviews in stage two to obtain in-depth information. A total of eight focus group sessions were held. Each discussion session lasted about four hours. An additional session (on different days) of 2-3 hours was conducted for each species focus group to clarify certain issues that were discussed during the first session.

Stage 2: Individual interviews about selected species at household level

This stage investigated gendered patterns of access and control over use and management of the selected plant and tree species in specific locations at the individual level. It also aimed at obtaining a description of the various gendered management practices related to the selected plant and tree species and the rational behind the practices that reflect the knowledge of management of such species from the individual's standpoint. Also, household level information for individuals interviewed was also sought. The information generated on the socio-economic and demographic characteristics of the interviewees' households was used to further analyse the observed gendered patterns in access, control, use and management of trees and wild plant resources.

Selection of respondents

Twenty households were selected using the snowball method and starting with the respondents from stage one. For each household, both the respondent and his/her

spouse who are involved in plant gathering and management activities related to the selected species were interviewed. Five respondents and their spouses were selected for each of the four species Thus, 40 individuals were interviewed overall. Each of the 40 individuals responded to the same set of questions concerning access rights and management practices, but only for the specific species that they were selected to discuss. A demographic and socio-economic survey was carried out for each of the 20 households where questions were asked of both respondents together. Where it was not possible to have both of the respondents present, the female respondent was preferred as it was observed that responses from the females about the households were more accurate. The results of the case studies are presented in chapters 6 and 7.

3.5 DATA ANALYSIS

The basic mode of data analysis on the access to and use and management of species was qualitative. Transcribed texts of interviews, group discussions, and key informants' discussions were combined with direct field and participant observations of various activities in the landscape, and were ethnographically analysed in order to interpret people's underlying ideas about forest plant and tree resources and how these relate to concrete use and management practices.

These qualitative analyses were complemented with simple statistical procedures for testing differences in household and village conditions. For selected variables having scale values, means were compared to determine levels of variation. Also, tests of association between and within selected variables were conducted. Measures of association were used such as Chi-square and Cramer's V, which is also based on chi-square. Also, some analysis of variance (ANOVA) was performed for selected variables, and Eta-squared was used to determine the proportion of variance in the variables. For a few variables, a regression analysis was attempted to estimate the linear relationship between them. Non-parametric procedures facilitated analysis where data was confined to an ordinal measurement scale and when the values for the variables tested were not ascertained to be normally distributed, which are the two characteristics that prevent the use of parametric statistics (Siegel 1956).

4 RESEARCH CONTEXT

4.1 INTRODUCTION

This chapter presents a general description of the study area. The first part presents the characteristics of the area including its geographical location, climate, rainfall regime and a brief discussion about the forests in the study location since the variation in these factors have been shown to strongly influence forest resource dependency and livelihoods in tropical countries. The second part presents a general overview of forest management in Uganda, outlining the historical changes in land and tree tenure as these are important features that condition forest management. Finally, indigenous use and management of forest and tree resources not only depends on tenure regulations but also on socio-cultural organisation. Thus, a general overview of the socio-cultural context as well as the gender relations and interactions in the research area are presented. .

4.2 GEOGRAPHICAL LOCATION

Uganda is a landlocked country in East Africa covering approximately 240,000 km^2, of which 194,000 km^2 is dry land, 33,926 km^2 is open water and 7,674 km^2 is permanent swamp (Langlands 1973). The country has a population of 24.7 million (UBOS 2000), and lies between 4^oN and 1^oS and from 29.5 – 35^o West (Plate 4.1). Much of country lies on the African plateau at an altitude of 900-1500 m above sea level. Uganda's neighbouring countries include the Democratic Republic of Congo in the West, Kenya in the East, Sudan in the North, and Tanzania and Rwanda in the South. Uganda has an exceptionally diverse ecology, due to its location in East-Central Africa, a zone that overlaps ecological communities characteristic of dry East savannah and those of the West African rain forests (Howard 1991). The vegetation is characteristic of glacier mountain vegetation, lowland forests, woodland savannah and deciduous Acacia-commephora bush land and thickets (White 1983). Mukono and Mpigi are two of the seven districts that formed what was formally known as the Buganda Kingdom, and traditionally referred to as the Buganda region. Mukono, the third largest district in Uganda, is located in the central part of the country. It is boarded by the districts of Lira to the North, Jinja and Kamuli to the East, Iganga to the Southeast, Luwero to the West, Mpigi and Kanpala to the Southwest, and the Republic of Tanzania to the South. It lies between latitudes $1^o38'N$ and $1^o00'S$, and longitudes $32^o31'E$ and $33^o26'E$. The district covers an area of 14,308.6 km^2, of which 9,747.3km^2 (68 percent) is covered by open water and swamps/wetlands. Mpigi District, located in central Uganda, is situated on the northern shores of Lake Victoria, lying between longitudes 31° 15' E, 32° 50' E,

and latitudes 0° 15' S, 0°30' N. It borders with the districts of Mubende, Kiboga and Luwero in the North, Kampala in the East, Masaka in the Southeast and Lake Victoria in the extreme South. It covers an area of approximately 6,278 km^2 of which 5,531 km^2 is covered by water bodies. Sanga community is located in Buikwe County, Najjembe Sub-county, while Kisamula/Malubbe is found in Mawokota County, Kilingente Sub-county.

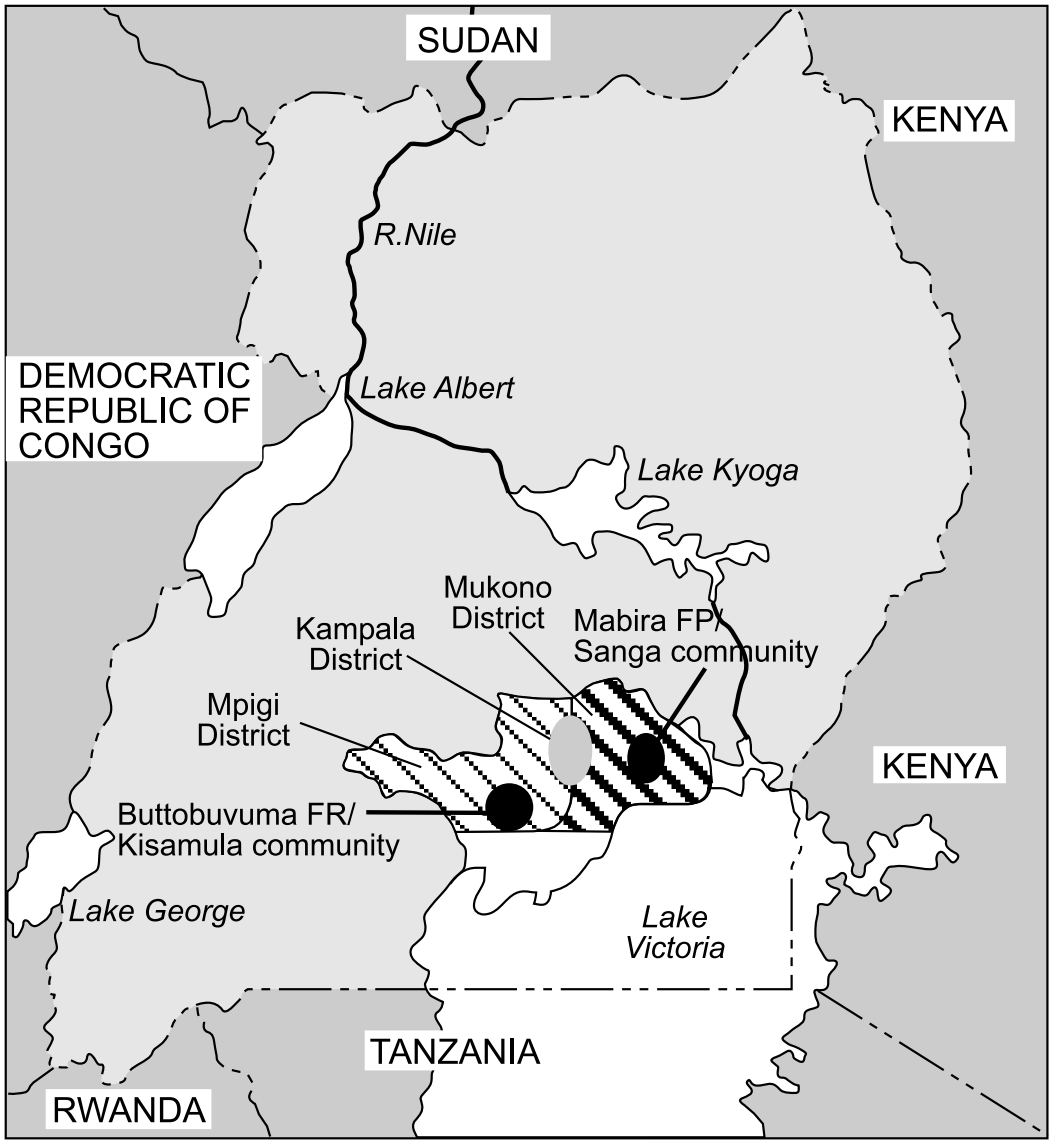


Figure 4.1 The study locations in Uganda

4.2.1 CLIMATE AND RAINFALL CHARACTERISTICS

The study area has a favourable climate – Mukono and Mpigi districts fall within the Lake Victoria climatic zone. The climate in this zone has comparatively small variations in temperature, humidity and wind throughout the year. Both districts have a bimodal type of rainfall, with two peaks occurring during March-April-May and October-November, the former being the main rainy season. The average annual rainfall for Mukono ranges between 1100 and 2000mm while that of Mpigi ranges

between 1320 and 2000 mm. The average monthly rainfall for both districts is shown in Figure 4.1. Temperatures in both districts range between a minimum of 16-18^0 and a maximum of 28-30^{0}C. The diurnal variation is on average about 7^{0}C.

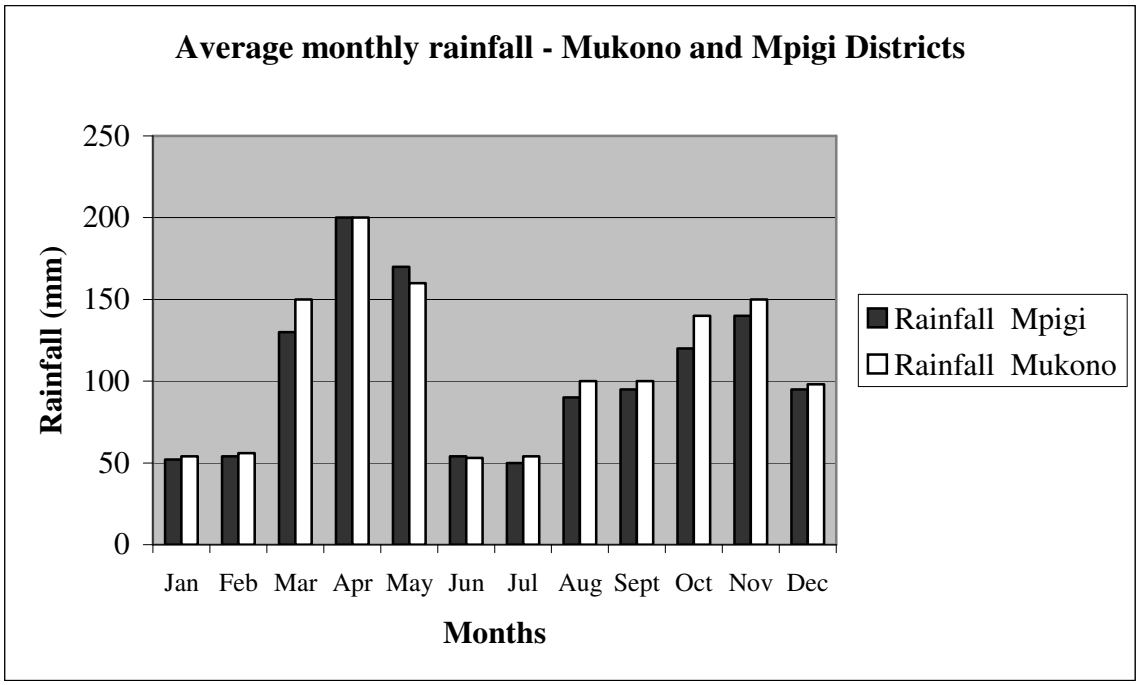


Figure 4.2 Rainfall pattern in the study area

4.2.2 GEOLOGY AND SOILS

Mpigi is a district of poor exposure, with deep weathering extensively dissected by swamps and much occupied by settlements, forests and cultivation, so that only the broader features of the geology are recognizable. Much of the critical area is occupied by water or swamps. Granitic rocks, common gneissose, occupy two major belts extending in an approximately east-west direction across Mpigi district and conform to the pattern of sediments. Although contacts with the sediments are not seen, they are not obviously transgressive. Ampbibolites are found in a number of localities but their great development is near Mpigi town. The argillaceous sediments are poorly exposed (MDSoER 1998).

Soils in Mpigi district are generally sandy clay loams. The dominant soil types are red gravely loams with occasional murram, reddish brown sandy loam on red clay loam and yellowish sands with quartz gravel. The soils in the wetlands include grey sands whose parent material is alluvium and hill wash; grey coarse sands from lake deposits, black and grey clays from river alluvium; and peat sands and clays formed from papyrus residue and river alluvium. Mpigi soils are generally of high productivity (MDSoER 1998).

The land in Mukono district is mostly composed of remnants of Lowland surface interspersed by remnants of upland surface typical of a landscape still undergoing peneplanation. The altitude ranges from 1,099 m to 1,300 A.S.L. This landscape has broad valleys, which serve as areas of in fill of the fine sediments, carried by runoff water. The abundant deposits give good raw materials to sustain a rich brick making industry and sand mining in Mukono, but the deposition is a slow process. The predominant soils types are mainly ferratic with sandy clay- loams as the main Constituents. The lake Victoria fringes have mainly sandy – loams of high to medium fertility. Undifferentiated ferrisols and crystalline basic rocks are found north of Mukono (DSoER 1998).

4.2.3 THE SOCIO-ECONOMIC CHARACTERISTICS OF MUKONO AND MPIGI DISTRICTS

Demographic conditions

According to the 2002 Population Census, the population of Mukono District was estimated at 807,923 of whom 49.9 percent were female, while that of Mpigi was estimated at 414,757 of whom 49.7 percent were female. The population density for Mukono District ranges from 9 persons/km^2 for the sparsely populated counties to over 350 persons/km^2 in the densely populated counties. That of Mpigi ranges between 200 and 300 persons/km^2. The sex ratio in Mukono district was 100.4 at the time of the 2002 census, while that of Mpigi was 101.3. The 2002 population census estimated Mukono district to be growing at a rate of 2.5 percent while Mpigi was growing at 2.9 percent. Mukono district is estimated to be urbanising at a rate less than 10 percent; while Mpigi district with an urbanisation rate estimated at 15 percent, categorised as one of the fastest urbanising districts in Uganda (MoF 2000). (Urban areas include cities, municipalities, towns and all trading centres with a population of over 1000 persons.)

Sources of livelihood

In 1991, 56 percent of the total population was categorised as economically active within the 10 – 60 year age group. Of those who were economically active, 62 percent of the total (about 67 percent of the total population) in both Mukono and Mpigi districts derived their livelihood from farming, followed by income from property rentals/family support in form of remittances (Table 4.1) Wage earnings are mainly from providing labour for cultivating agricultural fields, as well as the provision of unskilled labour in tea, sugar, coffee and other plantations. Wages are also earned from brick making, sand extraction and charcoal making.

Table 4.1 Distribution of household population by main source of livelihood, Mukono and Mpigi Districts 1991

Main Source of Livelihood	*% of Households*	*% of Population*
Farming	61.9	67.3
Trade	7.0	6.5
Employment Income	18.5	15.0
Property rentals/ Remittances	10.7	9.5
Other	1.9	1.7
Total	100.0	100.0

Source: The 1991 Population and Housing Census/ Analytical Report Volume III 1995.

With a per capita income of less than US $ 300, these two districts of Buganda are poor, with the majority of the poor people found in rural areas, where about 40 percent of the population lives below the poverty line (World Bank 2001).

Over 80 percent of the people in Buganda work in the rural economy and are predominantly employed in the agricultural sector. Almost 80 percent of all workers and about 90 percent of the rural workers in Buganda are employed in rain fed agriculture. Although the economy is agricultural based, production is still very low due to small land holdings, the use of simple agricultural tools such as *pangas* (machetes) and hoes; and relatively poor health status of the rural population caused by prevalent diseases such as malaria and HIV-AIDS. In many small holdings, agricultural production is low due to inappropriate farming methods which mining the soils. However, some farmers with livestock used animal waste as manure, while others mulch their gardens in order to restore soil fertility, although this is mainly done for food crops near their homes (Gombya-Sembajjwe 1996).

Human development

The only indicators of human development that are available are *per capita* indicators of education, income, and life expectancy, presented in Table 4.2 human development indicators and the Human Development Index (HDI) for Mukono and Mpigi districts in comparison to the rest of the districts in the central region. The HDI value for a given district and country is intended to indicate how it relates to certain defined goals that are indicative of a decent standard of living. The maximum value of HDI is 1(one); hence the difference between the district's value and 1 shows the short-fall in HDI.

Table 4.2 Human Development Indicators for some districts, 1995

District	*Household Expenditure Per Capita*	*GDP Index*	*Literacy Rate Estimates*	*Enrolment Rate Estimates*	*Life Expectancy Estimates*	*Human Development Index*
Kampala	38,613.50	0.585	89.284	43.926	58.3	0.627
Mpigi	19,273.96	0.284	74.134	54.999	54.1	0.482
Kalangala	22,570.96	0.335	72.619	35.276	52.5	0.465
Mukono	15,118.61	0.219	61.913	51.998	51.9	0.418
Masaka	13,928.59	0.200	62.923	46.102	51.7	0.406
Mubende	12,442.73	0.177	58.883	47.174	49.8	0.380
Luwero	13,222.92	0.189	59.792	53.263	48.2	0.384
Rakai	12,367.58	0.176	54.843	43.841	49.2	0.364
Kiboga	13,202.79	0.189	55.651	47.775	46.2	0.358

Source: United Nations Development Programme (UNDP): Uganda Human development Report 1997.

Table 4.2 shows that households in Mpigi district spend 27 percent more *per capita* than those in Mukono district. Also the gross domestic product (GDP) index is less than 0.3 in both districts. Although the above data generally shows that Mpigi district is relatively more developed than Mukono district, the HDI for both districts is still below 0.5, which indicates that both are still below average in terms of development.

Energy sources and utilisation

The major sources of energy in both districts are fuelwood, petroleum products, and electricity. Fuelwood is the most important source of energy in both districts as can be seen in Table 4.3**.** Gas is rarely used, while paraffin is mainly used for lighting.

Table 4.3 Distribution of households by type of fuel for cooking

Type of Energy Source and Use	*Percent of Total Households (%)*
Electricity	0.65
Gas	0.02
Paraffin	0.30
Charcoal	8.84
Firewood	89.4
Dung/Grass	0.07
Not stated	0.72
Total	100.00

Source: The 1991 Population and Housing Census Report.

(i) Fuelwood (firewood and charcoal)
About 98 percent of the total households in Mukono District use fuelwood (firewood and charcoal) for cooking and heating, out of which about 9 percent use charcoal for cooking and about 2 percent of the total households use firewood for lighting purposes. The majority (91.5 percent) of the households use paraffin for lighting and only 0.3 percent use it for cooking/heating purposes.

4.3 FOREST CHARACTERISTICS

Forests in Uganda categorised into those protected by the state (i.e. gazetted and managed by Government agencies as forest reserves and national parks or wildlife reserves) and privately owned forests. The major forest categories include closed tropical high forests, savannah woodlands, bamboo/heath-grasslands and coniferous and eucalyptus plantations (Kamugisha 1993). There are several forests in Buganda, the majority being lakeshore forests. The controversies related to forest use and management in Buganda have mainly been related to protected/reserved forests, which are mostly natural tropical high forests, and the neighbouring communities. The study was conducted in two forests in the region, i.e. Mabira and Buttobuvuma forests. Thus, further details on the forest conditions are illustrated by the conditions in the two forest areas.

4.3.1 MABIRA FOREST

Mabira, the largest forest reserve in Central Uganda, lies in the counties of Buikwe and Nakifuma in the administrative district of Mukono. It lies in an area of gently undulating land interrupted by flat-topped hills that are remnants of the ancient African peneplain (Howard 1991) and occupies an area of about 306 km^2. With an altitude range of 1070–1340 m above sea level, Mabira's vegetation can broadly be categorised as medium altitude semi-deciduous forest, predominantly of a secondary nature at a sub-climax stage, having been greatly influenced by man. About 25 percent of Mabira forest is dominated by the colonising tree Maesopsis eminii, in association with Albizzia sp, Markhamia platycalyx and Sapium ellipticum, representing the majority of the youngest vegetation. The successional stage is represented by young mixed Celtis-Holoptelea forest that covers about 60 percent, and the remaining 15 percent is of poor mixed forest of wet valley bottoms, dominated by Baikiaea insignis (Davenport, Howard, and Baltzer 1996; Nakakaawa 1999). Mabira forest reserve has about 26 populated village enclaves within its boundaries.

4.3.2 BUTTOBUVUMA FOREST

Buttobuvuma forest reserve is one of the lakeshore forest reserves of the Mpigi forest archipelago of small neighbouring reserves totalling 261 km^2 (Davenport *et al.* 1996). This forest lies in the sub-counties of Kilingente and Muduma of Mawookota County in the administrative district of Mpigi. It lies in an area characterised by gently rolling hills interspersed with broad valleys in which communities lie surrounded by their agricultural fields, and occupies an area of 11 km^2 (Nabanoga 1998). With an altitude

range of 1150 – 1190 m above sea level, Buttobuvuma's vegetation can be broadly categorised as medium altitude moist evergreen Piptadeniastrum-Celtis forest and medium altitude forest/savannah mosaic. Buttobuvuma forest is dominated by the colonising trees Maesopsis eminii, Trema sp., Teclea sp. and Sapium ellipticum. The forest has over ten populated villages near its boundary.

4.4 FOREST MANAGEMENT POLICY IN UGANDA

About seven per cent of Uganda's land area is covered by forests, of which 43 percent are under gazetted government ownership and management. Tropical high forests in Uganda cover about 40 percent of the gazetted forests, 48 percent is savannah, 10 percent is montane catchment forest, and man-made plantations of conifers and eucalyptus cover the remaining two percent (Aluma 1987; Kamugisha and Cornelia 1996). The gazetted forest reserves are managed by the Forest Department, an agency in the Ministry of Water, Lands and Environment, which has until recently managed a well-protected forest estate. Non-gazetted forested landscapes, which are not state-owned are directly managed by the individuals, groups or corporations that own them. Very little tropical high forest is under private ownership. Further details on the history of regulations regarding access to and ownership of forests are given in Chapter 4.5.2. The forest ownership conditions are reflected in two main types of forest management, i.e. state forest management and local or indigenous forest management (MWLE 2001).

4.4.1 STATE FOREST MANAGEMENT

Uganda's gazetted forest reserves were established by the British colonial government for multiple-use in the early twentieth century (Phillip 1962) with a primary function of satisfying the country's wood requirements (Ndemere 1997; Obua 1996). Industrial exploitation and systematic management commenced in the early 1940s in the central forest reserves of which Mabira and Buttobuvuma are a part. Management of these reserves was based on plans drawn up by the Forest Department and executed by professional foresters, which determined the harvesting cycles and prescribed silvicultural treatments, arboricidal treatments and enrichment planting (Hamilton 1984, Karani 1989).

Currently, management of gazetted forests in Uganda is still legally entrusted to the state Forest Department. Consequently, the management of these forests is carried out by professionally-trained people employed to scientifically plan the use and carry out the actual management of the forest resources. These professional forest management systems are explicitly oriented towards forest functions as formulated in national forestry policies. The policy statements emphasize management of forest resources for national and/or global interests, stressing commercial timber production for urban/industrial use or export, watershed protection, provision of recreational facilities for urban dwellers, and the conservation of biological diversity. In addition, forest management policies are also directed towards the provision of information functions

such as maintenance of scientific information in research zones and gene conservation for future generations (Kamugisha 1993; Obua 1996; Ndemere 1997).

Historically, state forest management objectives have explicitly been directed at forest conservation rather than at the issue of sustaining local livelihoods and welfare. The conventional view of forest resource use and management is characterised by a perspective where forests are delimited by operational boundaries defined by property regimes; the rights to use and manage forested landscapes under state custody are solely defined by, and are a responsibility of, the state. Consequently, conventional forest management is based on distinct boundaries between the community lands and state forest lands, and professional managers do not expect community members to operate beyond community boundaries, irrespective of their proximity to the state forests. However, despite the existence of operational boundaries around forests, local people rarely respect them and trespass into the state forests.

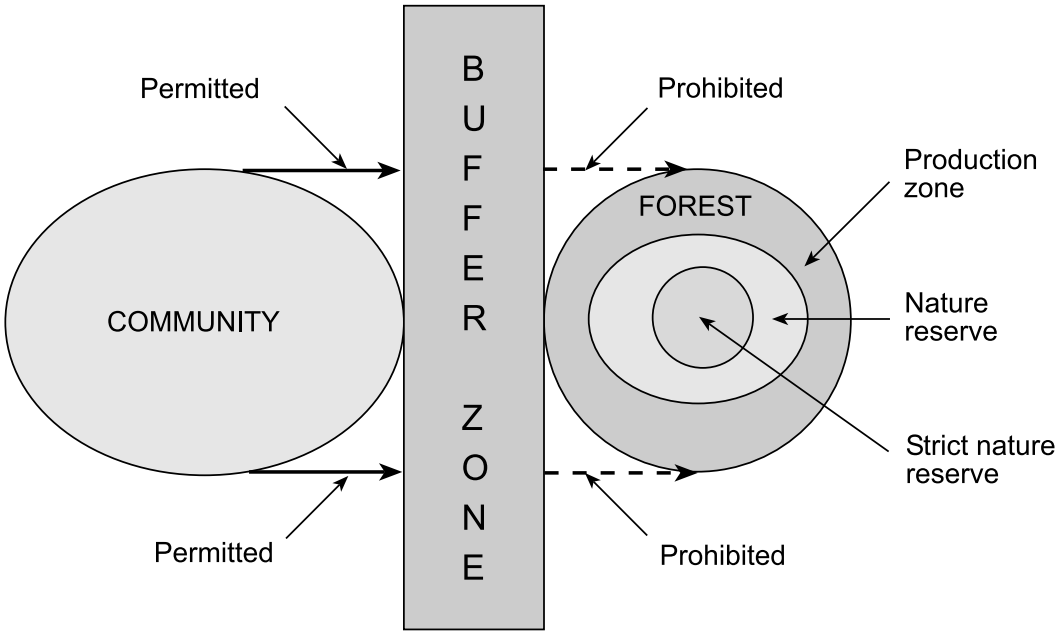


Figure 4.3 Management perspective characterised by distinct boundaries of operation

As far back as in 1929, it was recognised that part of the state forests were established on what local people considered as community lands, and that forests resources are of importance to local people. But it has been only recently that a number of forest policy statements have been issued regarding the need to also orient forest management to support local livelihoods. Gradually, the zonation system was adjusted to accommodate local needs. The zonation model (modified from the Uganda forest policy 2001) upon which conventional forest conservation and management is now based is depicted in Figure 4.3. In anticipation of trespassing, a buffer zone is created between the community and the reserved forest, which is an area where some community activities can be tolerated. The remaining forest is further zoned into a production zone (the outer-most zone where, with permission, individuals or groups can carry out restricted activities such as timber harvesting and charcoal making) and a nature reserve zone

where almost all extractive human activities are prohibited, with the exception of non-extractive activities that are either educational i.e. research or eco-tourism. Ideally, there should be no activity, extractive or non-extractive, in the innermost zone, which is termed the strict conservation zone.

Thus, at present, local residents are permitted to use forest resources located on their community land since it is private, and in the buffer and production zones, which are under state ownership.

Their activities or operations beyond the buffer zone are prohibited and permission is required from state officials for any ventures inside the state forest.

Recently, the conventional view of forest management based on state custody over forests and state responsibility for managing forests has been further modified through the development of collaborative management schemes. These schemes are based on the recognition of the *de facto* co-existence of state and local forest management systems. Collaborative Forest Management refers to a strategy in which the agency with jurisdiction (usually the state) develops a partnership with some or all of the relevant stakeholders, notably local residents, but also any other institution, social group or individual possessing a direct, significant and specific stake in the forested landscape. In Uganda, such collaborative management is specifically focused on the buffer, production and nature zones.

4.4.2 LOCAL FOREST MANAGEMENT

As demonstrated by the emergence of collaborative management schemes, it is at present recognised that local people also play an important role in forest use and management. Although local or indigenous forest management has only recently been officially recognised, it has been in existence for much longer than professional forest management. There is evidence that, as early as the fourth century BC, African cultivators, hunter-gathers and herders lived in the dense rain forests that surround the Lake Victoria basin (Were and Wilson 1970). Prior to the colonisation of present day Uganda, tribal people depended entirely on forest resources for their livelihoods, as their livelihood strategies were based on shifting cultivation, hunting and gathering, fishing and herding. Cultivation was mainly of yams and bananas, which required partial clearing of forests, leaving trees that were either too large to fell or had valuable products such as nuts, fuelwood, and bark for cloth-making (Karani 1989). Wild coffee was also often harvested from the forest and used for traditional ceremonies and rituals. An informal traditional management system existed for most of the forests that was based on cultural and spiritual beliefs (Gombya 1995). Certain local community members would go to these forests to consult with ancestral spirits or for religious worship and presentation of sacrificial offerings (Ndemere 1997). There were no written rules to regulate forest management but the communities knew the ‘dos’ and ‘don’ts’ with respect to using forest resources and not degrading sacred sites, which were passed from generation to generation through oral instructions and cultural traditions. Spiritual sanctions and penalties were used to enforce the rules, which combined religious, practical and material aspects of forest management (Gombya

1995). The traditional management system was sex-differentiated. For instance, women were prohibited from entering the forest unaccompanied; the collection of fuelwood and wild foods was, however, a female practice. Similarly, the management of Ficus natalensis for the production of bark cloth was exclusively a male practice (Roscoe 1965).

Forest resources were not only maintained in forests but also on agricultural lands. This indicates that indigenous management of forest resources not only concerns officially designated forest reserves, but also other landscape elements. In Uganda, the following tree-dominated landscape elements used and managed by local communities can be distinguished (NEMA 1998):

- Home gardens
- Scattered trees on cropped land
- Cash crop plantations with shade trees
- Fallow vegetation
- Wood lots
- Grazing land with shade trees
- Water catchment areas

Local people's ability of to manage forest/tree resources has been well-documented in relation to the management of the traditional home gardens in Uganda (Karani 1986; Kiyingi 1991; Flemming 1994; Oluka-Akileng *et al.* 2000).

Thus, although local people have officially limited access to forest reserves in Uganda, this does not mean that they are ignorant of forest resource management. I hypothesize that the type and intensity of use and management of forests and forested landscapes is highly dependent on existing land and tree tenure systems. Therefore, in the next section, the history and present status of land and tree tenure in Uganda are described.

4.5 THE EVOLUTION OF LAND, FOREST AND TREE TENURE

4.5.1 THE EVOLUTION OF UGANDA'S LAND TENURE SYSTEMS

The evolution of Uganda's land tenure can be traced from the history of the country's governance. There are three major governance eras that can be traced: the pre-Colonial era, which was mainly dominated by the rule of kingdoms and chiefdoms; the Colonial era, characterised by foreign rule; and the independence and post-independence era. Land tenure under the various governance eras is summarised in Table 1. The present tenure arrangement is based on an amalgamation of the regulations of these different systems. The chronology of the evolution of land tenure in Uganda will later be described with reference to Buganda, which is the region under study.

Table 4.4 Land tenure evolution in Uganda and Buganda

Period	*Land tenure regimes (Forms of tenure)*				
	Customary	*Mailo*	*Freehold*	*Leasehold*	*State*
Pre-colonial (Before 1900)	*De jure*	-	-	-	-
Colonial (1900-1962)	*De facto*	*De jure*	*De jure*	*De jure*	*De jure*
Independence (1962-1998)	*De facto*	*De facto*	*De facto*	*De facto*	*De jure*
Today	*De jure*	*De jure*	*De jure*	*De jure*	*De jure*

The pre-Colonial period (before 1900)

The control over land use and management was one of the major political pillars for the various ancient kingdoms and chiefdoms in Uganda up through the eighteenth century. In Buganda, for instance, either the King directly granted the rights associated with control to land or these were inherited; in addition, rights were created through occupation of free lands. During this period, four types of control over land existed: clan rights (*Obutaka*), rights of the King and his chiefs (*Obutongole*); individual hereditary rights (*Obwesengeze*), and peasant rights of occupation *(Ebibanja*), (Mukwaya 1953; Roscoe 1965).

Clan rights: Clan and kinship heads received land grants from the King for the common use of the people whom they represented; normally, these rights covered entire villages. In addition, some clans controlled lands on which their ancestors had originally settled and which had been used without interruption for more than one generation. Some clan members obtained land grants directly form the King for exception services as recognised by the kingdom. These rights were passed from generation to generation to the male members of the clan through inheritance.

Rights of the King and his chiefs: the King's relatives (princes, princesses and the Queen Mother) had large land estates under their control. The King also gave land estates equivalent to villages to political officers (*Ebitongole*) as remuneration for their political service. Also, each Chief and head of political office (*Omutongole*) was granted a number of land estates which he directly controlled. The usufruct rights terminated with the death of the holder of the office or with his promotion or demotion (Mukwaya 1953:11).

Individual hereditary rights: Two types of individual land rights existed. The King could grant small pieces of land to individuals in the kingdom who did not hold any political office. Individual rights also could develop when people had occupied the land for a long time and the King and the chiefs had confirmed their occupancy. As a sign of confirmation of these kinds of rights, the King's and chiefs' representatives always planted a bark cloth tree (*Mutuba* – Ficus natalensis*)* on the granted land. These rights, reinforced by the presence of the *Mutuba,* were also used to distinguish between individuals within royal and clan lineages. For example, princes not eligible to succeed to the throne were referred to as the princes of the bark cloth (*Abalangira Ab'emituba*), while the direct descendants of the monarch were referred to as the princes of the drum

(*Abalangira Abe'ngoma*). Also, the major sub-divisions of the clan (*Siga)* are referred to as the lineages of the bark cloth tree (*Enyiriri ez'emituba*) (Mukwaya 1953:13). The essential features of the rights of such clan-based individual ownership were:

a Small holdings were occupied by the relatives or servants of the holder,
b They carried no political rights or duties, although the holders could have, and usually had, political duties in the same area or in other areas,
c The land rights were permanent in the sense that they were for life and could be inherited by the successors, and
d The owners were free from the labour obligations due to the chiefs from the peasants, but they could be called on for other political and military duties (Mukwaya 1953:13).

Peasant rights of occupation: Although a few people had rights to control land by virtue of being a clan member or a chief's subject, every male in Buganda had a right to occupy and use land. Individuals who obtained land through their clans had more secure rights than did the chief's subjects. The main provisions for this arrangement included:

a the rights to undisturbed occupation depended on correct social and political behaviour,
b grazing rights, water rights and rights to trees and firewood; and
c the right to remain in possession upon succession.

In return, peasants had to give tribute to the chiefs in the form of beer and food crops (Mukwaya 1953).

These systems of land rights worked well during the pre-colonial period as they catered for both political and social interests in the land, and the system ensured access to land in one way or another for all of the people belonging to the kingdoms or chiefdoms.

The Colonial period (1900-1962)

After the English occupied Uganda, they considered that the power of the local kings should be diminished by disassociating political power and power over the land. Amongst others, this disassociation was intended to help create a market for land (Mukwaya 1953; Roscoe 1965). This resulted in the 1900 Agreement between the British Special Commissioner and the Chief of Buganda. Under this agreement, about 1003 square miles of land were allotted to the King, his family and the main chiefs. Another 8000 square miles were allotted between about one thousand chiefs and individuals at the discretion of the local Buganda council (*Lukiiko*).

The rest of the land in Buganda (8292 square miles) was placed under the administration of the Crown and the rights to these lands were identified in the Crown Lands Ordinance of 1903. The Governor obtained extensive powers form this

Ordinance to freely dispose of Crown Land in freehold[1] or leasehold[2], a provision that was aimed at proving land to the British foreigners (Mukwaya 1953; Mugambwa 2002).

Shortly after the formulation of the Crown Lands Ordinance of 1903, the British Governor realised that the land allotment under the 1900 Agreement had altered traditional land rights in Buganda. He therefore sought to legalize and regularize traditional rights, differentiating them from those of freeholders under English law. The new land system was termed '*Mailo'*[3] and a law defining this tenure system was enacted in 1908. The Land Law of 1908 had the following provisions for the Mailo land tenure system (Mukwaya 1953):

- An individual can own up to 30 square miles of land without special sanctions of the Governor;
- A mailo owner can transfer land by sale, gift or testament to another person belonging to the Uganda Protectorate but cannot transfer land or lease it to anyone who is not a member of the Protectorate without special permission from the Buganda Government (*Lukiiko*) and the Governor;
- In case a person dies without a will, succession will be ascertained by customary rules of succession; and
- Customary rights of the people to use roads, running water and springs are preserved.

Mailo lands were registered with provisional certificates issued under the 1908 Registration of Land Titles Ordinance (RLTO). A comprehensive RLTO was enacted in 1922 and all of the mailo land previously provisionally registered under the 1908 RLTO were fully registered.

The recognition of the *mailo* land rights had as a consequence the gradual differentiation between people owning and people using these lands. However, the 1900 and 1908 land laws never defined the relationship between the landlord and his tenant(s). In order to clarify this relation, in 1928, the *Busuulu*[4] and *Envujjo*[5] Law was enacted, which set the rent and tribute payable to the mailo owner (who possessed *de jure* freehold rights) by a tenant (who enjoyed *de facto* use rights), hence increasing the security of tenure for the tenants with respect to occupancy and inheritance (Mukwaya 1953; Kisamba-Mugerwa 1998). Under this law, the land rights of mailo owners and tenants were identified as follows (Mukwaya 1953).

---

[1] According to Bruce (1998), freehold is synonymous with private ownership where land is held free of state obligations.

[2] According to Bruce (1998), leasehold is a condition where a person other than the owner rents land for a specified period.

[3] The word 'mailo' originated from the term 'mile' used by the colonialists to describe distance. It was in this case used to describe a square mile, which was a dimensional connotation of the size of land holding (Mukwaya 1953).

[4] A kind of levy, equivalent to rent of the land holding for cultivation.

[5] A kind of levy, equivalent to a tax for growing economic crops on the land holding.

The rights of the Mailo owners:
The *mailo* landowners' rights to land are only limited by the provisions of the land law of 1908. The rights of the mailo owners in relation to the mailo tenants are further defined by the *Busulu* and *Envujo* Law of 1928, which states that;

- Each tenant shall pay *busulu* of Ug.Shs. 10/= per annum;
- and shall pay *envujo* according to a schedule on economic crops and also 2/= per brew of beer;
- and shall render the owner all respect and obedience prescribed by native custom and law;
- and the owner shall have the right to occupy any part of the land for the purposes of residing and growing crops.

The right of the mailo tenants/peasants:
The rights of the Buganda peasant are protected by law and custom. The peasants' rights are inalienable and non-transferable; they are permanent and heritable. The 1928 *Busulu* and *Envujo* Law protected peasant rights through the following provisions:

- no peasant holder shall be evicted unless for purposes of public interest or unless a court has decided;
- the court may grant compensation for improvements on the holdings;
- a peasant holder shall have rights to cut trees and to obtain firewood, and the right of access to pasture, and salt licks;
- a peasant holder in succession to the holding shall remain in possession; and
- no change of mailo land ownership shall affect the status of a peasant in his holding.

Independence and Post-Independence period (1962-1998)
Upon Uganda's Independence in 1962, all Crown Land and all customary land that was not alienated into mailo tenure was termed Public Land under the Public Lands Act of 1962, which replaced the Crown Lands Ordinance of 1903. This Act was later reformed to create the Public Lands Act of 1969, which stated that all lawful customary land tenants could no longer be alienated without the consent of the occupants (Mugambwa 2002).

In 1975, a Land Reform Decree was enacted, which attempted to overhaul the country's land tenure system in order to give the Government greater power over land use and management to promote agricultural development. The Decree declared all land in Uganda to be Public Land, centrally vested with the newly formed Uganda Land Commission, which had sole power to manage and allocate the land on behalf of the state. Under this arrangement, the earlier mailo, native freeholds, and all other freeholds and leasehold tenures were abolished and automatically converted into 99-year leaseholds for individual holders and 199-year leaseholds for public bodies. Any sale or sublease of the converted land leases was prohibited except with written consent of the Uganda Land Commission (Mugambwa 2002). This decree meant that the Uganda Land Commission could at any time lease to another person any land occupied by a customary tenant without the consent of the occupant. Moreover, any

occupation of unalienated public land required written permission from the Commission (Mugambwa 2002; Place and Otsuka 2000; Kisamba-Mugerwa 1998; Gombya-Ssembajjwe and Banana 1998; Place and Otsuka 1997).

Uganda's land tenure regime today

Although for over 20 years the 1975 Land Reform Decree's *de jure* rights remained technically the main source of Uganda's land law, in practice the decree did not function. Ugandans continued to enjoy *de facto* rights according to various land tenure systems that existed previously. Thus, a multi-layered system of land tenure continued to function throughout the country until the 1995 enactment of the Constitution of Uganda, which prescribed the 1998 Land Act.

Article 237 of the Constitution declares that land in Uganda is vested in the citizens of Uganda, as opposed to the Government, to be owned in freehold, mailo, leasehold and customary tenure. Non-citizens of Uganda may have rights to land but only in leasehold. The Constitution reinstates mailo and freehold tenure, which the Land Reform Decree of 1975 had abolished.

The 1998 Land Act defined five main land ownership systems, which are in still operational in Uganda today. These include: Government land, freehold, leasehold (citizens and non-citizens), mailo land (unique to Buganda region), and customary land ownership. With the exception of Government land, which is under the state regime, the other four systems are under the private ownership regime.

Government/State tenure: This is land in Government use which includes land on which government offices, buildings, hospitals, schools, police, etc. are located; and land reserved for public services such as roads, and recreation, as well as forests and wetlands etc (Mugambwa 2002).

Freehold land tenure: This involves either an infinite grant of land or a grant for a lesser period, which may be subject to a stated condition. Any land owner under this regime has full powers over the land, which includes powers to use, manage, develop the land into any lawful purpose, to sell, dispose of by will, lease, mortgage and create rights and interests for other people in the land as he/she considers fit.

Leasehold tenure: This entails grants of one party to another of a right to exclusive possession of land for a specified period, in return for a periodic payment of money called rent. Any holder of customary land, mailo or freehold may grant a lease to another from their holdings. Even the state may lease part of its land to individuals, groups of individuals or organisations.

Customary tenure: This system of tenure entails that individuals' or groups' access to and use of land is determined by the customary rules of the tribe or clan group to which the individuals or groups belong (Gombya-Ssembajjwe and Banana 1998). Customary lands were traditionally governed by clans, which allocated plots of land to their members (Place and Otsuka 1997; Kisamba-Mugerwa 1998). Over 50 percent of the landholding in Uganda is under the customary tenure system. Customary land tenure

dominates eastern and northern Uganda and is also found in a few parts of Buganda (South-western Uganda) (Place and Otsuka 1997).

It is important to note that customary access rights are dynamic, depending on the prevailing conditions. According to (Makubuya 1981), customary tenure in Uganda does not recognize individual land ownership, but recognizes that an individual can have rights to possess and use land under the supervision of his/her clan or community's leadership. However, an evolution towards individual ownership is taking place especially in densely populated areas (Mugambwa 2002). In Uganda, all customary systems follow patrilineal rules of descent, and inheritance is the most common method of land acquisition (Place and Otsuka 1997; 2000).

Mailo tenure: As discussed earlier, this is a form of freehold tenure that entails holding registered land in perpetuity. Generally, mailo owners in Buganda occupy and farm their land; however, 'Kibanja'[6] tenants occupy the majority of mailo land. This is because the mailo parcels were too large for the owners to till. The mailo owners therefore gave parts of their parcels (*Kibanja*; pl – *Bibanja*l) to tenants who paid fees and rents to occupy the land. Under both the mailo and the freehold land tenure systems, a land title can be obtained and the interest in land is for infinity for the owner (Gombya-Ssembajjwe and Banana 1998).

The evolution of land tenure has greatly influence the ownership and use of other resources found on the land. For instance, the rights of access to and use of forests and tree resources have evolved parallel to the land tenure systems. It is therefore important to also consider how forest and tree tenure has evolved in order to understand how such resources are used and managed.

4.5.2 THE EVOLUTION OF UGANDA'S FOREST AND TREE TENURE SYSTEMS

Similar to the evolution of land tenure, the laws on forests and tree tenure have also powers were vested in the kings and chiefs. Access and uses rights were defined by various traditional norms and beliefs. Although little is known about the precise regulations, it can be hypothesised that many of the present local regulations (see Chapter 4.4.2) still reflect these former regulations.

The colonial period

Between 1899 and 1910, control of forests in Uganda was vested in the colonial government through various agreements with native African authorities. These agreements made all forests and wasteland the property of the Crown, subject to the natives being allowed to take produce for their domestic use (Hamilton 1984).

Colonial policies for the acquisition of forest land emphasised forestry for production and protection. Consequently, the principal objectives of forestry policies included the provision of goods and services; maintenance and improvement of climatic and physical conditions in the country; and the need to conserve and regulate water

[6] Kibanja is the local name for a piece of land whose possession is through either mailo or customary tenancy (Kisamba-Mugerwa 1998).

supplies by protecting water catchment areas. A government report in 1929 stressed the role of forestry in climate and water regulation and recommended much greater protection and major afforestation (Hamilton 1984). The 1929 Forest Policy was formulated based on this report and the significant advances in management and silviculture that had been made by the Forest Department between 1900 and 1928.

1929 Forest Policy

The first forest policy in East Africa was gazetted in Uganda in 1929. This original policy has been revised over time, but the key issues in the 1929 policy were: to retain under forests or re-afforest all areas of land, the retention of which under forest is considered necessary to climate or other indirect services, to meet, with due regard to vested rights, such of the demands of the population of Uganda as cannot be met by individual or local administration efforts, to advise individuals and local native administrations in all matters concerning arboriculture and forestry; and in so far as it is consistent with the three proceeding objectives, to manage the state forests of Uganda so that they will give the best financial returns on the capital invested.

The current boundaries of the forest estate were established around the 1940s. 'Local Forest Reserves' were gazetted under district administrations in 1938 and 1947 to cater for local demands (Hamilton 1984).

The Post-Independence period

After Uganda attained independence in 1962, it was found fit to review the forest policies to incorporate the changes in governance. In 1964, a Forest Act was formulated that defined forest reserves and protected tree species as state property.

The provisions of the 1964 Forest Act

No one may reside, cultivate or graze livestock in a reserve without the written permission of a Senior Forest Officer;
Certain species are reserved as forest produce and may only be cut with Forest Department approval both within the forest reserve and on other public land;
Local communities may enjoy special privileges in the use of unreserved forest produce, which they may take from reserved or public forest land without a permit or the payment of fees in reasonable quantities for their own domestic use; and
Any other form of forest resource use within reserves requires issuance of a permit from a Senior Forest Officer and usually requires payment of a stipulated fee.

In 1987, a new forest policy was gazetted that was expanded in 1989 and which further emphasised the protective aspects of forestry. The policy had three broad objectives:

1 To maintain and safeguard enough forest land so as to ensure sufficient supplies of timber fuel, paper, poles, etc.
2 To manage the forest estate so as to optimize economic and environmental benefits to the country.
3 To promote an understanding of forests and trees.

Under this policy, the forest reserves were zoned into three areas: 20 percent of the whole forest estate was made into a strict nature forest reserve in which all extractive human activities are prohibited, except for non-extractive activities such as tourism and research, which are permitted. The buffer zones, covering 30 percent of the forest estate, has been set aside for strictly controlled extraction of non-timber forest products by local indigenous populations. In the remaining 50 percent, normal concessions for timber can be permitted on sustained yield basis.

The previous Ugandan forest policy had been criticised for concentrating power over forest resources in the state, creating a lack of ownership and participation in forest and tree management by indigenous populations (FAO 1987). Some of these issues were address in the 2001 Policy as presented in the next section. Most of the economic and high value trees are reserved trees, which are only cut with forest department's permission, even when such trees are on private lands. In Uganda, reserving tree species created a disincentive for protecting such trees on landscapes. An example is *Melicia excelsa (Muvule),* which produces high quality and highly priced furniture wood. The tree regenerates naturally in all landscapes, but can only be harvested with permission from the forest department when found on private land. This has led to the local people not protecting the naturally regenerating species found on private land. Through heaping waste agricultural produce, which is to be burnt onto the base of the *Muvule* tree, local people disguise burning fully established or sometimes mature trees.

According to Gombya-Ssembajjwe and Banana (1998) and Banana and Gombya-Ssembajjwe (2000), the failure to recognize indigenous systems of forest management and indigenous rights to economically important tree species has led to: loss of incentives by the local communities to protect trees, discouragement of local people to engage in tree planting and reforestation projects, and excessive reliance by the state on punitive measures to enforce the law.

The 2001 Forest Policy

The 1989 forest policy was replaced by the 2001 policy, which instituted a semi-autonomous National Forestry Authority with government and non-government representation. Unlike the previous policy, this new policy provides for increased community participation in forest management irrespective of forest ownership (Wily 2000).

In the implementation of the 2001 Forestry policy, the current strategies are:

- *Sustainable forest management practices and techniques to achieve optimal resource utilisation and biodiversity conservation;*
- *Programmes for extension and education to increase tree cover through the National Tree Planting Programme, agro-forestry techniques and practices.*
- *Participatory and Collaborative Forest Management approaches in Afforestation, Reforestation and Conservation Programmes so that the communities are involved in management of forest resources, and in conservation efforts; and*
- *Export of value-added forest products to earn foreign exchange for the country, at the same time developing the Forest Industry.*

This approach is in part as a result of the fact that policy makers have begun to express doubt about State ownership of valuable forest lands, partly because of the recognition that many states have failed to protect the forest under their jurisdiction (Wily 2000).

The current state forest reserves in Uganda traditionally were common property resources. The forests that were not gazetted as state property are now found on private mailo and freehold land, and only a few occur under customary tenure on public lands (Kisamba-Mugerwa 1998).

4.6 SOCIO-CULTURAL ORGANISATION IN BUGANDA

4.6.1 GENDER RELATIONS AND ACCESS TO LAND AND FOREST RESOURCES

The Baganda have a distinct division of labour, roles and responsibilities that is mainly based on age and sex. At the age of ten, males in Buganda are expected to start performing light duties to help their elders. In the past, the lightest duties involved carrying their relative's beer and mats or taking messages for them (Roscoe 1965; Ray 1977). After the age of 15, males are expected to start helping their elders by taking part in activities such as making barkcloth, fence making, house building and animal herding which were traditional responsibilities for males. Animal herding was always done in groups and the males, especially young boys, would have a lot of time to play games, especially when the animals were browsing (Roscoe 1965). Girls, on the other hand, were taught to cook and to cultivate as soon as they could handle a hoe. This started as early as the age of ten. It was reported that a girl's 'traditional dream' was to become a sucessful manager of her garden and an expert cook (Roscoe 1965; Ray 1977). Girls were also responsible for collecting water and firewood for the household. Girls below the age of twelve were sometimes sent to herd goats in the absence of boys. At the age of twelve, girls are considered mature. According to Roscoe, girls were considered to be fully-grown women when their breasts hung down. Girls seldom played games; they were kept busy with domestic work and were taught to make mats and baskets from palm leaves to occupy their leisure time (*Ibid*.).

A wife's principal and primary duty was to cultivate her garden and then cook the food that she produced. A wife was also responsible for collecting water and firewood, aided by the girls in the household, excepts in situations where the husband was wealthy enough to hire servants for such work. Wives also helped in the preparation of building materials for their husbands. The women cut and cleaned the reeds used in hut construction; they cut the grass for thatching. It was also a major responsibilty for women to weed the croplands. Women hardly rested; their leisure time was spent in basket- and mat-making. Roscoe (1965) described Baganda women as 'a hardy strong race'.

Men's mobility traditionaly was not restricted but women's mobility was quite limited. They were traditionally not free to move about without the consent of their husbands or masters and every woman had to have an escourt when she wished to visit a friend or a relative. However, these restrictions did not apply to all women of the royal family

(Roscoe 1965). Today, such restrictions are no longer strongly enforced, particularly due to increasing ethnic heterogeneity in the Buganda region.

Although the past strict norms relating to the gender division of labour are still influential today, formal education, commoditisation and men's out-migration to urban areas have weakened them. Children are increasingly attending formal education outside of their home villages, making them unavailable for traditional tasks. At the same time, more men are out-migrating in search of paid employment. Both of these situations shift the roles of men and often increase women's work and responsibilities, including taking on tasks that were traditionally ascribed to men and children. Also, commoditisation has meant that women are now involved in income-generating activities even when it was traditionally believed that women's involvement in income generating activities meant that their husbands were financially unable to support their households.

The Baganda's descent is patrilineal: children are members of the father's and not the mother's clan, and therefore children belong to their fathers. This descent system favours male over female offspring. Although it is a tradition that a mans's heirs should always be their sons or brothers, the current norm that the oldest son becomes the successor, is not a tradition in Buganda. Every Muganda[7] belongs to a clan and takes on a totem of the clan with all of its associated restrictions and taboos. Women marry outside of their father's clan, which also happened to be their own clan. Upon marriage, women leave their natal home to join their husbands' natal home, and thus become part of their husband's lineage. Power in relation to succession is vested in the lineage elders or councils. Traditionally land belonged to the clan, but this has shifted to one's natal home. This implies that land ideally belongs to all the siblings in the natal home. This, however, is contrary to statutary laws and legislation which stipulate that land belongs to individuals who consolidate ownership through land titling. Nevertheless, in both systems it is men (men mainly hold legal land titles and it is men who head the natal homes) who decide the fate of family estate (Roscoe 1965; Nagujja 1993; Sebina-Zziwa 1998). As already mentioned, prior to British colonisation, Buganda had four categories of traditional rights to land which included clan rights over land *(Obutaka)*; rights of the King and or the Chiefs *(Obutongole)*; individual hereditary rights *(Obwesengeze)*; and the peasants' rights to occupation *(Obutuuze/Ebibanja)*. It was only under the *Obutongole* regime that female, and basically only royal females, obtained land from the king. Males were the landholders in all the other categories.

In Buganda today, customary tenure allows a peasant to lease portions of mailo land (*Kibanja*) from landlords. By this means, the majority of male peasants in Buganda are able to access land. The *Kibanja* owner could and still can transfer his rights to *Kibanja* land to a third person or through inheritance to his male relatives with the consent of the landlord (Gombya-Ssembajjwe and Banana 1998; Sebina-Zziwa 1999). Although the customary rules do not directly state that women can not obtain *bibanja*

[7] Singular for Baganda – the people of Buganda

on mailo land, it is uncommon for women to lease *bibanja* and custom does not consider women in land inheritance. Therefore, women indirectly access land through their male relatives.

As a result of the land market that developed in Buganda after the 1900 Buganda Agreement, more prosperous Baganda were able to purchase titled lands from mailo landlords. However, in areas where land markets did not develop, most of the land is still held under customary land tenure and access to land in these areas is determined by customary rules. Only clan members have access to clan land. However, the access to, use and management of land is through common property regime arrangements which rarely discriminate between men and women (Gombya-Ssembajjwe and Banana 1998; Sebina-Zziwa 1999).

Under customary tenure, women's access to land is restricted to usufruct rights. This is due to the fact that the customary heir of the deceased, who is normally a male family member, inherits land. However, the 1995 Constitution attempts to address this problem by prohibiting cultures, customs or traditions that are against the welfare and dignity of women (Gombya-Ssembajjwe and Banana 1998; Sebina-Zziwa 1999).

In Uganda, and specifically in Buganda, the customs of inheritance dictate that a man leaving no male offspring is succeeded by one of his male clan relatives, making it difficult or even impossible for women to access property through inheritance. However, women who can raise enough money can buy land (and these were and are still very few indeed). In the past, the women who could buy land were mainly royals and notables who had political power and estates under their control.

In a personal conversation with Mr. Edward Sekandi, a prominent lawyer and formerly Chairperson to the Uganda Lawyers Association and now the speaker of Uganda's Parliament (Sebina-Zziwa 1999), he stated that:

> *'…in Buganda and Uganda today, the majority of women have access but not rights in family land in the sense that they cannot assert ownership whether in the traditional setting or in the statutes unless they have their names included on the property owned by the family'* (Sekandi, personal communication 1999).

This, he explained, is due to the fact that almost all titled land is registered in the names of the heads of the households who are almost always male. This is related to Mukwaya's observation made in the early 1950s that married women's rights to land were only recognised while the husband was still alive:

> *'… . a wife has the right to live on a land holding on the same terms as the husband so long as the husband is still alive and has not surrendered his interests in the holding'* (1953:58).

He further observed that '*the rights of the wife however lapse on the death of her husband in which case the rights pass to the legal or customary heir*' (*Ibid.*: 58). This implied that wives had no separate rights from those of their husband and that their rights were therefore disregarded upon the death of their husband, leaving them to the mercy of the heirs.

Unlike the case of customary tenure, it is not uncommon for male owners of land and resources held under freehold and leasehold tenure to bequeath them to their female relatives. A few males without male offspring, and especially those with decreasing customary ties, are bequeathing their resources to their female offspring while challenging the tradition of male inheritance. In such cases, the female offspring takes over the property, thus defying the customary link between property and patriarchal inheritance.

With regard to tree tenure in Uganda, men dominate tree planting since they are the landowners and tree planting increases the security of land tenure. For this reason, men have to take part in deciding where and which trees women plant if they want to plant trees (Gombya-Ssembajjwe and Banana 1998). There are limited incentives for women to plant trees since their access to the benefits is uncertain, as they are usually vaguely defined under the land and tree tenure systems. Even in the few cases where women can plant trees, it has been shown that it is the husbands who decide where and what tree to plant (Biggelaar 1995). Others have observed that women are commonly allowed to plant trees for fuel and fruit, while the men plant economically important tree species, and even then men define the spaces in which trees are planted. However, with more women engaging in income-generating activities, an increased number of women purchase land on their own, since the Land Act of 1998 does not discriminate between males and females in access to land, and many women are therefore engaged in tree planting (Gombya-Ssembajjwe and Banana 1998; Sebina-Zziwa 1999). In Uganda too, widows have been reported to lose rights to their former husbands' land (Mukwaya 1953; Sebina-Zziwa 1999), including the crops and trees that they themselves planted on the land. According to (Mukwaya 1953)

> *'the husband is customarily the proprietor of all trees and crops cultivated by his wife, and if the husband leaves, all the crops revert to the land owner'* (*Ibid.*).

In Uganda, men may also pass their gathering or other tree and plant resource rights to their male heirs (sons or brothers) rather than to their daughters or sisters, except in very special circumstances (Gombya-Ssembajjwe and Banana 1998). Also, gendered norms may effectively give women (or men) exclusive rights to a resource. This is usually though social norms that define 'women's crops' or 'women's spaces'.

4.6.2 COSMOLOGY AND RESOURCE USE AND MANAGEMENT

The Baganda, the largest tribe in the study area, belong to the great Bantu family, and are perhaps the most most organised tribe of that family (Roscoe 1965). It is believed that there were about three million Baganda in Uganda during the late 19th century. The civil war that broke out at the death of the King and the famine and sleeping seekness epidemic that broke out in the early 20th century reduced the population to less that one million (*Ibid*). The population has since increased due to improved living conditions, health care and a high fertility rate. Today, the population of the Baganda is estimated at 18 percent of the total population of Uganda (Government of Uganda 2002), and forms the single largest ethnic group in the country.

The Baganda's relationship with plants and nature in general is conditioned by their belief system. Traditionally, two worlds feature strongly in this belief system: the physical world in which they live and a spirit world beyond – the physical world is the world of the living and the spiritual world is the world of the dead (Roscoe 1965; Ray 1977). This dual belief system strongly conditions the behaviour and governance of the Baganda both at the individual and at community levels.

Both worlds were originally founded by Buganda's cultural hero and first King (*Kabaka*), Kintu, who is believed to have come from heaven (*Gulu*) and who, after establishing a kingdom on earth, lived to an old age and suddenly disappeared, never to be seen again. His spirit is believed to have resided in the forest. This brought about the legend that Buganda Kings never die – they just disappear into the forest (Roscoe 1965; Ray 1977).

The Baganda view the spirit world as a hierarchical pyramid with three levels. At the apex is a supreme creator, *Katonda*, recognised as a superior creator of all things on earth and all mankind, who is named 'the father of the gods'. However, little was known about this supreme god and he was not expected to intervene routinely in human affairs.

At the second level are a few dozen gods locally called *Lubaale.* These were believed to have been humans who, having shown exceptional powers when alive, were venerated after death and whose spirits were expected to intercede favourably in national affairs when asked. Each of the *Lubaale* has a shrine (*Ekiggwa*) headed by a priest or priestess, the *Mandwa*, who, when the *Lubaale* was upon him or her, also functioned as the prophet. In Buganda, the most popular *Lubaale* were Mukasa, god of the Lake; Kibuuka of Mbaale, the god of war; and Ddungu, the god of game hunting who had a shrine in Mabira Forest.

The third level consisted of numerous lesser spirits that were of more immediate importance to folk in Buganda. These were mostly the departed ancestors *(Mizimu*), and also included spirits *(Misambwa*) that were related to mountains, rivers and forests. Mostly these spirits were compassionate but some were known to be viciously harmful if not kept happy. Rituals aimed at ensuring the goodwill of these spirits were part of everyday life. Every household contained a shrine to the family's ancestors, usually a small basket in which small offerings of money and coffee beans were regularly made. Greater offerings, of a chicken, a goat or sometimes a cow or bull, were usually made for major activities such as house building, land clearing or spiritual cleansing of household members.

Every village recognised the presence of numerous local spirits that were usually associated with a particular part of the local scenery, perhaps a forest or a water stream. These, as a rule, were unfriendly spirits, and every one avoided displeasing them. Small offerings of food were left at a particular spot from time to time to appease them, but generally people simply kept out of their way by respecting certain taboos. Wood and stream spirits, known as *Misambwa*, were known to bathe at certain times; no one would venture to the well to collect water at those hours lest they meet

the spirits. Similarly, some tracts of land were off limits to gatherers of firewood. Striking tales of the fate that befell transgressors are still told today.

Like the followers of modern religions, the ancient Baganda honoured their gods and prayed for their help. However, they differed in the relationship that they saw between the gods and the rules governing ordinary behaviour and morals. The Baganda have an elaborate and carefully observed code of conduct governing personal and family relationships, cleanliness, the crafts, warfare and government; a code that was observed not because the gods ordained it, but because it was the right thing to do. To this day the Muganda considers the statement '*eyo ssi mpisa yaffe* (that is not our custom)' to be a major censure (Roscoe 1965; Ray 1977).

A communal rather than divine basis for good behaviour was useful in preserving the moral foundation of Buganda society, especially in the 19th century when the prestige and influence of the *Lubaale* decreased as that of the Kabaka (King) of Buganda grew. Thus, by the end the reign of King Mutesa I in 1884, the formal influence of the gods (*Lubaales*) in national matters had disappeared, and within another generation Christianity and Islam would have totally replaced them. Traditional customs were more resilient and only began to change significantly after the 1940s due to the weakening of the monarchies, especially in areas of family relationships. In the last few generations, the new order represented by imported religions and political systems has been found to be wanting, not only with respect to the poor cohesiveness and function of the state but even in the personal conduct of religious and political leaders.

The cosmology or belief system of the ancient people of Buganda has a broader relevance to how people understand forested landscape management today. Understanding Kiganda cosmology facilitates the interpretation of the Baganda's approach to managing natural resources in forested landscapes.

The Baganda's cosmology was constructed through their continuous interactions with individuals within and outside of their communities in the generation and acquisition of knowledge within their cultural, economic, agro-ecological, and sociological context. This cultural knowledge produced and reproduced commonly understood norms among the Baganda. Land-use knowledge, skills, and capacities could therefore not be understood in isolation of the Baganda culture, and local ecological, and social factors.

In their daily activities, the Baganda deliberately protected species and spaces from which they obtained resources for their livelihoods. Several plant and tree species and sites, believed to host the Buganda gods, were highly respected and therefore protected and left undisturbed. The Baganda had control over the use of wild plants, animals, and forests, and measures to ensure sustainable fishing, forestry, rangeland use, and cultivation. In Buganda, the power to regulate hunting was vested in *Ddungu*, the god of wild animals. It was expected that all hunting would be done with his permission and after consultations with him (*Ibid*.; Roscoe 1965; Ray 1977). Also, totems, which were normally associated with taboos of avoidance, were used to control hunting or protect threatened animal species from being hunted. For example, a Muganda hunter

within a social group that has the elephant as a totem may be forbidden from hunting elephants.

Although the Baganda's survival depended on the use of other species, their belief system mitigated against ruthless or wasteful use of species since they all had a right to life:

> *For instance, before cutting the Mvule tree* (Chlorophora excelsa) *for ship building, the builder had to use the ancestral axe called Nankago to make the first cut while saying: 'Mvule gwe sikwewadde nzekka, wabula Nankago yakwewadde,' that is, Nankago the mediator has given itself the tree and not the one cutting it* (Lubowa 1996).

Baganda cosmology promoted values that supported conservation. This information was passed on from generation to generation through strict oral instruction of the young by the old using proverbs, sayings, and songs intended to teach conservation and protection of forested landscapes. For example, the Baganda people had proverbs with double meanings, like the saying, '*Omubiri Mutuba bwotogusombera togufuna*': that is, just as the fig tree (*Ficus natalensis*) is protected, so should our bodies be conserved and looked after. Another saying, 'Emiti emitto gyegiggumiza ekibira' taught that the young trees are the most important in the forest (Lubowa 1996). This cultivated a sense of individual and collective responsibility, generosity, and justice among the people, and between people and nature.

The traditional beliefs and customs of the Baganda have to a great extent been replaced by contemporary religions that influence the spiritual and physical relationships of people with other humans and their environments. These religions are also sensitive to the importance of biodiversity, although their historical writings do not use today's conservation vocabulary (McNeely 2000; 2001). The dominant religions in Buganda today are Christianity and Islam.

5 PATTERNS OF FOREST RESOURCE USE AND MANAGEMENT: A STUDY ACROSS TWO VILLAGES

51 INTRODUCTION

There is a need to understand the how people's proximity to forest resources and their material and cultural conditions influence their dependence on these resources and on spaces within forested landscapes, and how proximity shapes and condition differences and similarities between such communities in terms of forest communities' use and management practices. The factors that are most responsible for creating differences and similarities are varied: as Ellen observed

> *'We…need to take into account variation between different rainforest populations, reflecting for example different modes of subsistence, though it may be artificial to separate out populations on the basis of their apparent degree of interaction with the forest, degree of acculturation or integration into the market'* (Ellen 1996:6).

Also, within community variation may arise from differences in households' and individuals' characteristics and circumstances (e.g. demography, education, endowments, livelihood activities) that may condition their respective use of and dependence on forest resources.

Research on intra-community and inter-community similarities and differences was carried out in two villages, one of which is completely enclosed by a forest (a forest enclave) and rather distant from markets, and another that is located on a forest fringe and more proximate to markets and where forest resources have been substantially degraded, as described in Chapter 3. This chapter explores intra-village and inter-village differences in forest resource dependency and use and relates these to variables such as wealth, landholding, education, household demographic structure, and livelihood activities. Further, what is more commonly neglected in such analyses are intra-household differences where particularly the gender division of labour and gendered access to resources such as land are expected to influence forest resource dependency between the sexes, as well between male and female headed households.

Further, as reported in this chapter, the research elicited information on the species that inhabitants use in the different villages and households supposing that these would reflect subsistence requirements and assuming that those species that they did not mention are of relatively low importance. This logic generally conforms to what Ellen observed, that rainforest populations often identify more species than populations living in other environments,

> *'…which to some extent reflects the subsistence necessity of those who extract from such environments, and also the strong tendency for non-significant and non-useful species to go unnamed or to be lumped within larger generic categories…'* (1996:4).

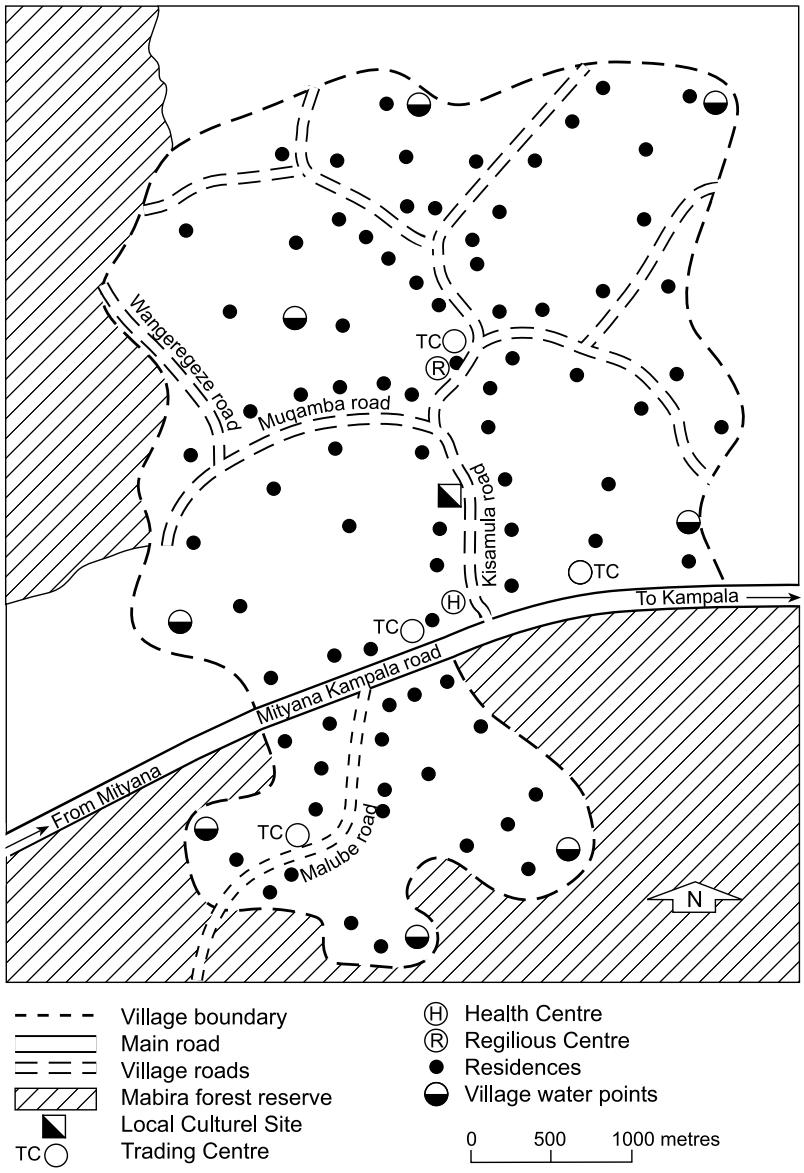
In addition, villagers' perceptions and uses of different spaces and species within the forested landscape were investigated in part to understand how they conceptualise the 'forest' and its resources. What constitutes 'forest' as a concept varies cross-culturally and often represents a complex categorical construction (Ellen 1993; Leach and Fairhead 1993). As well, within a locality often a mosaic of different landscape units exist, each having different material values due to their specific composition of forest resources and access rights (Fortmann and Nihra 1992). Moreover, as discussed in Chapter 2, forest perceptions are also embedded in spiritual beliefs that frequently cannot be disentangled from 'empirical' knowledge and that may constitute the explanations for practices. Thus, the research sought to obtain an overview of some of the forest-resource related beliefs in the villages under study that are related to management and use of both spaces and species. It also explored management practices and their 'rationales' across a number of species and spaces. In this chapter I discuss whether these may be considered to constitute what Ellen (1993) refers to as 'general principles'. The knowledge and practices that occur at the species level are embedded in these 'general principles; these species-specific aspects are elaborated in relation to four contrasting forest species in chapters 6 and 7.

5.2 VILLAGE INFRASTRUCTURE AND LAND-USE CONDITIONS

An overview of the villages' infrastructure and land-use arrangements and zonation was obtained through group discussions during participatory rural appraisal in the study sites. The village resource maps (figures 5.1 and 5.2), which were drawn by the villagers, show what they considered to be the important features of the village infrastructure: these include health, religious and trading centres, water points, local cultural sites and the road network.

The health centre in both villages consists of a small, poorly-stocked pharmacy. Most people depend on medicinal plants collected from their landscapes to treat ailments such as stomach-ache, helmintic infections, fever and malaria, wounds, pregnancy-related ailments, and sexual and spiritual related ailments that cannot be diagnosed by doctors within the formal medical system. For 'complicated' illnesses such as hypertension, diabetes, cancer and any ailment that requires surgery, villagers in Kisamula-Malube/Malube have to travel a minimum of 25 km, while those from Sanga have to travel 15 km to get to the nearest health centre manned by a formal health care system doctor. The religious centres consist of small makeshift churches and mosques, and the trade centres are small shops run by local villagers. The water points are important for supplying domestic water. The 'local cultural sites' are locations that the villagers and others from outside the villages visit for traditional, cultural or spiritual gatherings.

The sites are considered to be sacred, and ceremonies are held which have both a spiritual and healing significance. Kisamula-Malube village is crossed by a national highway, and a national highway is also located just South of Sanga village. The villagers' road network consists of dirt roads that can be transited in all seasons.



Source: Drawn by the villagers during a PRA session

Figure 5.1 Map of Sanga village enclave of Mabira forest in Mukono District.

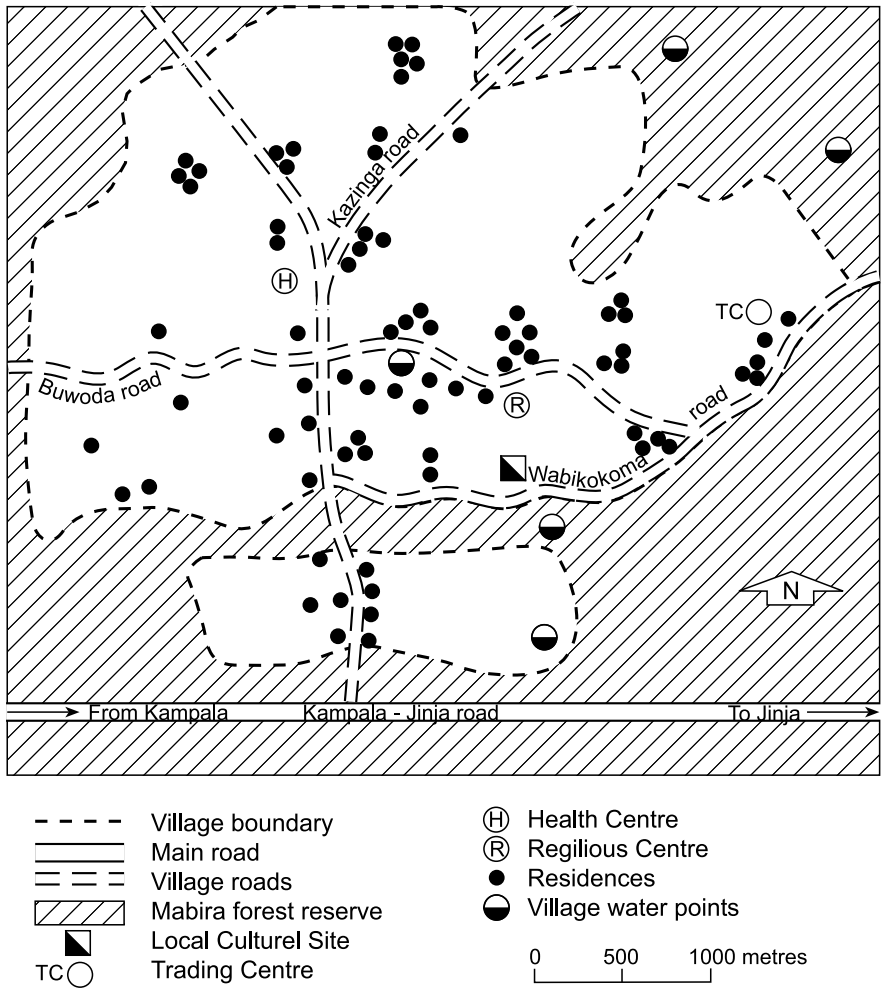
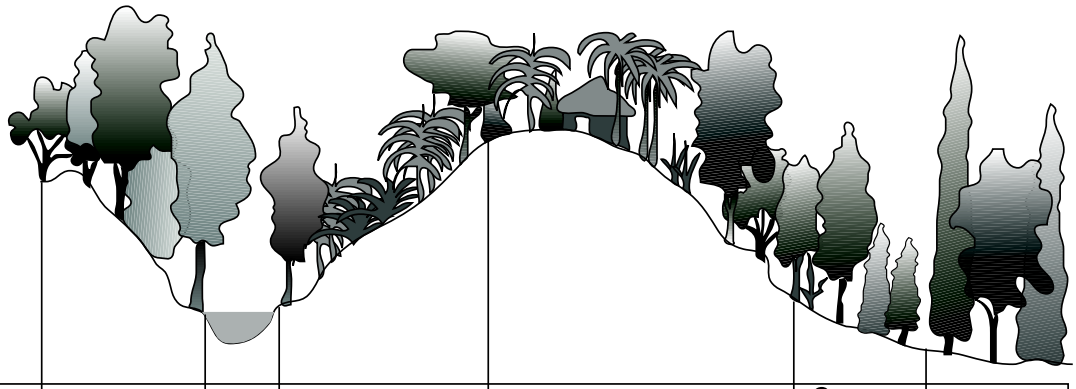


Figure 5.2 Sanga village transect - Mabira, Mukono District

Further information on the land-use systems and zonation was obtained from transect maps which were checked through transect walks (see figures 5.3 and 5.4).

Land Use	Forest Res.	Home garden	Cropland	Common land	Swamp
Crops/ Vegetables	Vegetables	Bananas,Coffee, Beans, Cassava, *Musa*, Yams	Sweet potatoes, Beans, Maize	Cassava	Papyrus for crafts
Animals	Wild animals	Cattle, Goats, Sheep, Poultry		Cattle	
Trees	*Meisopsis sp, Prunus sp, Canarium sp.*	Ficus, Mango, Jackfruits, Avocado, Papaya, *Markamia sp.*	Canarium, Ficus, Mango, Avocado, Jackfruit	Canarium, Ficus, Mango, Jackfruit, *Markamia*	

Figure 5.3 Kisamula-Malube village transect – Buttobuvuma, Mpigi District



Land Use	Forest Res.	River	Cropland	Home garden	Common land	Forest reserve
Crops/ Vegetables			Bananas, Musa, Coffee, Maize, Potatoes, Beans Cassava	Bananas, Taro, Beans, Bugga, Doodo, Nakati, Tomatoes, Pumpkins, etc.	Cassava	
Animals	Wild animals	Fish		Goats, Sheep, Cattle, Poultry	Cattle	Wild animals
Trees			Mango, Jackfruits, Ficus, Markamia, Avocado, Papaya	Mango, Jackfruits, Ficus, Avocado, Papaya, Markamia, Meisopsis	Ficus, Markamia, Jackfruit	Several species

Figure 5.4 Sanga Village transect – Mabira, Mukono District

Source: Drawn by the villagers during a PRA session

Kisamula-Malube village is located on sloping terrain (in some places slopes are up to 20 percent). Croplands of Kisamula-Malube village are mostly scattered on mid-slopes. Village lands are bordered on the South by the Buttobuvuma forest reserves. Sanga village is located on undulating, rounded hills. It is surrounded on all sides by the Mabira Forest Reserve. The vegetation of the reserve consists of forest on the hilltops and of swamps in the low-lying areas. Croplands are mostly clustered on the tops and slopes of hills. There are several streams in the valleys, and the lower slopes are covered by forest vegetation.

In both villages, two main types of land tenure exist, i.e., the village lands, which are under the Mailo land tenure system, and the forest lands, which are under government control. The villagers distinguish four main land-use types: home gardens, croplands, common lands (which are under community control), and the forest reserves which are under state control.

The *home garden* consists of the lands closest to the homestead. This traditional agroforestry system consists of a multi-story vegetation with a mosaic of bananas, coffee and other trees such as *Ficus natalensis*, inter-cropped with tubers (e.g. yams), legumes, and various types of vegetables. The home garden is dominated by *Matooke* (banana), which is the main staple food crop that the households depend on, and by coffee, which is a major cash crop. These species form the middle storey of the agroforestry system. The yams, legumes and vegetables form the under-story and a variety of trees form the upper canopy (Plate 5.1).

Plate 5.1 The home garden just behind the home compound

The *croplands* are usually located adjacent to and contiguous with the home garden. They mainly contain a variety of staple crops such as beans, sweet potatoes, maize and cassava, mixed with scattered trees. In creating these fields, farmers selectively remove trees, leaving only a few that provide minimal shading for the staple crops and or are otherwise beneficial to the crops (Plate 5.2).

Plate 5.2 Cropland covered with maize and groundnuts

Common land refers to the areas of land that are left in fallow to rejuvenate after a few years of cultivating various perennial and annual crops. The fallow period ranges from six to 24 months. This area is usually covered by a combination of overgrown herbaceous plants, shrubs and scattered trees that protect and rejuvenate the soil. These areas are, to a certain extent, freely used (e.g. for collecting fuelwood) by those living close to them. These people consider fallows as common lands, even if these lands are officially owned by absentee landlords and sometimes cultivated by people with usufruct rights, who return to cultivate this land after 6-24 months (Plate 5.3).

Plate 5.3 Fallow land used in common

The *forest reserve* (state land) is the area gazetted by the government for forest conservation. According to Forest Department regulations, local people may make restricted use (e.g. collecting firewood, wild fruits and foods, medicinal plants, materials for crafts, etc.), only for subsistence, of these forests. However, in reality, more intensive use is made of these forests, since community members living close to the forest reserve often use it illegally (Plate 5.4).

Plate 5.4 State forest reserve

5.3 HOUSEHOLD CHARACTERISTICS

5.3.1 CHARACTERISATION OF THE SAMPLED HOUSEHOLDS

As discussed in Chapter 3, detailed household surveys in 53 and 38 randomly selected households in Kisamula-Malube/Malube-Buttobuvuma and Sanga-Mabira, respectively, were carried out. The majority of residents in the two study villages are peasant farmers who produce food crops mainly for subsistence. In addition, some households sell some of their harvest to obtain dietary compliments and meet other basic needs. The food crops mentioned as commonly grown by the majority of the communities' members include: sweet potatoes, cassava, bananas, beans, maize, taro, and various vegetables. Cash crops include coffee and banana (Musa sp) for both villages, while passion fruit is a cash crop in Sanga. A number of fruit trees were found in home gardens and are used for both subsistence and commercial purposes. A large number of individuals, both men and women, were heavily involved in illegal harvesting of forest products in Kisamula-Malube village, while a small number, predominantly men, were involved in illegal activities in Sanga.

The selected households were grouped according to what villages consider to be usual descriptors of households in the villages. On the basis of villagers' own perspective, a distinction was made between male and female-headed households and between poor, average or rich households (see Table 5.1). The local distinctions regarding different wealth categories are illustrated by the following descriptions of wealthy and poor households, respectively:

- A wealthy person or household is one with land, usually not less than one acre, sufficient to grow food for the household; has a coffee and banana plantation; keeps

at least two head of cattle; lives in a permanent house built of blocks and thatched with iron sheets; and any children are in school. The people of Sanga also considered that a wealthy household should have a bicycle as a means of transport, whereas the people of Kisamula-Malube considered that, in order to qualify as 'wealthy', one should have a motorcycle and a cash income-generating activity, for example beer brewing,.

- A poor person or household is one without land, unable to produce sufficient food for the household, that cannot afford to send its children to school; and that lives in a temporary or a make-shift house.

The households were further grouped according to the age of the household head because the villagers consider age to be a very important determinant of endowments. Households with heads aged 40 years and below were generally regarded as young, while those with heads above 40 years were generally regarded as older. The majority of the households in the sample are male headed and 'young'.

Table 5.1 Categories of sampled households (n=91)

Age of household head	*Household wealth category*	*Village (S= Sanga; K= Kisamula-Malube)*	*Household headship*		
			Male	*Female*	*Total*
40 years and below	Poor	S	7	7	14
		K	3	9	12
	Average	S	5	1	6
		K	6	6	12
	Rich	S	4	1	5
		K	6	5	11
Above 40 years	Poor	S	3	0	3
		K	8	0	8
	Average	S	3	3	6
		K	2	2	4
	Rich	S	3	4	7
		K	3	0	3
	Total		52	38	91

There was no specific pattern regarding wealth of the households although the sample showed more poor male-headed households in the 'young' household category. The random sampling procedure did not capture poor female-headed households in the 'older' category in either village. Although the sample indicates that Kisamula-Malube households are wealthier than those of Sanga, the definition of wealth also differed between the villages, as mentioned above.

5.3.2 SOCIO-ECONOMIC CHARACTERISTICS OF THE STUDY VILLAGES

The main features of the sampled households are presented in Table 5.2. The average age of the head of the household was 39 years. The level of education of the sampled individuals was determined by the number of school years completed. Less than 80 percent of the respondents could read or write in the local languages and the number of years in school ranged from 3 to 15. People from Kisamula-Malube had spent on average more years in school than those from Sanga.

Table 5.2 Households characteristics by village

Characteristic	*Mean values*		*Eta-Squared*
	Sanga	*Kisamula-Malube*	
Education (years)	4.6	6.0	n.s./0.041*
Productive individuals per household (Labour)	5.1	5.3	n.s.
Age of household head (years)	39.8	38.2	n.s.
Land size (acres)	2.0	2.2	n.s.
Household cash income (UG.Shs.)*	319,931	1,074,422	n.s./0.042*

*1 USD = 1,900 UG.Shs.

The number of individuals in the sampled households ranged from one to 10 persons, where about 80 percent of the respondents had six individuals in their households. The majority of the families in both study areas were monogamous and extended, where extended refers to brothers, sisters, grandmothers and grandfathers or orphaned nieces and nephews. Very few households had people residing in their households who were not kin. Only three households in Sanga were polygamous. Even then, each of the wives had her own homestead apart from her co-wives. There were fewer than ten polygamous households in Kisamula-Malube. Almost all of the households with less than four individuals were nuclear families. The oldest respondent was 72 years old in Kisamula-Malube/Malube and 80 years old in Sanga, while the youngest were 20 and 23 years old for Kisamula-Malube/Malube and Sanga, respectively. The age structure for males and females within each village is presented in Figure 5.5.

Almost 66 percent of the respondents were below the age of 40, of whom the majority (56 percent) were female, while respondents above the age of 40 were mainly male (68 percent). There were more male respondents (43 percent) below the age of 40 in Sanga village, but Kisamula-Malube had more females (36 percent) in the same age category. In both study sites, 40 years is regarded as the end of the youth category, while 65 years and above is regarded as elderly and hence these people are considered to be useful as historical informants. Although 18 years is considered to be the end of the childhood category for both boys and girls nationwide, girls at the age of 15 and any who have started their menstrual cycle are regarded as adults in both villages, while boys are regarded adults at 18 years or when they marry, if they marry younger than age 18.

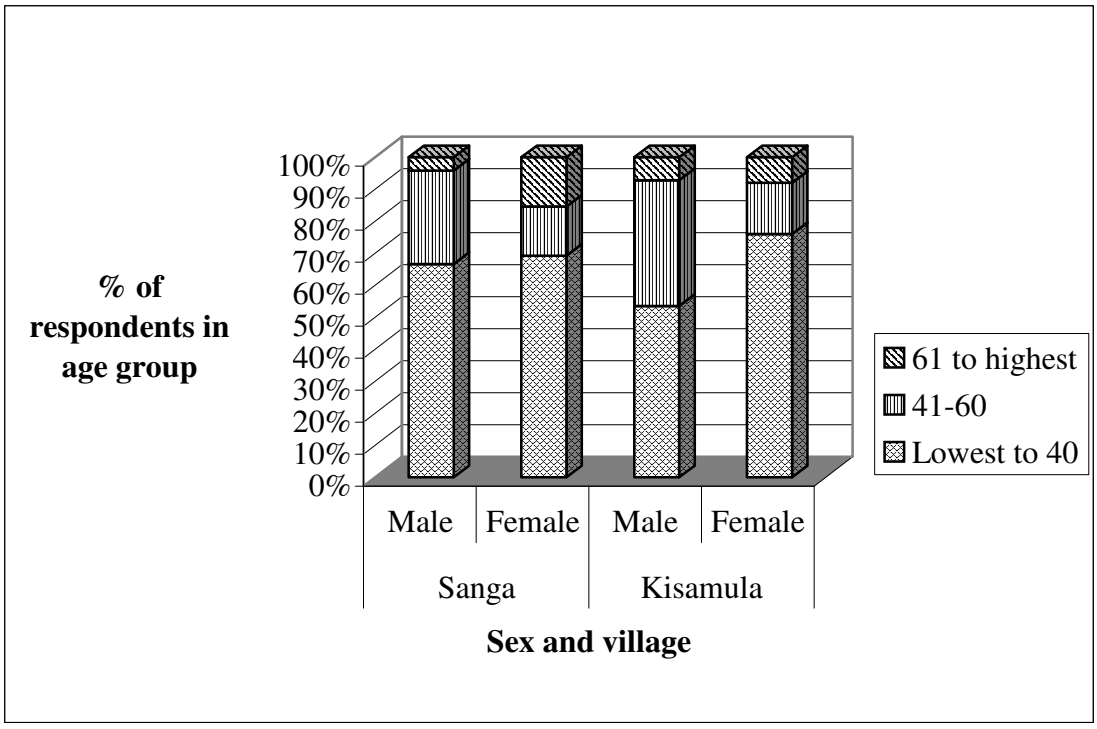


Figure 5.5 Age distribution of males and females within each village

All respondents were tenants (*Kibanja* holders) on Mailo land that is owned by absentee landowners (*Abataka* – there are four in Kisamula-Malube and two in Sanga) – to whom they pay UG.Shs. 1000 per year as rental fees (*Obusuulu*). The size of tenant holdings ranged from 0.1 acres to 10 acres. The majority of the residents (64 percent) had two acres or less. About 7 percent of the respondents did not have any land for living space or cultivation. Those without land rent rooms in the trading centres, perform casual labour and buy all of their food from other members of the community. The average size of landholding for the surveyed area was 0.86 ha (2.1 acres) per household. This is less than the national average land holding (1.35 ha or 3.3 acres) reported in the national Agricultural Census of 1991.

Household income was defined as the sum of cash income that the household earns in a given period. It consisted of receipts that accrue to the members of the household from their employment and/or enterprises (UBOS 2000). Sampled households in both Sanga and Kisamula-Malube obtain their income from activities such as selling agricultural produce (coffee, banana for local beer brewing, and food crops) produced in home gardens and croplands. Income is also generated from illegal charcoal and timber production in the forest reserve as well as through casual labour, and some households were involved in gathering or producing and selling medicinal plants, crafts and craft materials, and beer brewing.

Annual household income varied greatly in the study area, ranging from UG.Shs. 12,000 (USD 7) to 14.4 million (USD 7500) per annum. The annual income for the sampled households that were willing to disclose their income was compared with rural and national incomes for Uganda (Table 5.3 below). About 12 percent of the

respondents declined to discuss information about their income, 75 percent of whom were from Sanga village.

Table 5.3 Households' annual income (n=80)

Community	*Annual household income*					
	Lowest		*Highest*		*Average*	
	UG.Shs.	USD	UG.Shs.	USD	UG.Shs	USD
Kisamula-Malube	40.000	21	14.400.000	7.385	1.074.422	551
Sanga	12.000	06	1.200.000	615	320.000	164
National rural					350.000*	180
National total					500.000*	259

* = UBOS -2003

The average reported annual income of the households in Sanga is below both rural and national average incomes. That of Kisamula-Malube appears high because of the few individuals whose earnings were reported to be more than 2 million shillings (more than USD 1,050). If these individuals are removed from the analysis, the average incomes for both villages are almost the same. About half (44 percent) of the sampled households earn less than UG.Shs.300.000/= (USD 154) per year. Generally, households in Kisamula-Malube have higher incomes than those in Sanga.

The means of the household characteristic variables and endowment variables were subjected to an ANOVA analysis to determine variations between the villages (Table 5.2). Despite the differences in means of the household characteristics presented in Table 5.2 above, these are not significantly different between the two villages, even where Kisamula-Malube's mean household income is almost three times that of Sanga. It can thus be concluded that location has no influence on these variables.

The characteristics' means were further compared on the basis of sex of the household head (Table 5.4).

Table 5.4 Household characteristics by sex

Characteristic	*Sex means*		*Eta. Squared*
	Male	*Female*	
Age of household head (years)	40	37	n.s.
Education (years)	5.6	5.1	n.s.
Productive individuals per household (Labour)	5.0	5.6	n.s.
Household cash income (UG.Shs.)	973,594	541,906	n.s.
Land size (acres)	3	2	0.06*

Source: Survey data

The average size of landholding was the only characteristic found to be significantly different between male and female household heads (Table 5.4). Although male-headed households had larger landholdings, sex of the household head explained only six percent of the gender differences in land holdings, which further confirm that male-headed households are more likely to have larger landholdings than female-headed households. The table also shows that, although the mean income for men was almost double of that of women, the variation was not significant. This prompted the investigation of whether there were differences between means of the household characteristic variables in the locally-defined wealth categories.

As discussed earlier, the villagers defined their own wealth categories. These were used to further test differences between household characteristic variables based on the local categorisation of households (Table 5.5).

Table 5.5 Household characteristics by wealth categories

Characteristic	*Wealth category means*			*Eta. Squared*
	Poor	*Average*	*Rich*	
Age of household head (years)	38.6	39.8	38.2	n.s.
Education (years)	5.6	4.9	5.7	n.s.
Productive individuals per household (Labour)	4.6	5.3	5.9	n.s.
Household cash income (UG.Shs.)	175,000	1,307,739	1,135,820	0.08*
Land size (acres)	1.6	1.9	3.0	0.08*

Source: Survey data.

The three wealth categories were found to be significantly different in terms of household income and landholdings. The average and the rich had about six times as much income as the poor, while the rich also has almost double the amount of land as the poor. Finally, the mean differences in the household characteristic variables were tested against the young and older household categories (Table 5.6).

Table 5.6 Household characteristics by age

Characteristic	*Age groups*		*Eta-Squared*
	Young (40 years & <)	*Elderly (> 40 years)*	
Education (years)	5.98	4.32	0.05*
Productive individuals/ household	4.93	5.77	n.s.
Household cash income (UG.Shs.)	1,016,613.21	377,518.52	n.s.
Land size (acres)	1.70	2.89	0.09***

Source: Survey data.

Table 5.6 shows that the means of landholding size and education were significantly different for the two age categories. The younger category had completed more years of schooling while the elderly category had larger landholdings.

5.3.3 LIVELIHOOD ACTIVITIES

As mentioned earlier, the major livelihood activities in the study area included farming (mainly food crops), petty trade, wage labour and gathering materials for handicrafts, as mentioned earlier. Fuelwood collection and beer brewing were only mentioned by residents of Kisamula-Malube, while pitsawing and traditional herbalism were only mentioned in Sanga. A comparison of livelihood activities between villages shows a highly significant difference between farming and petty trade in the two villages (Table 5.7). There were more petty traders and farmers in Sanga than in Kisamula-Malube.

Table 5.7 Measure of association between livelihood activities and village (%)

Livelihood	*Village*		*Cramer's V*
	Sanga	*Kisamula-Malube*	
Farming	97	58	0.44***
Wage labour	16	25	n.s.
Petty trade	32	11	0.26*
Pitsawing	3	n/a	n/a
Herbalism	5	n/a	n/a
Craft materials collection	8	8	n.s.
Firewood collection	n/a	21	n/a
Brewing	n/a	28	n/a

n/a = not applicable; n.s. = not significant

Almost every sampled household in Sanga was involved in farming, in comparison with only 58 percent of the households in Kisamula-Malube. The lower involvement in farming in Kisamula-Malube could be due to the fact that the Kisamula-Malube residents in that village have diversified their livelihood activities by virtue of their location. The village surrounds Buttobuvuma forest and is very close to the main road, whereas Sanga is an enclave in Mabira Forest and is located far from the main road. The results also showed a strong association between village location and petty trade, with more people in Sanga involved in petty trade, mainly within the village.

It is interesting to note that, while the respondents from Kisamula-Malube regarded fuelwood sales as a major livelihood activity, those of Sanga, with less market access, did not mention it as one of the most important activities. This may be because Kisamula-Malube residents don't generally have access to sufficient fuelwood whereas Sanga residents have ready access by virtue of the fact that they are surrounded by forests. Similarly, beer brewing was the main income generating activity for the men of Kisamula-Malube, as pitsawing was for the men of Sanga. Buttobuvuma forest has

very few sizeable trees left for pitsawing as it has been heavily over-exploited in the last few decades (Gombya Ssembajjwe *et al.* 1993; Nabanoga 1998; Gombya Ssembajjwe *et al.* 1999) (see also Chapter 4).

A test of association between livelihoods and sex of the respondent using Cramer's V (Table 5.8) showed that sex is strongly associated with petty trade and wage labour, where men are more involved in wage labour and women are more involved in petty trade.

Table 5.8 Measure of association between livelihood activities and sex (%)

Livelihood Activity	*Sex*		*Cramer's V*
	Male	*Female*	
Farming	73	76	n.s.
Wage work	31	8	0.28**
Petty trade	10	34	0.30**
Pitsawing	2	0	n.s.
Herbalism	2	3	n.s.
Craft materials collection	4	13	n.s.
Firewood collection	13	11	n.s.
Beer brewing	21	11	n.s.

No other livelihood activity had a statistically significant association with sex. However, although Table 5.8 shows that women were not involved in pitsawing, there was no association between sex and pitsawing. Similarly, there was no statistical association between sex and handicraft materials collection, although there were three times as many women involved. While both men and women are involved in handicraft material collection in Sanga, only women are involved in Kisamula-Malube. Men in Sanga were found to collect craft materials but none were involved in handicraft production. The men sell the craft materials they collect to the women who make the handicrafts. A further comparison between livelihoods and household wealth category was carried out (Table 5.9).

With the exception of farming, where more poor households (84 percent) were involved compared to 53 percent of the rich households and craft materials collection where more average wealth households were involved (18 percent) than either poor or rich households, there was no association between livelihoods and locally-defined wealth categories. However, all wealth categories were involved in craft materials collection, although the average wealth category was the most involved.

Table 5.9 Measure of association between livelihood activities and wealth category (%)

Livelihood	*Wealth category*			*Cramer's V*
	Poor	*Average*	*Rich*	
Farming	84	75	53	0.27*
Wage labour	19	21	23	n.s.
Petty trade	25	21	12	n.s.
Pitsawing	3	0	0	n.s.
Herbalism	3	0	4	n.s.
Craft materials collection	3	18	4	0.26*
Firewood collection	14	11	12	n.s.
Brewing	11	25	15	n.s.

Source: Survey data

5.3.4 GENDER DIFFERENTIATION IN TASKS AND RESPONSIBILITIES

An in-depth analysis of the gendered division of roles and responsibilities within households was carried out. Local residents explicitly recognised that men and women have different responsibilities and roles within a household and therefore procure different resources to fulfil these. Cultural norms tend to presume that men provide cash for the provision of shelter, to buy goods for the household that are not produced by the family, to pay school fees, and for all other cash outlays. On the other hand, women are responsible for providing for subsistence needs (growing and preparing food, looking after the children, fetching water, collecting fuelwood and caring for the house, family health care). Women are also responsible for maintaining kinship ties and reciprocity in producing and distributing subsistence resources. The villagers stated that some women have recently assumed roles within their households that have been generally prescribed for men, particularly as men out-migrate to urban areas in search of employment. Also, women in poor households where the men cannot fully provide for their cash needs are engaged in income-generating activities. This may explain the relatively high number of women involved in petty trade indicated in Table 5.9 above, particularly in low and middle-wealth categories, although the relation was not statistically significant.

A clear division of labour and responsibilities exists within the households in the study area. Women and children above the age of ten predominantly harvested firewood for domestic use. Harvesting of craft materials was also predominantly a women's activity, although some men also collected the material for crafts and sold them to women who make the crafts. This reveals a crossing of cultural boundaries, when men are involved in what has been traditionally viewed as women's activity. Children were the main fruit harvesters. Both women and men were involved in illegal wood harvesting for both charcoal and firewood for sale, although men were more frequently involved than women.

An analysis of who does what within households in both Kisamula-Malube and Sanga revealed that different members of the household had different roles and responsibility based not only on their sex, but also on age. The major categories within a household were: adult males and females (18 years and older), and children, both male and female, between the ages of 10 and 17 years. A non-parametric Chi-square test was done to compare the observed and expected frequencies in each category and determine whether all categories contain the same proportion of values, which would assume an equal division of all roles and responsibilities between all members of the household. The Chi-square test was used to determine whether roles and responsibilities in a given location (homestead, home garden, forest and off-farm) were equally shared between household members (adult males, females and children). The results are presented in Table 5.10.

The division of roles and responsibilities for the forest-related activities was found to be highly significant for fuelwood collecting and harvest of medicinal plants and craft materials. Women and children predominated in the collection of firewood, while women predominated in both medicinal plant and craft materials collection. Charcoal making was the only forest-related activity where the division of labour was not significant, although men were involved almost four times as much as women. According to the respondents, in the past charcoal making was never a women's activity due to the heavy workload and time demands involved. However, in the past decade, women have been getting involved in to diversify their income generation activities.

With respect to off-farm activities, wage labour and marketing of forest products were found to be significant activities and were dominated by males. However, women were also reported to be involved in petty trade of vegetables, fruit, food crops and some crafts. Villagers reported that, in the past, only men were involved in trade, since it was their cultural obligation to provide their households with cash income. Today, however, women are also involved in petty trade. This reveals a transgression of cultural boundaries, where women are becoming involved in what is traditionally defined as men's territory. Male and female participation is almost equal in community work.

5.4 USE OF TREE RESOURCES AND SPACES

The use of tree resources and spaces was explored to provide an overview in the study area and as an initial basis for the case studies presented in chapters 6 and 7. This section presents findings regarding the use of, and dependence on, tree resources and spaces based on the reconnaissance and household surveys. These issues are later explored in-depth on the basis of the case study materials.

Table 5.10 Division of roles and responsibilities in households (n=91)

Location	*Activity*	*Who is involved in activity*						*Chi-sq. value*	*P-value*
		F	M	C	F+C	M+F	M+C		
Homestead	Collecting water	31	6	16	48	0	0	33.62	0.00
	Feeding livestock	28	0	19	0	11	42	7.75	0.05
	Cooking	53	5	42	0	0	0	31.83	0.00
	Child care	56	5	5	0	34	0	57.56	0.00
	House and fence construction	4	90	0	6	0	0	70.33	0.00
	House work	63	4	3	30	0	0	70.18	0.00
Home gardens	Land clearing	14	33	40	14	0	0	17.10	0.00
	Plowing	17	17	0	18	46	0	24.10	0.00
	Sowing	70	0	18	0	13	0	48.70	0.00
	Weeding	60	0	0	37	4	0	34.41	0.00
	Mulching	65	0	0	35	0	0	5.23	0.02
	Harvesting	29	7	50	19	0	0	25.45	0.00
	Transporting and processing	17	22	39	22	0	0	5.13	0.16
Croplands	Land clearing	0	67	29	0	4	0	49.53	0.00
	Plowing	3	49	48	0	0	0	34.23	0.00
	Sowing	0	69	31	0	0	0	11.25	0.00
	Weeding	49	0	51	0	0	0	0.05	0.82
	Harvesting	0	50	50	0	0	0	-	1.00
Forest related	Firewood collecting	26	6	27	41	0	0	19.69	0.00
	Charcoal making	20	80	0	0	0	0	1.80	0.18
	Medicinal plants harvesting	54	22	24	0	0	0	9.64	0.01
	Craft materials harvesting	74	13	13	0	0	0	23.29	0.00
Off-farm	Marketing of products	28	51	21	0	0	0	6.94	0.03
	Wage work	15	85	0	0	0	0	13.37	0.00
	Community work	26	31	0	0	45	0	2.26	0.32

Source: Survey data.

5.4.1 TREE RESOURCES HARVESTED AND SPACES USED

Villagers depend upon the collection of several products from the forested landscape that are used for subsistence, for generating income and for cultural or religious purposes. Products collected from the forested landscape include poles, fuelwood, wood for charcoal making, medicinal plants, fruits and wild food plants, craft materials, timber and fodder. Trees also provide shade and act as boundary markers, as well as sites for beehives. The commonly used niches within the forested landscapes include home gardens, croplands, common lands (fallows) and forest reserves. Each respondent was asked to mention the species that they use from the forested landscape and, aggregating all responses, a list of the plant species used and the uses was generated and is presented in Appendix 3. Given the land and resource tenure of these areas that was discussed in chapters 2 and 4, villagers make management and use decisions regarding resources in home gardens, croplands and common lands, but have to seek permission to harvest certain products from the forest reserve. As discussed in Chapter 2, the law allows all local people to harvest non-timber forest products from the forest reserve in 'reasonable quantities'' for domestic use only, but does not define those 'reasonable quantities'. Any harvesting in forest reserves for commercial use is illegal.

The respondents from Kisamula-Malube and Sanga both mentioned and identified 51 and 55 plant species, respectively, that are harvested from various niches within the forested landscape and identified their various uses as presented in Figure 5. 6.

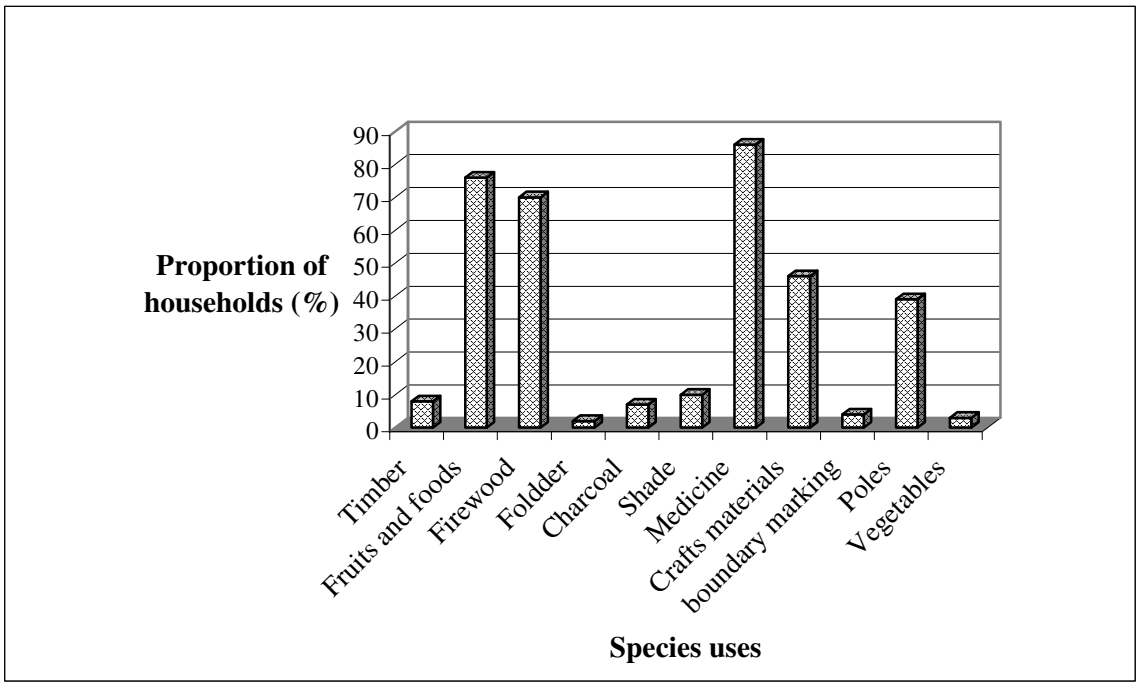


Figure 5.6 Proportion of households that used the species

About 72 percent of the species identified are tree species, 16 percent are shrubs and 12 percent are herbaceous species. Of these, 28 percent of the species are primarily used for fuelwood, 33 percent are medicinals, 13 percent are for fruit and other food, and 4 percent are craft materials.

The products from the forested landscape have been categorised into: timber, fruit and other foods, firewood, fodder, charcoal, shade, herbal medicine, craft materials, boundary makers, poles and vegetables. Figure 5.6 depicts the relative importance of the different species mentioned in generating various products for the average household.

The majority of the households mentioned medicines, fruit and other foods, firewood, craft materials and poles as the major uses for the species listed. A few of the species were useful for fodder and boundary marking (Figure 5.6). When differentiating by village, it can be concluded that households in Sanga had a more diverse use of the species than the households in Kisamula-Malube, as presented in Figure 5.7 below.

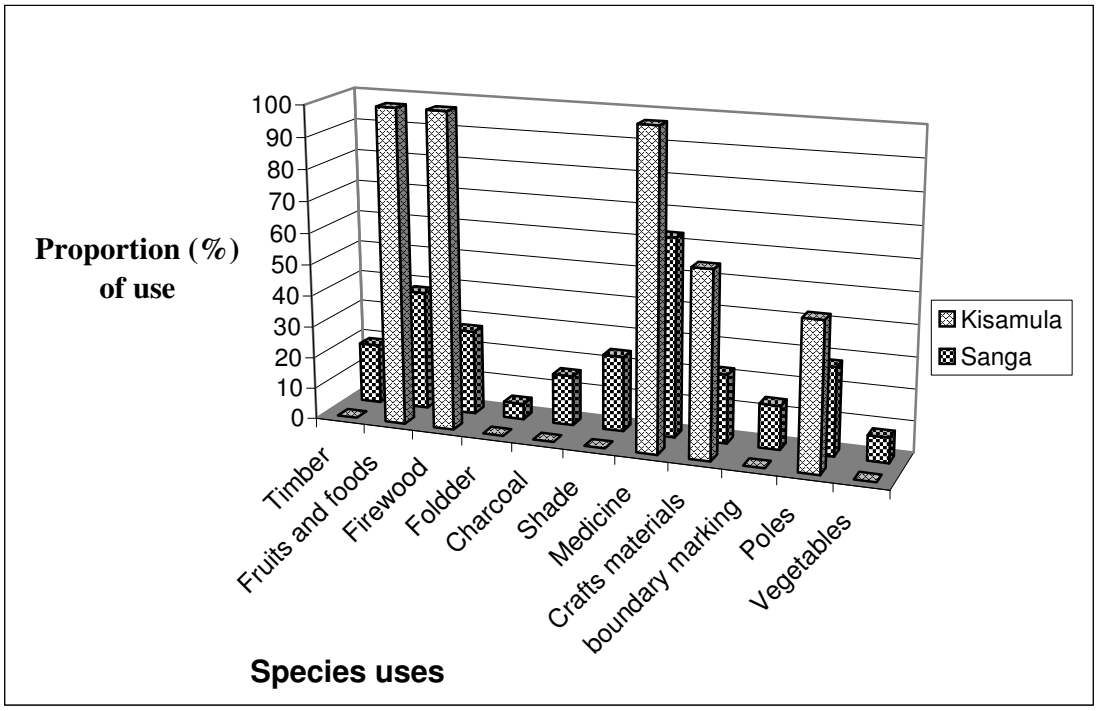


Figure 5.7 Resource uses by village

Almost 26 percent of the resources were harvested from croplands, 39 percent from the forest reserve, 10 percent from common lands and 25 percent from home gardens. However, there appeared to be different levels of use of landscape spaces in the different villages, as presented in Figure 5.8.

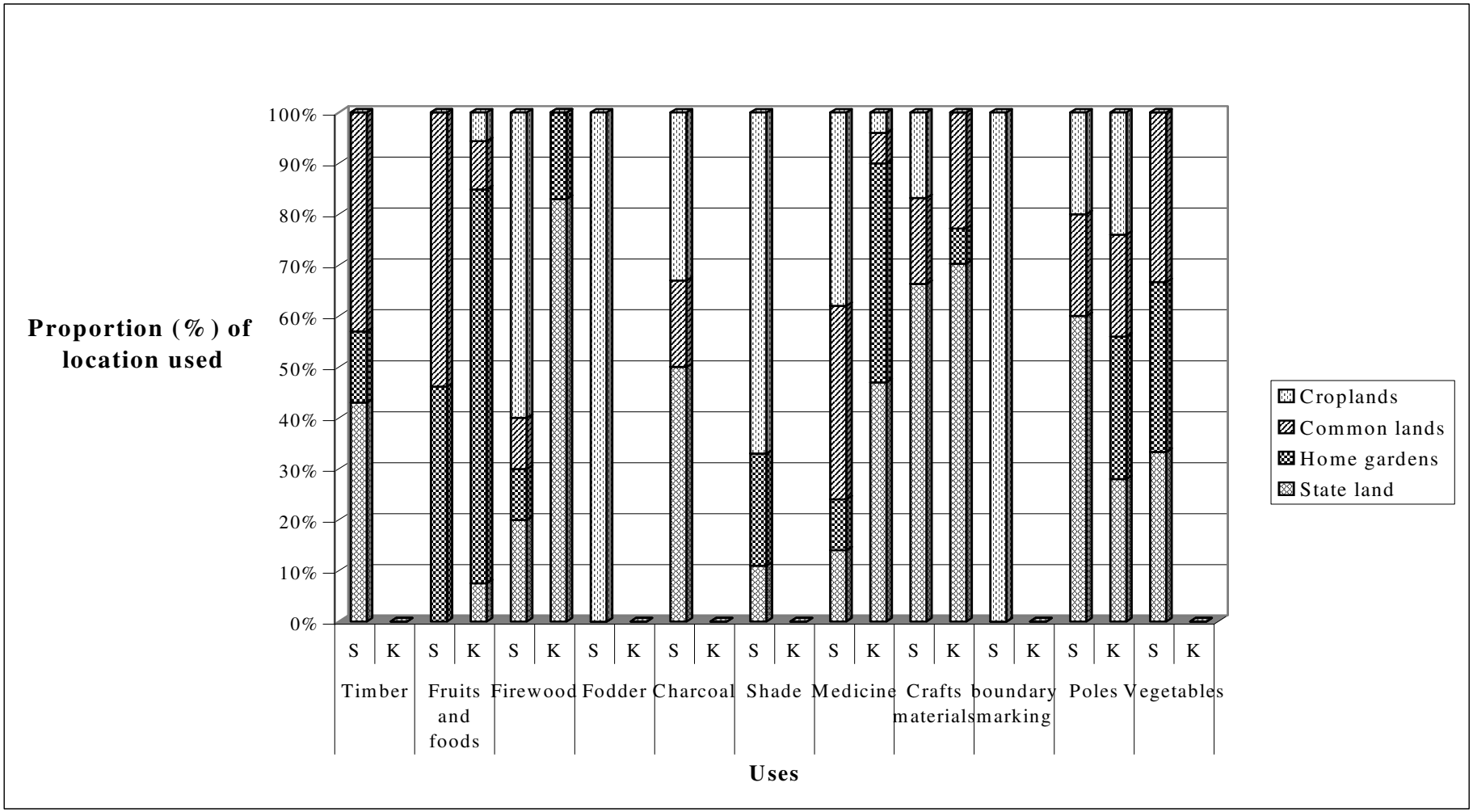


Figure 5.8 Functional use of different landscape locations by village

Sanga village relies more on the entire range of its landscape spaces for the various uses mentioned. For example, in Sanga, firewood is harvested from all four landscape spaces whereas Kisamula-Malube residents use only the forest reserve and home gardens. Also, charcoal making and timber uses that were only mentioned in Sanga. This could be because the tree species for these products are scarce in the Kisamula-Malube landscape. Fuelwood, medicinal plants and fruit were the three most harvested products in both study sites. Although the three products were harvested from all landscape niches in Kisamula-Malube in varying proportions, in Sanga, fruits were only harvested from home gardens and croplands. Using Cramer's V test, the data reveals a very strong association between the location of products used for firewood, traditional medicine, fruit and other foods, and village (Table 5.11).

Table 5.11 Measure of association between uses and locations by village (%)

Use	*Village*	*Forest reserve*	*Home gardens*	*Common lands*	*Crop lands*	*Cramer's V*
Timber	S	43	14	43	0	n/a
	K	0	0	0	0	
Fruits and other foods	S	0	46	54	0	0.55***
	K	8	77	9	6	
Firewood	S	20	10	10	60	0.82***
	K	83	17	0	0	
Fodder	S	0	0	0	100	n/a
	K	0	0	0	0	
Charcoal	S	50	0	17	33	n/a
	K	0	0	0	0	
Shade	S	11	22	0	67	n/a
	K	0	0	0	0	
Medicine	S	14	10	38	38	0.67***
	K	47	43	6	4	
Craft materials	S	67	0	17	17	n.s.
	K	71	7	23	0	
Boundary marking	S	0	0	0	100	n.s.
	K	0	0	0	0	
Poles	S	60	0	20	20	n.s.
	K	28	28	20	24	
Vegetables	S	33	33	33	0	n/a
	K	0	0	0	0	

S= Sanga Village; K= Kisamula-Malube Village

About 45 percent of the identified plant resources in the Kisamula-Malube landscape were exclusively found in the forest reserve, while only 20 percent were exclusive to home gardens. Twenty six percent of the plant resources were harvested both from home gardens and the forest reserve. Only two species (Artocarpus heterophyllus and Vernonia amygdalina) were harvested in all of the forested landscape niches. In the Sanga landscape, 38 percent of the identified species were exclusively harvested from the forest reserve and 17 percent from cropland. Syzigium comminii and Eucalyptus

sp. were the only species exclusively harvested from home gardens, while Syzygium cordatum and Vernonia amygadalina were the two species harvested only from common lands. None of the identified species were harvested in all landscape niches. Twenty-two species were harvested in the landscapes of both villages and were put to similar uses. Of these, four species (Celtis meldibraedii, Malamtacloea sp., Piptadeniastrum africana and Trema orientalis) were harvested exclusively from the forest reserve in both study sites, while Persea americana was the only species harvested exclusively from both home gardens and croplands in both study sites.

From the above findings, it appears that there are specific spaces from which various resources are harvested. Also, harvesting location seems to be related to the use to which products are put; and some species seemed to occur more in some spaces than in others. This is an indication that the rights to harvest products may be space- and species-specific, and that several factors may contribute to determining the use of species and spaces. It is hypothesised that land tenure, tree tenure, and traditional and cultural use of land and tree resources could determine the pattern and frequency of species and landscape space use. This was investigated through an in-depth case study of selected species, where the findings are presented in chapters 6 and 7.

Sex disaggregation of the species use data showed very significant differences between men and women's uses with regard to timber, which was an exclusively male use; firewood, where 87 percent of the users are women; charcoal making, where only men are involved; shade, where more women reported this use; medicinal plants, where 97 percent of the women reported this use; and craft materials, with 63 percent of all women reporting this use.

A test of association between sex and location of product harvest was not significant, although there were apparent differences in the use of various locations for various products by sex. This lack of a statistical association could be due to the fact that a number of products are obtained from the same species that are found in various locations. It is, however, hypothesised that there could be significant differences when dealing with specific species in specific locations, which is investigated in case studies presented in Chapter 6.

When uses were differentiated by wealth categories, there were no significant differences between poor, average and rich households for all the uses except for the category of craft materials in which the average and the rich households (64 percent of the total number of households in these categories) were more involved than the poor households. A test of association between wealth categories and location of product harvest showed a significant association only with respect to plant medicines, where the poor depended more on home gardens and croplands, while the rich depended more on forest reserves.

5.4.2 HOUSEHOLD DEPENDENCE ON TREE RESOURCES AND SPACES

Both men and women indicated that they were heavily dependent on the forested landscape to maintain their livelihoods. Research was carried out to determine the level of dependence on forest resources of different households. Using the 'Bao game', a

form of matrix ranking, the average dependence of the sampled households on various products from the forested landscape and the average dependence on specific locations within the landscapes were determined. An analysis of variance (ANOVA) between the mean dependencies of the products used and the locations of use, and village, sex and wealth category was also conducted. Only the uses that occurred in both villages were considered for the analysis. Table 5.12 below presents the ANOVA for the mean dependencies by village.

Table 5.12 Dependence on forest products and landscape locations by village

Use	*Dependence on product*			*Dependence on landscape space*		
	Sanga	*Kisamula-Malube*	*Eta squared*	*Sanga*	*Kisamula-Malube*	*Eta squared*
Firewood	99	93	n.s.	75	82	n.s.
Fruit and other foods	39	44	n.s.	65	65	n.s.
Poles	99	99	n.s.	83	81	n.s.
Medicinal plants	55	21	0.25***	78	80	n.s
Craft materials	58	41	n.s.	100	99	n.s.

The mean dependence on medicinal plants was found to significantly vary between villages, where the village explained 25 percent of the variation. This means that the inhabitants of Sanga are more dependent on medicinal plants than those of Kisamula-Malube. However, there was no significant variation observed in dependence on different landscape spaces between the different villages.

The dependence on products and landscape spaces by sex were also tested (Table 5.13). The dependence on forest products was not found to be significantly different between the sexes.

Table 5.13 Dependence on forest products and landscape locations by sex

Use	*Dependence on product*			*Dependence on landscape space*		
	Male	*Female*	*Eta squared*	*Male*	*Female*	*Eta squared*
Firewood	96	94	n.s.	74	85	0.05**
Fruit and other foods	51	31	n.s.	90	36	0.38***
Poles	99	99	n.s.	79	90	n.s.
Medicinal plants	47	31	n.s.	78	79	n.s
Craft materials	43	65	n.s.	99	100	n.s.

However, women significantly depended on specific landscape spaces for firewood and fruit and other foods. Being female or male explained 38 percent and 5 percent, respectively, of the use of a specific landscape space for collecting fruit and other foods, and collecting firewood, respectively. This could be due to restrictions on access to various spaces for the different sexes. Women appear to be more affected by the access restrictions than the men and therefore the higher dependence of women on specific landscape spaces.

The analyses above show that there are differences between villages, sex, and wealth categories in relation to forest resource dependencies and uses. There were statistically significant differences between village and use of and dependence on various landscape locations. The people of Kisamula-Malube were almost twice as dependent on the use of the forest reserve and almost five times as dependent on home gardens compared to those in Sanga for the different uses mentioned. However, the people of Sanga were almost four times as dependent on croplands as those of Kisamula-Malube. The dependence on common lands was low in both villages. Despite these differences, both villages are heavily dependent on the landscape for their livelihood needs. Generally, women were also significantly more dependent on home gardens than men. Although there were differences between the poor, average and rich households in the use and dependence on various spaces, the general level of household dependence was still very high for each wealth category. The average dependence on and use of species and spaces for each wealth category was above 90 percent, implying that irrespective of wealth status, all the people are still heavily dependent on the forested landscapes for their livelihoods.

5.5 LOCAL MANAGEMENT OF SPECIES AND SPACES AND ITS RATIONALE

Small average farm size, low average income (even considerably lower than the rural average), low education, proximity to forests, and high dependence on forest products for both subsistence and income generation, together mean that local people engage in activities and develop mechanisms to ensure continuous supply and access to forest resources. This section presents a general overview of how people locally manage plant resources within their landscapes and the rational behind such management practices or strategies. As discussed in Chapter 2, management starts with the establishment of regulations around access to forest resources; such regulations are a combination of land and tree tenure rules. Management may also entail conscious efforts to maintain forest resources and to stimulate increased production. In the following section, first local opinions regarding access to forest resources are described. Next, the technical management practices that were reported by informants are presented.

5.5.1 DE FACTO ACCESS TO FOREST RESOURCES

As described in Chapter 5, two main types of land tenure systems exist in the villages, i.e. the lands controlled by villagers under Mailo arrangements and the state controlled forest reserves. Officially, under the land and resource tenure of these areas, villagers

can make their own use decisions regarding resources in home gardens, croplands and common lands, but have to seek permission to harvest certain products from the forest reserve. As discussed in Chapter 2, the law allows all villagers to harvest non-timber forest products from the forest reserve in 'reasonable quantities'' for domestic use only, but does not define those 'reasonable quantities'. Any harvesting in forest reserves for commercial use is illegal.

In reality, the actual situation regarding access to the forest resources does not reflect such a strict boundary between village lands and forest reserves. Villagers only recognise and respect the boundaries of the forest reserve as far as the expansion of agricultural fields is concerned. Regarding agricultural land, the people in both study sites recognise that there is a boundary between the village and the forest reserve, beyond which crop cultivation should not occur. Nonetheless, some cultivation of vegetables inside the forest was observed, specifically in the areas where charcoal making has been carried out. Villagers reported that the ash that remains after charcoal burning are good for the growth of vegetables such as Solanum aethiopicum (*Nakati),* Amaranthus lividus *(Bbugga)* and Amaranthus dubious (*Doodo),* which supplement the diet and produce a good amount of cash. Other vegetables grown inside the forest reserve include cabbages and egg plants.

But with respect to collecting forest or tree-based products, villagers do not recognise a boundary between the forest reserve and the village. In many cases, people collect the forest products needed for their livelihoods from the forest reserve, whether it is officially legal or illegal. However, this does not mean that the villagers do not recognise boundaries for the collection of different forest products. Rather, the villagers' perceptions of the forest and forest spaces or boundaries do not conform to official boundaries. As illustrated in Figure 5.6, they perceive multiple boundaries depending on forested landscape resource availability and needs. For instance, the firewood collectors' boundary stretches as far into state land as the firewood can be found - from the community private land parcels into the buffer zone, which is under state custody. Non-timber products and medicinal plants are collected from both privately owned as well as state-owned forested landscapes. Craft materials were, however, collected from the state owned landscape both from the permitted location (buffer zone) and the prohibited area (state forest). Timber products were only harvested from the state forest reserve since few mature timber trees are found in the private landscape.

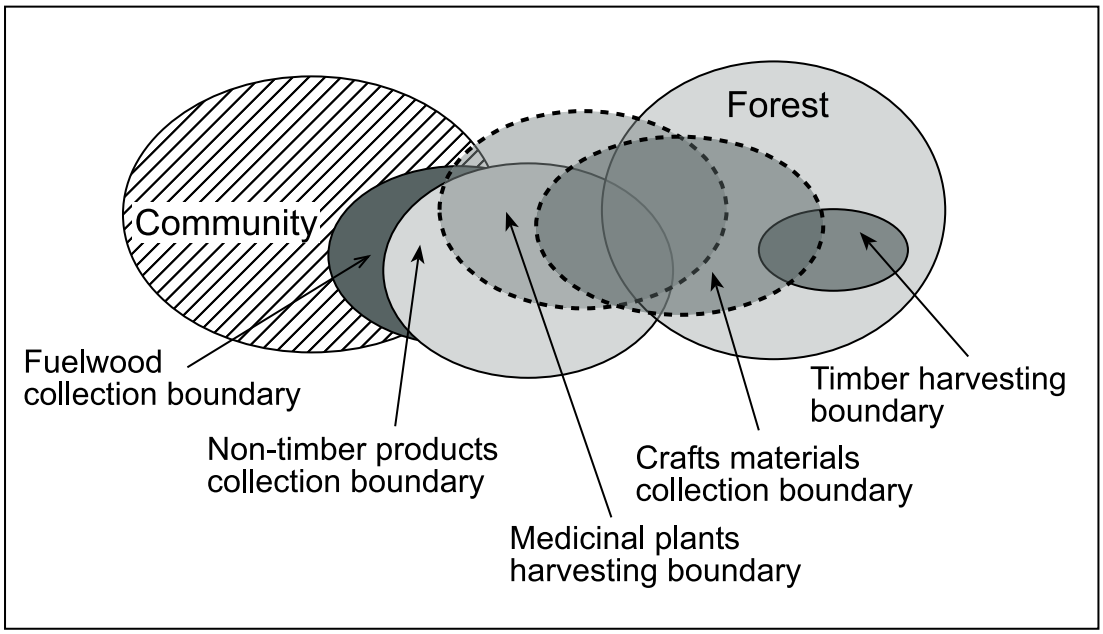


Figure 5.9 Forested landscapes use perspective characterised by distinct boundaries defined by local people's needs.

The boundaries perceived by the communities not only reflect community needs and uses in relation to tree and plant resources, but also the gender division of labour, roles and responsibilities. With the exception of craft materials, all of the activities closer to the community that do not require venturing deep into the state forest are female-dominated. Women are responsible for most of the non-income generating subsistence and reproductive work, which are centred close to their households. Traditional culture prescribes women's roles and responsibilities as well as the spaces from which they obtain resources, as will be further explored in chapters 6 and 7. It is also a social obligation for women in this society to provide their households with subsistence goods, which at times requires that they venture further into the forested landscapes in search of raw materials. Some women have also ventured into commercial craft making and many engage in petty trade to earn income. On the other hand, the illegal and high-risk activities that occur deep in state forested landscapes are male-dominated. Culturally, men's mobility is unlimited and the demand on their time is also relatively lower than that of women.

5.5.2 MANAGEMENT PRACTICES

Villagers carry out a variety of management practices in the form of socio-cultural measures that limit use, and of biologically oriented measures to maintain resources by either controlling over-exploitation or stimulating production and regeneration. The practices reported by the respondents during the discussions were grouped following Shepherd (1992) and Wiersum and Slingeland (1996). Villagers' management practices were found to fall into four main categories: control of use and access, controlled utilisation and protection, stimulation of production of desired products, and regeneration (Table 5.14).

Table 5.14 Local management practices and their rationale

Categories of local management practices	*Management practice*	Rationale behind practices
1. Control of use and access to resources by definition of legitimate user group	Use of taboos and other cultural beliefs	See Tables 5.15 and 5.16.
2. Maintenance of the resource through controlled utilisation and protection Controlled harvesting periods	Harvesting	Harvesting is done in the dry season because it is believed that there are bad spirits in the fields that come with the heat that ruin the field crops. The good spirits that come to the homestead to protect household members from the bad spirits that may come from the fields also facilitate seasoning and drying of harvested plants. This is why plants are dried in homestead compounds. Both men and women participate in this practice.
	Product processing	Most medicinal plant harvesters are encouraged to process leaves, bark, roots, flowers, etc. by drying and roasting to be able to store and use them for longer periods, hence reducing the frequency of harvest. Both men and women practice this.
Rotational harvesting regimes	Rotational removal of tree bark	When harvesting tree bark for medicinal purposes, only one side of the tree trunk is stripped of the bark during the first harvest. For the second harvest, the other part of the trunk is stripped, leaving the side that was first stripped to recover. This rotational harvesting of bark is believed to conserve the trees, since excessive bark removal would kill them. This is a male practice.
Using harvesting techniques that do not cause tree mortality, e.g. stem bark- slashing	Removal of bark from tree stems	The bark of mature Ficus natalensis trees is periodically removed to make bark cloths that are used for traditional ceremonies by some tribes in Uganda, especially in the Buganda region (Gombya-Ssembajjwe 1997). After removing the tree bark, the cambium is covered with banana leaves for about 14 days to avoid excessive water loss and disease infestation. This is a male-only activity.

Control of pests and diseases	Sanitary tree pruning	Men remove parts of the plants (leaves, branches, roots) that are infested with pests, diseases or epiphytes where climbing is necessary, whereas women prune plants other than trees and where climbing is not necessary.
3. Stimulation of the production of required products within existing vegetation Stimulation of fruiting e.g. ringing trees, nailing stems, incising fruit trees	Slashing, incising and nailing the bark of fruit tree stems	This is a common practice for fruit trees, especially jackfruit and avocado. The trees are slashed or wounded all around the stem up to a height of 2.5 meters. This practice is mainly carried out by men and boys, and occasionally by women in households that lack older male members. Villagers believe that slashing the stem-bark enhances the release of excess sap that causes the fruits to rot before maturing. This practice was evident on almost all fruiting jackfruit trees. Villagers also used the practice to control fungal growth on stems.
	Branch pruning	Men occasionally do this to reduce shading of the under-story and, where poles are needed, to produce straight poles. Specific to coffee, mangoes, avocado and jackfruit, branches are occasionally (once every other three years) removed to enhance ripening of fruits and fruit quality as which results from concentrating plant food in the production of fruits rather than the production of leaves and twigs. Some pruning has been done for firewood.
Decreasing nutrient, water, light competition for trees by weeding and thinning non-valuable species	Thinning	This is a predominantly male practice. A few men in the surveyed households reported thinning Markamia sp fruit trees and Ficus trees. Although thinning is believed to enhance tree growth as it reduces plant competition for both light and nutrients, farmers rarely thin their plants for fear of reducing their plant stock.
	Weeding	Villagers believe that weeds reduce soil fertility and kill other plants. Weeds are believed to have bad spirits that kill crops when left to grow, hence the need to constantly remove them. This is a female-dominated activity.

Optimisation of soil conditions to favour desired species	Mulching	This is one of the most common practices aimed at conserving soil moisture. The rationale for mulching is first and foremost to control weeds (see above – weeding). Mulching is also done to prevent soil water loss through evaporation on hot and dry days; it prevents runoff and also enhances water percolation into the soil after a downpour. Villagers use special mulching materials. Most commonly used are grass species gathered from swamps; banana leaves and sheaths are also used. Farmers never use elephant grass, as it is believed to attract pests such as termites. They recommend that the mulch always be placed half a meter away from the base of the plant to avoid killing the plant. It is believed that, when the mulch is placed close to the base of the plant, heat is generated that eventually kills the plant Villagers also believe that mulching enhances soil fertility and therefore improves yields. This is a female-dominated activity.
Protection and preservation of selected tree species in the landscape	e.g the Muvule (Melicia excelsa)	See Table 5.16
4. Stimulating regeneration of valued species Protection of natural regeneration	Protection of desired natural regeneration	Desired plant species that are found regenerating in the landscape are protected to maturity. This was common for valuable timber and fruit species. The practice is done by both men and women.
Planting of cuttings	Planting of Ficus sp.	This is common for Ficus natalensis that is used to improve soil fertility and to make bark cloth.
Incidental or purposeful seeding	Fruit trees and ornamentals	This is done for fruit, fodder (Caliandra sp), flowers and shade trees in home gardens and compounds. Both men and women purposefully seed.

Apart from weeding and mulching, which were exclusively women's activities, and branch pruning, thinning and bark removal, which were male practices, all of the other practices were carried out by both men and women. It is interesting to note that most of the practices that directly benefit the trees were male-dominated, while women dominated practices that indirectly benefited the trees.

Some of the management knowledge was found to be 'common', that is, held by most people in the village, and some was 'shared', that is, held by many but not all village members. 'Specialised knowledge', that which is held by just a few, was mainly related

to medicinal plants. During the discussions, the sources of some of this knowledge were also investigated.

The knowledge of the various management practices and their rationale has been orally transmitted from generation to generation. Over 80 percent of the respondents said that their parents and grandparents told them about the practices. About 70 percent reported that they observed their parents and grandparents carrying out the practices and acquired the needed skills through continuous observations and trials. Almost 30 percent of the respondents said that they learned the practices from neighbours. This shows that interaction both between kin and non-kin village members is the major means by which local tree management knowledge is transmitted.

Some of the practices that affect management and use were found to reflect the cultural and religious roles of trees and of spaces within the villages: villager's everyday practices can not be detached from the spiritual world, in part because villagers refer to taboos and other beliefs to explain their practices. A number of these traditional beliefs and taboos are associated with certain species, as presented in Table 5.15.

Table 5. 15 Taboos and beliefs associated with some plant species

Botanical name	*Local name*	*Belief (s) /Taboo(s)*
Albizia coriaria	*Mugavu*	This plant is not used for cooking. It is believed that it brings bad luck to anyone who burns it and to anyone who eats meals cooked with it.
Celtis meldibraedii	*Lufugo*	The wood of this plant is not cut or used to cook even when found lying on the ground. It is believed that, if this plant is burned, the person burning it will become ill or their household members will confront problems or even die.
Dracaena fragrans	*Luwanyi*	This plant is only used to demarcate land boundaries. The land boundary markers are greatly respected because of the belief that these plants are the shrines for the people's ancestral spirits that protect their land. These plants are also believed to host spirits whose blessings are sought to ensure good crops. The plants also harbour good spirits that chase away the bad spirits that come to ruin the harvest.
Erythrina abbysinica	*Gilikiti*	This is locally known as the 'dog's grave'. When dogs die, they are buried under this tree and thus their spirits, which are believed to be harmful to people, are 'rested' on this tree which prevents them from returning to the village to disturb people. It is believed that if wood from this tree is used for cooking, bad luck will befall anyone who eats the food cooked with it, and the dog spirits may even kill the person who harvests it for cooking. On the other hand, the red flowers of this tree are medicinal, often used by pregnant women to enhance labour and ease birth. The bark is also medicinal and is often mixed with other herbs to treat stomach-ache, skin rashes and sexual complaints.

Ficus natalensis	*Mutuba*	Not harvested for fuelwood because its bark is used to make bark cloth which is used in ceremonies such as burials, marriages, and last funeral rites and, traditionally for clothing. The *Mutuba* is also one of the pillars of the Buganda clans, and the Baganda are the largest ethnic group in this study site. It is also believed to house the Basoga clan's ancestors who protect homesteads.
Ficus ovata	*Mukookowe*	Not used for cooking because it is associated with twins. It is under this tree that the mother of twins is cleansed from all the bad omens associated with twin bearing.
Monodora myristica	*Nagomola*	Brings bad luck if used for cooking or as building poles. It is believed that women become barren and, in some instances, their children may die when they use this plant to cook food. It is also believed that, when men use the poles from this plant to construct houses, there will always be quarrels between them and their wives, which will eventually lead to divorce or separation.
Monodora myristica	*Muvumbula-kyama*	The same plant, when named differently, is believed to bring good luck when used as a toothbrush. It is often used during traditional ceremonies as an offering, together with chickens, to bestow good luck to persons who make the offering. It is believed that, if someone is disturbed by unknown spirits that bring bad luck, this kind of offering will help to reveal the hidden problem (*kuvumbula kyama*) that can then be solved.
Melicia excelsa	*Muvule*	This plant is not cut for burning, as it is associated with longevity. If cut and burnt, it is believed that one will die at a tender age.
Musa sp	*Nakitembe*	This is believed to be the mother plant of all new-born girls. It is at the base of this plant that the umbilical cord of the girl child is buried. It is believed to protect her from illness and bring her good luck as she grows into an adult.
Musa sp	*Kabula-Mbidde*	This is believed to be the mother plant of all new-born boys. It is at the base of this plant that the umbilical cord of the boy child is buried. It is believed to protect him from illness and bring him good luck as he grows into an adult.
Sapium ellipticum	*Musasa*	Brings bad luck to both men and women if used for cooking and as building poles. It is believed that, when used for cooking or construction, there will always be quarrels between spouses, which eventually lead to divorce or separation.
Spathodea campanulata	*Kifabakazi*	This plant is not used for cooking, as it is believed that it will bring bad luck.
Terminaria sp	*Taminaliya*	Not planted in the home compound, as it is believed to kill the household head if the tree grows taller than the house.
Vernonia cinerscens	*Kayayana*	Used by mothers to bathe their daughters. It is believed that it blesses girls and enhances their chances of finding good

		men to marry.
Triumfetta macrophylla	*Binsambwe*	Not used for cooking food. Reasons were not given.
Unknown	*Luyito*	It is believed to bring good luck. The plant is dried, pounded and the powder is poured over hot charcoal, which produces smoke. The smoke is blown while the individual asks for what they desire. Smoking is strictly done at the front of the main entrance of the house and, while this herb is smoking, one is not allowed to talk to anyone, as it is believed that the one you talk to will receive the luck.
Securinega virosa	*Lukandwa*	This is not used for cooking by households with twins because it is believed that, if this plant is burned, the twins will die. It is used with other herbs to cleanse twins during traditional twin ceremonies and it is at the base of this plant that the placentas of twins are buried.
Cyathea sp.	*Kayongo*	Not allowed to be kept in the house. It is used to cleanse new-born babies in instances when the mother had sexual intercourse with any man who was not the father of the child while she was pregnant. It is also used to cleanse those that have been released from prison of all the bad luck they acquired before they enter a house. It is also used to prevent night dancers from going to one's garden and has the power to prevent thieves from attacking a household.
Unknown	*Akawulula*	Used by women to attract men. Not allowed to be used by any female who has not yet begun to menstruate for fear that she may never menstruate.
Chenopodium opulifolium	*Omwetango*	Used in the treatment of malaria. It is recommended that only small quantities for a single-purpose use be harvested. When harvested, the harvester is not supposed to look behind till he/she gets into the house. If one harvests more than they are going to use or looks back before getting to the house, it is believed that bad things could befall him/her, and the patient may die.

Some taboos and beliefs were not specific to particular species, but were associated with an entire ecosystem or space. For instance, it is commonly believed that anyone visiting the forest should harvest only one product and, if more than one product is harvested simultaneously, the harvester will lose his/her way out of the forest and the forest spirits will take over their lives, so that they never return home. Also, women are not allowed to go into the forest before sunrise and after sunset. It is believed that forest spirits are active during such times and, if women see them, the spirits will render the women infertile. Some beliefs and taboos specific to certain spaces are presented in Table 5.16.

Table 5. 16 Taboos and beliefs associated with some forest locations

Location	*Belief (s) /Taboo(s)*
Sanga Hill	This is a protected forest patch within Sanga village that contains several tree species. It is believed that this site is a dwelling for the gods of the Baganda. The King of Buganda visits this site seasonally to perform rituals that are meant to bring good luck to the Buganda Kingdom. Male villagers also visit the place to perform such ceremonies for rain making and good harvests.
Nambi site	This is a bush area located in Kisamula-Malube village that contains mainly Antiaris toxicaria and Melicia excelsa (*Kirundu* & *Muvule*) species. Plants from this site are not used for cooking. It is believed that the wood does not light and, if taken from this site to one's home, it will talk, asking to be returned to its home. Should one fail to return it, members of the household, especially the children, may die.
Walujjo site	This is a forest patch in Kisamula-MalubeKisamula-Malube-MalubeKisamula-Malube/Malube that contains mainly Phoenix reclinata *(Likindu/Nkoma),* which is believed to harbour the spirits that protect wetlands and marshlands. It is believed that anyone who tries to cut any of the plants therein will be 'swallowed' by the wetland.

Villagers' taboos and beliefs in fact regulate the use of plants and hence may contribute to conserving species. As well, they may confer rights or obligations to certain groups (e.g. to men; to the Chief), thus also affecting access and equity (see the discussion in Chapter 6). Local management of plant and tree resources were investigated through detailed case studies presented in Chapter 7.

5.6 CONCLUSIONS

5.6.1 INTRA- AND INTER-HOUSEHOLD DIFFERENTIATION

Our data clearly illustrates both inter-community differentiation between the two research villages as well as intra- and inter-household differentiation within the villages.

In general, the findings indicated that the differences between household characteristics and endowments were not significant between villages. Landholdings are small irrespective of whether or not the village can be considered as a forest enclave. Regarding between-household differences, across both villages it appeared that, the older the household head, the more likely that the household has larger landholdings, and female headed households are more likely to have smaller holdings than male headed households. It was noted that, the wealthier the household (using *emic* definitions), the larger the landholding and the higher the cash income. It can be concluded that the main characteristics that emerge with significant differences at household level are landholding size and income in relation to age, sex and wealth, which are all relatively independent of village location. As a general picture, both

villages are relatively poorly endowed, with small landholdings, low levels of formal education, and low monetary income.

However, there are some differences in household characteristics depending upon village location. The people of Kisamula-Malube had completed more years of schooling compared to those in Sanga. Also, annual household income was significantly higher in Kisamula-Malube. Farming, wage labour and petty trade emerged as the major livelihood activities for individuals in the study areas. Villagers from Sanga were significantly more involved in farming and wage labour, whereas more people in Kisamula-Malube were involved in petty trade, although the difference was not statistically significant. These inter-village patterns roughly correspond to the fact that Kisamula-Malube is closer to markets and schools.

A clear division of labour and responsibilities exists within the households in the study area, where different members of the household had different roles and responsibilities based not only on sex, but also on age. Women and children's labour predominates in all household tasks except for house construction, which is a male task, and in feeding livestock, which is fairly evenly shared among household members. Women's labour predominates in all tasks associated with home gardening except for land preparation, where children support women in most tasks. The strength of the association between home gardens and women's labour and decision making is evident in the fact that men are involved at times in sowing plants or trees in the home gardens, but only together with their wives. The inverse is true of the division of labour on croplands. Here, men's and children's labour predominate in all tasks but weeding, which women share with children; sowing is the exclusive prerogative of men. With regard to forest products, women and children dominate firewood collection for domestic use. Harvesting of craft materials is a women's activity. Children are the main fruit harvesters. Men are more involved in illegally harvesting wood for charcoal and firewood when these are destined for sale. However, more women than men are involved in forest-related activities entailing non-timber products, although a larger number of men are also increasingly getting involved. Men are significantly more involved in wage labour while women are more involved in petty trade.

5.6.2 INTRA- AND INTER-HOUSEHOLD DIFFERENCES AND DEPENDENCE ON FOREST PRODUCTS IN DIFFERENT FOREST LANDSCAPES

Our data also clearly reveals that the dependency on forest product also varied according to differences between villages, households and individuals, and these were reflected in different dependencies on various forest landscapes. On average, households in the study area had a fairly high level of dependence (above 50 percent) on forest products as a source of firewood, poles, medicinal plants and handicraft materials, irrespective of the location of harvest. However, households had on average, a high level of dependence (above 65 percent) on all the different landscape locations from which the different products were collected.

Although there were differences between poor, average and rich households in the use of and dependence on various landscape spaces, the general level of household

dependence on all spaces was still high for each wealth category. For example, the average dependence on and use of both species and spaces for firewood and poles for each wealth category was in both cases above 90 percent, implying that, irrespective of wealth status, all villagers surveyed are still heavily dependent on forest products and on the forested landscapes for major subsistence products. It can also be concluded that younger members of the villages, women, female-headed households and the poor are more dependent on the use of resources from all of the different forested landscapes.

Despite the gendered division of labour and responsibilities, both men and women were highly dependent on forest products such as firewood, poles, medicines and handicraft materials. The difference in sex dependencies on various products was not statistically significant. With respect to forested landscapes, there were also substantial gender differences: generally, women are significantly more dependent on home gardens as sources of forest products than men. However, some activities, such as timber harvesting, charcoal making and firewood collection for sale were male-dominated, while activities such as medicinal plants and handicraft materials harvesting were female-dominated.

5.6.3 TRANSGRESSING BOUNDARIES: GENDER, SPECIES AND SPACES

As demonstrated by the data, the intra-household differentiation in dependency on and use of forest resources are not strongly influenced by gender relations. These differences do not only concern generic use and dependency on forest resources, but also the dependencies and use of various species and spaces within forested landscapes. For example, it was found that it is a social obligation for women to provide their households with subsistence goods, which at times requires that they venture into the state forest reserve and other forested landscapes in search of raw materials. Some women have also ventured into commercial handicraft making and many engage in petty trade to earn income. On the other hand, the illegal and high-risk activities that occur deep in state forest reserves are male-dominated. Culturally, men's mobility is unlimited. All of this implies that both men and women will transgress both social and formal legal boundaries in order to obtain resources to fulfil their social obligations.

Further, the data demonstrate the great variety of species that villagers use; these are extracted from different landscape spaces. In Kisamula-Malube and Sanga, villagers named 51 and 55 plant species, respectively; they are harvested from various niches within the forested landscape, and used for various purposes (Appendix 3). All of these species were important for meeting subsistence and cultural needs. It was expected that the people of Sanga would have a longer list of species due to their location inside Mabira forest. However, this was not the case. This may be due to the fact that the villages' level of forest dependency is not significantly different and that both share common cultural and historical roots that tie them both symbolically and materially to the forest. It was, however, found that households in Sanga village had a wider-range of uses (entailing both own consumption and for trade) of the same species and spaces in comparison with households in Kisamula-Malube. This could be due to differences

between the villages with respect to access to forest resources: in Kisamula-Malube, these resources have been over-exploited compared to Sanga, leaving Kisamula-Malube with a more limited number of mature and usable species.

In addition, our data show that villagers conceptualise the 'forest' and its resources in a different manner than professional foresters do. Our study on the villagers' perceptions and uses of different spaces and species within the forested landscape indicates that villagers identified several boundaries within the forested landscape that did not conform to conventional foresters' boundaries. For example, Figure 5.6 illustrates that firewood collectors' boundary stretched as far into the forest reserve as the firewood could be found from community private land parcels into the buffer zone, which is under state custody. Non-timber products and medicinal plants are collected from both privately owned as well as state owned-forested landscapes. Handicraft materials are collected from the state-owned landscape both from the permitted location (buffer zone) and the prohibited area (state forest). And timber products are only harvested from the state forest reserve since few mature timber trees are found in the private landscapes. Thus, villagers create resource use boundaries based at least in part on need and location of the resources, making the forested landscape appear more like an amalgam of small niches with specific uses. These observations conform to findings of several authors (Fortmann and Nihra 1992; Leach and Fairhead 1993, Ellen 1996, Wiersum 1997a) that local forest resource use is taking place in forested landscapes rather than in homogeneous forests, and that the various landscape niches vary in respect to history, identity and access rights. This indicates that legal access rights as defined by the state and the legal land tenure system discussed in Chapter 2 are not the primary determinants of people's access to resources in forested landscapes. For example, it was clear that socio-cultural beliefs may effectively limit use of certain forest resources for certain purposes or restrict this use to certain social groups.

Thus, simplified distinctions of access to resources based on definition of 'boundaries' instituted by different property regimes and those formulated by different institutions such as the Forest Department, begin to look 'pretty academic' as Ellen (1996) put it. This is why the case studies on how people understand access forest resources were conducted, as reported in chapters 6 and 7.

The data presented also demonstrate that the gender division of labour is a major determinant of use of species and spaces in forested landscapes, where women are more involved with subsistence uses and men with income-generating activities. The gender division of labour in turn is related to what are culturally regarded as male and female activities, species and spaces. However, the traditional cultural boundaries of different male and female domains appear to be transgressed by both sexes.

5.6.4 LOCAL FOREST RESOURCE MANAGEMENT: GENERAL PRINCIPLES?

As illustrated by our findings, both social controls including taboos and beliefs and biologically-oriented measures have an influence on the maintenance of forest resources by either controlling over-exploitation or by stimulating production and regeneration. Although the research did not attempt to measure the actual use or effects

of such beliefs and biological measures on forest resources, the respondents' information clearly illustrates a variety of socially- and biologically-oriented management practices. These aspects are further explored in relation to case studies on specific species (chapters 6 and 7); here the findings with regard to a larger range of forest resources are presented

Some of the local practices that affect management and use were found to reflect the cultural and religious roles of trees and of spaces within the villages: villager's everyday practices cannot be detached from the spiritual world, in part because villagers refer to taboos and other beliefs to explain their practices. A number of these traditional beliefs and taboos are associated with certain species or with certain spaces, but some are found to apply more generally, and here it is considered whether these may be considered to constitute 'general principles' relevant to forest management. This conforms to observations that knowledge of plants occurs within broader socially-informed understanding of the world and co-exist with local beliefs, and such conceptualisation of the interconnectedness of social factors and plant knowledge proves very useful in understanding local people's plant use management practices (Ellen 1996; Wiersum 1997a). For example, there are many taboos associated with the use of several woody species for fuelwood or for building poles, and there are also several species that have religious importance related to spirits, where beliefs effectively prohibit disturbing these trees, or specify where they should and should not be planted. Several beliefs and related biological practices are also found across species, such as: practices that restrict the frequency of harvesting, rotational harvesting of bark to avoid harming the trees, selective pruning to eliminate pests, diseases and epiphytes, slashing stem bark on fruit trees for various purposes, weeding (where weeds are believed to harbour bad spirits) and mulching. The fact that these beliefs and practices constituted to a great extent shared knowledge that is passed from generation to generation also tends to support the idea that they exist as 'general principles' of forest management.

Further, and in keeping with the fact that there exists a gender division of responsibilities and labour that affects the use of species and landscape spaces, management practices are also 'gendered'. The study revealed that practices that directly benefit the trees such as, branch pruning, thinning and bark removal were male-dominated; while women dominated practices were those that indirectly benefited the trees e.g. weeding and mulching.

Management knowledge, reflected in the management rationales behind various practices, was found to be either 'common', that is, held by most people in the village, or 'shared', that is, held by many but not all village members or, less frequently, 'specialised knowledge', which is held by just a few, which was mainly related to medicinal plants. Some of the management practices or approaches reflected the cultural and religious roles of trees and of spaces within the villages. The knowledge of the various management practices and their rationale has been orally transmitted from generation to generation.

6 RIGHTS TO SPECIES AND SPACES

6.1 INTRODUCTION

This chapter aims to assess whether an in-depth analysis of species-specific patterns can add further nuances to the findings in Chapter 5. A general, culturally-oriented understanding of people-plant relationships can be obtained, according to Ellen, '*working from species level outwards, links indigenous ecological know-how to general subsistence and social behaviour*' (1996:4). It was observed in Chapter 2 that local forest resource management is part of a broader socially-informed understanding of the world and, therefore, people-forest relations are situated within 'folk-models' which reflect an ability to connect observations at the species level with informed perceptions about landscape structure and dynamics. Such mental models are reflected in people's conceptualisation of forested landscapes which can be directly understood through an understanding of people's subsistence practices with respect to landscapes (Ellen 1996), an important component of which are rules regarding land tenure, rules relating to the extraction of resources, and sanctions resulting from their violation (Fortmann and Bruce 1988), some of which are manifested in myths, stories and taboos (Wiersum 1997a; Ellen 1998). On the basis of these considerations, this chapter will begin to provide a detailed discussion of the relations between people's rights to specific forest resources in a specific cultural context.

The findings presented in Chapter 5 clearly demonstrated that intra-community and intra-household differences in forest and landscape dependence are related to factors such as sex, age, and livelihoods. As discussed in Chapter 2, such patterns should be also evident with regard to rights to forest resources. The presence of gendered land and tree rights means that men and women have different access to the same spaces and may also access different spaces (Rocheleau and Edmunds 1997; Howard 2003a). But gendered rights to access land and tree resources, coupled with gendered norms and the division of labour and associated differences in knowledge, experience and skills, may not only be related to specified spaces within landscapes, but also to specific plant and tree species and products. The research presented in this chapter sought in particular to determine whether, in addition to formal rights to trees, there are *de facto* or informal rights to harvest and use particular tree and plant species and, if so, to whom these rights pertain, and how these rights are related to, or determined by, formal land rights (land ownership and land tenure) and tree tenure (tree ownership), to particular landscape niches in which species are found, and to uses of tree and plant products, including the final destination of such products, such as for own consumption, for household consumption, for exchange, or for sale.

As described in Chapter 3 on methods, case studies have been used to investigate and explore in depth the gender difference in rights to tree species and tree products and the gendered variation in species use in relation to landscape spaces. In addition, plots along transects made across the landscape were used to determine the distribution of the selected species in the different landscapes spaces. At an interval of 100 metres along the transects a circular plot of ten metres radius was made, in which all the selected species encountered in the different spaces were counted and recorded. The number of species were then plotted in order to determine the location and distribution of the species in the different spaces. Besides three tree species, a non-tree plant species was included in order to investigate whether there are conceptually and empirically significant differences in use and access between tree and non-tree plant species. This was done because the question of access to different types of plant species has received little attention in the literature (Howard 2003a). This chapter therefore presents the empirical findings and analysis of local use and access rights relating to the four case study species (Ficus natalensis, Artocarpus heterophyllus, Phoenix reclinata and Cleome gynandra). As discussed in Chapter 3, the selection of the four species was done carefully to ensure that all species were socially-culturally important to villagers and that there were at least some sex differences in terms of use by sex. Further, species represented a range of different criteria that could serve for contrast and comparison:

- Multi or single-purpose
- Wild or domesticated
- Tree or plant
- Cosmologically important or not
- Locally marketed or subsistence only

Nine men and eleven women informants were involved in the case study on Ficus natalensi*s*; five women and seven men in for Artocarpus heterophyllus; eleven women and eight men for Phoenix reclinata; and eight women and three men for Cleome gynandra.

The research presented in this chapter sought in particular to determine whether, in addition to formal rights to trees, there are *de facto* or informal rights to harvest and use particular tree and plant species and, if so, to whom these rights pertain and how these rights are related to, or determined by:

- Formal land rights (land ownership and land tenure) and tree tenure (tree ownership), which Chapter 5 shows create one particular set of 'borders';
- Particular landscape niches in which species are found, which Chapter 4 shows create another set of 'borders'; and
- Uses of tree and plant products, including the final destination of such products, such as for own consumption, for household consumption, for exchange, or for sale.

The first section presents a general description and discussion of legal rights pertaining to land and trees in the study region. Then, for each species, species characteristics are described as well as their location and distribution in the landscape. Uses are described

and discussed according to sex of the users, as are gendered rights to the species. The last part of the chapter serves both to present an analysis across the species and spaces and to draw conclusions from the findings presented.

6.2 OWNERSHIP AND RIGHTS TO SPECIES AND SPACES

As indicated previously, traditionally men own the land in the village, and the only women who own land are widows who are the custodians for the land of their sons who have not attained the age to take over the land bequeathed to them by their late fathers. The landowner is also the owner of the trees that grow on that land. Thus, landowners own all the major trees in home gardens, cropland and common lands. All trees, whether unconsciously or consciously planted or naturally regenerated, belong to the owner of the land on which they are growing, even in those cases where the landowner is a woman.

In this study, it was found that tree ownership is associated with the rights to inherit, plant, use, gather or harvest, manage and alienate or dispose of trees.

6.3 *FICUS NATALENSIS* (FIG TREE)

The fig tree is one of the very important and much valued traditional multipurpose trees in Buganda. Farmers highly appreciate Ficus natalensis as a multipurpose tree and utilise it for a variety of purposes. Ficus natalensis is planted between banana and coffee for production of bark cloth and provision of services such as windbreaks, support for vines, improvement of soil fertility, and creation of a favourable microclimate for crops. Culturally, the fig tree (*Omutuba*) forms one of the principal pillars of the Baganda clans. A principle use of fig trees in Buganda is its bark for cloth. In Buganda, every Muganda, from the poorest peasant up to the King, utilise bark cloth in many different ways, for special occasions such as royal coronation ceremonies as well as in day-to-day rural life. Bark cloth is a traditional fabric that provided the main textile for clothing, but now it is only widely used for traditional ceremonies. One such ceremony is burial: in Buganda almost all corpses, except among Islamic groups, are covered with bark cloth. Tradition demands that the relatives and friends of the deceased should pay their last respects by making a gift of a bark cloth. The use of bark cloth in burial ceremonies is one of the traditional rituals in Buganda that has survived into modern times. Bark cloth is also used during last funeral rights ceremonies for the installation of the new heir and for all other traditional clan ceremonies. Bark cloth is one of the most important artefacts used in the King's coronation. It is used to cleanse twins after birth and it is in bark cloth that the 'false twins' are wrapped and stored to protect of the live twins. The fabric was also commonly used for bedding. Women also use bark cloth to make various handcrafts such as place mats, wall hangings, floor mats, handbags, hats, etc. Yet another use of bark cloth was for paying both the taxes to the Chief and the dowry to the clan for a prospective bride, which still occurs in traditional marriage ceremonies. In this respect, therefore, fig trees have great cultural significance in the study region.

6.3.1 SPECIES CHARACTERISTICS

Ficus natalensis is an evergreen shrub or tree usually 12 meters in height (it can attain a height of up to 30 meters) with upright branches reaching to a dense drooping crown (Katende 1995). For the trees without a straight bole, aerial roots may hang down from the branches forming the base of the trunk, which is a mass of interwoven roots. Depending on the site conditions and management of the tree, some trees may have a cylindrical and straight bole that may be up to one meter in diameter in old species and four meters from the ground before branching. Fig trees, however, need sheltering because their roots are so shallow that gusts of wind can uproot them.

The tree has a pale grey, thin, smooth bark. The leaves are rather stiff, long, oval, and often wide at the tip and 3-10 cm long. The tip is usually rounded or slightly pointed. The leaf has 5-10 veins on either side with a stalk of 0.5-2 cm long. The figs occur in pairs beside or just below the leaves, on a stalk of 2-10 mm. The fig fruits are rounded with a yellow-red colour when ripe and are 8-18 mm wide and 2 mm long (Katende 1995).

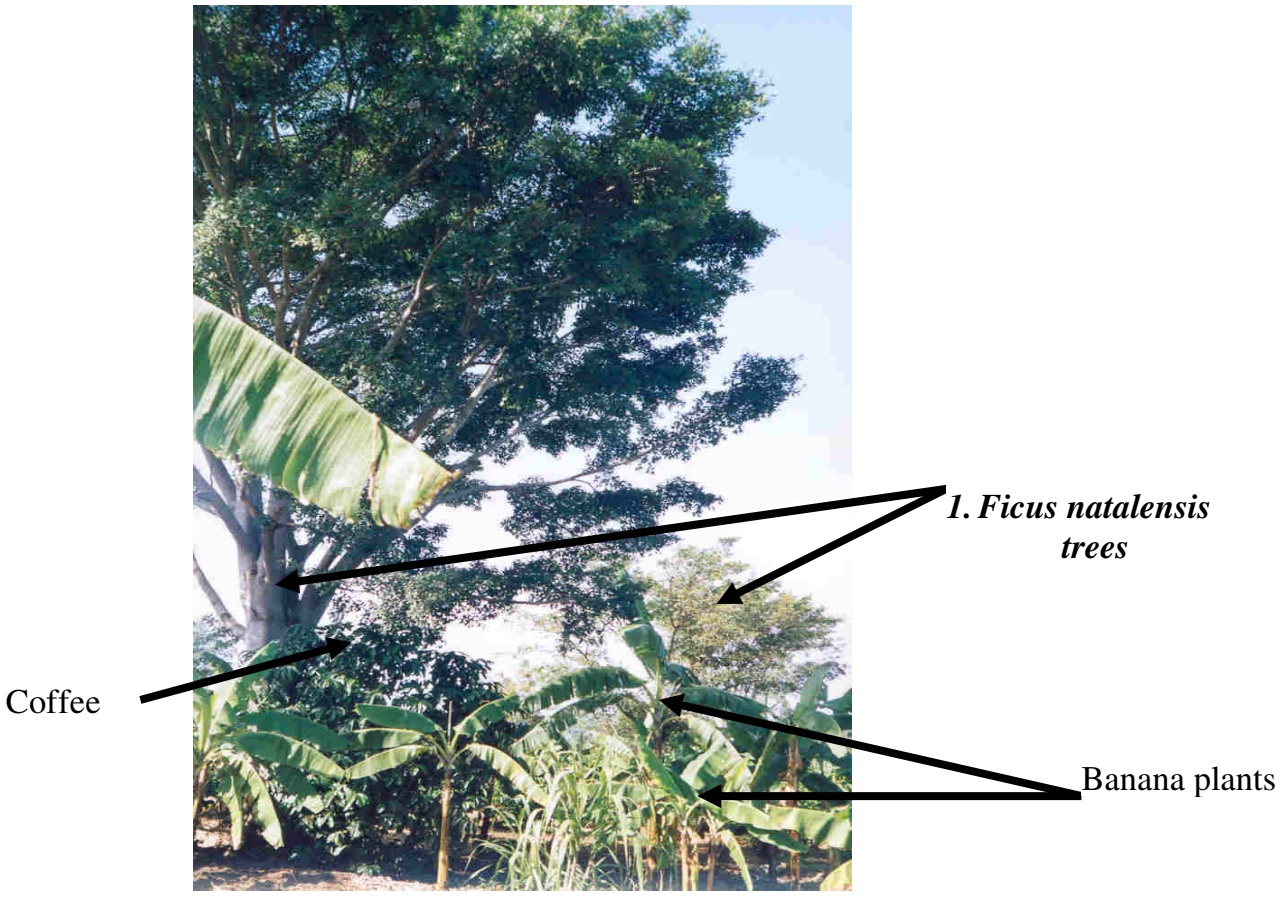


Plate 6.1 Ficus natalensis in the banana-coffee home garden

Ficus natalensis is indigenous to Africa and is commonly found from West to East, and from northern Zimbabwe to South Africa. Uganda is one of the countries that have a variety of fig species from which bark cloth is made. The major fig species from which bark cloth can be made include Ficus natalensis, Ficus thonningii, Ficus amadiensis

and Ficus ovata (Kabuye 1999). Ficus natalensis is the species most commonly used in making bark cloth in Uganda. Other non-African countries where Ficus natalensis can be found include Indonesia, Brazil, and the USA (Hawaiian Islands). The trees grow in both wet and dry forests and thickets, and in riverine and ground water forests in higher rainfall woodlands and savannas. The tree has been cultivated in all parts of Uganda. In Buganda, it is commonly found in home gardens and croplands (Plate 6.1). It often begins life as an epiphyte, then becoming a strangler and replacing the host tree, but it may also be quite terrestrial (Katende 1995; Kabuye 1999).

6.3.2 LOCATION AND DISTRIBUTION OF FIG TREES

Based on the information obtained from the surveyed households and the data from the plots made along various transects, fig trees were found to mainly occur in home gardens (59%), were as well randomly scattered in croplands (28%) and in the common lands (13%). Figure 6.1 shows the average number of fig trees found in the sample plots made in the landscape spaces in the study area described in section 6.1 above.

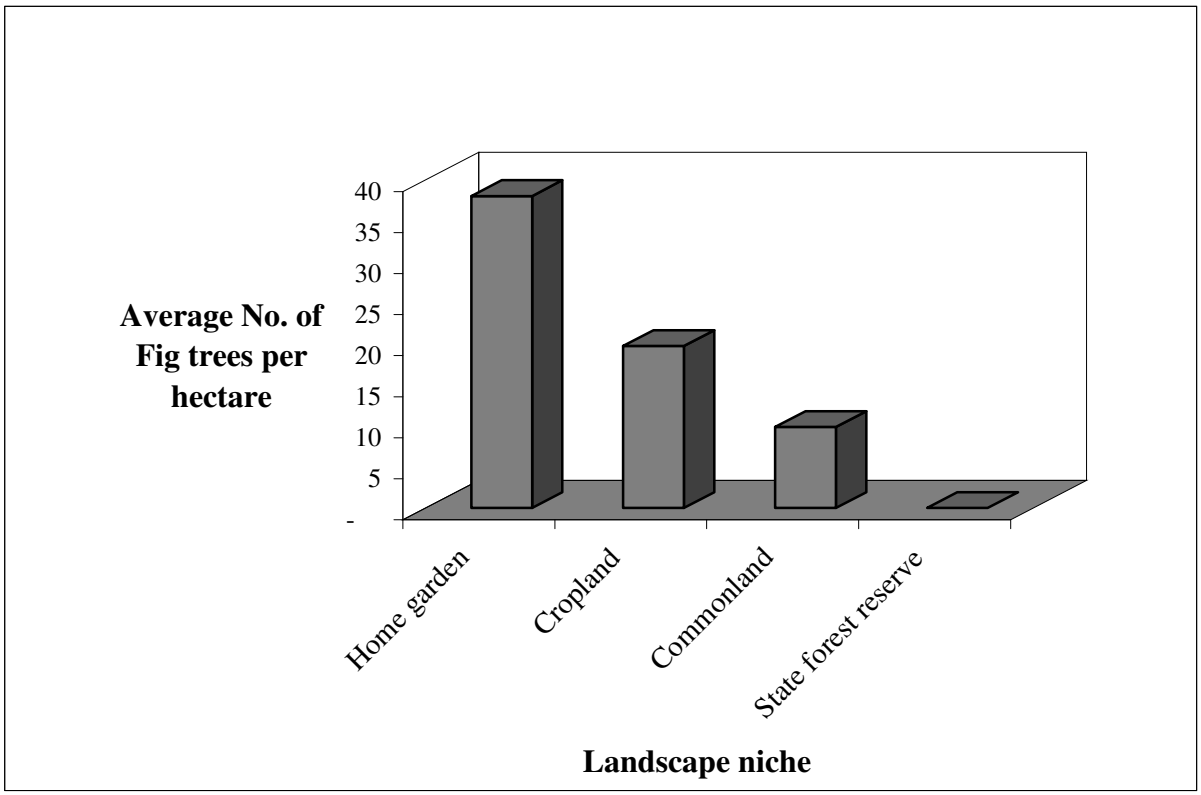


Figure 6.1 Ficus natalensis. distribution in the local landscape

6.3.3 GENDERED USE OF FICUS NATALENSIS

Ficus natalensis is a multipurpose tree species that is highly valued by villagers in the research area. The villagers identified ten main uses for the fig trees. Women and men's uses of fig trees are shown in Table 6.1.

Table 6.1 Gender differentiated use of *Ficus natalensis*

Use	*Sex of user*	
	Female	*Male*
Direct		
1. Medicine		
Fresh or dried leaves are crushed and mixed with other herbs are used to treat stomach-ache	X	-
The early morning dew that drops off the leaves is believed to cure coughs	X	-
2. Fodder		
Feed for goats that are tethered near the homestead	X	-
3. Firewood	X	X
4. Bark		
Produce bark cloth	-	X
Produce bark cloth crafts	X	-
5. Live fencing (boundary marking)	-	X
6. Hanging bee hives	-	X
Indirect		
7. Soil improvement through leaf fall	X	-
8. Shading other crops	X	X
9. Support for other crops and climbing plants	X	X
10. Sacred/spiritual uses		
Traditional religious rituals	X	X
Cleansing ceremonies	X	X
Rain making ceremonies	X	X
Ancestral sacrifices	X	X

X= Used - = Not used

It was mainly the non-Baganda ethnic groups that use fig trees for firewood; for the Baganda, it is taboo to use fig trees for cooking, although over the past 15-20 years some Baganda have begun to do this due to firewood scarcity. These points to an erosion in traditional beliefs created in part by resource scarcity in the area. Fig trees not located on private land are mainly found in sacred groves and their use is governed by taboos and cultural beliefs. In this region, fig trees located in sacred groves are not used for cooking and women are not allowed to harvest from this location. It is believed that these figs should not be burnt since they make cloth and provide a habitat for the spirits pertaining to the clans of the Baganda and Basoga tribes. Generally, women are not allowed to enter sacred groves except in the company of a male relative and during traditional/religious ceremonies that specifically involve them. This is because women are considered to be unclean, especially during their menstrual periods.

Villagers believe that the leaves that fall from fig trees improve soils. This is also one of the reasons that respondents gave for planting fig trees in home gardens. Fig trees are also very useful for shading other crops such as coffee (Coffea sps), banana (Musa sps) and other annuals that require shade to grow well. Fig trees are used to support other crops and climbing plants such as passion fruit (Passiflora edulis), yams (Dioscorea spp) and vanilla (Vanilla spp). Fig leaves are used as a medication for stomach-ache. The fresh or dried leaves are crushed together with other herbs, cold water is added, and the concoction is drunk. Also, the early morning dew that drops off of fig leaves is believed to cure coughs. Young fig tree leaves are fed to goats that are tethered near the homestead. Some respondents reported using fallen twigs or branches for firewood. Also, men reported cutting branches for women to use as firewood.

As earlier mentioned, the bark of fig trees is used exclusively by men to produce bark cloth. Also, women make several types of crafts from the bark cloth that men produce from fig trees. Live fences are made from fig trees mainly to demarcate the boundary of one's plot and to prevent both humans and animals from trespassing. Men also use fig trees to hang beehives.

Figure 6.2 presents respondents' uses of Ficus natalensis in the study area. Each individual was asked to report his or her uses for fig trees. All of the participants' responses were compiled and the frequencies for each use were determined and plotted disaggregated by sex.

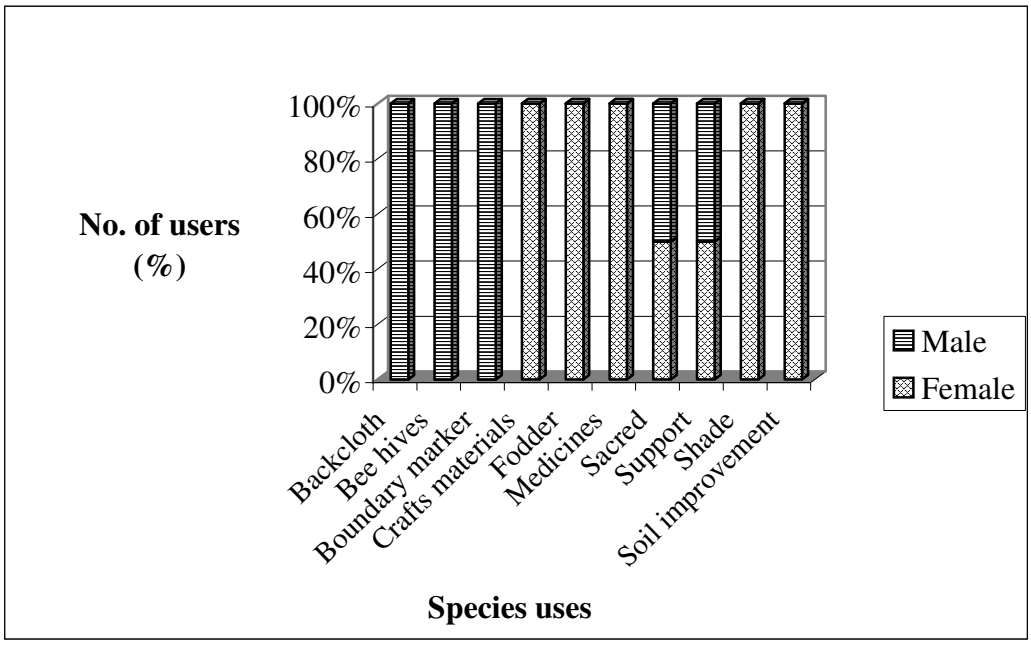


Figure 6.2 Use of Ficus natalensis by sex

Bark cloth making (25 percent of the total uses reported), soil improvement and shade (each 15%), and support and sacred/spiritual uses (each 10%), are the predominant uses for Ficus natalensis in the study area. Figure 6.2 shows that only men use fig trees for bark cloth production, beehive hanging and boundary making, while only women

use fig trees for soil improvement and as shade for other crops. Both men and women use fig trees to support other crops and for spiritual purposes.

The majority of the men who own fig trees said that they sold the bark of the fig trees to other men who make bark cloth; only two elderly respondents were found to still make bark cloth in the study area. Also, it was stated that women use some of the bark cloth produced by men as one of the materials in making handicrafts. The women further explained that crafts made from the bark cloth are used in their households and are also sold to generate income. Only women reported using Ficus natalensis as a shade and soil-improving tree. Although men did not report these uses, on probing, they too shared women's opinion that fig trees are good for soil improvement.

Both men and women reported using fig trees to support other crops and for sacred/spiritual purposes. However, it was found that women use fig trees to support subsistence food crops (mainly yams) (Plate 6.1), while men use them to support income-generating crops such as passion fruit and vanilla.

Plate 6.2 Fig tree used to support yam in the home garden

Both men and women believe that fig trees have supernatural powers to mediate between them and their ancestors. It is believed that fig trees host the ancestral spirits that would help women who have difficulties with child-bearing. It is also believed

that the spirits that arbitrate during conflicts reside in some fig trees and therefore there is a specific fig tree under which people sit to resolve conflicts. There are, however gendered implications of this belief system, as is discussed later.

It was expected that the gendered patterns of fig tree use would generally conform to the distribution pattern of the species and gendered uses in the various landscape niches or spaces. Figure 6.3 shows the proportion of respondents that use or harvest the species in various landscape niches for the different uses. The proportion of users or harvesters was compared with the distribution of fig trees across the different landscape niches.

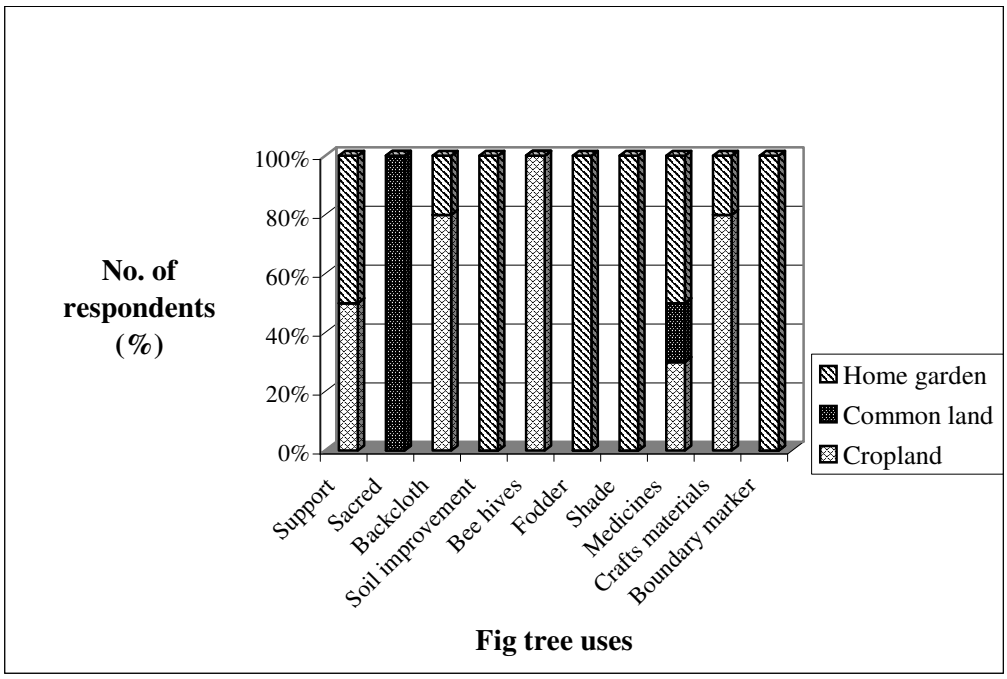


Figure 6.3 Proportion of fig tree uses in the various landscape niches

Generally, the use/harvest pattern, when considering all of the uses, closely conformed to the tree distribution pattern in the different landscape niches in that, overall, more uses were reported in the home gardens that in the common lands. However, when considering specific uses, there were a few exceptions. For instance, although the majority of the fig trees were located in home gardens, harvesting bark for bark cloth making was highest in croplands. Also, the use of fig trees for hanging beehives was only reported in the croplands. The use of fig trees for sacred/spiritual purposes was highest in common lands, which on average had the lowest number of fig trees.

The results were further analysed to investigate the extent of difference in landscape niche use by the men and women. Figure 6.4 shows that more men use figs growing on croplands, while more women use figs located in home gardens. However, more women (70%) than men (30%) use fig trees on common lands.

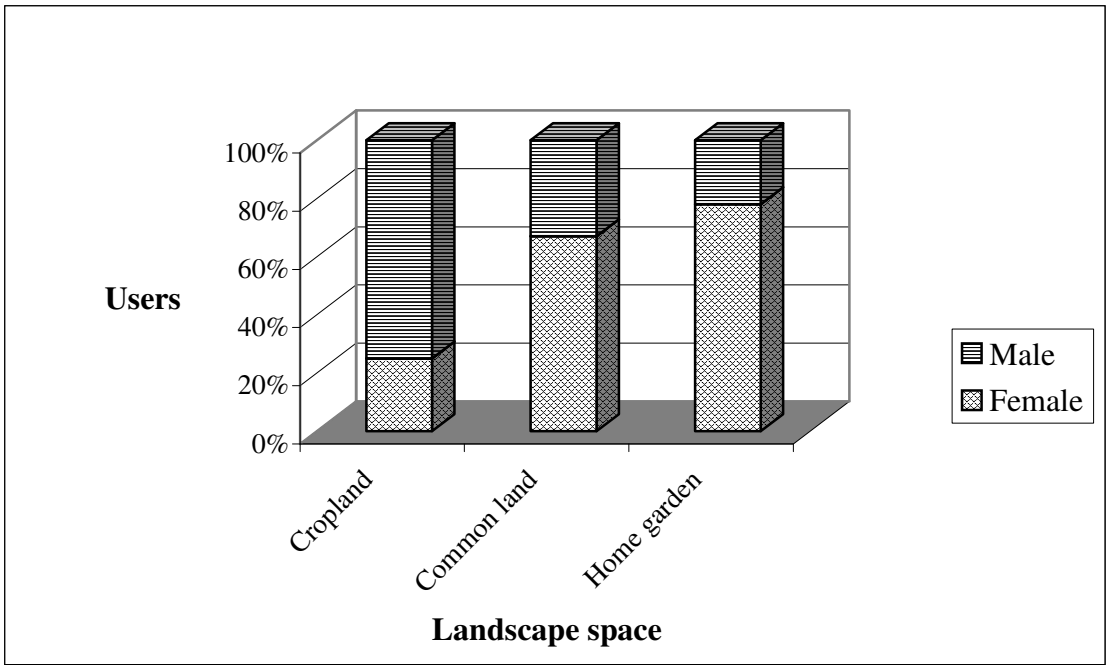


Figure 6.4 Gendered use of figs in different landscape niches

This last result could therefore be used to confirm the notion that croplands are predominantly men's niches while home gardens are women's niches. It is difficult to clearly state whose niche the common lands are. From the results presented in Figure 6.4, it would be logical to say that the common lands are women's niches in relation to fig trees since their uses are predominant. However, an informal discussion with some men in the village revealed that the majority of men use fig trees located in sacred groves (located on common lands) for various traditional practices, but they are reluctant to speak about them. During an informal discussion, one of the men said that most men 'pray' to ancestors believed to be housed in fig trees located in sacred groves when they have problems, and to obtain wives, riches, children, etc. The conclusion therefore can only be that both men and women use fig trees on common land, but for different purposes. Also, it may be generally concluded that fig trees located in different landscape niches are used differently by men and women. However, even where the locations and uses are similar for both men and women, as in the case of use of fig trees to support other crops, differences still arise in the type of crops supported. Use is not only related to tree location and land tenure, but also to the gender division of labour and responsibilities at household level. Men's uses are related more to income generation, while women's uses are more related to subsistence.

6.3.4 GENDERED RIGHTS TO HARVEST AND USE FIG TREES

Within households (where there were very few households that used fig trees for firewood due to the associated taboos), women do not need permission to gather fallen twigs or branches from fig trees located in all landscapes except from sacred groves found on common lands. This also applies to all non-household members wishing to gather fallen twigs or branches from common lands. Any non-household member wishing to harvest dead and fallen parts of the tree for subsistence use from the home

garden would need to seek permission from the woman who is responsible for that home garden.

The respondents said that women do not require permission to gather plants or plant products that are supported by fig trees that they have planted in their home gardens as long as the use is for subsistence. Nor do they need permission to gather leaves for medicinal purposes. For the trees that men plant in home gardens, women need permission from men to use the tree to support other plants However, women do not require permission to use trees that they plant in the home gardens to support climbing plants. Some of the women also said that they need permission from the men if they want to use the trees that men have planted in croplands to support climbing plants. Men are very careful not to allow climbers/creepers that may damage the fig tree bark.

> *'I have to ask my husband for his consent before I use the fig trees he planted both in the home garden and the cropland to support my passion fruit and climbing yams. If he refuses then I cannot use them.'* Mrs. Affede (45 years).

Women cannot give any other person permission to use fig trees, except for the harvest of leaves for medicinal purposes, even if they are located in their own home gardens.

> *'We* (women) *can not allow anybody to use a man's tree without his consent. Women, during a focus group discussion on figs.'*

Men do not require permission to harvest all or parts of fig trees on their land even when these trees are planted by women, but they do need permission to harvest from any tree that is not growing on their land.

> *'I don't have to get my wife's consent to harvest the bark of the fig trees she planted in the home garden. As long as the tree bark is ready for harvest, I just harvest; the tree is mine because it is on my land.'* Mr. Amatte, 48 yrs.

Men can give permission to anyone to harvest anything from their trees, but cannot give permission to harvest women's plants that are supported by fig trees. Only men can give permission to others to hang beehives on their figs. Usually, the male tree owner sets the limit to the number of hives that can be hung on his tree. If he has hung some hives in the tree for himself, then he usually allows only one other person to hang not more than two hives in the same tree. An average-sized fig tree with a wide canopy can be used to hang up to six hives. No permission is usually sought to hang hives on fig trees that are located on common lands. Hive hanging is regarded as a non-destructive use of fig trees. But, great care must be taken during honey harvesting not to damage the tree, especially if the honey harvesting process involves fire.

The right to harvest tree products therefore depends on land and tree ownership, one's relationship to the owner of the land and trees, the use to which the product is put, and the landscape niche in which the product is located. Table 6.2 presents a summary of who can generally harvest from the specified locations and for what purposes.

Table 6.2 Who can harvest and use what and where – *Ficus natalensis*

Who	*Home gardens*		*Cropland*		*Communal lands*	
	Own Consumption	*Sale*	*Own Consumption*	*Sale*	*Own Consumption*	*Sale*
Male head of household	Bark cloth	Bark cloth	Bark cloth, Bee hives, Branches for fencing	Bark cloth Bee hives Branches	Leaves	
Female head of household	Leaves Fallen twigs	X	Leaves Fallen twigs	X	Leaves Fallen twigs	X
Household members	Leaves Fallen twigs	X	Leaves Fallen twigs	X	Leaves Fallen twigs	X
Close Kin	Leaves Fallen twigs	X	Leaves Fallen twigs	X	Leaves Fallen twigs	X
Distant Kin	Leaves Fallen twigs	X	Leaves Fallen twigs	X	Leaves Fallen twigs	X
Non-kin (Friends)	Leaves Fallen twigs	X	Leaves Fallen twigs	X	Leaves Fallen twigs	X
Non-kin (Others)	Leaves	X	Leaves	X	Leaves	X

From Table 6.2, it is evident that only male heads of household, who in this case are the landowners, have the right to engage in uses that involve cutting parts of the tree. It also appears like only male heads of households can give permission to use fig trees. Also, non-owners of fig trees cannot use any part of the trees for commercial purposes.

6.4 *ARTOCARPUS HETEROPHYLLUS* (JACKFRUIT)

Jackfruit is one of the non-indigenous multipurpose trees being promoted by the government to improve local livelihoods. It is a very important tree to farmers who use it for a variety of purposes. The tree provides shade, support for vines, and creates a favourable microclimate for crops. The jackfruit tree is a good source of firewood and charcoal and, if left to mature, it is a source of high-value timber. The tree produces a large fruit (the largest fruit in the world), which is consumed fresh and sometimes sold to generate income. The fruit is highly valued as it increases household food security, especially during food-scarce periods. The fruit can also be processed into several food items. The fruit is a source of fodder as it can be fed to cattle and pigs; it is believed to be good for fattening. This species is being promoted as an agroforestry species targeting women farmers in the generation of household income in rural areas. However, as will be shown in the study area, men are more involved due to land and tree tenure systems that give them greater privileges in accessing and owning land and therefore in planting and owning jackfruit trees.

6.4.1 SPECIES CHARACTERISTICS

Artocarpus heterophyllus (*Yakobo/Fene*) is a medium-sized tree with thick branches that can attain a height of up to 25 meters. It has a short bole, cylindrical and straight, that may be up to one meter in diameter in old species, and a branching system that begins less than two meters from the ground. The tree has rough bark on the bole, but

the bark is grey and smooth on the branches. The leaves are glossy and oval, about 15cm long and 10cm wide. The tree has separate male and female flowers, all of which are very small. The female flowers have a strong smell. The flowers are born on the trunk or large branches where the fruit develops. The fruit is massive and irregular, can reach 20 kg in weight and about one meter in length. It is a yellow-green compound fruit with a spiky rind. The flesh is edible and very sweet. The seeds may also be up to 5 cm long and are edible when roasted (Katende 1995).

This tree (Plate 6.2) is not indigenous to Africa. It originates in Asia, probably in the forests of the Western Ghats in India (Katende 1995). Today, the species is widespread in other parts of the tropics. The species was first introduced into Uganda in the early 1940s at the Entebbe Botanical Gardens and has become very popular, now being planted in Eastern, Central and Western regions. Near Lake Victoria, seeds germinate and young trees sprout spontaneously so that the species has become invasive in secondary vegetation. Proper growth of the species requires well-drained, deep and fertile soils, and it will not tolerate drought or water logging.

6.4.2 LOCATION AND DISTRIBUTION OF JACKFRUIT TREES

Based on the information obtained from the surveyed households and the data from the plots made along various transects, jackfruit trees were found to mainly occur in home gardens (43%), and are randomly scattered on croplands (32%) and on common lands (9%) and on state lands (15%) in the study area. Figure 6.5 presents the average number of jackfruit trees found in the sample plots made in the different landscape spaces of the study area.

On average, a household owns a minimum of four jackfruit trees in the sampled area. Some households have up to 30 trees. The villagers harvest fruits, medicine, fodder and occasionally firewood and charcoal from jackfruit trees. Most of the fruits are consumed at home and some are sold in local markets

Plate 6.3 Fruiting jackfruit tree (*Artocarpus heterophyllus*)

Jackfruit trees are widespread in the study area, since this fruit is a major source of food during drought periods when other crops have failed. During such periods, the people have one hot meal a day and the mid-day meal usually consists of jackfruit fruit. The tree is also widely used as shade or support for climbing crops such as passion fruit, which provide a substantial part of their yearly income from sales. Every household was found to own a jackfruit tree. They take care of it 'like a family member' or as 'precious livestock'. The villagers consider jackfruit as *Muzadde* (like a mother) because of its various uses in their daily live and as their major substitute for lunch during food scarce times.

'We feel that it is our obligation to plant fruit trees in both the compounds and the home gardens because it is our responsibility to provide food for our families.'

'We eat jackfruit for lunch during times of food scarcity.'

'The men are more interested in fruit for sale and not fruit for home consumption Spontaneous statements from women during a group discussion.'

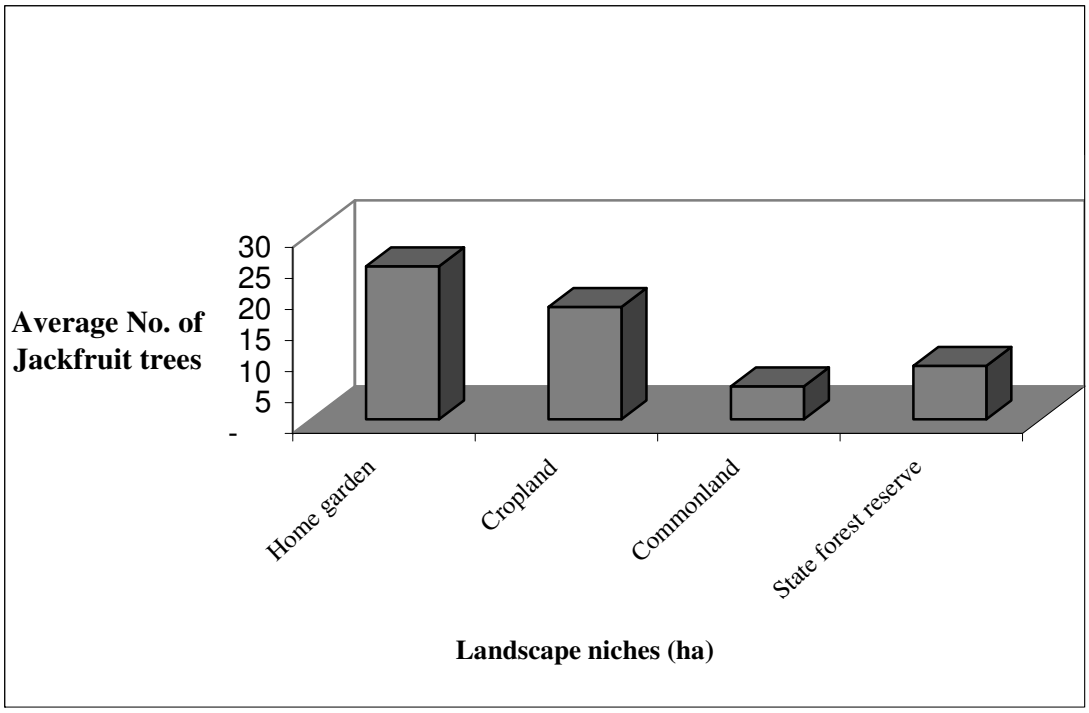


Figure 6.5 Distribution of jackfruit trees in the local landscape

6.4.3 GENDERED USE OF JACKFRUIT

In the study area, the jackfruit tree has multiple uses, which are differentiated by sex of the user, as presented in Table 6.3 and Figure 6.6.

Although the trunk of jackfruit trees can be used for timber, charcoal production, and to make agricultural tools, none of the respondents reported ever producing timber from the trees. Men periodically cut the branches and sell them for firewood. Some of the cut branches are given to women to use for firewood in the household. The smaller branches are also cut and used to make handles for agricultural tools such as hoes and axes. Men reported using jackfruit trees to support other plants, especially passion fruit. Women believe that the leaves prevent illness related to pregnancy. The women crush fresh leaves, mix them with other herbs, and add a lot of cold water. This concoction is applied to pregnant women as an early morning shower to prevent morning sickness. The women use the leaves to wash their hands to remove sap after peeling green banana. The fresh fruit is eaten and some fruit is sold in local markets, and the seeds are eaten after roasting. The fruit rind is fed to cattle.

Table 6.3 Gender differentiated uses of *Artocarpus heterophyllus*

Use	*Sex of user*	
	Female	*Male*
Medicine Fresh leaves are crushed and mixed with other herbs and used to prevent illnesses associated with pregnancy	X	-
Fodder The rind of the fruit is fed to cattle that are tethered near the homestead	X	-
Fuelwood Branches and twigs are used for firewood Branches are used to make charcoal	X -	X X
Soap The leaves are used to remove sap from hands	X	-
Agricultural tools Branches are used to make hoe and axe handles	-	X
Food Fruit is eaten fresh Seeds are roasted and eaten	X X	X X
Support for climbing plants (passion fruit)	-	X
Timber from the trunk	-	-

X= Used - = Not used

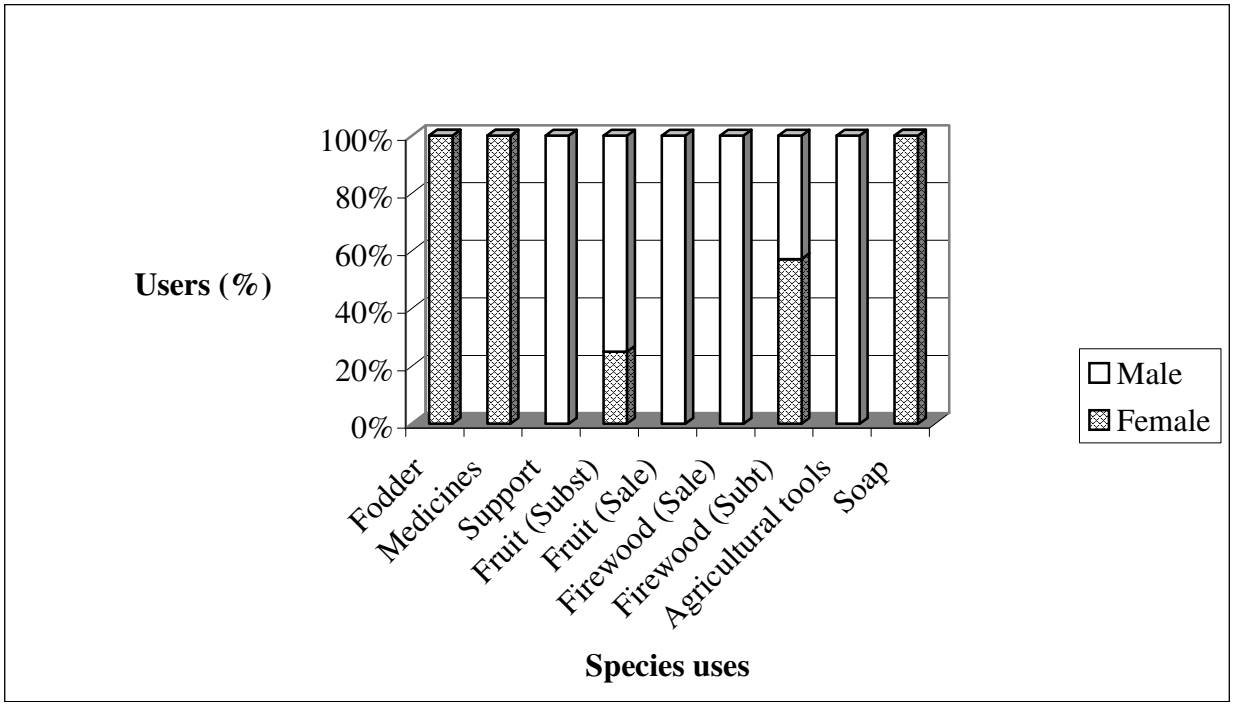


Figure 6.6 Use of jackfruit by sex

Subsistence fruit (26%) and subsistence firewood (23%) are found to be the predominant uses for Artocarpus heterophyllus in the study area. Figure 6.6 shows that men were the main harvesters of fruit from jackfruit trees and were the only ones

harvesting fruit and firewood for sale. The men usually send their sons or other boys in their households to the roadside to sell the fruit. Also, the marketing of the fruit is very much affected by its perishability and the fact that villagers do not process it. On average, less than 30 percent of the sampled households sell the fruit, and these households sell less than 20 percent of their harvest per year. On average, a jackfruit sells for between UG.Shs. 500-1,000 (less than US $ 0.50), depending on its size. According to informants, the total annual earnings from jackfruit in the sampled households do not usually exceed UG.Shs. 100.000 (US $ 50). Also, only men reported using the tree for agricultural tools and to support other crops.

Women, on the other hand, were the only ones who use the tree and its products for medicine, fodder and as soap. None of the women respondents reported participating in the sale of fruit from the jackfruit trees. Also, women did not report any involvement in the sale of firewood. This could be because firewood for sale requires branch-cutting rights, which are exclusive to the men who own the trees.

Although subsistence-related activities are generally culturally defined as women's activities, men in the study area were found to be actively involved in the production of firewood and fruit for subsistence use. The proportions of respondents that use or harvest the products from jackfruit trees located in various landscape niches are presented in Figure 6.7.

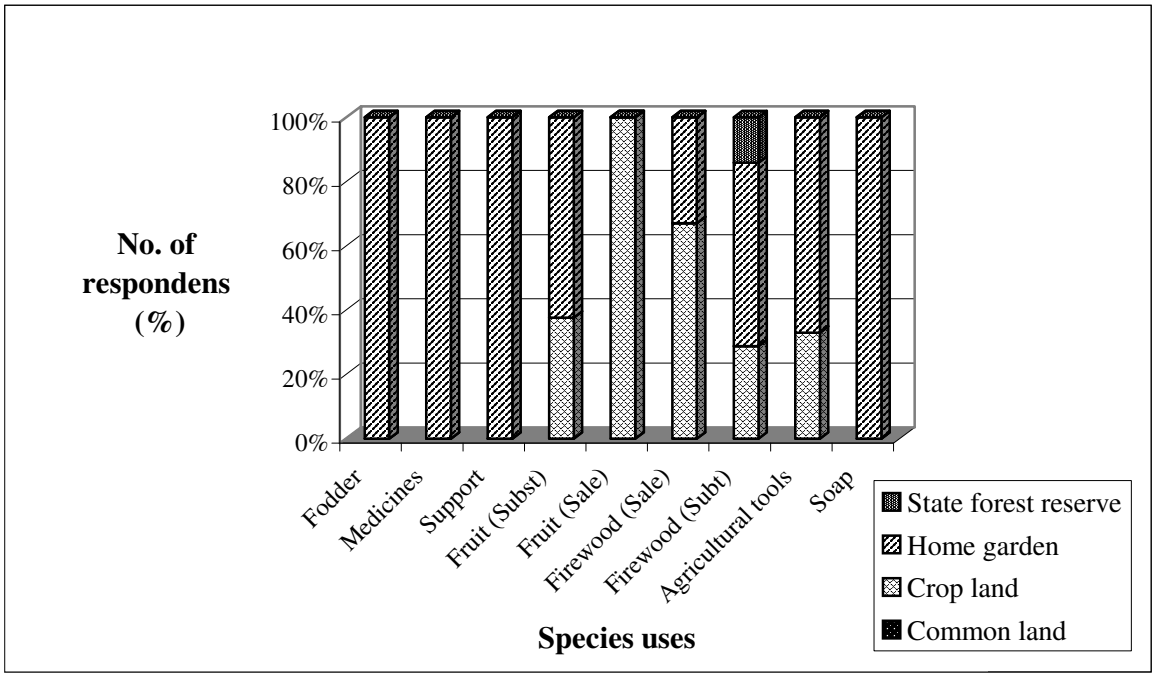


Figure 6.7 Proportion of jackfruit tree uses in the various landscape niches

Generally the use or harvest pattern, when considering all uses, closely follows the distribution pattern of the trees in the different landscape niches. However, when considering specific uses and their location, there were a few exceptions. For instance, although the majority of the jackfruit trees occur in home gardens, the harvesting of fruit for sale was only reported in the croplands. All harvesting for fodder, medicines,

soap, as well as use to support other plants were only reported in the home gardens. Also, subsistence firewood was the only jackfruit tree use reported for common lands.

The uses of the different landscape spaces disaggregated by sex are presented in Figure 6.8 below. The figure shows that over 80 percent of the male respondents use or harvest various jackfruit tree products from croplands. However, more women (60%) use jackfruit trees located in home gardens. Also, women were the only ones that reported use of the forest reserve for gathering fallen jackfruit trees branches for firewood. This is because women are *de jure* allowed to collect dead and dry wood for firewood from state forests.

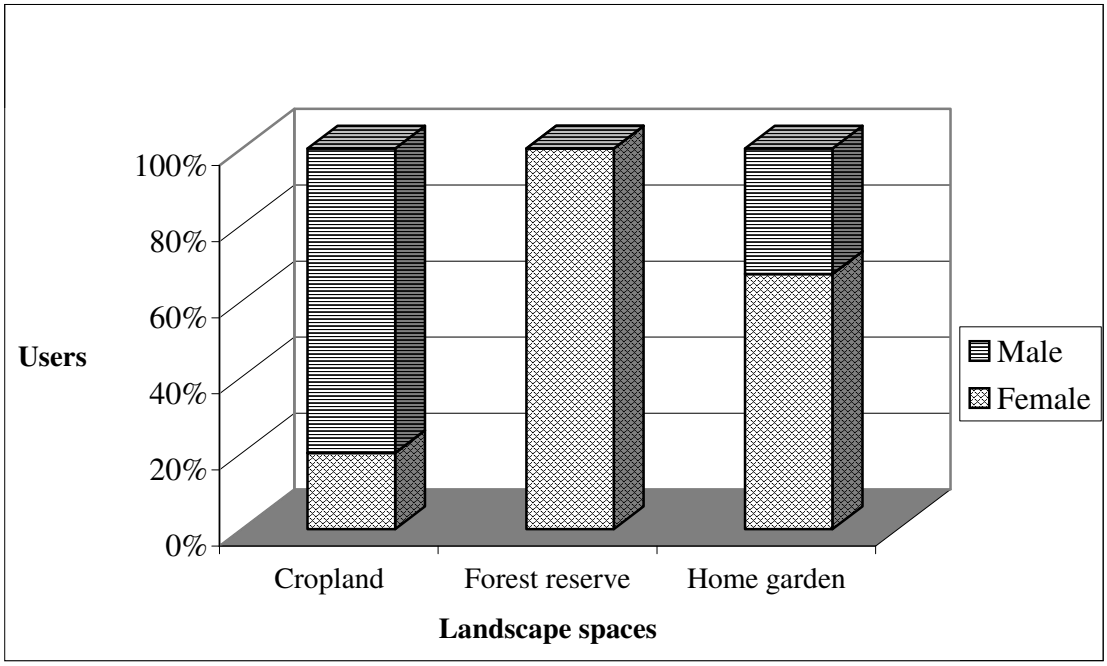


Figure 6.8 Gendered use of jackfruit in different landscape niches

It can therefore be generally concluded that jackfruit trees located in different landscape niches are used differently by men and women. However, even where the locations and uses are similar for both men and women, as in the case of fruit and firewood uses, differences still arise in the purpose; men harvest both for sale and subsistence, while women harvest only for subsistence use. This means that harvesting and use rights are not only related to tree and land tenure, but also to the gender division of labour and responsibilities at household level.

6.4.4 GENDERED RIGHTS TO HARVEST AND USE JACKFRUIT TREES

As already discussed for the fig tree, the analysis of the use of jackfruit trees emphasises the many exceptions to the traditional norms of tree use and gathering rights in the study area (see Table 6.4).

Table 6.4 Who can harvest and use what and where- *Artocarpus heterophyllus*

Who	*Home gardens*		*Cropland*		*Forest land*
	Own Consumption	*Sale*	*Own Consumption*	*Sale*	*Own Consumption*
Male head of household	Fruit Branches	Fruit Branches	Fruit Branches	Fruit Branches	X
Female head of household	Fruit Fallen twigs Leaves	X	Fruit Fallen twigs Leaves	X	Fruit Fallen twigs Leaves
Household members	Fruit Fallen twigs Leaves	X	Fruit Fallen twigs Leaves	X	Fallen twigs Leaves
Close Kin	Fruit Fallen twigs Leaves	X	X	X	X
Distant Kin	Fruit Leaves	X	X	X	X
Non-kin (Friends)	Fruit Fallen twigs Leaves	X	X	X	Fruit Fallen twigs Leaves
Others (Non-kin)	X	X	X	X	Fruit Fallen twigs Leaves

It was noted from group discussions that, because it is only men who can make decisions to cut a tree or its limbs, wives require permission from their husbands to harvest firewood from jackfruit trees if this involves cutting part of the tree, even when it is meant for domestic use.

Men or young boys who climb the trees to gather the fruit are the main fruit harvesters. In this community, it is socially unacceptable for women to climb trees. This taboo originates from the time when people did not have appropriate clothing. Women used to wrap cloth around their waists and chests and did not use underwear. This meant that they would expose their private parts if they climbed trees. Also a woman's beauty was determined by the number of scars on her body. The more the scars, the less the she was considered to be beautiful. Climbing trees is a rough exercise and can cut the body and cause scar formation. However, for short trees, climbing may not be necessary, and therefore women and especially girls cut the ripe fruits off the tree stem.

Permission for members of the household to harvest fruit for consumption from either home gardens or cropland can be given by either the husband or the wife when the quantities to be harvested are very small and not for sale. If the fruit that is harvested is destined for sale, permission has to be obtained from the male head of household who is the tree owner. Without permission, non-owners within the household as well as friends and relatives from outside the household can only harvest what they can consume on the spot; none of the products may be carried away without the owner's

permission. Non-household members can obtain permission from the wife to harvest fruit from the home gardens for on-site consumption or to carry away if quantities harvested are very small. Women, however, rarely give permission to non-household members for any harvesting in the cropland. Even with permission, non-household members can only take away 'a little'. For jackfruit, this would be not more than one fruit. The frequency of harvest also depends on how closely related the intending harvester is to the owner of the tree. The majority of the respondents stated that kin may be allowed to harvest as frequently as once every two weeks whereas non-kin may harvest the fruit once in a season. Women and men in the same household can collect green leaves for medicine and use rind for feeding cattle. But outsiders can collect leaves for medicinal purposes without asking permission. '*Owning jackfruit trees in your garden is like having food in the granary.*' (Spontaneous reaction by a woman during one of the group discussions.)

The tree owners' close relatives, distant relatives, and friends receive some fruit after harvest on a reciprocal basis to ensure that the donor in turn also receives fruit when others harvest. It therefore becomes an obligation for the family to give away the easily perishable fruit. This practice ensures that the fruit is not wasted and that most households whose trees are not in fruit are assured of fruit during the time when others are harvesting. Jackfruit trees fruit at different times, depending on the age of the trees. There can, therefore, be fruit all year round in the villages.

> *'Food not shared is no food to be proud of. For others to know that you had a good yield, you must share what you produce. It is through sharing that you receive in return and the more you share the more you are respected by others'.* Woman, 50 years.

6.5 *PHOENIX RECLINATA* (PALM TREE)

Palm trees are one of the wetland resources in Uganda that have traditionally been utilised by for construction, crafts, furniture and fish traps. Palm leaves are an important material in mat making, which is traditionally culturally important for women in Buganda. As a Ganda tradition, women sit on mats that they themselves must make. Thus, Ganda women must find time to make mats for use in the household, and this is how most of the women traditionally spent their leisure time. For this purpose, the palm became a very important source of materials in the region. However, the crafts that were originally meant for domestic use have found a market and increasingly both women and men are selling palm crafts in local markets. Although in the study region trees are associated with male privilege, palm trees are one of the tree species that are associated with women.

6.5.1 SPECIES DESCRIPTION

Phoenix reclinata (*Kisansa; Lukoma*; Palm tree; Senegal Date Palm) is has a single trunk without branches that is slender and often bent over ('reclinata'). A mature palm trunk, covered in very rough leaf scars, may attain a height of 10 meters and a breadth of 25 cm in diameter. The leaves are about 2.7 cm long and grow out from a fibrous

leaf sheath forming a crown of about 25 leaves that arch. The leaflets are narrow and folded, with a bright shiny green colour. They are about 30 cm long, stiff, and pointed. Male and female flowers appear on different trees. The fruits are yellow-brown, about two cm wide, and are edible.

This palm is indigenous to Africa and is found throughout the tropical region of the continent. It grows in humid lowland woodlands, in highland forests, and on open rocky hillsides. The palms commonly grow in dense clumps beside swamps and rivers.

6.5.2 LOCATION AND DISTRIBUTION OF PALM TREES

Based on the information obtained from the surveyed households and the data from the plots made along various transects, palm trees were found to mainly occur in state forest reserves (70%). Some palm trees were found on common lands (28%) and very few appeared in home gardens (2%). No palm trees were found to occur in croplands. Figure 6.9 presents the average number of palm trees recorded in the various landscape spaces.

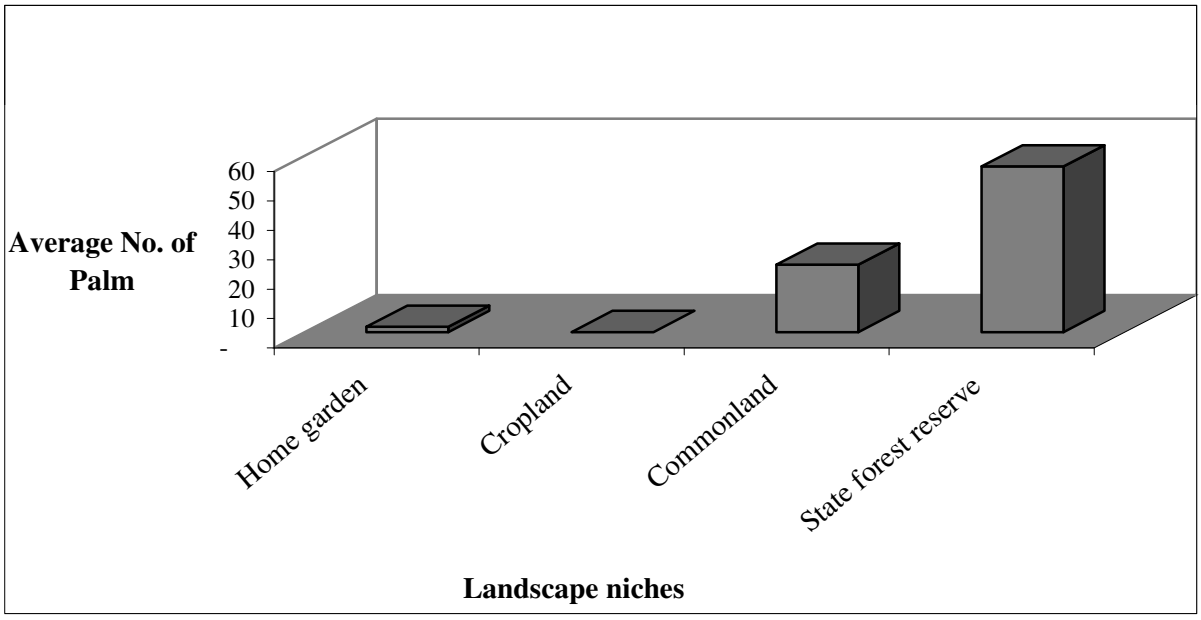


Figure 6.9 Distribution of palm trees in the local landscape

6.5.3 GENDERED USE OF PHOENIX RECLINATA

Phoenix reclinata is a multipurpose tree species that is commonly used by the people in the research areas. Based on personal observations, informal interviews with villagers, group discussions about the species and the household survey, several uses of palm trees were reported and are presented in Table 6.5 below. The use categories in the table were adopted and modified from Prance *et al.* (1987) and Kinnaird (1992): (a) food and beverages, (b) construction materials, (c) technology, (d) remedy, (e) commerce and (f) other.

Table 6.5 Gender differentiated use of *Phoenix reclinata*

Use	*Sex of user*	
	Female	*Male*
Food and beverages		
Fruit and seed (not very common)	X	-
Construction materials		
Trunk poles for building latrines and small bridges	-	X
Split trunks for making doors, windows and roof posts	-	X
Leaf fronds used between poles to construct walls in mud houses	-	X
Leaves used in roofing	-	X
Leaf fronds used to make latrines	-	X
Fencing posts		
Technology	-	X
Leaf fronds used to make brooms	X	-
Leaf fronds used to make fish traps (*Emigomo*)	-	X
Commerce		
Leaves used to make sitting, sleeping and decorative mats, as well as baskets.	X	-
Leaf fronds are used to make floor mats	X	-
Other		
Trunk is used to make charcoal	-	X

X= Used - = Not used

Each of the participating respondents was asked what they use palm trees for and their responses are presented in Figure 6.10.

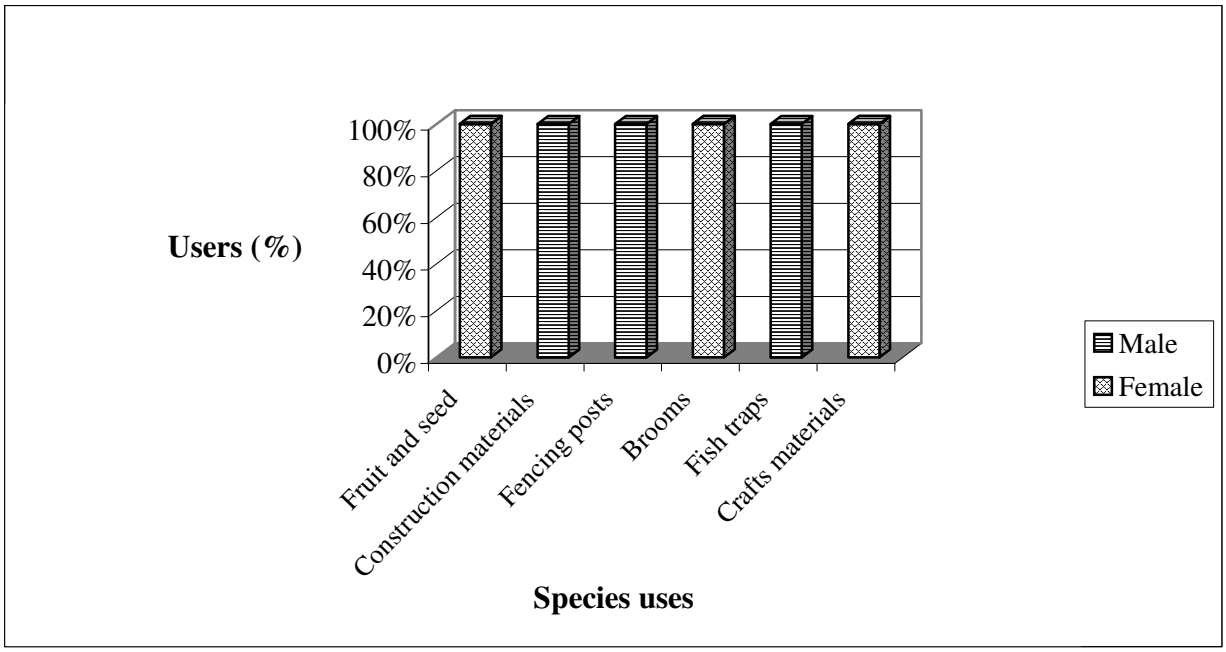


Figure 6.10 Use of palm tree by sex

People's use of palm tree fruit and seeds is very rare in the area. Only one respondent reported to have sometimes gathered the fruit, but not consistently. Although many men reported many construction-related uses of palm trees, very few were found to be actively involved in the use of palm trees for construction purpose.

The predominant uses for palm trees were crafts material uses (42%), which include sitting, sleeping and decorative mats as well baskets; and construction materials (26%), which mainly include poles for making latrines, leaf fronds for constructing mud houses, and leaves for making latrine and bathroom doors.

The use of palm trees is highly gender-differentiated which in part reflects different roles within the households. Only men reported using palm trees for construction materials, while all those who reported using palm trees for crafts materials were women. The women explained that about 70 percent of the crafts made from these materials are used in their households, while the remaining 30 percent are sold to generate income. The women further explained that they have to be involved in income-generating activities because their husbands' income is not enough to meet all household requirements. They also explained that, even when their husbands manage to cover all household needs, there would be no money left for the women to cover their 'personal needs'. The 'personal needs' were reported to include things like clothes and cosmetics. Some women said that their husbands do not regard women's personal needs as important and therefore never spend money on them.

The male-dominated use of construction materials conforms to men's social obligation to provide shelter for their households. How decent the shelter is usually depends on the man's means and has been locally used to reflect the wealth status of a household. The women, on the other hand, are expected to provide the basic craft furnishings in the household. This explains why it is only the women who are involved in making these types of crafts.

In this community, craft-making is considered to be a female activity and any man getting involved is denegrated, since craft-making from palms is considered to be a low status activity. In the past, while men made bark cloth from fig trees, women were busy making mats, baskets, and other handicrafts. It was therefore only the men without fig trees and the very poor and unskilled that would engage in craft-making. Also, the mats and baskets made by women were only used in households and were also exchanged as gifts between relatives and friends, which was women's responsibility. None of the crafts made were ever sold to generate income since, if women sold crafts to obtain money, this meant that their husbands were unable to meet his household's needs, which undermined men's social position. Mainly men were involved in income-generating activities, but craft-making from palms was not one of them. It was, however, reported that some men, specifically those from 'poor' households, have lately engaged in palm leaf harvesting to sell to women who make crafts. It was also reported that some women contract poor men to harvest palm leaves for them in exchange for food. Even then, none of the respondents said that men were involved in mat or basket making from palm tree products.

It was generally expected that the pattern of palm tree use would follow the distribution pattern of the species in the various landscape niches. Figure 6.11 presents the proportion of respondents that use or harvest the species from various landscape spaces, which was compared with the distribution of palm trees in the different landscape spaces.

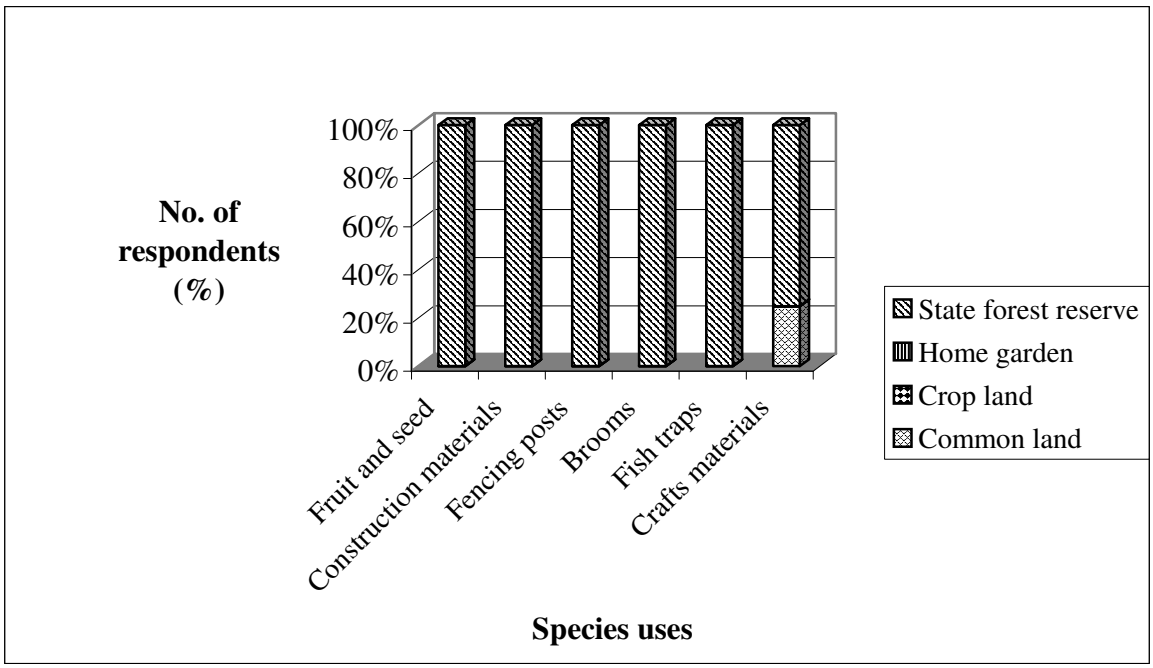


Figure 6.11 Proportion of palm uses in various landscape niches

As anticipated, the palm use or harvest pattern, considering all uses, closely follows the pattern of distribution of the palm trees in the different landscape spaces. The fact that the natural habitat of palm trees is within state forest reserves and women are allowed to use these lands explains why all activities were only reported in forest reserves, with the exception of some materials for crafts making that were harvested from common lands. Further, use patterns by landscape niche and sex are presented in Figure 6.12 below.

Figure 6.12 shows that the level of men's use (43 percent) compared to women (57%) use of palm trees land in state forest reserves is not very different. However, what differ are the uses to which what is harvest is put. All of the respondents who reported using common lands were women and they used them only to harvest palm leaves to make mats.

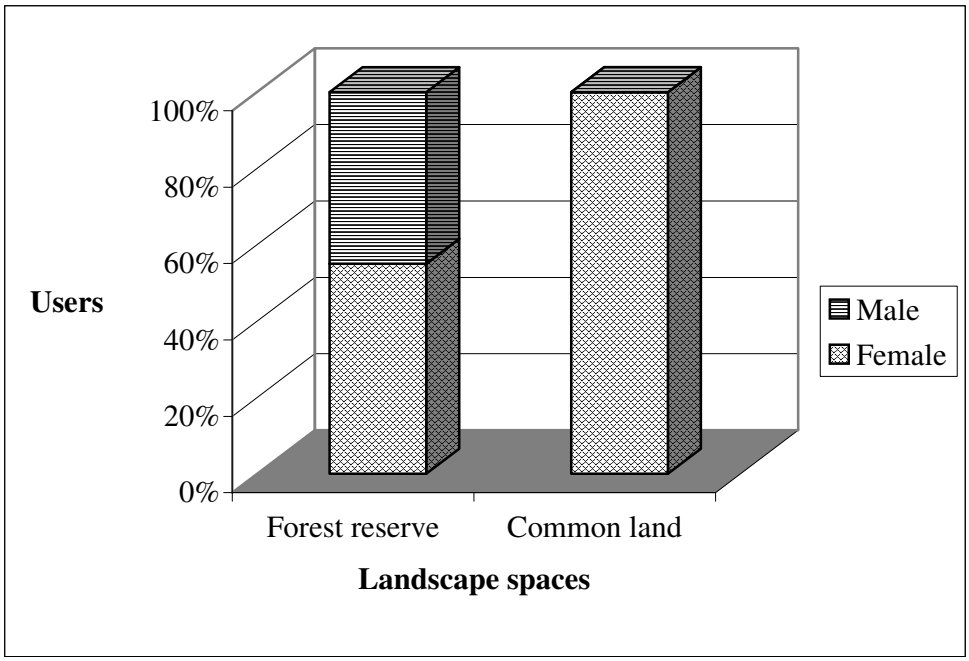


Figure 6.12 Gendered use of palms in different landscapes niches

6.5.4 GENDERED RIGHTS TO HARVEST AND USE PHOENIX RECLINATA

Formal and informal rules exist that govern the exploitation of palm trees both on common land and in state forest reserves. In the past, before there was a high demand for palm leaves, women did not require permission to harvest from the state forest reserves since formal rules gave women free access to non-timber forest products. This is slowly changing as the number of men involved in harvesting palm products for commercial use is increasing. Lately, the Forest Department is beginning to restrict palm harvesting activities since it considers the trees to be over-exploited and Phoenix reclinata is listed among the species that urgently need to be protected (Omagor 1999). It was also noted through observation and from discussions with villagers, that with continued reclamation of wetlands for agriculture, palm trees are increasingly scarce in the study area.

Men need to seek permission from Forest Department staff and common land owners to harvest the palm tree products, since it is believed that men's activities relating to palms are for commercial purposes, while women are considered to be using palms for domestic purposes. Despite this rule, the men reported that they never seek permission to harvest palm products from the state forest reserve, hence their involvement is illegal. On the other hand, although women's activities are perceived to be subsistence-oriented, they too are involved in commercial transactions especially for the products made out of palm tree materials.

Informally, the use of palm trees is governed by various taboos and beliefs. It is a common belief that anyone visiting the forest should harvest only one product at a time and that, if more than one product is harvested, the harvester loses their way in the forest and their life is taken over by forest spirits, so that they never return home. This

belief is reported to have kept a check of the quantity of products harvested from the forest.

Also, women are not allowed to go into the forest before sunrise and after sunset. It is believed that the forest spirits are active during these times and, if seen by women, the spirits will render them infertile. It is also believed that palm harvesting has to be done when the moon is full. It is believed that the young palm trees harbour the spirits of the marshes and wetlands, which come out of the palm when the leaves mature. Local people know that the palm leaves are ready for harvest when maggot-like insects emerge out of the stalk of the palm leaves, indicating that the spirits have left the mature plant. During this time, the leaflets have fully opened and appear pale yellow with green edges. When this colour appears, the leaves are ready to harvest. It is believed that, if palm leaves are harvested before this period, the crafts that are made from them cannot last if used in the household and cannot be sold or, if sold, do not obtain a good price since the spirits were not given time to leave the plant.

The palm tree is believed to harbour the spirits that protect wetlands and marshlands, hence the need to protect the tree. It is believed that anyone who tries to cut a palm will be 'swallowed' by the wetland. The fear of being attacked by spirits means that women go in groups of about four to harvest palm leaves from the common lands and state forest reserve. However, men go individually into the forest to harvest palm products.

6.6 *CLEOME GYNANDRA* (CAT'S WHISKERS; *JOBYO)*

In Uganda, cat's whiskers is a semi-cultivated popular tropical leafy vegetable. However it also grows as a weed in many tropical countries. This vegetable is widely used in rural areas as a relish and is believed to have a high level of nutrients. The plant is also believed to have medicinal properties as well as insecticidal properties. In Buganda, the production of food supplements and complements such as green vegetables is a women responsibility. In the study region also, most of the non-tree plants that grow in the home gardens are commonly referred to as 'women's' plants since they are considered as 'small' or 'minor plants' meant for domestic purposes, a domain commonly perceived to be female. The fact that the vegetable is not a tree and was never sold on the local market qualified it to be a woman's plant. However, the plant is currently being sold in local markets and it is mainly men who are involved, despite the fact that it is a 'woman's' plant.

6.6.1 SPECIES DESCRIPTION

Chweya and Mnzava (1997:11) provide a description of Cleome gynandra *L.* that can be summarised a follows: The cat's whiskers *(*Cleome gynandra L./Gynandropsis gynandra L.) is an erect, herbaceous annual herb. It branches enormously and the whole plant appears to be rather stout. The herb is usually 0.5-1.0 m tall, but can grow up to 1.5 m in height depending on environmental conditions. Its stem and leaf petioles are thickly glandular and it has a long taproot with a few secondary roots. The herb exhibits variable pigmentations, from green to pink or violet to purple. Leaves are alternate and each leaf has on average five leaflets, which are pinnately dissected and

sessile. They are usually 2-10 cm long and 2-4 cm wide and are sparsely hairy. The petioles are 3-23 cm long, the cotyledon has single leaflets, and leaves are oppositely arranged on the stem. Inflorescence is usually up to 30 cm in length. The flowers have long pedicels, which arise singly in the axils of small sessile and trifoliate-to-simple bracts. The flowers on average measure 2 cm in diameter and have four sepals, four narrow clawed petals, and six stamens with long purple filaments, arising from an elongated receptacle. The dehiscent fruit is a spindle-shaped capsule measuring up to 12 cm long and 8-10 mm wide with a long stalk. The capsules are green, turn yellow when ripe, and dehisce easily when dry to release the small seeds. They are rough and greyish-to-black in colour. Each seed on average measures 1mm in diameter.

This species is mainly found in the tropics and subtropics and is one of the many indigenous vegetables (often referred to as 'traditional' vegetables) that grow as weeds in most tropical countries. However, cat's whiskers is semi-cultivated in many parts of sub-Saharan Africa, especially in most countries in southern and eastern Africa, specifically Uganda (Rubaihayo 1995; Chweya and Mnzava 1997).

Cat's whiskers is perishable and low yielding, and its value as a commercial crop has not been explored. This traditional vegetable, like many others, has been under-rated in comparison to introduced exotic vegetables (Rubaihayo 1995), which is probably the reason that mainly women are involved in its propagation mainly for subsistence. The majority of resource-poor farmers cannot rely on exotic vegetables from local markets because of the high costs of procurement and production. They depend on traditional vegetables as a regular side dish or to make sauces that complement the staple food crops such as maize, cassava, sweet potatoes, banana, millet, sorghum and yams (Rubaihayo 1994).

Traditional leafy vegetables often have high nutritional value. They contain vitamins A, B, and C, proteins and minerals such as iron, calcium, phosphorus, iodine and fluorine in varying amounts depending on the proportions and the quantities eaten. Traditional vegetables often meet the major nutritional needs especially of children, the sick, the elderly, and expectant and lactating mothers in rural areas (FAO 1988). Traditional vegetables are produced throughout the developing world, mainly in home gardens (Rubaihayo 2002). They are normally made up of very small plots of usually pure stands within the home garden. The vegetables are produced using compost from all the waste products from the household kitchen. Although the contributions of these vegetable gardens to family welfare are supplementary in nature, such modest contributions are very important to resource-poor rural households.

The poor and especially women often have access to only marginal land and the majority have very small pieces of land. Intensive home gardening can turn this land into a productive source of food by growing the traditional vegetables that are already locally adopted. Cat's whiskers is one of the very few traditional vegetables that are both semi-cultivated and still being collected from the wild or fields and forest fringes. In some of the ecosystems they are regarded as weeds and are often weeded (Rubaihayo 1994). Cat's whiskers withstand dry seasons, although at a reduced growth

rate (Rubaihayo 1992) thus providing the households with the required food supplements during food scarce periods.

Plate 6.4 Flowering cat's whiskers (*Cleome gynandra*)

6.6.2 LOCATION AND DISTRIBUTION OF CLEOME GYNANDRA

To obtain an estimate of the availability and distribution of the leafy green vegetable in the different landscape niches, a number of locations were surveyed. Every respondent was asked to lead me to the locations where they mainly harvest the vegetable. At this location, the size of the vegetable garden was measured and recorded. From the centre of every vegetable garden, a plot of 20 m radius was mapped and all Cleome sp. gardens found in the plot area were measured and recorded. All of the measured areas were added to obtain the area covered by the species in each plot. The area obtained was then computed for species coverage in one hectare.

Based on the information obtained from the surveyed plots, Cleome sp. was found to mainly occur in scattered plots within home gardens (0.55% per ha) and on in state forest reserves (0.33% per ha). The common lands had only 0.12 percent per ha cover of the vegetable species. Only one respondent was found to have the vegetable (totalling less than $0.5m^2$) on cropland and there it was regarded as a weed (Figure 6.13).

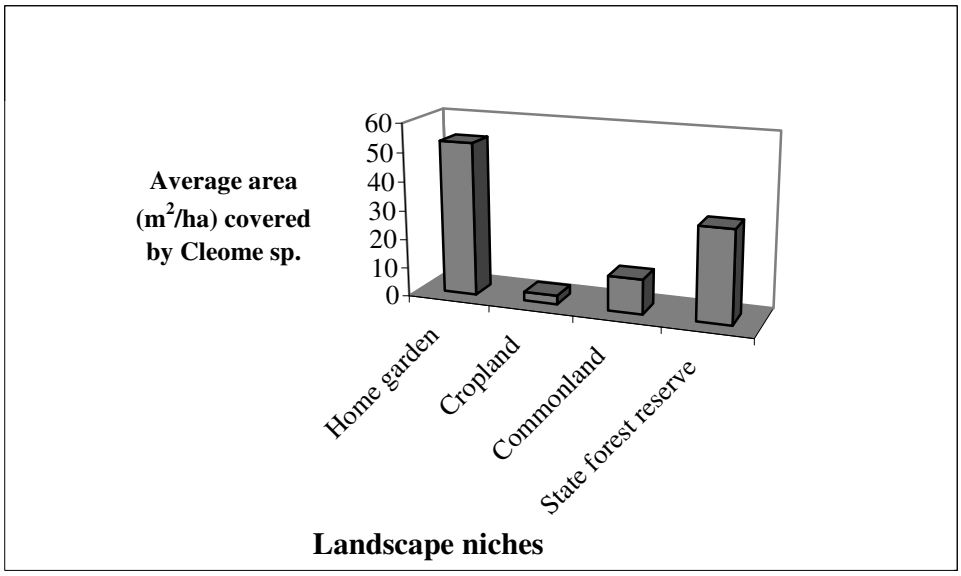


Figure 6.13 Distribution of Cleom gynandra in various landscape niches

6.6.3 GENDERED USE OF CLEOME GYNANDRA

Cat's whiskers is used by both men and women mainly as a vegetable and is considered to be one of the most important food supplements in the study area. The herb is also used in the treatment and prevention of several diseases (Figure 6.14).

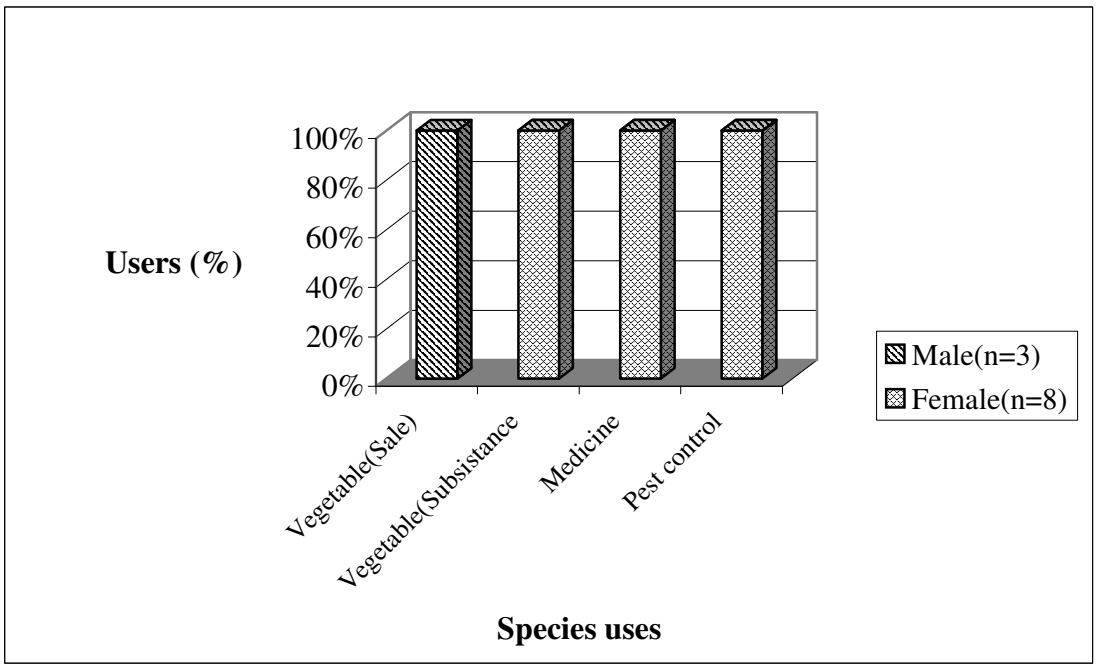


Figure 6.14 Cleome gynandra uses by sex

The women respondents reported using Cleome sp only for subsistence-related uses. However, men only reported selling the vegetable. This reflects a gender division of roles in the household where women ensure that the household is food secure while the men seek cash income to provide household necessities that cannot be produced by the household. The involvement of men in vegetable growing, which is socially defined as

a female activity, reflects the level of male diversification of income-generating activities.

The women stated that the vegetable has high nutritional content and therefore is very important in their diets. This conforms to scientific studies carried out on the species (Chweya and Mnzava 1997). To investigate the villagers' perception of how important and nutritious the vegetable is, Cleome sp. was compared with three other common vegetables in the area through a pair-wise ranking exercise. This exercise was first done with a group of women and, for each of them, a ranking matrix was generated. The men respondents declined to participate because they said that this was a female domain, which they knew very little about. However, they participated in the ranking of the vegetables for taste and preference.

Table 6.6 presents the aggregated pair-wise ranking matrix for all of the women respondents. The respondents were asked to choose one of the paired vegetables based on how nutritious they perceived the vegetable to be. In this context, 'nutritious' was interpreted to mean food content that improves health or is good for one's health. The vegetables ranked included green Amaranthus sp. *(Doodo),* purple Amaranthus sp. *(Bugga),* Solanum aethiopicum *(Nakati)* and Cleome gynandra *(Jobyo).*

Table 6.6 Women's pair-wise ranking of vegetable nutrient content

	Doodo (D)	*Bugg*a (B)	*Nakat*i (N)	*Jobyo (J)*	*Score*	*Rank*
Doodo (D)	X	B	N	J	0	4
Bugga (B)	X	X	N	J	1	3
Nakati (N)	X	X	X	N	3	1
Jobyo (J)	X	X	X	X	2	2

All of the women respondents ranked cat's whiskers second to *Nakati,* which was ranked highest by all the respondents. There was one exception where *Bugga* was said to be more nutritious than *Doodo*.

The women were also asked to rank the vegetables for taste (Table 6.7). Each woman was asked to choose one of the paired vegetables whose taste she preferred.

Table 6.7 Women's ranking of the vegetables according to taste

	Doodo (D)	*Bugga (B)*	*Nakati (N)*	*Jobyo (J)*	*Score*	*Rank*
Doodo (D)	X	B	N	J	0	4
Bugga (B)	X	X	N	B	2	2
Nakati (N)	X	X	X	N	3	1
Jobyo (J)	X	X	X	X	1	3

Based on taste, women ranked *Nakati* highest and *Jobyo* third. They said that, although they appreciate the high nutritional value of *Jobyo,* it is not very much liked because of its bitter taste. The women said that, to make it more acceptable, they always mix it with other vegetables or sauces to reduce the bitterness.

The men were also asked to rank the vegetables for taste (Table 6.8). Each man was asked to choose one of the paired vegetables whose taste he preferred. The men ranked *Jobyo* second despite the bitter taste. However, they also said that they preferred the vegetable mixed with other vegetable or sauces.

Table 6.8 Men's ranking of the vegetables according to taste

	Doodo (D)	*Bugga (B)*	*Nakati (N)*	*Jobyo (J)*	*Score*	*Rank*
Doodo (D)	X	B	N	J	0	4
Bugga (B)	X	X	N	J	1	3
Nakati (N)	X	X	X	N	3	1
Jobyo (J)	X	X	X	X	2	2

The women reported that they harvest or gather the fresh tender leaves, young shoots and flowers, wrap them in banana leaves, and steam them for less than ten minutes. They said that steaming the vegetable for longer than 20 minutes reduces its nutrient value although it makes the vegetable less bitter. They also said that this vegetable is rarely boiled as they believe that most of the nutrients will be lost. The women said that they mostly mix the vegetable with *doodo* and *bugga* and serve it as a side dish, or sometimes chop it and add it to other sauces such as groundnut paste and serve it as a main sauce with steamed green banana (plantain), the main staple food.

The respondents also reported that cat's whiskers has medicinal properties. The leaves of the plant are believed to cure ailments such as headaches, stomach-aches, and uterine pains, aid childbirth, heal eye and skin infections, and counter malnutrition in both children and adults. It is also believed that regular consumption of the vegetable prevents one from contracting malaria. For most of the ailments, the vegetable is crushed and either warm or cold water and other herbs are added to make a concoction that is usually ingested. The vegetable is also sometimes crushed and boiled in water to produce a concoction that treats some ailments. The respondents were very hesitant to give the details about the concoctions and the ailments they cure as they regarded that to be secret. However, they did say that, for aiding childbirth, the leaves and roots of the vegetable are boiled in water with some other herbs and the resulting concoction is given to the expectant women to drink and some of the concoction is cooled for bathing. This was believed to increase contractions. However, the women also said that they do not recommend feeding the vegetable to breast-feeding women as it reduces breast milk production. This, however, contradicts other studies (Chweya and Mnzava 1997) that reported increased breast milk production in lactating women from eating the vegetable. The respondents also reported that the vegetable leaves are steamed together with Solanum indicum *(Katunkuma)* for about 15 minutes, then mashed. Cold water is added and the solution is ingested to treat high blood pressure. Chweya and Mnzava's study also reports some of these remedies (1997).

Two women respondents reported that they plant the vegetable near their cattle kraals to repel ticks. One of them said that, about six years ago, her friend living in a distant village told her to plant the vegetable around the kraal to prevent ticks from attacking her two cows. She said it was quite effective. She planted the vegetable as instructed

and said that she noticed a reduction in tick infections in the animals. Chweya and Mnzava also report that Cleome gynandra has been observed to have insecticidal and repellent characteristics (1997).

Figure 6.15 shows the proportion of respondents that use or harvest the species from various landscape niches.

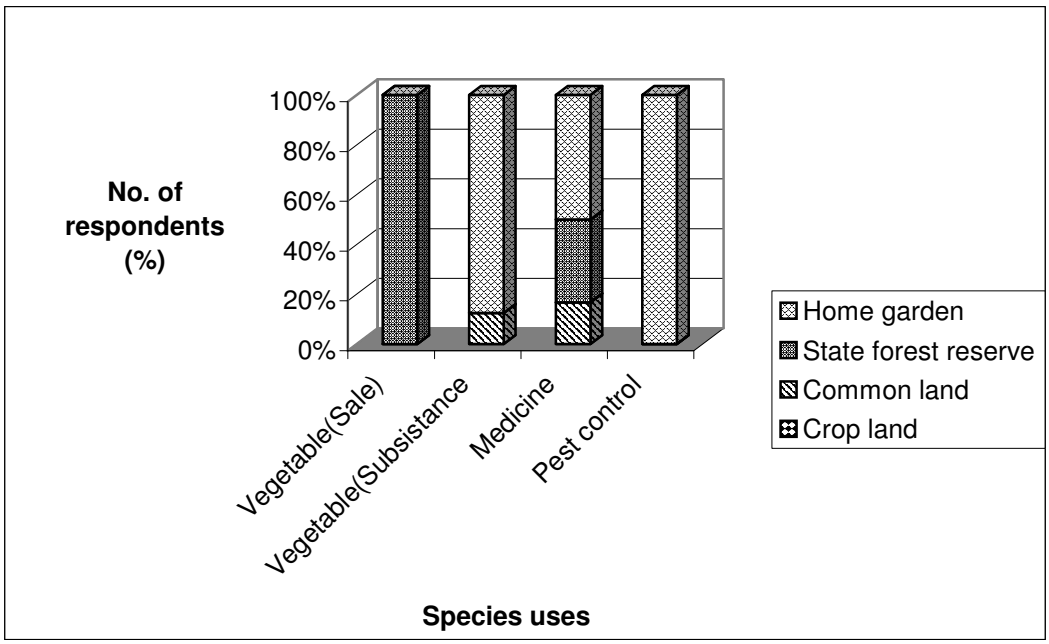


Figure 6.15 Proportion of Cleome gynandra uses in various landscape niches

Generally, the use or harvest pattern, when considering all uses, closely follows the distribution pattern of the vegetable in the different landscape niches. However, when considering specific uses and their location, there were a few exceptions. For instance, all harvesting of the vegetable for sale occurs in the state forest reserve despite the fact that it is illegal to harvest any product for sale from this niche.

Harvesting for medicinal purposes was one of the activities carried out in all of the landscape niches where the vegetable occurs. The women said that the vegetable harvested from the forest is more effective for medicinal purposes than that harvested from home gardens. They also reported that the vegetables harvested from the 'wild' forest and common lands have a more bitter taste than those harvested from home gardens.

Figure 6.16 shows the harvest locations for men and women. All men harvest only from state forest reserves, while women harvest from all of the landscape niches, although predominantly from home gardens.

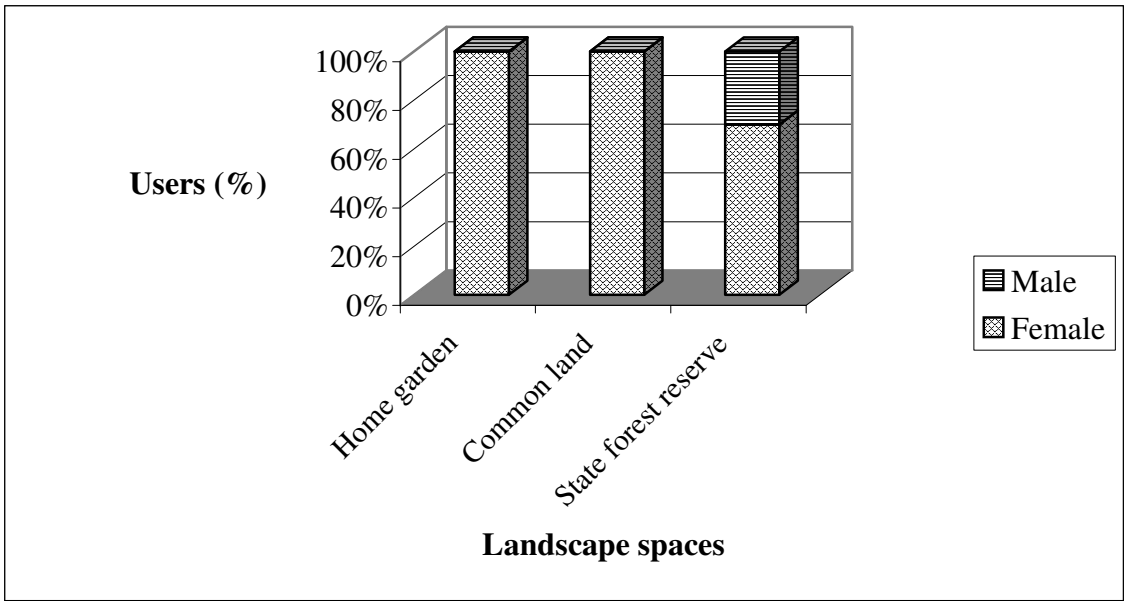


Figure 6.16 Gendered use of Cleome gynandra in different landscape niches

6.6.4 GENDERED RIGHTS TO HARVEST AND USE CAT'S WHISKERS

It was noted from both group discussions and individual interviews that, because it is only women who make decisions regarding harvest of vegetables and specifically cat's whiskers from the home gardens, all other persons require permission from the women garden managers to harvest any vegetables. The women said that it is regarded a crime and a disgrace for any woman to be caught 'stealing' vegetables from another's garden. It is usually the female head of household that is in charge of harvesting the vegetables. The female head of household usually goes with girls to harvest. According to the respondents, this is how girls learn about vegetable growing and harvesting. Members of the household, especially girls older than 15 years, can harvest the vegetable when sent by their parents. Those younger than 15 years are considered as destructive in their harvesting activities and therefore are not normally sent to harvest the vegetable.

Women's home gardens are regarded as private property and anybody wanting to harvest for any use from what is not their property is expected to obtain permission. There are, however, some notable exceptions. For instance, elderly women, usually those above 65 years, can harvest for consumption from any home garden in the village without restrictions. When asked why there are no restrictions on elderly women's harvesting rights, Mrs. Katumba, 38 years, said:

> *'We get all our vegetable seeds from the elderly women, therefore all vegetables belong to them. They even have the power to curse vegetable yields if you don't let them harvest.'*

It was also stated that anyone could harvest a handful of the vegetable from another's garden as long as the vegetable is meant to feed a sick person, since it is then regarded as a medication. When the vegetable is used for food, kin are allowed to harvest enough for one meal without permission as long as it does not become routine. Also, if

a request for the vegetable is made from a non-kin member, the vegetable owner would have to harvest the vegetable for the person making the request. In other words, non-kin members cannot harvest the vegetable for themselves, even with permission. No one has permission to sell what is harvested from others' gardens, no matter what the final use.

The respondents reported that there was no enforcement of these norms, but everybody relies on others respecting the norms. None of the respondents reported that a situation had ever arisen that would imply a need to enforce the 'law'; everybody seemed to agree that there is social conformance with the norms.

It is against social norms and therefore considered as disgraceful for men to harvest vegetables in this community. Male heads of households do not have right to harvest vegetables from their wives' home gardens for any use other than for medicinal purposes. Single men (widowers, bachelors, or separated) have to rely on their female relatives to harvest vegetables. However, the commercialisation of the vegetable is changing the norms in that men have started to cultivate cat's whiskers for sale. Even then, the men give their harvest to children and women to sell at the roadside, but the men receive the income thus generated.

The right to harvest vegetables therefore depends not only on the ownership and control of the landscape niche, but also on one's relationship to the owner of the plants, the use to which the product is to be put, and the niche in which the product is located. Table 6.9 presents a summary of who can generally harvest from the specified location and for what purpose.

Table 6.9 Who can harvest and use what and where - *Cleome gynandra*

Who	*Home gardens*		*Forest land*		*Communal lands*	
	Own Consumption	*Sale*	*Own Consumption*	*Sale*	*Own Consumption*	*Sale*
Male HHH	X	X	X	Vegetable	X	X
Female HHH	Vegetable Medicine	X	Vegetable Medicine	X	Vegetable Medicine	X
HH Members	Vegetable Medicine	X	Vegetable Medicine	X	Vegetable Medicine	X
Close Kin	Vegetable Medicine	X	Vegetable Medicine	X	Vegetable Medicine	X
Distant Kin	Medicine	X	Vegetable Medicine	X	Vegetable Medicine	X
Non-kin (Friends)	Medicine	X	Vegetable Medicine	X	Vegetable Medicine	X
Elderly women	Vegetable Medicine	X	Vegetable Medicine	X	Vegetable Medicine	X

6.7 MAJOR FINDINGS ACROSS SPECIES AND SPACES AND GENERAL CONCLUSIONS

Factors that may create significant variation between people's access to plant and tree species and landscape spaces can be understood by analysing local people's subsistence practices with respect to landscapes, which are conditioned in part by land and tree tenure. What is more commonly neglected in such analyses are the gender relations where particularly the gender division of labour and gendered access to resources such as land are expected to influence tree and plant use and management. The research presented in this chapter sought in particular to determine whether, in addition to formal rights to trees, there are *de facto* or informal rights to harvest and use particular tree and plant species and, if so, to whom these rights pertain, and how these rights are related to, or determined by, formal land rights (land ownership and land tenure) and tree tenure (tree ownership), to particular landscape niches in which species are found, and to uses of tree and plant products, including the final destination of such products, such as for own consumption, for household consumption, for exchange, or for sale.

This chapter has presented results on the gendered uses and rights to four selected species in the different landscape niches where they are found. Two general classes of use have been found to be relevant across species in terms of access rights: subsistence-related uses and commercial uses. Further, these uses are associated with gendered norms, the gendered division of labour and social status, which together also determine rights to specific spaces and species within the landscape, which are to a large extent informal, nested and complex.

6.7.1 OWNERSHIP AND ACCESS TO PLANT SPECIES AND SPACES

In general, formal rights to land in the *mailo* system are accorded to men who are absentee owners, who in turn allocate land to peasant tenants whose rights become 'permanent and heritable' (Chapter 4). According to customary law, only men inherit land, however there is however no formal obstacle to women's land purchase, but it does not occur frequently. Tenants pay rent to the owners and have the rights to the land and the tree resources thereon. The right to plant trees and dispose of them is strongly associated with land rights, and hence is strongly associated with males. It would be supposed that the right to harvest and use tree products would be exclusively vested in male tree and landowners. Further, the state owns the forest reserves and places strong restrictions on its use.

However, it was found that informal rights to harvest and use tree and plant products greatly depend not only on land and tree ownership, but also on one's relationship to the owner, the use to which the product is to be put, and the landscape niche in which the product is located. It was apparent that harvesting tree and plant products for subsistence purposes is in general far less restricted irrespective of who owns the species and the spaces, in comparison with harvesting for sale

In most circumstances, owner's kin may harvest and use resources and spaces for subsistence purposes without the explicit permission of the owner if harvested quantities are small, whereas non-kin require permission, although this permission may

be granted as a general social obligation. For example, household members can harvest any quantity for home or own consumption without permission as long as the product does not entail cutting part or all the tree species or the species is not 'reserved' by the owner for income-generation purposes. In this respect, children of the household can harvest any amount of fruit for their own consumption from any 'non-reserved' tree in any space at any time. However, they need permission from the owner or the household head to harvest from 'reserved' trees. Non-household kin members can only harvest for own consumption 'on the spot' from home gardens without permission. Although it was reported to be only rarely that an owner would refuse close kin permission to harvest or use species for own consumption, it is socially unacceptable for even close kin to trespass on others' garden or croplands. In this respect, close kin need not obtain permission to harvest leaves for medicinal purposes from cropland, but would require consent to harvest fruits even for own consumption from the croplands. Non-kin, mainly friends and neighbours, can harvest for own consumption 'on the spot' from home gardens but not from croplands. Also, none of the products may be taken away without the owner's permission. Even with permission, non-household members can only take away 'a little', for example one fruit. However, children and elderly women, usually above 65 years, are never penalised for trespass, as it is socially recognised and accepted that they do not 'steal' and 'never' harvest for sale. The closer one is one's relation to the owner of the product, the more frequently they can harvest or use the species in the different spaces; for instance, kin may be allowed to harvest as frequently as once every two weeks whereas non-kin may harvest once in a season. Thus, social obligations and social relations play an important role in defining who has what types of rights. Further, state forest reserves are accessed without seeking permission at all, even though formally this is prohibited; nevertheless, there are informal social 'rules' and 'rights' within the communities themselves that are associated with this access. This thus shows that the land and tree tenure boundaries are both respected and transgressed in relation to social relations and obligations.

6.7.2 GENDERED USE OF PLANT SPECIES AND SPACES

The major uses to which the four plant species are put include: sacred, bark cloth, fodder, medicines, handicraft materials, fruit for home consumption and for sale in local markets, vegetables for home consumption and for sale in local markets, firewood for home consumption and sale in local markets, agricultural tools, detergents, construction materials, fencing posts, brooms, fish traps, support for other vine plants and for hanging bee hives, shade, soil improvement, boundary marking, and pest control. The following patterns were observed.

First, villagers use four landscape niches or spaces: home gardens, croplands and common (fallow) lands, all of which are privately owned, and the forest reserve, which is state owned. Generally, with the exception of palm trees, which were found almost exclusively in the forest reserve, most of the selected species were found in largest quantities in the croplands, common lands and home gardens.

Second, almost all of the uses occurred mainly in home gardens and croplands, and to a lesser extent on common lands, although uses were also reported to occur in the forest reserve (Figure 6.17). The majority of women's uses are of species that occur mainly in the home garden. However, the majority of men's uses are of species that occur in both the croplands and the home gardens. It is apparent that men have more uses of species in the home gardens than women have in the croplands.

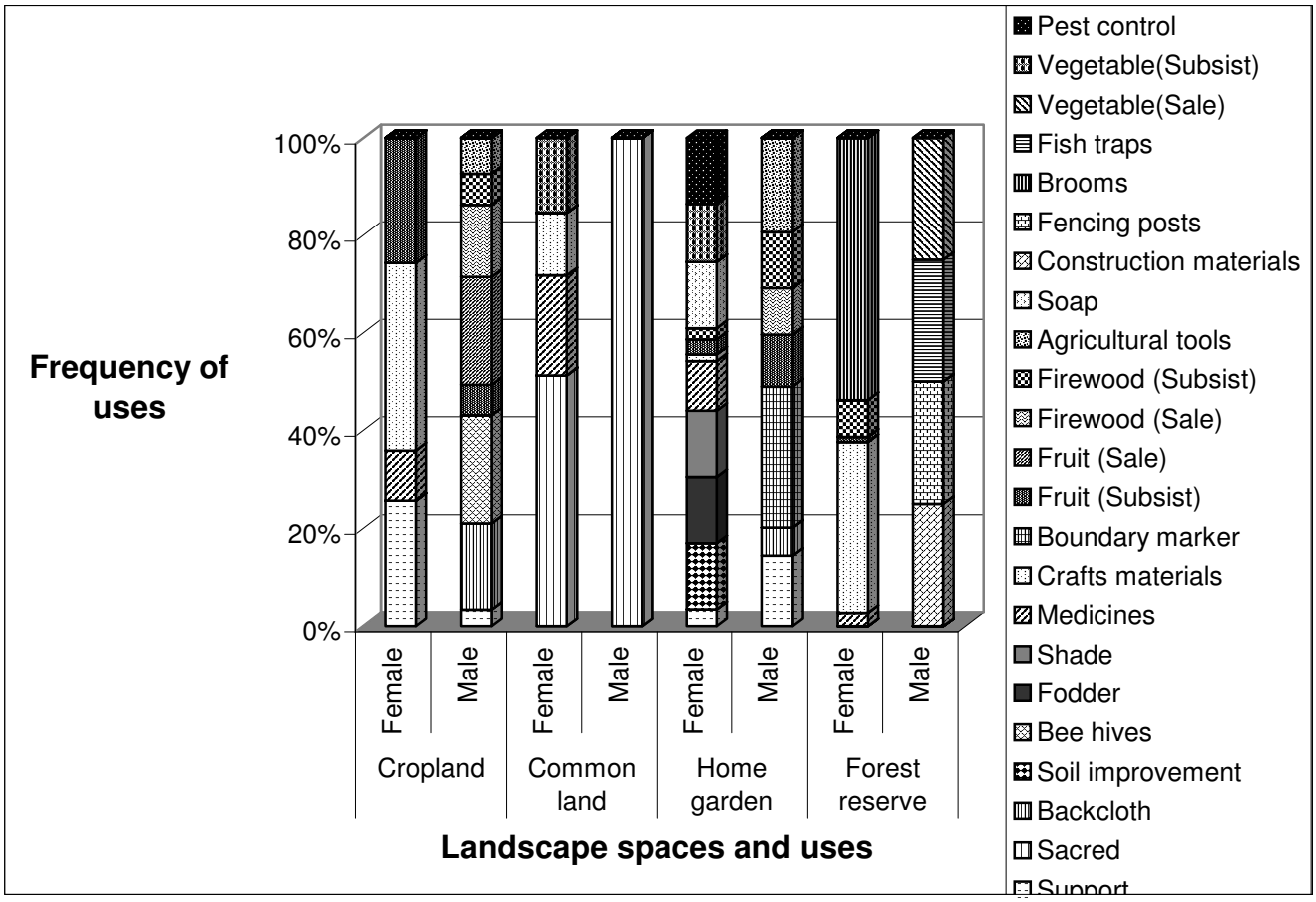


Figure 6.17 Species uses, landscape niches and sex

The uses were also grouped according to whether they were for household subsistence or for sale in local markets. The findings, disaggregated by sex, are presented in Figure 6.18. This figure indicates that all of the uses of species occurring in the common lands were for subsistence and that women's uses in both home gardens and croplands were all for subsistence purposes. However, over 80 percent of men's uses of species occurring in croplands were for commercial purposes. Women's commercial uses were only reported in relation to species occurring in state forest reserves. The fact that all landscape spaces were used by both men and women and were also used for both subsistence and income generation indicates that there appear to be no clearly defined boundaries between the different spaces within the landscapes that are demarcated only on the basis of formal land and tree tenure regimes. However, the same observation could imply that tenure regimes do influence the type and level of use of the different

spaces by different people since more uses were reported in the privately owned spaces compared to the state-owned spaces. On the other hand, this does not explain the fact that fewer uses were reported for the common lands, which are also privately owned.

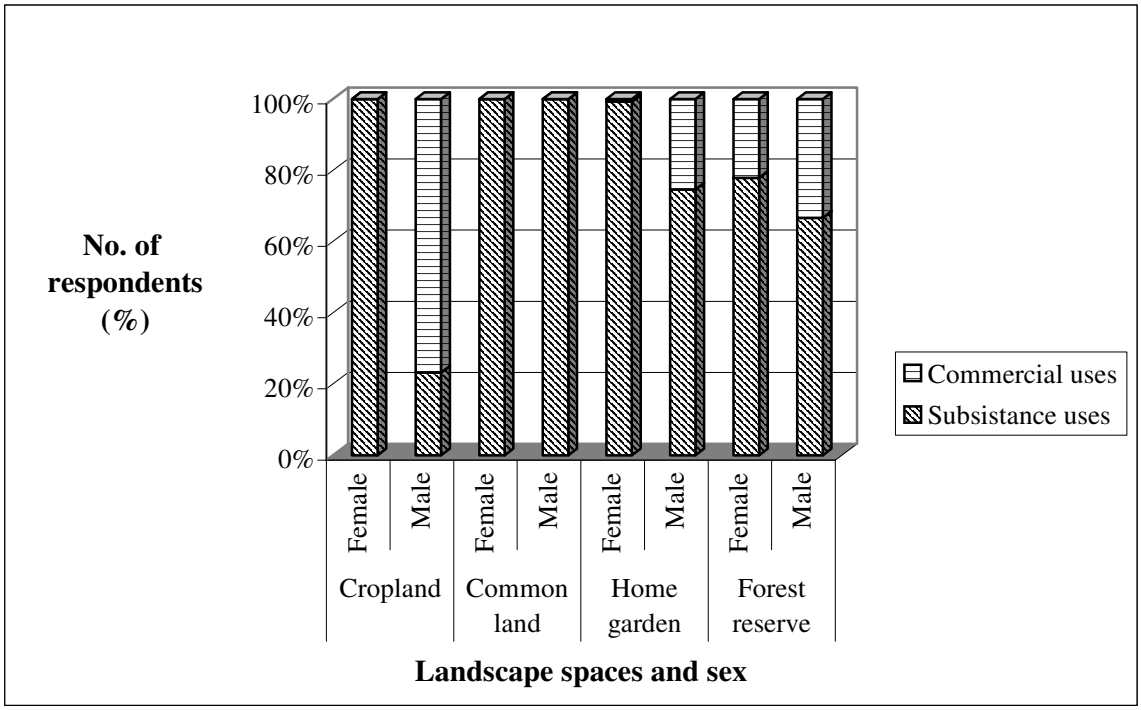


Figure 6.18 Grouped uses, landscape niches and sex

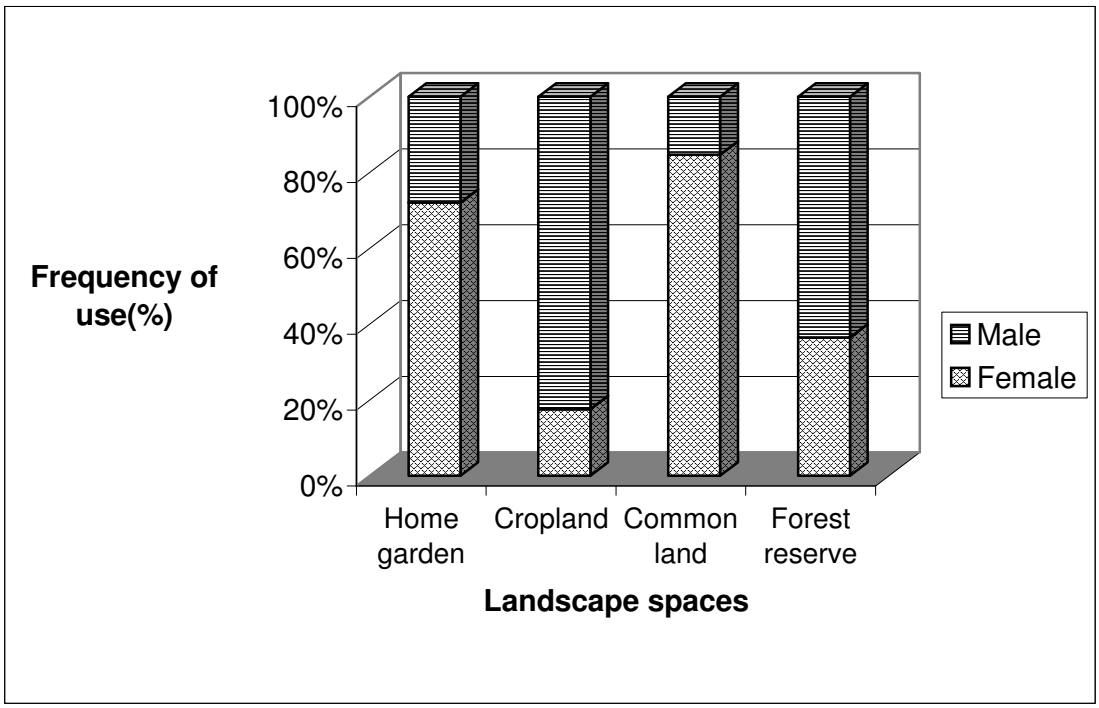


Figure 6.19 Uses in landscape niches by sex

This pattern could also be due to the occurrence pattern, where the selected species don't occur equally in all of these landscape spaces. Most of the species occurred in the

home garden, except for the palm species, therefore reflecting similar patterns of greater species use in the home garden.

Further, spaces could be defined as predominantly men's or women's based on who frequently uses species in the specific landscape spaces. Considering all of the uses for all of the selected plant species, it can be concluded that both men and women use all of the landscapes spaces but to different degrees. Within the landscapes, there are definite patterns that could be considered to give rise to 'gendered spaces'. Women have greater use of species in home gardens and common lands, while croplands and state forest reserves are more 'men's spaces' (Figure 6.19). However, as observed earlier (Figure 6.17 and 6.18), men also frequently use home gardens more than women use croplands.

Third, the majority of the uses that entailed cutting part or all of the tree such as for bark cloth, firewood from tree branches, wood for construction materials, fencing posts and agricultural tools, as well as income-generating uses, were male-dominated (Figure 6.20). Although traditional gender norms in the area indicate that only men should be involved in income-generating activities, almost 20 percent of women's uses are for income-generation, which implies that gendered norms and the gender division of labour are no longer strictly followed, although the fact that men predominate by far in income-generating uses shows that these norms are still very influential.

Thus, overall, it initially appears that men have stronger 'rights' to use various landscape niches in comparison to women, who are more circumscribed to spaces that either have no strong rights regime associated (e.g. common land) or to those traditionally considered as 'women's spaces' (home gardens). Irrespective of where the trees are located, men seem to have more freedom to use them and particularly to cut them which, in comparison with uses of trees that don't involve altering the tree, has a strong associated with tree ownership. These patterns reveal the strongly male-privileged tree and land tenure in the study area.

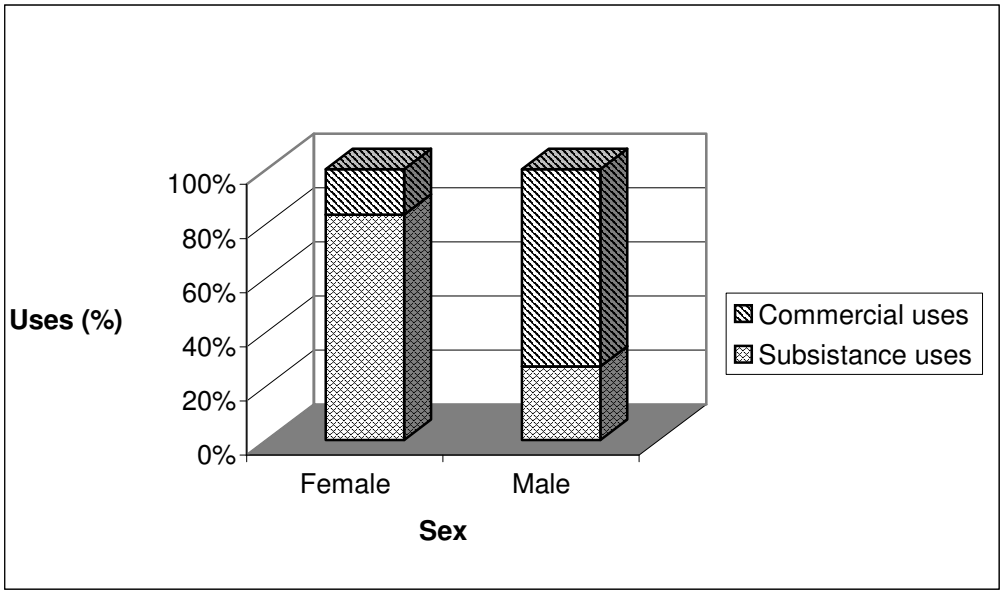


Figure 6.20 Men's and women's uses of species

Lastly, it was noted that, from an emic perspective, fig and jack trees are regarded as men's species while palm and cat's whiskers are considered as women's species. Further (Figure 6.21), the products generated from these tree and plant resources were generally regarded as women's if they were used for subsistence and as men's if sold in local markets, although this is not invariable. Thus, although the use of Ficus sp. for subsistence is female-dominated, a number of men were also using the bark to generate income, and the tree is locally considered as a man's tree, particularly due to its spiritual and symbolic properties. Men use jackfruit trees more than women while, with the exception of a few males, Cleome sp. was used only by women. Jackfruit trees are regarded as men's species while cat's whiskers is regarded as a woman's species. Palm trees appeared to be equally used by both women and men.

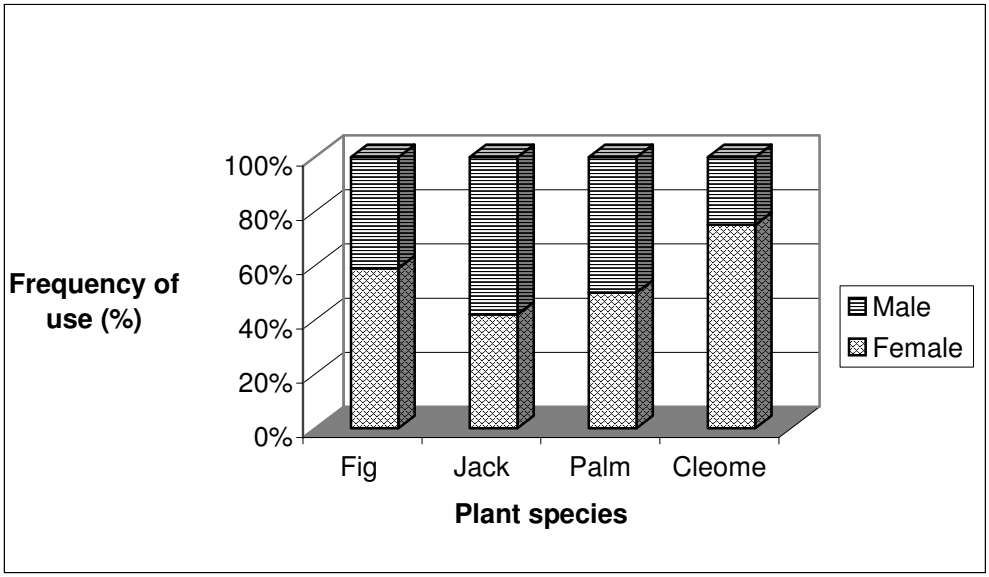


Figure 6. 21 Species uses and sex

Although the state and male peasants *de jure* and *de facto* own the land and the trees, which creates one set of 'borders' that others must respect, the distribution of useful species within these 'borders', and the division of labour particularly between men and women that associates certain species and certain uses more with one sex than the other, means that these borders will be continuously transgressed. Where the landscape is state-owned, the formal laws are often disregarded, although informal community norms about access and use may be respected. Where the landscape is privately owned, social norms ensure women's rights of access to and use of spaces, species and specific products, which has the practical value of ensuring that women are able to sustain their households and, increasingly, to generate income.

Finally, the question of rights and uses will be further explored in Chapter 7 where tree manipulation and management are discussed.

7 GENDERED MANAGEMENT OF SPECIES IN SPACES

7.1 INTRODUCTION

The findings presented in Chapter 5 clearly demonstrated that management practices are related to specific landscape spaces and species, and are influenced by cosmological beliefs as well as local understanding of ecological relationships. Such patterns should also be evident in the management and knowledge of specific species, where the in-depth analysis of species-specific patterns can add further nuances to the findings in Chapter 5, and as well reveal the extent to which gendered species-specific management practices are similar to, or different from, more general patterns of forest resource management evident in the communities. Therefore, this chapter seeks to understand local forest resource management practices and their rationales, which reflect the knowledge possessed by villagers in a specific cultural context. As discussed in Chapter 2, forested landscapes have been altered by human interactions over generations, which provides an indication that forested landscapes are relatively unstable and changing, to a certain extent reflecting human social and ecological changes. (Wiersum 1996) describes this process as an evolutionary continuum in forest-plant interactions. During this process, wild plants are gradually incorporated into a human domain and the extraction of wild plants gradually changes into cultivation. In both this chapter and in Chapter 6, a species-level approach was used to investigate in-depth the local management practices and related knowledge around the four selected species (Ficus natalensis, Artocarpus heterophyllus, Phoenix reclinata and Cleome gynandra). Management and knowledge are, of course, inextricably intertwined in complex ways. As Ellen observed,

> *'….individual subsistence techniques, and therefore different overall combinations of strategies employed by particular populations, have different ecological profiles: in terms of energy transfer, limiting factors and carrying capacity, the degree of human effort required, their effects on the landscape, the cultural regulation of environmental relations. But, by the same token, they must presumably also have different knowledge profiles' (1998:8).*

As highlighted in Chapter 2, the ethnobiological knowledge of species consists of empirical knowledge which is the result of generations of accumulated experience, experimentation and information exchange (Ellen 1998; Agarwal and Gibson 1999; Howard 2003a). Thus, research on individual species focuses on what type of knowledge is held by which people and why different groups hold different or similar knowledge at the species level. As discussed in Chapter 2, such ethnobiological

knowledge is gender-differentiated. Howard (2003a) argues that gender differences in knowledge and management practices are not only, as is commonly thought, attributable to the gender division of labour, but as well to cosmology and concepts and norms about gender that influence the divisions of roles and responsibilities according to sex, age, kinship relations, and other social factors. Also, not all knowledge is practical and experiential – much has to do with rules of behaviour and social institutions, and much is also cosmological (Howard 2003a; Wiersum and Persoon 2000; Turner 2003).

This chapter thus aims to understand how and why knowledge and management profiles might differ by sex, how gender relations influence such profiles, and how the profiles are in turn related to subsistence strategies and cultural regulations of environmental relations.

The research sought in particular to determine whether, in addition to gender-specific uses and access rights to plants, there are:

a associated gender-specific local management practices, knowledge and rationales and, if so,
b how such practices might be related to specific forest landscape spaces, as well as
c how both in turn may be related to gendered beliefs and norms, as well as to subsistence practices and social status of individuals and households. This information was collected amongst the same informants as were used for the research presented in Chapter 6.

The first part of this chapter presents a description and discussion of gender-differentiated local management practices for each species in the various landscape spaces where the species is found. Both biological management practices and their emic rationales, and cultural beliefs influencing management, are presented for each species. The second part presents a brief discussion of gender-differentiated knowledge relating to the four species. The last part of the chapter draws an overview and conclusions.

7.2 GENDERED MANAGEMENT OF SELECTED SPECIES IN SPACES

The four plant species were selected for the case studies in part to examine gender differences in local tree and plant management practices in specific landscape spaces. It was hypothesised that the management of plant and tree species in different forested landscape spaces conforms closely to what are described and perceived as either men's or women's species, located in what are further viewed as either men's or women's spaces, as discussed in Chapter 6. Following the observations in Chapter 6, Ficus, and Artocarpus, although predominantly used by men, had women's uses and were also located in both men's and women's spaces. Similarly, women were found to dominate the use of Phoenix and Cleome species, but a few men were also found to use some of the species' products. It was thus anticipated that men would predominantly manage Ficus and Artocarpus, while women would predominantly manage Phoenix and Cleome.

7.2.1 LOCAL MANAGEMENT OF FICUS NATALENSIS (FIG TREE)

The information about the local management practices for fig trees was generated from both group discussions and individual interviews as described in Chapter 3. For this case study, nine men and eleven women were involved in the discussions and interviews. These were men and women who had been identified by the villagers as most knowledgeable and involved with fig trees. Their age ranged from 35 to 75 years; their education level ranged from none to seven school years completed; and they all had land, although the size of the land holding differed greatly. Based on the wealth categories discussed in Chapter 5, almost 70 percent of the participants were in the average household wealth category. Two of the male participants were the only people making bark cloth from the bark of fig trees in the entire study area.

There were eight main local management practices for fig trees reported, namely: planting, protection of natural regeneration, weeding, pruning, thinning, mulching, processing, and bark removal. Married men and male heads of households were traditionally obliged to plant and cultivate fig trees. Up until the mid-1950s, no woman respected or desired to live with a man who did not provide her with a garden and himself with some fig trees which would supply the bark cloth that was in turn used to obtain other family necessities through barter or sale.

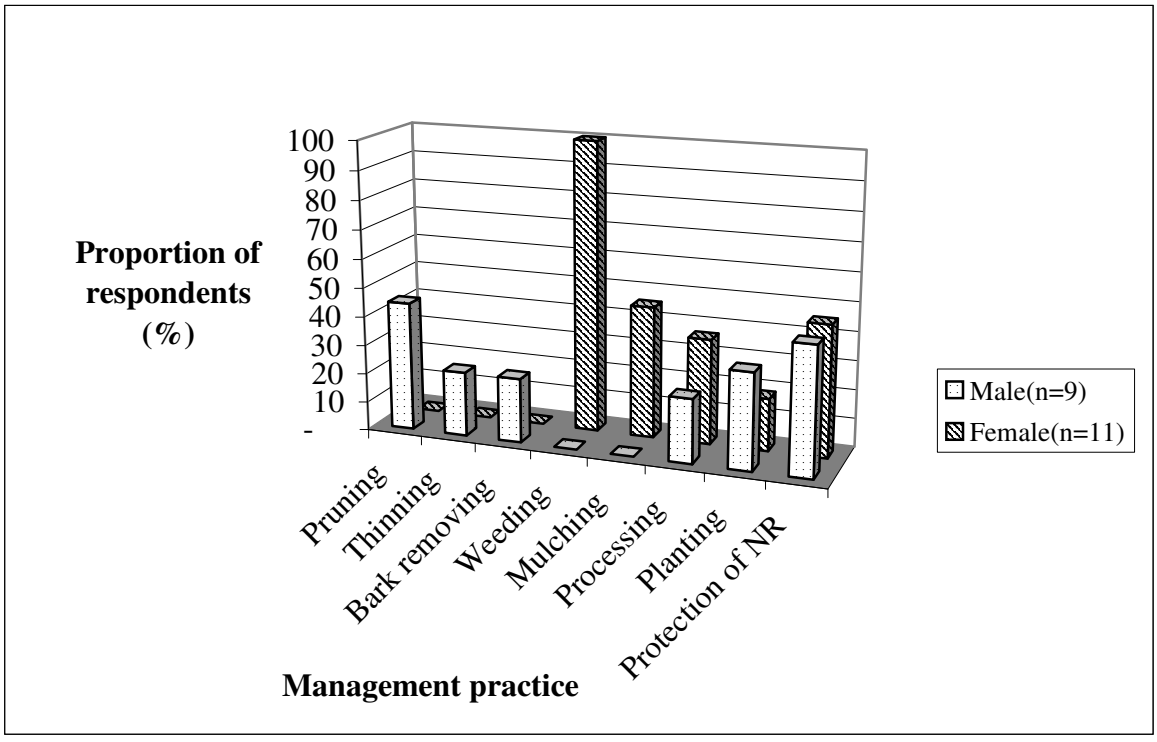


Figure 7.1 Number and sex of respondents managing fig trees (n=20)

Figure 7.1 presents the sex and number of the participants who have ever carried out any of the reported management practices. It was notable that only males had ever pruned, thinned and removed bark. This could be because the thinning and pruning

practices entail cutting the whole tree or parts of the tree and this can only be done by those who own the trees.

Only women participated in weeding and mulching since these are socially recognised as female practices, reportedly because of the patience required. Ficus is weeded and mulched only because it within home gardens, which women weed and mulch generally. Both men and women are involved in processing, although nowadays more women than men are involved. Only men process fig tree bark into cloth while the women process the bark cloth produced by men into crafts. The number of men making bark cloth has reduced tremendously over the years. Today, they are only two men still processing backcloth in the entire study area. This is attributed to the introduction of other cloth materials in the region and also because men have diversified their sources of income so that they no longer entirely dependent on bark cloth as they were at the beginning of this century. On the other hand, however, crafts have gained recognition in markets and women have increased their involvement in handicraft production and marketing. Men consider handicrafts as a 'petty' activity and therefore suited only for women.

For each of the management practices stated, an *emic* rationale was sought and recorded. The rationale(s) behind every management practice reflected and revealed the villagers' local knowledge about the management of trees and plants. Table 7.1 below presents the local fig tree management practices, the sex of those involved and the rationales behind the practices.

The respondents indicated that the protection of naturally regenerating fig trees in all landscape spaces was a common practice. This was mainly done by those who use the landscape and who believe that the protected fig trees would be beneficial when they mature. The women respondents also reported protecting naturally regenerated fig trees in home gardens when they were found to grow in locations where they would not compete with, but would rather complement, the growth of other home garden crops. Women had a strong belief that fig trees have the ability to improve soils, especially for banana plants grown in home gardens. This is one of the main reasons for protecting them in this niche. Men reported protecting fig trees both in home gardens and in croplands when they appear to be straight and healthy, and therefore potential producers of good bark for bark cloth making.

Planting was one of the common practices reported by the respondents for the regeneration of Ficus natalensis. Both men and women reported that they use cuttings from older fig trees as main planting materials. Cuttings from older fig trees establish faster than seedlings. This conforms to what (Tiwari 1994) reported; Nepalese farmers preferred using vegetative techniques such as cuttings to propagate Ficus lacor and Ficus glaberrima among other fig species as these techniques were found to be more affordable, more effective, and often the species established more quickly. Fig trees grow easily: in fact, any planting material placed in moist ground seldom fails to grow. The common planting practice is to cut branches one meter long and place them about 10 cm into the ground. The trees are mature in four years, and in the fifth to seventh year they are ready to yield the first bark for cloth making.

Table 7.1 Indigenous management practices for *Ficus natalensis* and their rationale

Management practice	*Who manages*	*Rationale for the management practice*
Protection of desired natural regeneration	Men and women who most use the landscapes	Respondents reported that they protect to maturity only the desired fig trees that are found naturally regenerating in the landscape.
Planting	Men and women, sometimes aided by children	This was reported for the regeneration of Ficus natalensis that is used to improve soil fertility in home gardens and in other landscapes, and to produce bark cloth.
Sanitary pruning	Men and boys and occasionally women	Parts of the fig plants (leaves, branches, roots) that are infested with pests, diseases or epiphytes are removed to eliminate further damage to the fig and ensure its proper growth.
Branch pruning	Men	Branch pruning reduces shading of the under-story and enhances development of a straight stem with good bark.
Thinning	Men	Enhances tree growth as it reduces plant competition for both light and nutrients.
Weeding	Women and children	Weeds reduce soil fertility, kill other plants and have bad spirits that kill trees.
Mulching	Women	Control weeds, also done to prevent soil water loss, prevents run-off and enhance water percolation into the soil.
Product processing	Men and women	Drying and roasting leaves for medicinal purposes increases storage duration, thus reducing the frequency of leaf harvest.
Removal of bark from tree stems	Men	The bark of mature Ficus natalensis trees is periodically removed to enhance growth of new bark. After removing the bark, the cambium is covered to avoid excessive water loss and disease infestation.

The respondents remove parts of the fig plants (leaves, branches, roots) that are infested with pests, diseases, and epiphytes in order to prevent them from spreading to other parts of the same plant or to other trees in the landscape. This sanitary pruning practice, although predominantly carried out by men and boys since it usually requires tree climbing, was also found to have benefits for women. Some women use the removed parts of the tree, especially the branches, for firewood. Sanitary pruning is also a common silvicultural practice in professional forestry aimed at controlling pests and diseases.

Branch pruning was another practice mentioned by the respondents. This is occasionally (once every three years) carried out in order to reduce shading of the under-story. Villagers report that it is time to prune the branches when they observe that the under-story crops are growing taller than average and stems are becoming thin and light coloured. One of the respondents said,

> *'When the crops appear lighter in colour with less strong stems, then it is time to give them some more light. This tells me that it is time to cut some of the branches over that section of the crops'* (Tigawalana, 52 years).

Villagers also believe that pruning of fig branches enhances the development of a straight fig stem with good bark. Women also stated that they do not participate in pruning as this entails cutting part of the tree and commonly entails tree climbing. The women further said that practices that involve cutting parts of the tree are male since the men own the fig trees and therefore make the decisions and also implement them. In households where there is no male head, the female head of household would make the pruning decisions, but would ask a male member of the household or a male friend to implement the decision, or would hire a man to do this.

Thinning is another predominantly male management practice that was carried out on fig trees. Decisions related to thinning fig trees or saplings are mainly made by tree owners, except where the tree owners are women as in the case of widows and households where men have out-migrated. Men commonly do the thinning. Thinning is used to remove undesired fig trees, hence creating a better growing environment for other crops. This usually entails removing fig saplings that branch too early and that therefore will not produce tall straight trunks if the aim of retaining the tree is for bark production. Also, the worst looking trees are removed to reduce competition. Although the respondents believed that thinning enhances tree growth as it reduces competition for both light and nutrients, it was found that they rarely thin their plants for fear of reducing their plant stock, especially in the home gardens. They felt that every tree growing in the home garden was important in one way or another and therefore efforts were always made to preserve them. This could explain the fact that none of the respondents ever reported thinning fig trees in home gardens.

The practice of weeding fig trees is a by-product of weeding other crops within the same landscape niche. According to the respondents, women and children carry out this practice because it is a social obligation for women (assisted by children) to keep their crop areas free of weeds. As discussed earlier, men rarely participate since weeding is socially defined as a female activity. The women believe that men are too

impatient, whereas weeding requires a lot of patience especially in home gardens where a multitude of plants are found. Villagers believe that weeds reduce the fertility of the soil and kill other plants. Weeds are also believed to have bad spirits that kill crops and trees when left to grow together with them, and hence the need to constantly remove them.

From the women's group discussion it was noted that mulching of fig trees is not deliberate. Instead, fig trees benefit from the mulching of other crops in the landscape niches where figs grow. According to the respondents, the rationale for mulching is first and foremost to control weeds. Mulching is also done to prevent soil water loss through evaporation during hot dry days, prevents run-off, and enhance water percolation into the soil after a downpour. Special mulching materials are used - most commonly grass species (Imperata sp.) obtained from swamps. The respondents stated that it is the men who mainly harvest the grasses from the swamps and bring them to home gardens for mulching. This is because the conditions in the swamps are regarded to be too difficult for women. It was reported that, in cases where the male members of the household are not willing to harvest mulching grasses from the swamps, women have to hire other men for this purpose. Banana leaves and sheaths are also used, and these are collected by women. The respondents stated that Elephant grass (Pennisetum purpureum) is never used, as it is believed to bring pests such as termites into the fields or gardens. Producers recommend that mulch always be placed half a meter away from the base of the plant to avoid killing it. It is also believed that, when the mulch is placed close to the base of the plant, a lot of heat is generated which eventually kills the plant. People further believe that mulching enhances soil fertility and therefore improves yields.

Both men and women participate in processing the harvested fig tree leaves by drying and roasting them in order to store and use them over longer periods for medicinal purposes. Women reported using fig leaves to make herbal medicine that is believed to cure coughs. They harvest the very young leaves that have just sprouted for this purpose. On the other hand, men believe that the removal of these young leaves creates wounds through which various pests and diseases enter the fig tree. Therefore, leaves are processed and stored in order to reduce the frequency of harvesting.

The respondents reported that the bark of mature Ficus natalensis trees is periodically removed to make bark cloth. After removing the bark, the cambium is covered with banana leaves for about 14 days to avoid excessive water loss and disease infestation. Only men do this work and it is regarded as taboo for women to remove bark or to process bark cloth, although women can make handicrafts out of processed bark cloth. A detailed account of bark cloth processing is given in the section below.

The management of fig trees was also investigated in relation to the landscape niche in which they occur. A summary of the location of fig trees and the various management practices carried out is presented in Figure 7.2.

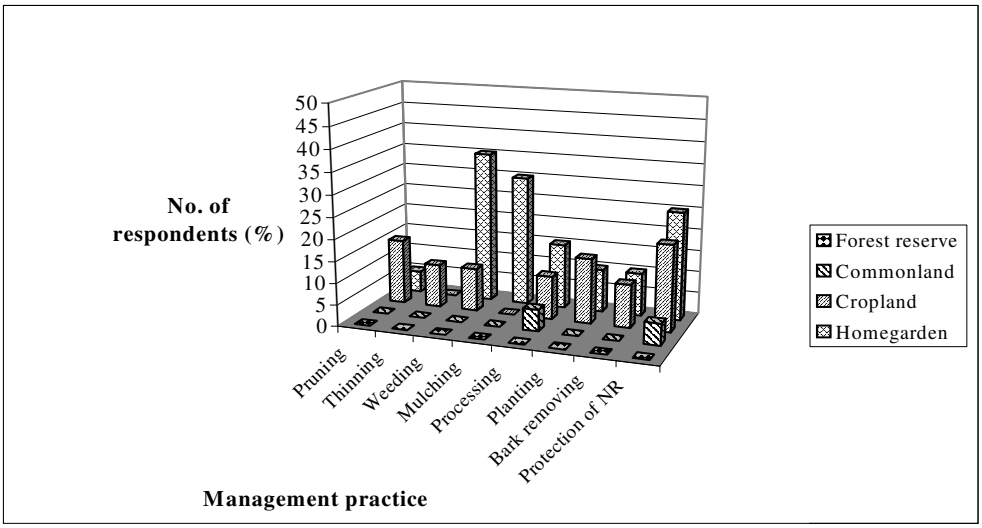


Figure 7.2 Management practices for Ficus natalensis by landscape niche

There was no management of figs reported in forest reserves. Also, thinning was only reported for croplands, while mulching occurred only in the home gardens. More management practices were reported in home gardens and croplands than on common lands.

Table 7.2 Location, propagation and ownership of *Ficus natalensis*

Location	*Propagation*			*Tree distribution (%)*	*Land ownership*
	*Planted (♂/♀)**	*Natural regeneration***	*Accidental***		
Home gardens	√/♀/♂	√	√	59	Private
Croplands	√/♂/♀	√	√	28	Private
Common lands	X	√	√	13	Private
Forest reserve	X	√	√	0	State

*√/♀= Planted by women; √/♂= Planted by men; √/♀/♂= Planted equally by both men and women; √/♀/♂= Planted by both men and women but more by women; √/♀/♂= Planted by both men and women, but more by men, and **X** = Not planted.

**√ = Present in location.

In all landscape niches, fig trees were found to be both self-sown (naturally regenerating from seed dispersal) and planted by individuals (Table 7.2). The planted figs were mainly propagated from cuttings, but there were also trees propagated from seeds. Both men and women plant fig tree. Women mainly plant figs in home gardens and in some cases in other areas if the figs are to be used for fencing. Unconscious or unintended planting also occurs in the landscape as birds disperse the seeds.

Both men and women plant fig trees, although they plant them in different landscape niches. Children can plant any tree anywhere in the forested landscape if directed or requested by their parents or guardians. About 55 percent of the respondents had ever planted fig trees in the different landscape niches. Planting differentiated by sex and

landscape niche is presented in Figure 7.3 below. Although men dominate fig tree planting overall, women dominate fig tree planting in home gardens, while men dominate planting in croplands. This pattern conforms to the general patterns relating to gendered spaces: cropland is regarded as a men's niche, and home gardens as a women's niche.

> *'Unlike croplands, home gardens are women's areas; they can plant everything they want there.'* Mr. Kato, 65 years

Men mainly plant 'valuable' tree species on their croplands. The 'valuable trees are seen as those that can be sold or that produce marketable products. Women do not usually access these 'valuable' trees if located in croplands without permission from their male owners. Women plant fig trees in their home gardens to be able to provide shade and improve the soils for improved growth of the food crops that they produce in these spaces.

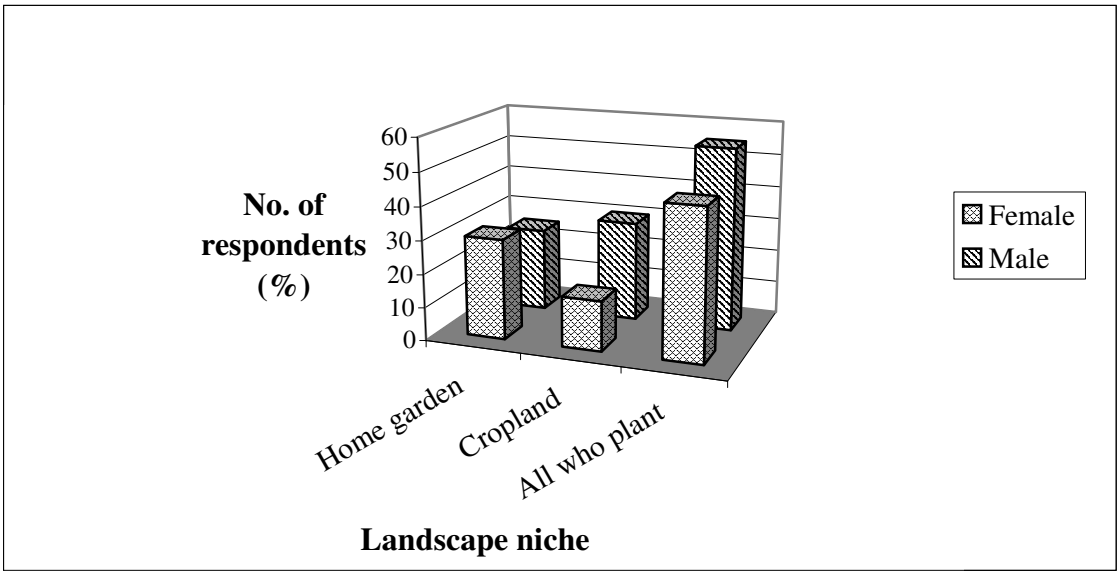


Figure 7.3 Fig planting differentiated by sex and landscape niche (n=20)

Women purposely plant fig trees in various landscape niches. They plant fig trees in home gardens in order to improve soils, provide support for climbing plants that are women's crops, and as well as to provide shade for other crops such as coffee, a men's crop, and bananas which may or may pertain to either sex. Thus, women plant fig trees for indirect uses, none of which require that they cut all or part of the tree. Only about eight per cent of the women respondents reported ever having planted a fig tree outside of the home garden.

> *'If I want to plant a fig tree in the home garden, I do not need to first tell my husband about it and I decide where exactly I plant it. But if it is to be planted in the cropland, then I have to ask him whether it is okay for me to plant and where I should plant the tree'.* Mrs. Kadandu, 38 years.

None of the respondents indicated that they had ever planted fig trees in the forest reserve, which apparently acknowledges the fact that they do not have planting rights

in this location, as confirmed by a key informant employed by the Forest Department. Only trained Forest Department employees are permitted to plant trees according to national forest management policies.

Pruning, a male practice, occurred mainly in the cropland (75%) location, and secondarily in home gardens (25%). Interviewees did not report pruning activities in the common lands nor in the forest reserves. This could be due to the nature of land and tree tenure in these landscape niches, which restrict rights to tree management mainly to the owners of either the land or the trees or both.

Thinning was also exclusively done by males and all (100%) of their thinning activities were reported to occur on croplands. Crops in the croplands require minimal shading to grow well and hence thinning is essential. Weeding, exclusively a female activity, occurs mainly in the women's niche, the home garden (64%). Weeding is not practiced in forest reserves where crops are prohibited. The absence of mulching in croplands could be due to the cropping pattern, where crops are inter-cropped with large trees, in this case Ficus natalensis. The under-storey crops, usually beans (Phaseolus sp), maize (Zea mays), and sweet potatoes (Ipomea batata), are planted very closely together, forming a continuous ground cover with few spaces left to mulch. Both men and women process fig products: women only process leaves for medicine and men process bark for cloth, although women also further process the bark cloth that men make, into diverse types of handicrafts. A few men are involved in processing because bark cloth making is no longer as lucrative an activity as it used to be half a century ago.

Fig bark removal and bark cloth processing

In the past, the traditional cloth in Buganda was bark cloth (*Olubugo*). The fig tree from which the bark is obtained was extensively cultivated and was, with the exception of the banana tree (Musa sp), considered to be the most valuable of all trees (Roscoe 1965).

It is not very clear how the people of Buganda learned the art of bark cloth making. Two legends about the origin of the art exist: the first states that bark cloth making was invented by a man named Wamala during the reign of Kabaka Kimera. It is believed that Kimera came across the bark cloth fig tree while on a hunting expedition in the forest (Mugalula 1995). The other legend states that Kabaka Kintu brought the bark cloth tree and the people skilled in making bark cloth with him from Heaven (*Ggulu*) (Roscoe 1965; Mugalula 1995).

It is said that, in his reign-the eighteenth century, Kabaka Ssemakookiro made it compulsory for all his subjects to wear clothes rather than going around naked. Prior to his reign, people wore only small animal skins (Roscoe 1965). After the invention of bark cloth, men wore the bark cloth over their shoulders and women tied it around their chests. The same King also ordered peasants to plant bark cloth trees in their gardens and fined those who neglected his directive (Roscoe 1965; Mugalula 1995). In Buganda, the royals (*Abalangira*) wore a type of high quality bark cloth different from that of their subjects (*Abakopi*), which were of lower quality. The royalties' bark cloth was made from special trees (according to species and location) and there were

specialized men locally known as *abakomazi be Mbuga*, whose sole duty was to ensure that the royal court had bark cloth. These were very experienced in bark cloth making and knew all the fig sub-species that could produce the best bark cloth for the royalty. These men held very high status among the *Bakopi* as they were responsible for or determined the quality of what the royaltywore. Every man in Buganda was supposed to have fig trees and know how to make bark cloth, so that even the humblest peasant had his own trees, and '*nothing but idleness or laziness prevented him from being well-dressed*' (Roscoe 1965). An adult male had to give 40 pieces of bark cloth to the Chief as a tax. Traditionally, every marrying man is expected to present a piece of bark cloth to his mother-in-law (Kabuye 1999) and to the paternal aunt of the bride. This was a sign to prove that the man was able to provide his wife with clothing. In the past, however, the demand for bark cloth was so high in Buganda that it became every male's occupation to produce bark cloth.

In Buganda Kingdom, there are many kinds of trees belonging to the *Ficus* family from which various qualities of bark cloth can be made. Although Ficus natalensis is the most important species followed by F. thonningii, other species such as F. amadiensis, F. Antiaris and F. ovata can also produce bark cloth, although of inferior quality (Kabuye 1999). Roscoe (1965) and Mugalula (1995) provide a list of local names of fig trees based on the quality of bark cloth produced and geographical location. They also note that the different locations have different types of trees and hence produce different qualities of bark cloth. The best bark cloth comes from Ssango in Buddu County (Ibid). The quality of bark cloth is determined by the texture, weight of the cloth, colour, and how well the fibres interlock. A high quality bark cloth is one that is soft and smooth, lightweight, dark brown in colour, with well interlocked fibres or with no flaws, and is locally known as *kimote*.

Traditionally, bark cloth making has been done only by men aided by young men or boys. From the age of 12, young boys began to help their fathers to make bark cloth. No females are allowed on bark cloth-making premises, which are shelters usually constructed in home gardens. It is said that this is because men's sitting postures, given that they had no underwear, exposed what was unsightly for the women (see Plate 7.1). Men also believed that women were unclean during their menstrual periods and would ruin the bark cloth (especially its texture and weight) if they visited the bark cloth-making premises.

Plate 7.1 Bark cloth-making process

When the tree is fully-grown, its bark is first scraped on the outside using a blunt knife to remove the dirt and outer layer of the bark. When this process is completed, an incision is made around the tree from near the ground, and another near to where the first branches fork out. Then, a longitudinal incision from top to bottom is made, the cuts being deep enough to go through the bark to the wood. The bark is then eased off the stem by working a knife blade under it and peeling it off. After the bark has been removed, it is carefully folded away and a man carefully smears the tree trunk with cow dung and wraps it completely with fresh banana leaves, to keep it safe from injury and enable it to heal (see Plate 7.2). In about 18 months, a second bark forms and this is of better quality than the first. It was stated that the third and the fourth are the best quality barks yielded by the tree. The tree does not suffer from bark removal, and this process can be repeated 15-50 times, hence producing as many bark cloths (Mugalula 1995).

Plate 7.2 Folding the removed bark and wrapping the tree trunk for protection

The bark, after removal, is left until the next morning, when it is again scraped both inside and out and taken to a place called *ekkomagiro*, where it is beaten. *Ekkomagiro* is no more than a shelter from the sun or rain. Sometimes it is simply a location under a big tree. On the floor, a log about two meters long, called *omukomago*, is partially sunk into the ground, where the upper portion provides the base, making a fairly smooth surface about 15 cm wide and extending the length of the log (Plate 2). The log is usually obtained from species such as Albizia sp *(Nongo)*, Comretum mole *(Ndagi)* and Sapium elipticum *(Musasa)*. If a bark cloth maker, a *mukomazi*, can secure the assistance of a friend, the two work together on the bark cloth. The corrugated wooden mallet used is called *ensaamo*, which is made out of Teclea nolilis *(Nzo)* (Plate 7.1). They are shaped like a mallet but with circular grooves carved into the head. A *Mukomazi* has a set of three *nsaamo* with different distances between the grooves: coarse, fine and very fine.

A piece of bark, the strip, is first soaked in water and then beaten on the smooth surface of the log so that it spreads out as it becomes thin. This first beating is called *okusaaka* and the coarse-grooved mallet is used. This process is repeated with a finer mallet and again with the finest mallet, called *okuttula.* The well-spread strip of cloth gains in length and width and at the same time achieves a firmer texture. The resulting materials are sewn together with very neatly to become the size of large shawls - large enough to be made into voluminous curtains for closing off a room or forming partitions in homes. Bark cloth intended for use as bedding (*ekikunta*) is much thicker than that intended for clothing (*olubugo*) (Plate 7.3). A *Mukomazi* is an expert at filling in places where there are flaws in the cloth: he cuts out bad pieces and neatly and aesthetically stitches them with plantain fibre or any other ideal material.

Different bark cloth trees yield different textures and qualities as well as different colours. When beaten and dried, common bark cloth is light brown, but the better quality cloth, when exposed and dried, assumes a light brown terracotta tint. Peasants wore the light brown bark cloth on a daily basis and reserved the dark cloths of finer quality for use when visiting or during festive occasions (Kabuye 1999).

All princesses and women around the Kabaka's court had to wear bark cloth. For the *Kabaka*, a fig tree that produces white bark cloth was grown. This was used at the coronation ceremony and rarely at other times. Until about a century ago, when trade with the Arabs became common, members of the upper class wore bark cloth. Today, the use of this cloth is mandatory to wrap corpses, as clothing for the King's aides in palaces and for occasions such as burial ceremonies, last funeral rights, twins' ceremonies and traditional royal ceremonies. Bark cloth has, for many centuries, occupied a unique position in Buganda society. Apart from animal skins, the Baganda depended largely on bark cloth for their clothing, bedding, burial of the dead, payment for the rent of the land and barter trade.

Plate 7.3 Freshly made bark cloth spread out to dry

In the study area, it is believed that the first bark harvest does not produce good quality bark cloth. However, the quality of the cloth improves with subsequent bark harvests. Also, skill and care is required not to harm the cambium of the tree when bark is removed as this would result in poor quality cloth.

In Uganda, bark cloth is the main product obtained from Ficus natalensis. However, women process bark cloth into handicrafts such as table mats, decorative wall hangings, handbags, belts and food covers, among other things. Previously, all the handicrafts made were meant for use in the household. However, there has been a growing tourist demand for the crafts that has resulted in a strong growth in marketing of the bark cloth crafts in the past decade. It was mentioned by the respondents that, today, as many as one in every three women is involved in making crafts for sale in the local markets. However, the crafts still obtain a low price in local markets.

Women were reported to process fig tree leaves for medicinal purposes but only on a small scale. They harvest newly sprouted young leaves and dry them in the sun or sometime roast them on a very low fire. This process is meant to reduce the moisture content of the leaves so that they can be stored and used for longer periods. This is done to avoid frequent harvesting of the young leaves, which affects proper growth of the tree and can result in tree mortality as discussed earlier. It was difficult to ascertain the number of women involved in this activity because this product is an ingredient in other traditional medicine concoctions, which hardly any one wished to reveal.

Knowledge about the use and management of fig trees is believed to be mainly possessed by the male members of the community, and it was reported that only men have knowledge of bark cloth making and processing. It was, however, noted from the group discussions and individual interviews that women also have knowledge about the use and management of fig trees and, above all, making and processing of bark cloth, which is supposedly exclusively a male practice.

Women's knowledge about processing fig bark into bark cloth was found to be theoretical since no woman admitted ever trying to participate in the process. About 45

percent of the females interviewed could narrate up to 70 percent of the activities involved in the bark cloth making process. This was not significantly different from the findings from the men, where men who were not active in making bark cloth (80%) could narrate up to 75 percent of the activities involved in the process. Despite the level of knowledge narrated, the men's knowledge was found to be much more practical as almost 50 percent of the male respondents could demonstrate some of the activities in the process and about 20 percent had ever made bark cloth.

7.2.2 LOCAL MANAGEMENT OF ARTOCARPUS HETEROPHYLLUS (JACKFRUIT TREE)

The information about the local management practices for jackfruit trees was generated from both group discussions and individual interviews as described in Chapter 3. For this case study, seven men and five women were involved in the discussions and interviews. These were men and women who had been identified by the villagers as very knowledgeable and involved with jackfruit trees. Their age ranged from 33 to 55 years, their education ranged from zero to ten years in school, and they all had land although the size of the land holding differed greatly. Based on the wealth categories discussed in Chapter 5, 65 percent and 20 percent of the participants were in the average and poor household wealth categories, respectively. Similar to fig management, eight management practices for jackfruit trees were reported, namely: controlled access, protection of natural regeneration, planting, pruning, thinning, weeding, mulching, stem-incising and nailing.

Villagers reported that, to propagate jackfruit trees, men and children collect about six- to ten-month-old seedlings from the nearby forest reserve and randomly plant them on their private land. They then protect the individual seedlings by fencing them with local materials up to the sapling stage. Seedlings are usually planted 10 meters apart in random fashion. Sometimes, young saplings are kept upright by tying them to sticks with plant fibres. Unconscious or unintended planting was also reported to occur across the different landscapes. This was said to happen when individuals eat the fruit and discard the seeds, which later germinate. Some men buy seedlings from nearby tree nurseries. Also, men and women protect naturally growing seedlings if found on croplands.

In Figure 7.4, the sex and number of respondents who have ever carried out any of the management practices that were reported by villagers are presented. As discussed earlier for fig trees and for the same reasons, it was noted that only males prune and thin while only women weed and mulch. Men and boys incise stems. There was no mention or evidence of jackfruit processing in the villages, perhaps because the fruit is very succulent and rots quickly. Villagers reported that they have always eaten the fruit fresh and have never attempted to process it.

For each of the management practices mentioned, an *emic* rationale was sought and recorded. The rationale behind every management practice reflected and revealed the local knowledge of respondents about tree management. In Table 7.3 below, local jackfruit tree management practices, the sex of the main persons involved and the rationales for the practices are presented.

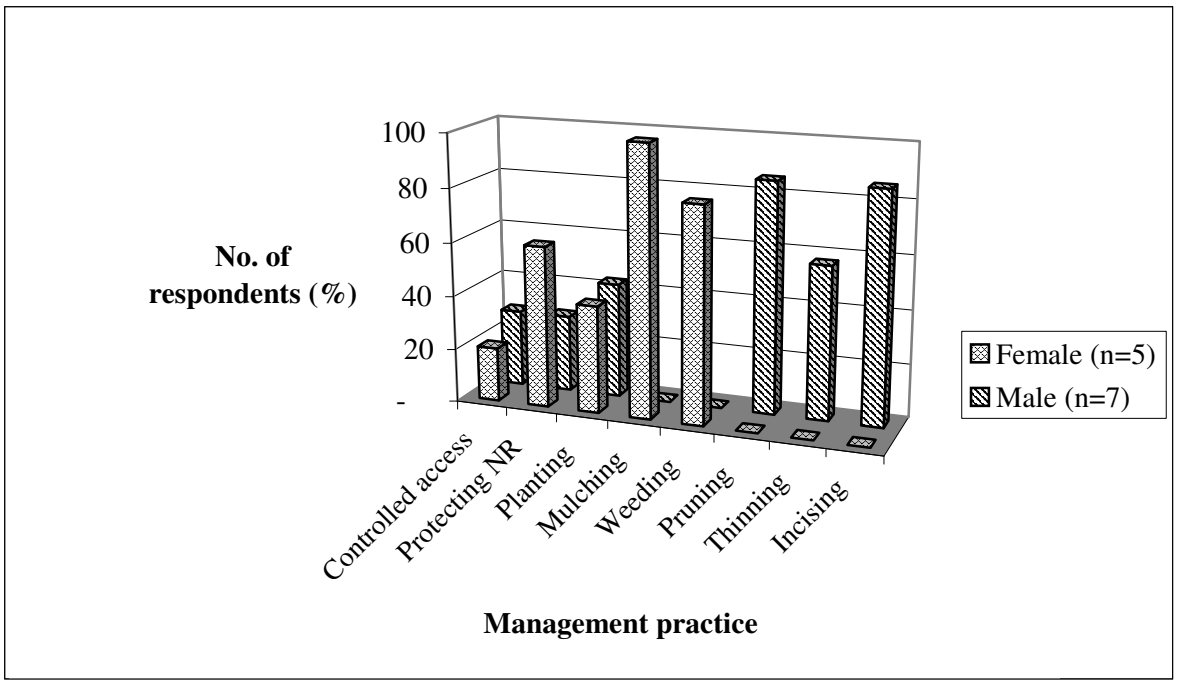


Figure 7.4 Number and sex of respondents managing jackfruit trees

Table 7.3 Indigenous jackfruit management practices and their rationale

Management practices	*Who manages*	*Rationale for the management practices*
Control of use and access to resources by defining legitimate user group	Men and to a lesser extent women	Intended to control and monitor harvesting levels of the species in order to ensure sustainability of the resource.
Protection of desired natural regeneration	Men and women	Protect well-established seedlings.
Planting	Men and women	To provide sufficient fruit for the household.
Sanitary pruning	Men and male children; occasionally women	Removing parts of the plants that are infested with pests or diseases or epiphytes controls pests and diseases.
Branch pruning	Men	Reduce shading of the under-story, enhance fruits ripening and quality. Also to procure firewood.
Thinning	Men	Reduces plant competition for both light and nutrients and enhances tree growth
Weeding	Women	Weeds reduce soil fertility and kill other plants.
Mulching	Women	Control weeds, prevents soil water loss, prevents run-off and enhances water percolation into the soil.
Stem incising and nailing	Men and boys	Enhances the release of excess sap that causes the fruits to rot before maturing and also controls fungal growth on the stems of the trees.

As discussed, in Chapter 6, villagers control the use of and access to jackfruit trees and products by defining legitimate users. They define who can and who cannot harvest the species from specified locations within the forested landscape. Gender specific taboos and cultural beliefs also control harvesting of the species.

Methods of regenerating jackfruit trees include protecting those that regenerate naturally and planting seedlings. The process and the persons involved are similar to what those discussed for fig trees; the same is true for weeding and mulching practices. As is also the case with fig trees, the respondents stated that they remove parts of the jackfruit tree (leaves, branches) that are infested with pests, diseases or epiphytes in order to prevent them from spreading to other parts of the same tree or to other trees in the landscape. Men also occasionally prune branches to reduce shading of the understory. Specific to jackfruit, branches are pruned once every three years (Plate 7.4) to enhance ripening of fruits. Pruning is also believed to enhance fruit quality because it concentrates plant food in the production of fruits rather than in the production of leaves and twigs. Some pruning is also done to procure firewood.

Plate 7.4 Pruned jackfruit tree in a home garden

A few men reported that they thin jackfruit trees. Although thinning is believed to enhance tree growth and fruit production since it reduces plant competition for both light and nutrients, villagers in this area rarely thin their plants as they do not wish to reduce their plant stock. They consider that, the more trees they have, the more fruit is obtained irrespective of fruit quality.

Slashing, incising and nailing the bark of jackfruit tree stems (Plate 7.5) are common practices. The trees are slashed and wounded all around the stem up to a height of 2.5 meters.

Plate 7.5 Incisions made on the bark of jackfruit tree

Villagers believe that slashing and incising the stem bark enhances the release of excess sap that causes the fruits to rot before maturing. This practice was evident on almost all fruiting jackfruit trees. In Figure 7.5, a summary of the location of jackfruit trees and the various management practices that are carried out is presented. There was no management reported in forest reserves and on common lands. Also, as discussed earlier with fig trees, mulching occurred only in home gardens.

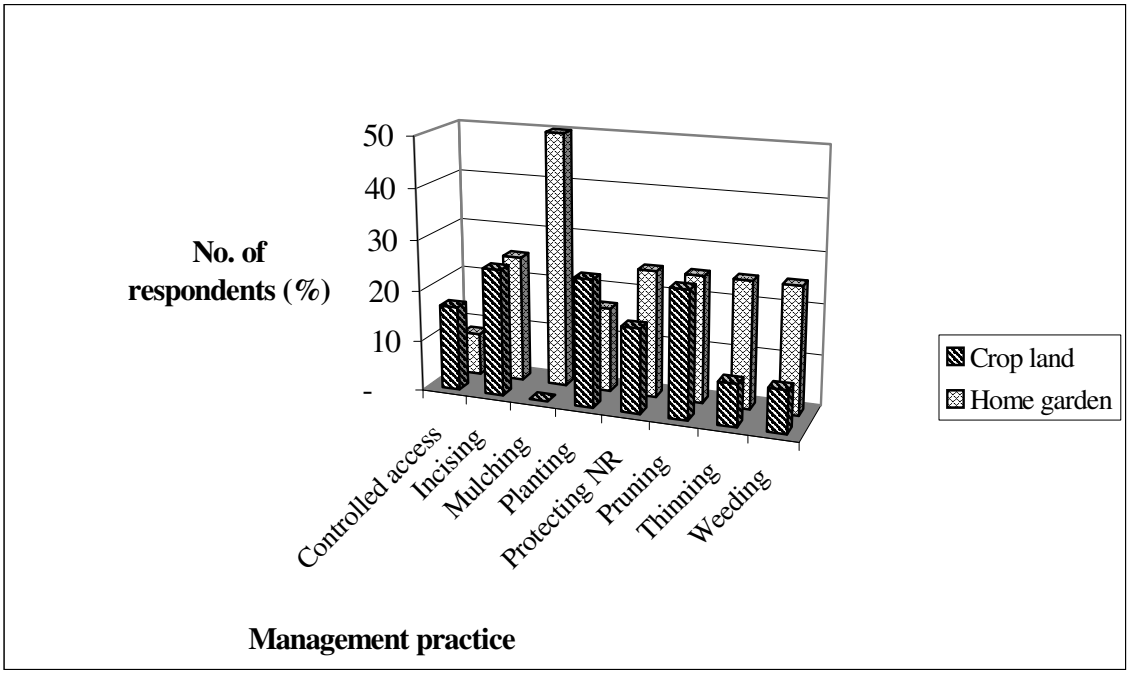


Figure 7.5 Management practices for jackfruit by landscape niche

The jackfruit trees occurring in all landscape niches were found to be both self-sown (naturally regenerating from seed dispersal) and planted by individuals (Table 7.4). The planted jackfruit trees were propagated from seedlings and seeds.

Table 7.4 Location, propagation and ownership of *Artocarpus heterophyllus*

Location	*Propagation*			*Tree distribution (%)*	*Land ownership*
	*Planted (♂/♀)**	*Natural regeneration***	*Accidental***		
Home gardens	√/♀/♂	√	√	43	Private
Croplands	√/♂/♀	√	√	32	Private
Common lands	X	√	√	9	Private
Forest reserve	X	√	√	15	State

*√/♀= Planted by women; √/♂= Planted by men; √/♀/♂= Planted equally by both men and women; √/♀/♂= Planted by both men and women but more by women; √/♀/♂= Planted by both men and women, but more by men, and **X** = Not planted.

**√ = Present in location.

Over 90 percent of the respondents had planted jackfruit trees in the different landscape niches. Planting differentiated by sex and landscape niche is presented in Figure 7.6. The figure reveals a planting pattern that is similar to that of the fig tree in all of the landscape niches.

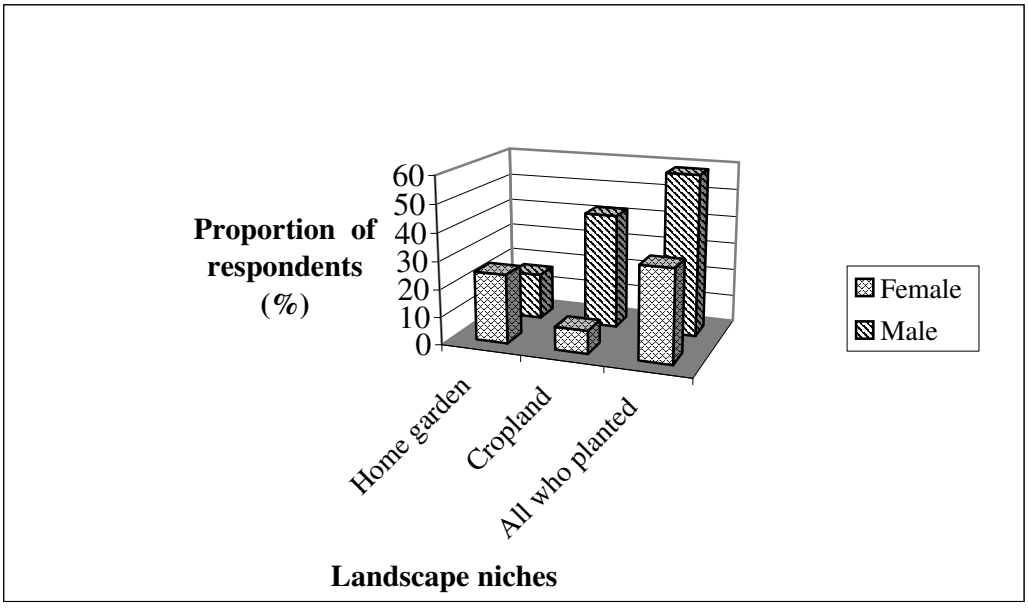


Figure 7.6 Jackfruit planting differentiated by sex and landscape niche (n=12)

Women purposefully plant jackfruit trees in home gardens to provide fruit for the household and shade for both humans and livestock. In other words, women plant jackfruit trees only for subsistence uses that do not require cutting the tree. Less than 10 percent of women respondents reported having planted jackfruit trees outside of the home garden niche.

'We feel that it is our obligation to plant fruit trees in both the compounds and the home gardens because it is our responsibility to provide food for our families.' 'We

eat jackfruit for lunch during times of food scarcity.' 'The men are more interested in fruit for sale and not fruit for home consumption,' spontaneous statements from women during a group discussion.

Men mainly plant jackfruit trees in order to harvest fruit for sale in the local market. Some men also plant jackfruit trees in home gardens and designate them as 'not for domestic consumption'. In this case, exclusive use rights to the fruit are created, such that women and children need permission from the male household head to harvest the fruit. There were, however, contradicting perceptions on the exclusive rights to harvest and use fruit from the jackfruit trees. On the one hand, the men respondents with whom discussions were held insisted that children had to seek permission to harvest fruit from the designated trees. The women respondents, on the other hand, reported that, although children had to seek permission to harvest fruit from trees that have been marked 'not for domestic consumption,' in most cases they did not ask permission. In an informal discussion with some children in the village, none admitted ever asking permission from anyone to harvest jackfruit, even when they know that it is prohibited to harvest the fruit. This issue of children seeking permission to harvest fruit appeared, therefore, to be theoretical, and it can be concluded that although jackfruit-harvesting restrictions exist for children, these are not followed.

Men in the study area categorised planted jackfruit trees as both valuable and not valuable. The valuable trees are seen as those that produce the biggest and best fruits that are usually easiest to sell in local markets. The men reported that they mainly plant 'valuable' trees on their croplands. This is because women do not usually access these 'valuable' trees if they are located in croplands without permission from men. Thinning and branch pruning were reported more often in the croplands than in the home gardens. This could be because the practices were more necessary in croplands where crop shading is less tolerated. The discussions also revealed that women's management activities were more concentrated in the home garden, while men's were concentrated in the croplands (Figure 7.7).

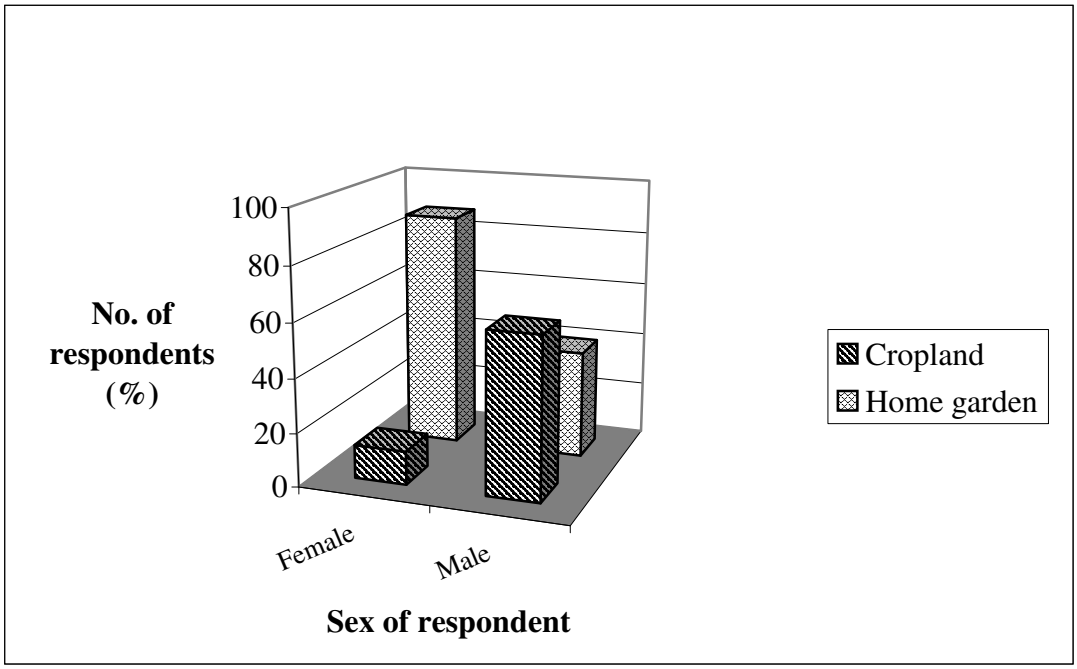


Figure 7.7 Gender-differentiated jackfruit management in different landscape niches (n=12)

However, men carried out pruning and thinning in the home gardens. Irrespective of where such activities are required, men will be responsible for performing them. On the other hand, women seem to have limited flexibility to carry out management practices that directly affect trees outside of their own landscape niches, which seems to be a male privilege.

7.2.3 LOCAL MANAGEMENT OF PHOENIX RECLINATA (PALM TREE)

The information about the local management practices for palm trees was generated from both group discussions and individual interviews. For this case study, eight men and eleven women were involved in the discussions and interviews. These were men and women who had been identified by the villagers as most knowledgeable and involved with palm trees. Their age ranged from 30 to 60 years, their education ranged from zero to eight years in school, two of the participants both males did not have land, and landholding sizes varied for those with land. Based on the wealth categories discussed in Chapter 5, 35%, 55% and 10% of the participants were in the poor, average and rich household wealth categories, respectively. One of the male participants was regarded to be one of those who are locally defined as the poorest of the poor. He did not have land, had no wife or children, had never been to school, and was sheltered by one of the villagers as a labourer. Apart from the wage and shelter he obtained for his labour, harvesting and selling palm leaves was the only other activity from which he obtained some cash income.

The residents in the study area did not plant palm trees (Table 7.5). Palms grow naturally in the landscape and regenerate from seedlings and suckers. Despite the growing demand for and scarcity of the palms, none of the residents has tried to domesticate the species, and therefore none reported ever planting a palm tree.

Table 7.5 Location, propagation and ownership of *Phoenix reclinata*

Location	*Propagation*			*Tree distribution (%)*	*Land ownership*
	*Planted (♂/♀)**	*Natural regeneration***	*Accidental***		
Home gardens	X	√	X	2	Private
Croplands	X	X	X	-	Private
Common lands	X	√	√	28	Private
Forest reserve	X	√	√	70	State

*√/♀= Planted by women; √/♂= Planted by men; √/♀/♂= Planted equally by both men and women; √/♀/♂= Planted by both men and women but more by women; √/♀/♂= Planted by both men and women, but more by men, and **X** = Not planted/present.

**√ = Present in location.

It was interesting to note that the villagers reported that they do not carry out any management practice in relation to palm trees. They stated that the lack of a deliberate management strategy for the palm trees was due to the fact that they regard palm trees to be 'wild' and to flourish well without disturbance. This indicates that whatever villagers do to the palm trees is not locally perceived to be management.

However, upon further probing, I noted four management practices that women carried out, namely; frond trimming, protection of natural regeneration, spot weeding and leaf processing.

About 40% of the women interviewed said that they remove the old and dry leaf fronds, which they never use for making crafts. Although they believe that this helps the younger leaves to sprout faster, they did not regard it to be a management practice but rather as an activity carried out to facilitate access to young leaves during harvesting.

All of the women who reported harvesting palm leaves stated that they protect the naturally regenerating palms when found during their harvesting activities. This they do by spot weeding, thereby removing any vegetation that would interfere with the growth of the young palm. The harvesters, who are mainly women, report that they are always careful not to trample the young seedlings during harvesting, and thus they protect their regeneration in the wild.

Both of these management techniques were reportedly carried out in both the forest reserve and on common lands where women harvest palm leaves. The men, however, did not directly or indirectly report any management activity. They stated that all they do is '*clear the way to the palm tree, cut the palm leaves, tie them into a bundle, carry the bundle and leave the forest*'.

As discussed earlier in Chapter 6, there are taboos and traditional beliefs that govern the use of palms. This could also be interpreted as an indirect management strategy as all of the taboos and beliefs discussed could regulate use and therefore may sustain

availability of the palms over generations. For example, the taboo relating to the harvest of palm leaves during the full moon and the emergence of maggot-like insects out of the palm stalks ensures that palm leaves are only harvested when mature and during a specific season. This could prevent harvesting of immature products and in turn protect the palm trees from over-exploitation. Also, the belief that the palm trees harbour the spirits that protect the wetlands may result in limited exploitation and therefore protection of the palms.

Only women were reported to process palm leaves. This entails spreading the fronds out in the sun to dry for about five days. Upon harvest, the leaflets are usually yellowish-green and, upon drying, they turn cream coloured or dirty white. The women said that care must be taken to keep the leaves from contact with water as this gives them an undesired brownish colour. However, colour can be added later using various dyes. When dry, the leaflets are plucked off the frond and neatly bundled together. If colour is required, the leaflets are tied at the apexes into smaller bundles which are submerged into a mixture of water and any dye that are placed in a metal container. The top of the container is then sealed with banana leaves, placed on top of a fire, and the contents are left to boil for 3-4 hours. The leaflets, now coloured, are then removed from the dye and hung in the shade to dry. The leaflets are then split, one-by-one, into two or three sections leaving about one-tenth of the length un-split at the bottom of the leaflet. A safety pin is used for leaf splitting. Also, the margin of each leaflet is carefully removed, as it is always uneven. This is a very tedious process, which requires much skill and patience. The leaflets are now ready for making handicrafts.

The men reported that they sell the freshly harvested frond and only dry them when they fail to obtain a market for the fronds and have to preserve them for some time. Even then, they stated that they only dry them in the sun and bundle them for sale. They are never involved in further processing.

7.2.4 LOCAL MANAGEMENT OF CLEOME GYNANDRA (CAT'S WHISKERS)

Information about the management of cat's whiskers was sought from a group of eight women who were intensively involved in cultivating the plant in their home gardens. Three men were also interviewed, two of whom were buying the plant from the women growers whereas the third was harvesting it from the forest, and all of them were selling it in the local market.

Cat's whiskers is a wild vegetable that is now cultivated in home gardens and fields. Women said that they plant cat's whiskers (*jobyo*) in their home gardens to provide the vegetable for their households, which was becoming more and more difficult to obtain outside of their home gardens. They said that, in the past, they used to collect the vegetable from open fields and forest fringes. Today, most of the fields have been cultivated, making it difficult for them to access the naturally growing vegetable. Also, the distance women have to travel to the forest to collect vegetables is far given the amounts collected, and the availability of the vegetable in the forest is also reported to have decreased tremendously. This is the major reason why women have brought the vegetable into their home gardens, where they can access and manage the vegetable.

Five main management practices were reported for Cleome sp, namely seed processing, planting, manuring, thinning and weeding.

Figure 7.8 presents the sex and number of respondents who have ever carried out any of the reported management practices. It was noted that, with the exception of planting, all of the management practices are carried out by women. This could be because activities relating to vegetable production are generally regarded to be women's activities, and vegetables are also perceived to be women's plants.

Women respondents said that they collect mature capsules of the vegetable crop at the end of the rainy season, dry the seeds in the sun, wrap them in banana fibres, and hang them in the kitchen high above the fireplace until the rains come, at which time they can be planted. The respondents also said that, although young women have lately started to store seed, this used to be an elderly woman's activity. The villagers believe that elderly women have the experience and skills to prepare and store cat's whiskers seed for successful propagation. It was also noted that men do not process seeds for planting, but rather negotiate with women to obtain seed. The only man who reported planting the vegetable stated that he obtained the seeds from a female friend and had to promise to give her part of the harvest and also the seed that is produced during the season.

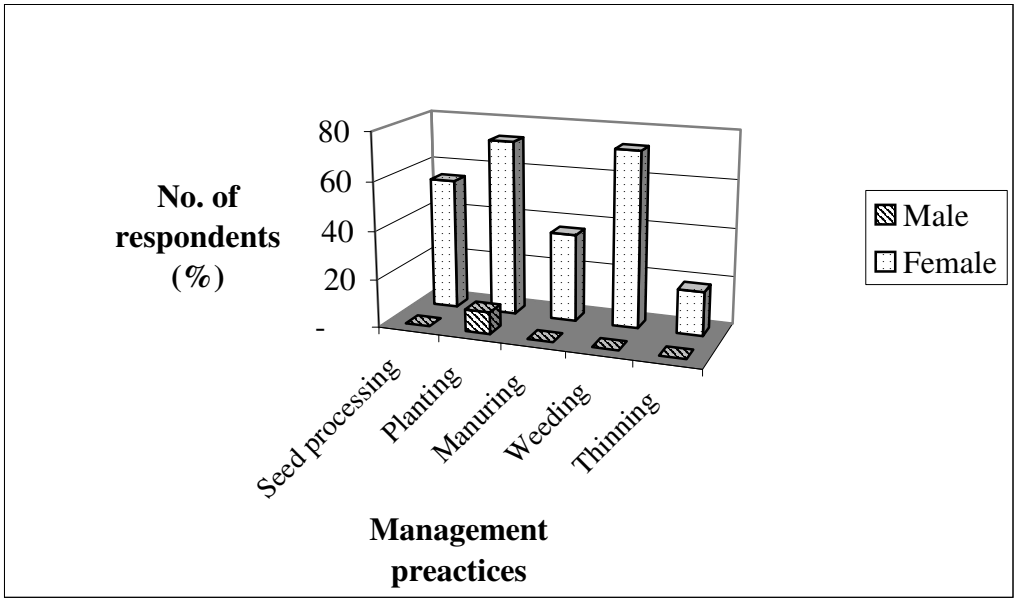


Figure 7.8 Number and sex of respondents managing Cleome gynandra (n=11)

To propagate the vegetable, the seeds stored from a previous crop are broadcast on well-loosened, fertile soil that contains compost that has been generated from kitchen waste. Two farmers mentioned preparing beds for the seed from which they thin some of the plants, leaving sufficient space for the rest to grow and mature. Seeds germinate within 4-5 days and can be harvested within three weeks after planting, depending on the rainfall pattern in that season. According to the respondents, when rains are insufficient, it can take more than five weeks before the vegetable produces enough leaves for harvesting. For the naturally regenerating vegetable, the ripe capsules dry up

and shatter, releasing seed on the ground, which will germinate in the next season when the rains come.

Cat's whiskers was therefore found to be both self-sown (naturally regenerating from seed dispersal) and planted by individuals in arable lands and wasteland (Table 7.6). The planted cat's whiskers were mainly propagated from seed.

Table 7.6..Location, propagation and ownership of *Cleome gynandra*

Location	*Propagation*			*Vegetation distribution (m^2/ha)*	*Land ownership*
	*Planted (♂/♀)**	*Natural regeneration***	*Accidental***		
Home gardens	♀	√	√	53	Private
Croplands	-	√	-	3	Private
Common lands	X	√	√	12	Private
Forest reserve	♂/♀	√	√	32	State

*√/♀= Planted by women; √/♂= Planted by men; √/♀/♂= Planted equally by both men and women; √/♀/♂= Planted by both men and women but more by women; √/♀/♂= Planted by both male and women, but more by men, and **X** = Not planted.

**√ = Present in location.

Both male and female respondents had at some time planted the vegetable in different landscape niches. Figure 7.9 below shows that all of the eight women interviewed had planted the vegetable in their home gardens and two had planted it in the forest reserve.

Planting of cat's whiskers and other vegetables in the study area is a woman's obligation. Every woman is expected to serve a meal accompanied by a green leafy vegetable. Vegetables were never purchased, but women produced them in home gardens or collected them from the bush and forest. This is demonstrated by what some of the women said:

> *'It is my obligation to make sure that every meal served is accompanied by a green vegetable. My husband will not consider me to be a good wife if his meals are served without green vegetables; this is why I plant vegetables in my home garden'* (woman, 43 years).
>
> *'It is becoming more and more difficult to find jobyo in the open fields…. This is why I have to plant them in my home garden to ensure that I still have a supply of the vegetable'* (woman, 49 years).
>
> *'A hard-working woman can not be seen buying traditional vegetables from the market, she is supposed to produce them in her home garden or she is supposed to find time to go out in the fields and collect the vegetable'* (Widow, 69 years).

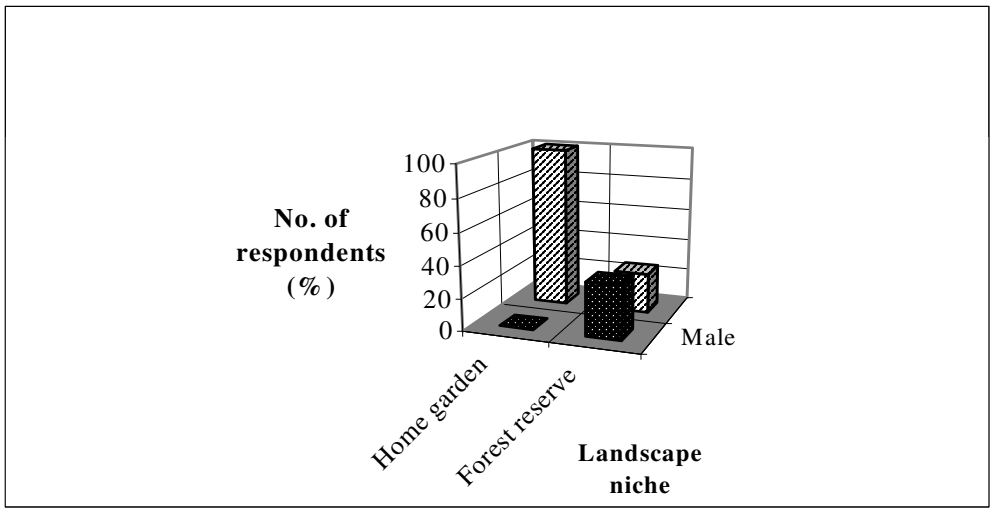


Figure 7.9 Number and sex of respondents planting Cleome gynandra (n=11)

However, the vegetable is now being sold in small markets outside of the villages and men are cultivating the vegetable for sale. One of the three interviewed men had planted the vegetable in state forest reserves, although the men themselves consider this to be illegal. They said that they knew that they were not supposed to plant in the forest reserve but, because they considered the forest soils to be more suitable for this vegetable, they were willing to take the risk and plant the vegetable. The men respondents also said that they could not plant the vegetable in the home garden because their wives would harvest the plants for household consumption, whereas the men intend to sell the produce to generate income.

Three of the respondents, two women and a man, said that they had planted Cleome sp. in the forest reserve. The only management practices employed in that location were planting and weeding, and propagation is done through seed broadcasting. Forest soils are considered to be particularly good for vegetable cultivation in comparison with home garden soils. The villagers also believe that the forest soil imparts a particularly unique taste to the plant and that, although manuring enhances plant growth, it distorts the taste. According to villagers, the plants grown in the forest taste better than those grown in home gardens and they also obtain a higher price when sold in the local market. Also, villagers said that the Cleome plants harvested from the 'wild' forest and occasionally from common land had better medicinal qualities than those harvested from home gardens. The only man involved in planting Cleome sp is landless, unmarried and regarded as very poor by the majority of the villagers. Selling Cleome in the local market is his source of livelihood in addition to providing casual labour to the better off members of the village. He does the weeding himself, which is regarded as a female activity. One elderly female respondent in the group commented that '*it is only the men without means that get involved in women's activities*'.

7.3 MAJOR FINDINGS AND CONCLUSIONS

This chapter has presented results of the management practices relating to the four selected species. Two types of management are evident: the first entails biological or biophysical practices and the second relates to socio-cultural practices. Both types of management are related to gendered norms, knowledge and social status, as well as to spaces or landscape niches.

Villagers' management practices for figs, jackfruit, palm and cat's whiskers were investigated. The major biological or biophysical management practices for all the four species entailed planting, weeding thinning, pruning, mulching, bark removal, bark and stem incising, and planting and protection of regeneration. The following patterns were observed.

7.3.1 GENDERED MANAGEMENT OF PLANT SPECIES AND SPACES - A SUMMARY

Knowledge about the use and management of fig trees is thought to be mainly possessed by the male members of the community. Men exclusively hold knowledge about bark cloth making and processing, but women also have knowledge about the use and management of fig trees and bark cloth making, which is supposedly a male practice.

Similar to fig trees, knowledge about the management of Jackfruit trees is widely believed to be mainly possessed by the male members of the community. It was however noted that women also have knowledge, not only about the use of jackfruit trees but also about management. Both men and women were found to have both theoretical and practical knowledge about the use and management of jackfruit trees. However, less than 20 percent of the females interviewed had participated in different jackfruit management activities. This was significantly different from the men, where about 80 percent had participated in various management activities. Men's knowledge and management practices pertained mainly to branch pruning, thinning, and bark incising to stimulate fruiting while women's practices mainly involved planting, protecting natural regeneration and weeding under the trees. Both men and women reported harvesting fruit although men were harvesting mainly for sale and women for domestic consumption.

Palm trees were exclusively managed by the women although they did not regard their actions as management. However, both women and men stated that women were more conversant with aspects related to palm than men were. Very few men openly admitted having any thing to do with Cleome sp, which is regarded to be a woman's plant. Almost all the men referred me to their wives or other women when asked anything about this species. The few men that I managed to engage in a discussion about the plant had general knowledge about its use and management, but knew very little about the details. I eventually realised that men's unwillingness to reveal their knowledge about the plant was not because they did not know, but more because they did not want to associate themselves with 'women's small plants', as this was perceived to relate to one's status. Men dealing with women's plants were regarded as socially inferior.

Although men were expected to know more about tree management than women, it was found that the differences in knowledge were not significant. The major point of departure was that, although both men and women know a lot about each other's practices, each was an active practitioner only where it was socially acceptable. However, a few cases defied the rule: men were involved in both craft materials and Cleome sp. practices but still the end product was marketed, which still conformed to the social expectations for men. This, therefore, links plant management strategies to the socially ascribed gendered norms and social status.

With regard to the spatial occurrence of management practices, almost all practices were mainly carried out in home gardens (HG) and croplands (CL), and to a lesser extent in the common lands (CML) and the forest reserve (FR) (Figure 7.10). For jackfruit, the trees found in the forest reserve are not managed whereas those found on private land are managed. However, palm and Cleome species found in the forest reserve are minimally managed. This indicates that, while land tenure can have an effect on management practices, non-ownership (private or communal) of land or trees does not ipso facto mean that these resources won't be managed. People will invest time and energy in resources that do not pertain to them as long as they are able to use these resources. Should use be effectively prohibited, then the management practices would very likely come to a halt. The fact that people are managing trees and plants within forest reserves is another indication that they 'transgress' boundaries.

Landscapes spaces may be defined as gendered (predominantly male or female) based on the crops grown, the persons using the crops, and the uses to which they are put. Further, spaces may be defined as predominantly men's or women based on who frequently manages most species in these spaces.

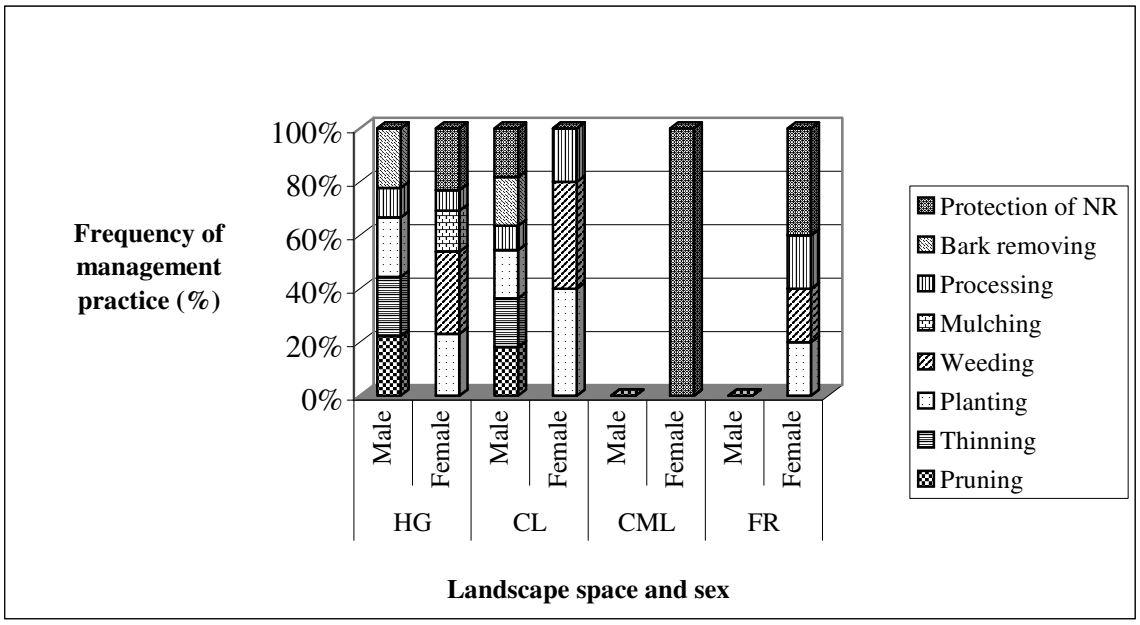


Figure 7.10 Management practices, landscape niches and sex

Considering all of the management practices carried out for all of the selected plant species, this chapter shows that women predominantly manage home gardens, while

men predominantly manage croplands (Figure 7.11). As discussed earlier, women carry out any management practice in the home garden, a women's niche, that does not entail cutting part or all of a tree. This means that women do not prune or thin, even in home gardens (Figure 7.10). For non-tree species like Cleome sp, women can dispose of entire plants. Thus, within the landscapes, trends towards gendered spaces were observed.

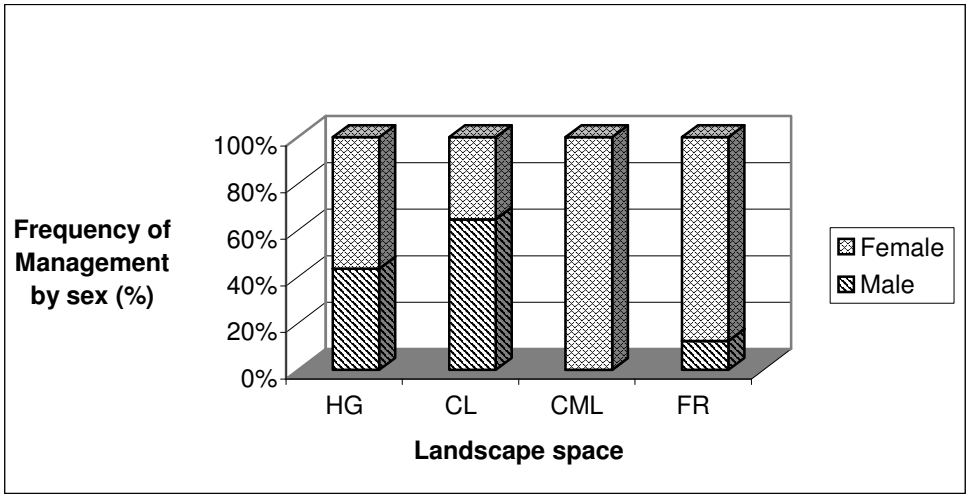


Figure 7.11 Management in landscape niches by sex

Second, all the practices that entailed cutting part or all of the tree species such as pruning, thinning and bark removal were male-dominated (Figure 7.12). Irrespective of where the trees were located, men were still responsible for implementing these practices (Figure 7.10). This revealed the strongly male-privileged tree tenure in the study area. Weeding and mulching were exclusively carried out by women in home gardens.

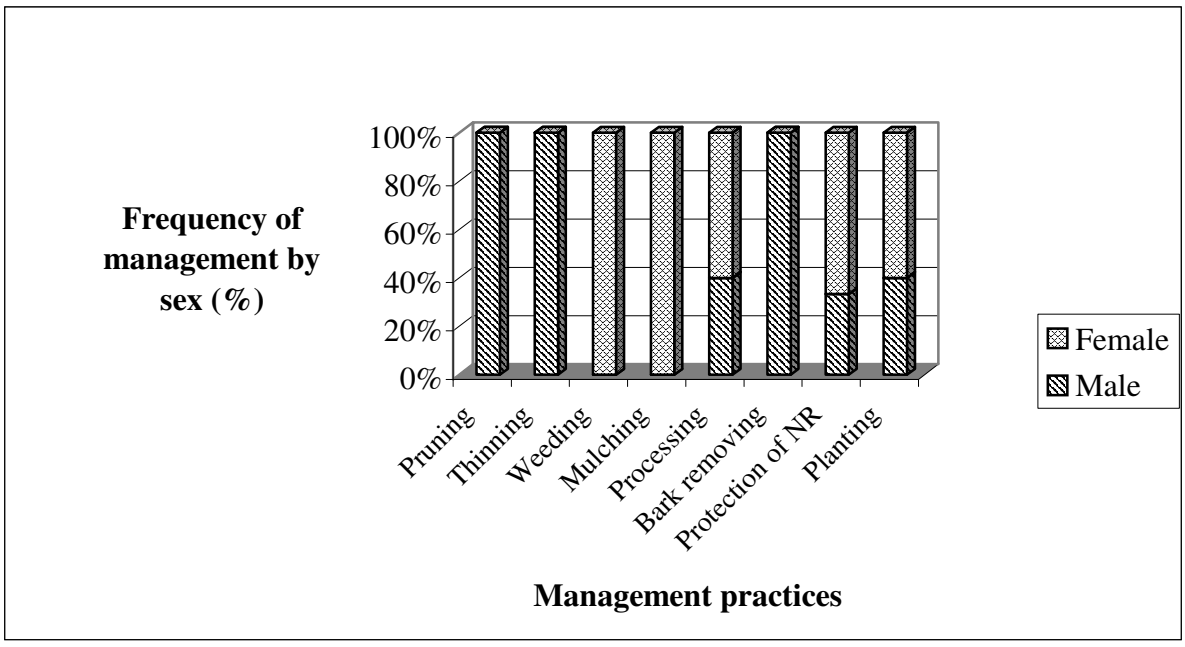


Figure 7.12 Species management practices and sex

However, women are also socially obliged to carryout weeding in croplands, which are defined as men's spaces. This indicates that gendered management practices exist, based the gender division of labour and other gendered norms. Although both men and women carry out certain management practices such as protection of natural regeneration, planting and processing, women are more frequently involved than men (Figure 7.12). Third, almost all tree related resources, especially those that could generate income were predominantly described as male owned, while the subsistence non monetary plants, usually not trees, were predominantly described as women's resources. Further the frequency of managing such plants reveals a similar pattern (Figure 7.13).

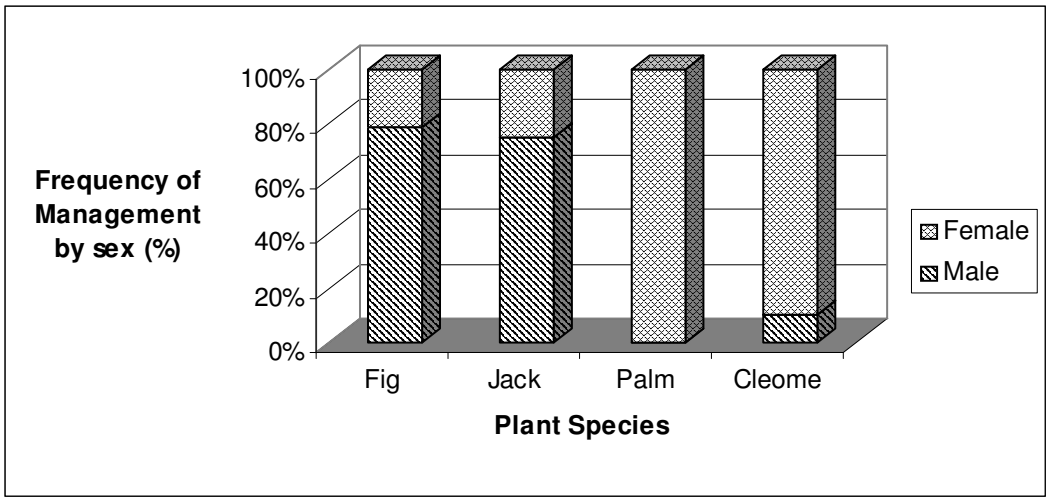


Figure 7.13 Species management and sex

7.3.2 GENDERED NORMS AND TREE MANAGEMENT

The study revealed several norms that affect women's management of plant resources, especially tree species. Women are traditionally expected to be modest, patient and more caring, while men are viewed as masculine and more aggressive. These perceptions play a major role in the division of labour at both household and farm level and are in turn reflected in men's and women's plant management practices. Gender norms prescribe a gendered division of labour within the household that orients women towards domestic and subsistence activities while men are oriented toward major food and cash crop for income-generation. Thus, women tend to manage resources that contribute to fulfilling their roles and this could explain why women were predominantly responsible for providing food, vegetable relishes and handicrafts for their households. As discussed previously, a traditional meal is incomplete with out a green vegetable and a husband would not respect a wife who was not able to provide the household with green leafy vegetables. This means that vegetable production is a social obligation for women. In addition, it is a woman's obligation to provide most of the handicrafts needed for the household, although previously men were required to provide bark cloth for clothing. This may explain women's heavy major involvement with the palm tree. It is, also seen as inappropriate for men to be involved in activities that are socially prescribed for women. This could be the reason why men barely

participate in vegetable and handicrafts production, and weeding. Similarly, women's involvement in activities that are ascribed to men is considered as socially offensive. For example, it is unacceptable for women to climb trees in this area. This taboo originates from the time when the villagers did not have appropriate clothing, and when it was considered that tree climbing could cause scars that could destroy a woman's beauty. This could be another explanation as for why women are not involved in pruning and thinning across all of the selected tree species located in all landscape spaces, although it is probably also related to male tree ownership, where the right to cut trees is attributed exclusively to the owner,

Some taboos were reported that relate to women's cleanliness. Traditionally, women are seen to be unclean especially during their menstruation, which is associated with 'bad luck'. This still limits women's involvement in activities which men view to be 'important'. For example, women are not allowed any where near bark cloth production premises, nor are they allowed to be in contact with the bark during the cloth production process as it is believed that the quality of the cloth produced would be affected. This is one of the reasons given for women's exclusion from the bark production process.

Although the general trends in the forest resource management conform closely to the social norms and gender division of labour, a few cases were found to defy these norms. As observed earlier in this chapter, a few men were involved in certain management practices related both to palm and handicraft production and Cleome sp. which are traditionally perceived to be female activities, and further are considered to be of lower status, as discussed below. Some men were also reported to be involved in such activities as weeding, which was seen in the case of one man who was cultivating Cleome, which is a female activity. Also, women are involved in the marketing of handicrafts to generate income, which is supposed to be a male activity. In this respect, it can be concluded that both men and women transgress socially recognised boundaries of norms.

7.3.3 GENDER, SOCIAL STATUS AND MANAGEMENT OF PLANT SPECIES

Men and women's use and management of various plants and tree species in the study area was also related to the status of the individual, where participation in various practices depended on one's status and the outcome of one's practices confers a certain status to the participants. However, what was regarded as conferring high status to women was almost exclusively always regarded as conferring low status to men. Thus, status in relation to the selected species was also gendered as discussed below.

As observed in chapters 5 and 6, more than half a century ago, owning fig trees was a very important status symbol: the more fig trees one had, the more the bark cloth one produced and therefore the richer a person was. Male social status was principally defined by the ability to produce bark cloth in sufficient quantity. Local people's involvement in bark cloth making has tremendously declined over the past three decades.

Despite this, fig trees are still highly valued. This is mainly because of the supportive role fig trees play in the production of other crops that are currently generating income for households. Also, the lack of substitutes for materials for cultural rituals means that the bark cloth still has to be produced. But, the number of people involved are few and they are more specialised, and the status accorded to bark cloth producers is no longer as high as it was 40 years ago. Bark cloth does not fetch as great a monetary return as it used to and, in a monetized economy, social status and power increasingly revolve around money.

An association with palm trees also confers particular status that is different for men and women. Traditionally, activities related to palm are female and domestically oriented. Culturally, women are not expected to be sitting 'idle' at home and should 'relax' while making handicrafts such as mats, baskets and other household items. Handicraft making was expected of all women, and the most popular craft materials are leaves and fronds obtained from the palm. Because men associate craft making with leisure (having nothing better to do), male participation in them undermines a male's social status. Handicrafts were associated with domestic consumption and not for generating income, so palm handicraft production was also considered to confer low status to men for this reason. However, some women today sell handicrafts to generate income to meet their personal needs.

In the past, involvement with handicrafts gave women relatively high status as this showed that they were able to provide their households with the basic goods. With the current economic diversification in activities due to increase demand for cash income, (see chapter 5), women's status derived from handicrafts is linked more to their ability to generate income by marketing crafts than to production for domestic use. Although more men are now involved in handicrafts due the fact that they are increasingly becoming a lucrative business due to tourism, the perception of the status of any male involved in their production has hardly changed. Due to such perceptions related to status, men tend to be involved only in gathering raw materials for women and not in producing handicrafts themselves.

Women derive status from being able to provide healthy vegetables for their households. Cleome sp. is one such vegetable that every woman in the study area strives to keep in her home garden. With its increasing scarcity in the wild, women who still gather it are granted esteem in the study area. Since it is regarded as a women's activity and formally as a subsistence good, the few men who were encountered who are involved in the production of Cleome sp are regarded as poor and as having low social status. These are usually the men who can not afford to marry, who have no close female relative in the village, and perhaps who relate poorly to female members of the community who would, under other conditions, supply them with the vegetable. Just as is the case with the palm, even when the vegetable is now locally marketed and a number of men are becoming involved, the perception of men's status in relation to these plants is maintained.

Generally, it can be concluded from the observations above that men are more likely to manage tree species, while women are more involved in the management of non-tree

species. It can further be hypothesised that men will, only manage non- tree species for income generation or under very desperate circumstances, as this confers low status on them.

Some taboos were found that relate to women's cleanliness. Traditionally, women are seen to be unclean especially during their menstrual cycle and this is traditionally associated with bad luck. This perception or belief limits women's involvement in activities that men view to be important. For example, women are no allowed any where near the bark cloth production premises, nor are they allowed to get in contact with the bark during the cloth production process as it is believed that the quality of the cloth produced would be affected. This is one of the reasons given for women's seclusion from the bark production process.

Although, general trend in the management of plants conforms closely to the social norms and gender division of labour, a few cases were found to defy the rule. As earlier observed a few men were involved with both craft materials and Cleome sp. practices which are traditionally perceived to be female oriented and of lower status as discussed below. Some men were also reported to be involved in such activities as weeding, revealed in the case of the man cultivating Cleome, which is ideally a female activity. Also women are involved in the marketing of crafts to generate income, which aspect of income generation is supposed to be a male activity.

Men and women's use and management of various plants and trees in the study area was related to the status of the individual and sometimes their involvement conferred them a particular status in the village. Also, participation in various practices depended on one's status and the outcome of one's practices conferred a certain level of status to the participants. However, what was regarded as conferring high status to women was almost exclusively always regarded low status for men. Thus, status in relation to the selected species was also observed to be gendered as discussed below.

8 DISCUSSION, REFLECTIONS AND CONCLUSIONS

8.1 INTRODUCTION

A variety of new approaches to forest management involving local communities have been implemented in tropical countries in the past three decades, which has led to growing interest in the direct participation of communities in forest management. As a result, foresters, ecologists and rural development experts have recently begun to acknowledge the existence of 'local' or 'indigenous' forest management systems. An increasing number of ethnobotanical studies and research on non-timber forest products have indicated that people living in or near forests are not only gatherers of forest products but are also active forest managers involved in purposeful activities that are meant to safeguard the availability of the valuable forest resources on which they depend. In the beginning of Chapter 2, it was argued that local use and management of tree and plant species in forested landscapes has become an important goal to achieve forest landscape conservation and to improve local livelihoods. In the same chapter, an overview of the different perspectives on local forest management was presented and special attention was paid to the gendered access, use and management of plants in forested landscape spaces. From this exploration, it became clear that understanding gendered use and management of trees and plants in forested landscapes requires a multi-disciplinary approach, and that attention should be given to the development of a more holistic conceptualisation of people-forest relationships. A number of theoretical considerations were introduced that might provide greater insight into people-forest relationships: the concepts of bundles of rights entailed in formal and informal systems, local knowledge, as well as social-cultural and gender relations, which to a large extent condition the perceptions, use and management of trees and plants in forested landscapes. The conceptualisation of forests from both *emic* and *etic* perspectives was taken as the point of departure, which meant dealing with the emic concepts forest resources and landscapes instead of only professional concepts used by foresters. These concepts reveal the heterogeneity and complex characteristics of people-forest relations, as well as their effects on local people's livelihoods and forest resource conservation.

As described in Chapter 3, for this study I adopted both a general forest resource use approach that is common among foresters, as well as a species-level approach using selected case studies that is mainly used by ethnobotanists. Using both approaches has produced rich insights for understanding people–forest resource relations within a specific socio-cultural context by unveiling the complexities and nuances that could not be attained using only one of the approaches. The species-level approach

demonstrated that different species are associated with different rights, beliefs, cultural and material forms of use and associations according to gender and social status, and different management practices. The forest resource use approach demonstrated 'general principles' related to forest resource knowledge and management, as well as norms, beliefs, and rights regimes that condition the use and management of specific species and landscape areas, as well as the distribution of benefits among community members. Specific species form part of these patterns and at the same time deviate from them in particular ways, which helps further to demonstrate that the 'forest' is a complex web of relations both between humans and between humans and their natural environments.

In chapters 5-7, the conceptual framework developed in Chapter 2 was applied in the investigation and analysis of gendered access, use and management of forested landscapes and specific species in two different villages in a selected area of the Buganda region of Uganda – in one community surrounded by a forest and in one at the forest fringe (Chapter 4). Factors influencing people's dependence on plants for their livelihoods as well as people's uses and management practices of forest species in specific landscape niches were described, including the gender differences encountered. Attention was paid to socio-cultural relations, the gender division of labour, norms and cosmological beliefs that influence the dynamics of use and management of both species and spaces, as well as the interrelationship between the two. The results that are described and discussed in chapters 5-7 suggest that disciplinary, physical and socio-cultural boundaries are being transgressed in the effort to access, use and manage tree and plant resources to maintain both local livelihoods and cultural identity. On the one hand, local people's use and management of plant species in forested landscapes is conditioned by formal land and tree rights regimes. On the other hand, there are informal rights that are established by socio-cultural norms and beliefs, many of which are related as well to gender, and that are manifest in gender division of labour, gendered spaces, gendered species and gendered species products, as well as gendered management practices. These multi-facetted conditions conform to an observation made by (Ellen 1996) about differences in *emic* and *etic* perceptions. In an emic perception, the forested landscape is viewed as a mosaic of resources and a dense network of particular places each having different material and cultural values and as well associated informal rights. In contrast the *etic* perception on forested landscapes considers resource units bounded by formal rights regimes, and as containing:

> *'a continuous aggregation of different biotopes and patches, varying according to stages in growth cycles, degree of regeneration, underlying geology, altitude and geography'* (Ellen 1996:4).

Further, the empirical results showed that local use and management of tree and plant resources can be understood only when the social, cultural and environmental influences are seen as conforming multiple, complex, layered, overlapping and yet nested relationships. This complex intertwining generates a critical reflection on local people's use and management of tree and plant resources in general, and their

implications for gendered access, use and management of tree and plant resources in Buganda in particular.

In this chapter, the above points are further examined and discussed in relation to the conceptual framework used for this research. In this discussion, some general theoretical observations regarding forested landscape access, use and management are presented. The chapter consists of three parts. It starts with a theoretical-empirical reflection, followed by a reflection on how gender relations are entailed and, finally, what all of this means for access, use and management of plant and tree resources in various forested landscape niches in general and in the study area in particular.

8.2 FACTORS CONDITIONING ACCESS, USE AND MANAGEMENT OF PLANT RESOURCES IN FORESTED LANDSCAPES

The discussion in Chapter 2 highlighted several factors that are considered to influence local forest use and management, i.e.; the types of forest use and degree of dependence on forest products (different modes of subsistence), patterns of ownership, management knowledge, and economic, cultural and political environments in which resources are managed. It was also noted that the location of communities with respect to forest resources, their proximity to markets, or their degree of 'acculturation' may also influence forest plant use and management.

This study found that intra- and inter-village differences as well as intra- and inter-household differences in forest resource dependency and use that reflect differences in age, wealth, landholding, education, and livelihood activities were significant in conditioning forest plant use and management. Intra- and inter-household differences were more important than inter-community difference. Despite the fact that there were inter-village variations, these were not statistically significant, perhaps because these villages share a common cultural and material heritage in relationship to the forest. It can be concluded from this study that, to understand local use and management of plants in forested landscapes, landholding size and income in relation to age, sex and wealth must be considered. Further, it was found that, although often neglected, it is intra-household differences, particularly the gender division of labour and gendered access to resources such as land and trees that most strongly influenced differences in intra-community forest resource dependency and use.

In Chapter 2 it was argued that local people's use and management of forest plant resources is also conditioned by the means through which access to land and tree resources are regulated. This entails a link between land access or tenure, tree or plant tenure, and use of plant and tree resources in forested landscapes, all of which clearly affect management practices since these rights influence rights to manipulate trees and landscapes. However, it was argued that the links between land, tree tenure, and plant and tree resource use and management are not simple, but complex, nested and overlapping, as summarised in Figure 2.3.

The findings of this study, reported in chapters 5 and 6, reinforce the assertion that tree rights are embedded in and mutually reinforced by both land tenure and social-cultural

relations. The findings, however, add more nuances (Figure 8.1), which creates further challenges for understanding the gendered use and management of tree and plant resources. The combination of gender and resource tenure create one challenge: to move from looking at simple dimensions of land ownership, as is typically the case, to considering multidimensional factors differentiated by sociological and ecological heterogeneity coupled with complex networks that connect various groups of people and the resources on which they depend. This study reveals the multidimensionality, nestedness and layered nature of rights that are revealed when plotting gendered land and tree tenure, species use and management practices on the same map. Such a map brings out gendered rights to spaces and species (where these are interlocking rather than discrete), and gendered domains of action that socially construct individual's and groups' resources rights and privileges; thus conditioning resource use and management.

Hypothesising that land and tree tenure regimes are gendered, complex and dynamic, the study revealed the variations: (i) in spaces within landscape niches in which men and women use trees, plants and their products and in which they have some level of control over management; (ii) between men's and women's rights to own, plant, use, manage or dispose of specific tree or plant species and their products; and (iii) between men's and women's management practices and knowledge. Based on four selected plant species, the study revealed the existence of gendered spaces, rights of access to trees and plants in various spaces, rights of access to specific tree and plant species in various spaces, and rights of access to species products within specific species and spaces, all of which are gendered. It was also shown that the gendered access to trees and plants by nature of use is important – rights are also related to whether tree and plant products are used for commercial or subsistence purposes.

Use and management occurred mainly and more frequently on privately owned lands than state lands. This indicates that land tenure regimes to a certain extent influence the type and intensity of use and management practice carried out for specific species (Wiersum 1997a). Within privately owned landscapes, niches or spaces were defined as predominantly men's or women's based on the crops grown, the uses to which they were put and who commonly carries out management practices on species in those landscape spaces. Thus, the study ratified that home gardens are predominantly women's spaces, while croplands are predominantly men's.

The study also showed that any use or management practices that entail cutting part of the tree – thinning, pruning or trees bark removal – are men's activities irrespective of where they take place, while management practices that indirectly benefit the plants such as weeding and mulching are women's activities, also irrespective of the place.

Further, species-related commercial products, especially those that generate major income, were generally described as male, while the subsistence use of plants, usually not trees, was generally described as pertaining to women. Thus, Ficus natalensis and Artocarpus heterophyllus were predominantly 'men's trees', while Cleome gynandra and Phoenix reclinata were predominantly women's species. This further reinforces the

observation that spaces, practices and species are gendered in relation to both use and management.

Several norms that affect women's use and management of plant resources, especially tree species, which reinforce the existence of gendered spaces and species were observed. General trends in forest resource use and management conformed closely to gendered norms and the gender division of labour. However, a few cases were found to defy these norms. A few men were involved in 'women's' species and practices, which was perceived to confer low status to men. Also, women are involved in income generating activities, but without necessarily meaning that these women's status is lower because of this. In this respect, it can be concluded that, while gendered norms and the gender division of labour are largely traditional in the study area, both men and women may transgress these socially recognised boundaries, particularly when compelled to by needs for income.

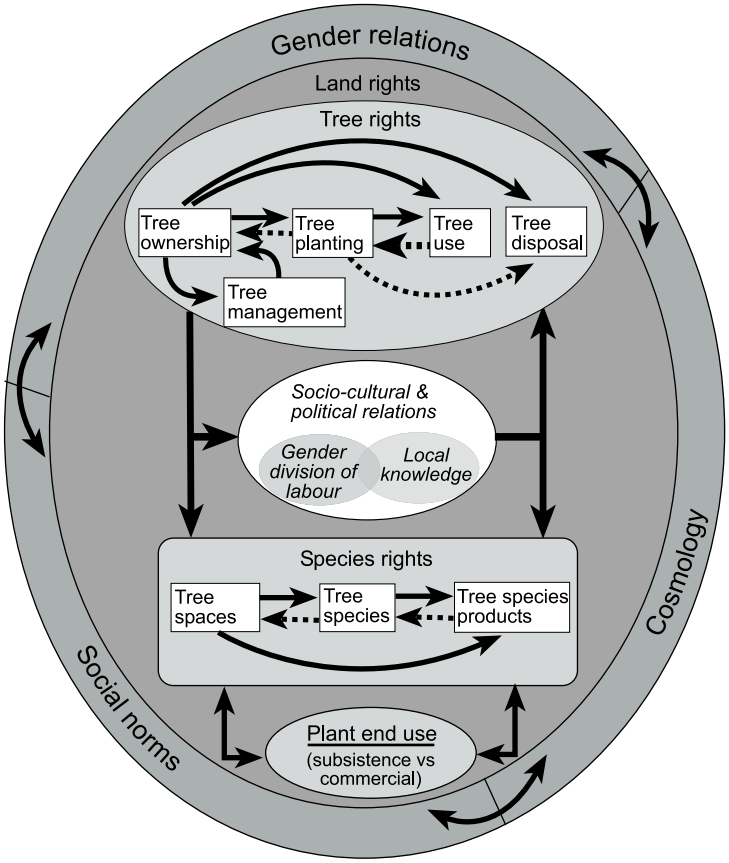


Figure 8.1 Mapping factors for gendered space and species in tree use and management

Figure 8.1 summarises graphically and conceptually the major considerations for tree resource use and management revealed by the study, enhancing what was earlier hypothesised in Figure 2.3 presented in Chapter 2. It shows that there are interactions between local social norms and cosmology, on the one hand, and formal property rights on the other, where both sides of this equation are gendered. Gender relations, which are embedded in social norms and cosmology, determine a gendered division of labour, which further reinforces the gendered nature of use and management of tree

and plant resources and spaces. At the same time, formal rights to land and the resources thereon, including trees and plants, are also gendered – if no longer *de jure*, then *de facto,* largely in accordance with customary tenure. This implies that gendered spaces are created based at least in part on the gendered rights to own and access land, and to use, manage or dispose of land and the resources thereon. This is further complicated by the existence of separate and gendered rights to trees and even to plants on the land that are distinct from but conditioned by rights to the land itself. Together, these tend to create gendered tree and plant species and spaces can be conceptualised either as: 'gendered spaces determine gendered species' (which species are 'male' or 'female' depends on the gendered rights to the spaces where the species are located), or as 'gendered species determine gendered spaces' (rights to spaces depend upon on which species are found there and whether these are 'men's' or 'women's' species).

However, there are yet other complicating factors: not only does the use and management of trees and plants become gendered and defined in terms of spaces and species, but also in terms of the nature of use: particularly the distinction between harvesting for sale or for subsistence. Further, at times it is not species *per se* that are gendered, but rather the different products of the species, or 'gendered species products'. The gendered products are demonstrated, for example, by fallen branches used for domestic fuelwood consumption being collected by women, versus branches of the same species being cut by men for charcoal-making for sale. Then, there are local relationships that further condition the various sets of rights, both formal and informal: marriage and other kinship ties, social obligations of reciprocity, of neighbourliness and friendship, etc. that are often based in part upon gender and also in part upon age.

This is why it is argued that the whole issue of tree and plant resource use and management is complex, nested, layered and overlapping. This has critical implications for gendered inequalities, equity, power, status, welfare and security. It creates major challenges for outsiders who seek to intervene to improve environmental and resource management, since such interventions clearly affect existing informal rights regimes and community relations, and therefore also affect gender equity, equality, welfare and security among multiple resource users, as well as prospects for resource conservation.

8.3 IMPLICATIONS FOR GENDERED USE AND MANAGEMENT OF FORESTED LANDSCAPES IN BUGANDA

Given the discussion on land and tree tenure presented in chapters 2 and 4, this study emphasised the need to pay more attention to the difference between *de jure* and *de facto* rights, as well as what has been conceptualised as simple access rights versus the actual complex systems of informal rights to plant and tree resources, with respect to potential conflict, coexistence or co-operation involved in gender and other social relations around these resources. Throughout the world, and especially as traditional relations in societies where women make a strong contribution to subsistence break down and are substituted by Western or more patriarchal value systems, women have often been excluded from controlling and even accessing a wide range of land, forest

and tree resources and their products. This has often been provoked by planned external interventions, ranging from legal land reforms in agriculture to forest protection and conservation programmes and laws.

In chapters 2 and 4, gendered tenure related to plant, trees, forests and land have been presented in relation to one area in the Buganda region. Overall, it appears that, irrespective of the formal laws that may no longer discriminate against women, men have stronger informal and *de facto* rights to use and manage various landscape niches in comparison to women. The last are more circumscribed to spaces that either have no strong rights regime associated with them (e.g. common land) or to those traditionally considered as 'women's spaces' (home gardens). The tenure disadvantages for women relate to the intersection of *emic* and *etic* gender ideologies with respect to ownership, access, use and management of resources. The *emic* gender ideology was found to be one of flexible complementarity under asymmetrical social-cultural relations of power that create and reinforce women's dependencies on men, particularly on husbands. The *etic* gender ideologies reflect conflicting gender power relations under patriarchal structures, or they assume gender equality without difference.

In response to the recognition of complexity and diversity of existing land use systems, property regimes and the gender division of labour, I suggest that the design of forest policy relating to local use and management of forested landscapes must begin by questioning issues related to social relations, and particularly to gendered issues of tenure and access to forest tree and plant resources. The complex and yet dynamic nature of gendered use and management of resources requires that careful attention needs to be given to gender equity. This requires consideration of representing people in nested and overlapping domains that reflect the multiple roles, identities and interests of men and women across location, occupation, age, wealth and other 'social fault lines' that may be important. Mapping gendered resources as well as gender and other power relations provides useful insights into emic systems of use and management of plant and tree resource in forested landscapes.

As in the case of resource access in Buganda described in Chapter 4 and in the results sections of this study, informal system of rights are parallel to the formal or customary land and tree tenure that give men control over land and tree resources. As a result of the informal systems in several respects women's rights (to specific species, spaces, practices, products and uses) are still recognised, although women are not as privileged as men. This means that women's tree and plant rights in many households within diverse communities may best be guaranteed (either maintained or expanded) through the formalization of what at present appear to be informal rights vested in social institutions, and by increasing their rights formally. To a certain degree, this already occurs in the forest reserves, where the State recognizes women's access to certain subsistence resources. However, balancing the unequal gender power relations in the society means going beyond this initial step, it requires the improvement of women's *de facto* as well as *de jure* access to all resources in equal circumstances with men. As long as women are dependent upon men to exercise their rights to resources, separation or divorce may mean dispossession for themselves and for their offspring.

Organizations advocating for local people's participation in forested landscape management and those promoting management systems based on local knowledge and land and resource access need to develop flexible legal instruments to formalize (or create) complex codes of multiple use which recognize, reconcile and perhaps reform gendered rights to use and manage specific spaces, species and their products.

8.4 TRANSGRESSED BOUNDARIES: GENDERED USE AND MANAGEMENT OF TREES AND PLANTS

Scholars have formulated many definitions of forests, which fall generally into one or more of three categories: forests (a) as a legal or administrative unit, (b) as a land-cover, and (c) as a land use (Schanz 1999). In Uganda, similar to other parts of the world, traditionally foresters have conceived forests mainly in terms of a land use type with formalised access rights and with legal boundaries based upon a strong notion of property (especially state and private). This legal administrative approach is reflected in the subsequent formal definition of a "bundle of rights" or prohibitions for forest resource use. As illustrated in Figure 4.2, the legal boundaries are foremost assigned to land-use zones, although additional access rights boundaries exist with respect to different forms of forest use. As demonstrated in Chapter 5, local communities have a much more fluid set of 'boundaries' of access rights to forest resources. This study further shows that people's access to resources is not only based on bundles of rights, but also entails "bundles of powers" that are embedded within specific cultural, social, political and economic contexts, that shape people's abilities to access, use and manage resources. The power relations are embedded within formal and informal rights regimes, socio-cultural relations and cosmological beliefs, all of which were found to interact with each other depending on the particular context in which each was embedded.

As demonstrated in chapters 6 and 7, the State and male peasants *de jure* and *de facto* own the land and the trees, which creates one set of 'boundaries' that must be respected. The distribution of useful species within these 'boundaries', and the gradual changing division of labour particularly between men and women and the related changing association of certain species and certain uses with a specific sex mean that the access boundaries will be continuously transgressed. It was also demonstrated that social obligations and social relations play an important role in defining who has what types of rights. Notwithstanding legal regulations, the state forest reserves are illegally accessed. Nevertheless, there are local informal social norms and rights that are associated with this access, and the act of transgressing a legal boundary may mean simultaneously respecting an informal boundary. These locally-perceived boundaries are not absolute either in space or time, but are rather related to specific resources and networks of spaces and social relations.

The study also demonstrates that women are often involved in income-generating activities, a domain culturally perceived to be male in Buganda society. Also, men are involved with plants perceived to be women's, as well as in activities that are socio-culturally prescribed for women, creating what is seen as a social disgrace for men. In

this respect, it can be concluded that both men and women transgress socially recognised boundaries of norms, although not without a price.

The study clearly shows that the ability of forest-dependent people to obtain access to forested landscapes is mediated by context-specific political-economic and cultural frames within which access to resources are sought. This entails that structural and relational access mechanisms have to be considered when considering the nature of boundaries in forest management (see also Schanz 1999). This study explored how aspects such as property rights, social relations and local knowledge influence plant resource use and management in the Buganda region. It was found that social relations, and especially gender relations, were very crucial in determining intra-community access to, use and management of forest resources. To reveal this, a sociological and anthropological approach had to be used, which is not generally incorporated into professional forestry education and training although the contributions of these disciplines are gaining recognition within forestry. The study thus demonstrates the need to also transgress disciplinary boundaries – integrating biophysical and sociological domains – in order to understand context-specific access, use and management of plant resources in forested landscapes from an *emic* perspective.

REFERENCES

Acebedo, V.A. 1999. Participatory analysis of plant resource management on Bohol, Philippines. PhD, Cornell University, USA.

Agarwal, A. 1995. Indigenous and scientific knowledge: some critical comments. *Indigenous Knowledge and Development Monitor* 3:3-6.

Agarwal, A., and C.C. Gibson. 1999. Enchantment and Disenchantment: The role of community in Natural Resource Conservation. *World Development* 27:629-649.

Altieri, M.A. 1991. "Why study traditional agricultural," in *Agroecology*. Edited by M. A.Carroll and e. al. New York: McGraw-Hill.

Aluma, J.R.W. 1987. *Uganda Forest Resources and Action Plan*. UNEP, Nairobi, Kenya.

Anderson, A.B. 1990. "Extraction and forest management by rural inhabitants in the Amazon estuary," in *Alternatives to Deforestation: Steps Towards Sustainable Use of the Amazon Rain Forest*. Edited by A. B. Anderson, pp. 65-85. NY: Columbia University Press.

Arnold, J.E.M. 1991. Community forestry, ten years in review. *Community Forestry Note 7, FAO, Rome*.

—. 1998. "Forestry and sustainable rural livelihoods.," in *Sustainable rural livelihoods: what contribution can we make?* Edited by D. Carney. London, UK: Department for International Development.

Arnorld, J.E.M., and A.P. Dewees. 1995. Tree Management in Farmer Strategies: Responses to Agricultural Intensification. Oxford: Oxford University Press.

Banana, A.Y., and W. Gombya-Ssembajjwe. 2000. "Successful Forest Management: The Importance of Security of Tenure and Rule Enforcement in Ugandan Forests," in *People and Forests: Communities, Institutions and Governance.* Edited by C. C. Gibson, M.A. McKean, and E. Ostrom, pp. 274. London: The MIT Press Cambridge Massachusetts.

Banana, A.Y., and P.G. Turiho-Habwe. 1998. "Participation in use and Management of Forest Resources in Uganda.," in *Common Property Resources management in East Africa*. Kampala, Uganda: Makerere Institute of Social Research.

Bentley, J. 1989. What Farmers Don't Know Can't Help Them: The strengths and Weaknesses of Indigenous Technical Knowledge in Honduras. *Agriculture and Human Values* 6:25-31.

Biggelaar, C. d. 1995. When a woman is a man: inter and intra-gender differences in tree tenure and planting in Rwanda. *Agroforestry Today* 7:13-15.

Botes, L., and D.V. Rensburg. 2000. Participation in development: nine plagues and twelve commandments. *Community Development Journal* 35:41-58.

Breemer, J.P.M. 1989. 'Yam cultivation and socio-ecological ideas in Aouan society, Ivory Coast: A contribution to crop sociology'. *Sociologia Ruralis* 29:265-279.

Brodt, S.B. 1998. Learning from the land: Local knowledge systems of tree management in central India. Ph.D. dissertation, University of Hawaii, USA.

Brouwer, J.H.A.M. 1993. *Rural people's response to soil fertility decline: The Adja case-Benin.* Ph.D. dissertation, Wageningen Agricultural University, the Netherlands.

Bruce, J.W. 1998. *Review of tenure terminology*. Land Tenure Centre- University of Wisconsin 1.

Byron, N., and J.E.M. Arnold. 1999. What futures for the people of the tropical forests? *World Development* 27:789-805.

Cavendish, W.P. 1996. *Environmental resources and rural household welfare*. Centre for the Study of African Economies, University of Oxford.

Cecelski, E. 1987. Energy and rural women's work: Crisis, response and policy alternatives. *International Labour Review* 12:41-64.

Chambers, R. 1992. *Rural Appraisal: Rapid, relaxed and participatory.* Discussion paper No. 311. Institute of Development Studies.

Chweya, J.A., and N.A. Mnzava. 1997. Cat's whiskers, Cleome gynandra L.; Promoting the conservation and use of underutilised and neglected crop. 11. Institude of Plant Genetic and Crop Plant Research. Gatersleben/IPGRI, Rome, Italy.

CIFOR. 2004. Forest Products, Livelihoods and Conservation: Case Studies of Non-Timber Forest Product Systems. Volume 2 -Africa. Jakarta, Indonesia: CIFOR.

Cunningham, A.B. 1996. People, park and plant use. Recommendations for multiple-use zones and development alternatives around Bwindi Impenetrable National Park, Uganda. *. People and Plants working paper 4, UNESCO, Paris.*

Davenport, T., P. Howard, and M. Baltzer. 1996. *Mabira Forest Reserve Biodiversity Report No.13.* Forest Department, Kampala, Uganda.

De-Jong, W. 1995. "Recreating the forest: successful examples of ethnoconservation among Dayak groups in central West Kalimantan.," in *Management of Tropical Forests: Towards an Integrated Perspective*, vol. 1/95. Edited by O. Sandbukt, pp. 295-304. Sweden: Centre for Development and the Environment, University of Oslo.

Dick-Bissonnette, L. 2003. "The basket-makers of the Central California Interior," in *women and Plants: Gender relations and Biodiversity management and conservation*. Edited by P. Howard. London and New York: ZED and St. Martin's Press.

Dove, M.R. 1994. Transition from native forest rubbers to *Hevea brasiliensis* (Euphorbiaceae) among tribal smallholders in Borneo. Economic Botany 48:382-396.

Dovie, D.B.K. 2003. Whose involvement?--can hierarchical valuation scheme intercede for participatory methods for evaluating secondary forest resource use? *Forest Policy and Economics* 5:265-283.

Drinkwater, M. Editor. 1994. Knowledge, consciousness and prejudice: adaptive agricultural research in Zimbia. Beyond farmer first: Rural People's knowledge, Agricultural Research and Extension Practice. London: Intermediate Technology publications.

DSoER. 1998. Mukono District State of Environment Report. Mukono District, Uganda.

Duerr, W.A., D.E. Teeguarden, N.B. Christiansen, and S. Guttenberg. 1979. *Forest Resource Management, Decision-Making Principles and Cases*. W.B. Saunders, Philadelphia.

Edmunds, D. 1997. Continuity and change in the resource management institutions of communities bordering the Kibale Forest Park, Uganda. Clark University.

Ellen, R., and H. Harris. 2000. *Indigenous Environmental Knowledge and its Transformations: Critical Anthropological Perspectives*. Vol. 5. Studies in Environmental Anthropology. Amsteldijk, The Netherlands: Harwood academic publishers.

Ellen, R.F. 1996. "Putting plants in their place," in *Tropical rain forest research: current issues*. Edited by D. S. Edwards, W. E. Booth, and S. C. Choy, pp. 457-465. Dordrecht: Kluwer.

—. 1998. "Indigenous knowledge of the rain forest: perceptions, extraction and conservation," in *Destruction and development of the tropical rainforest*. Edited by B. Maloney, pp. 87-99. Dordrecht: Kluwer.

European Commission 1998. *One hundred words for inequality: A glossary of terms on equality between women and men.* Brussels, Belgium.

Fairfax, S.K., and L. Fortmann. 1990. American forestry professionalism in the Third World; some preliminary observations. *Population and Environment* 11:259-272.

Falconer, J. 1989. *Forestry and Nutrition: A reference manual*. Forestry Department, FAO, Rome, Italy.

Falconer, J., and J.E.M. Arnold. 1989. Household Food Security and Forestry: An Analysis of Socio-economic Issues. *Community Forestry Note 1, FAO, Rome*.

FAO. 1987. Guidelines for forest policy formulation. FAO, Rome, Italy.

—. 1988. Traditional Food Plants. Food and Nutrition Paper 42. FAO, Rome, Italy.

—. 1990. *The community toolbox: The idea, methods and fools for participatory assessment, monitoring and evaluation in community forestry.* Community Forestry Field Manual 2. FAO, Rome, Italy.

Feldstein, H.S., and S.V. Poats. 1989. *Working together: Gender analysis in agriculture*. West Hartford: Kumarian Press.

Fernandez, M.E. 1992. "The social organisation of production in community-based agro-pastoralism in the Andes," in *Plants, animals and people: Agropastoral systems research*. Edited by C. M. McCorkle. Boulder: Westview.

—. 1994. Gender and indigenous knowledge. *Indigenous Knowledge and Development Monitor* 2:2-3.

Fielding, N.G., and J.L. Fielding. 1986. *Linking Data, Qualitative Research Methods Series No. 4*. Sage, Beverly Hills.

Fisher, J.R. 1989. *Indigenous systems of common property forest management in Nepal*. East-West Center Environment and Policy Institute, Honolulu, Hawaii, USA. Working Paper 18.

Flemming, N. 1994. Indigenous Agroforestry Systems in Southern Luwero District, Uganda- and their potential in agricultural development. Centre for Development Research, working paper 94.16.

Ford-Robertson, F.C., and R.K. Winters. 1983. *Terminology of forest science technology, practice and products.* Society of American Foresters, Washington DC, 2nd printing.

Fortmann, L. 1987. "Tree tenure: an analytical framework for agroforestry projects," in *Land, Trees and Tenure Proceedings of an International Workshop on Tenure Issues in Agroforestry*. Edited by J. B. Raintree, pp. 412. Nairobi and Madison: ICRAF and the Land Tree Center.

—. 1988. "The Tree Tenure Factor in Agroforestry with particular Reference to Africa," in *Whose Trees? Proprietary Dimensions of Forestry*, *Rural Studies*. Edited by L. Fortmann and J. W. Bruce. London: Westview Press.

—. 1998. "Why Women's Property Rights matter." International Conference on Land Tenure in the Developing World with a focus on Southern Africa, University of Capetown, South Africa 1998

Fortmann, L., and J.W. Bruce. 1988. *Whose trees? Proprietary Dimensions of Forestry*. Boulder and London: Westview.

Fortmann, L., and C. Nihra. 1992. Local management of trees and woodland resources in Zimbabwe: A tenurial niche approach. Harare: Centre for Applied Social Sciences, University of Zimbabwe. *CASS Occasional Paper Series*.

Fortmann, L., and D. Rocheleau. 1985. Women and agroforestry: four myths and three case studies. *Agroforestry Systems* 2:253-272.

Goebel, A. 2003. "Gender and Entitlements in the Zimbabwean Woodlands: A case study of resettlement," in *Women and Plants: Gender relations in Biodiversity Management and Conservation*. Edited by P. Howard, pp. 221. London and New York: ZED Press.

Goldman, A.C. 1991. 'Tradition and change in post-harvest pest management in Kenya'. *Agriculture and Human Values* 8:1-2.

Gombya-Ssembajjwe, W.S. 1994. *Traditional Forest Reserve in Mpigi District*. Forest Trees and People Program, Makere University, Kampala, Uganda

Gombya, S.W. 1995. *Traditional Forest Reserves in Mpigi District, Central Uganda. FTPP/FAO Report*. Forestry Department, Makerere University, Kampala, Uganda.

Gombya-Sembajjwe, W.S. 1996. *Analysis of institutional incentives for sustainable management of tropical moist forests; A case of Mengo forests, Uganda*. Ph.D., University of Wales, Bangor, UK.

—. 1997. *Indigenous technical knowledge and forest management: A case study of sacred groves (traditional forest reserves) in Mpigi district, Uganda*. UFRIC, Makerere University, Kampala, Unganda.

Gombya-Ssembajjwe, W.S., A.Y. Banana, J. Bahati, M. Kapiriri, P. Kizito, G. Mwambu, G. Nabanoga, A. Kakawesi, D. Green, C. Danly, D. Becker, and E. Ostrom. 1993. *Buttobuvuma and its settlements: A site report.* Uganda Forestry Resources and Institutions Centre (UFRIC), Makerere University, Kampala, Uganda.

Gombya-Ssembajjwe, W., and A.Y. Banana. 1998. "*Property rights and the sustainability of Forests in Uganda.*" International Association for the study of Common Property, Vancouver, British Colombia, 1998.

Gombya-Ssembajjwe, W.S., A.Y. Banana, G. Nabanoga, J. Bahati, and S. Sekindi. 1999. *Buttobuvuma forest reserve and its user groups: A second visit*. UFRIC, Makerere University, Kampala, Uganda.

Government of Uganda 1988. *Forestry Policy*. Kampala, Uganda.

Government of Uganda 2002. *National Census 2002*, Kampala, Uganda.

Hamilton, A.C. 1984. *Deforestation in Uganda*. Nairobi: Oxford University Press.

Hecht, S.B., A. Anderson, and May. 1988. The subsidy from nature: Shifting cultivation, successional palm forests and rural development. *Human Organization* 47:25-35.

Hill, C. 1993. "'Healthy communities, healthy animals: reconceptualizing health and wellness', pp. 4-32," in *Indigenous and local community knowledge in animal health and production systems: Gender perspectives*. Ottawa: The World Women's Veterinary Association.

Hopkins, J.C., S.J. Scherr, and P. Gruhn. 1994. *Food security and the commons: Evidence from Niger*. USAID Niger and IFPRI, Washington.

Howard, P. 2003. Women and Plants: Gender relations in Biodiversity management and conservation. London and New York: ZED and St. Martin's Press.

—. 2003a. The Major Importance of 'Minor' Resources: Women and Plant Biodiversity. IIED Gatekeeper Series 112.

Howard, P.C. 1991. *Nature conservation in Uganda's tropical forest reserves.* Forest Conservation Programme. IUCN, Gland, Switzerland.

Howard-Borjas, P. 2001. Women in the plant world: the significance of women and gender bias for botany and for biodiversity conservation; Inaugural Address. Dept. of Social Sciences, Wageningen University, the Netherlands.

http://www.m-w.com/cgi-bin/dictionary.

Kabeer, N. 1994. Reversed Realities: Gender Hierarchies in Development Thought. London and New York: Verso.

Kabuye, C. Editor. 1999. *Bark cloth in Buganda*, (ed) edition. *Cultural and Spiritual Values of Biodiversity*. London: Intermediate Technology Publications and UNEP.

Kajembe, G.C. 1994. Indigenous Management Systems as a basis for community forestry in Tanzania: a case study of Dotoma urban and Lushoto districts. Wageningen Unversity, the Netherlands, *Tropical Resource Management Papers* Vol. 6

Kalland, A. 2000. "Indigenous Knowledge: Prospects and Limitations," in Indigenous Environmental Knowledge and its Transformations: Critical Anthropological Perspectives, vol. 5, Studies of Environmental Anthropology. Edited by R. Ellen, P. Parkes, and A. Bicker, pp. 319-335. Armsteldijk, The Netherlands: Harwood academic publishers.

Kamugisha, J.R. 1993. *Management of natural resources and the environment in Uganda*. Regional Soil Conservation Unit, Swedish International Development Authority 12.

Kamugisha, J.R., and S. Cornelia. 1996. The consultative process of the promotion of National Forest and related Land-use programs in Uganda in support of the Inter-Governmental panel on Forests(IPF) of the Commission for Sustainable Development of the United Nations. Ministry of Natural Resources, Kampala, Uganda.

Karani, P. 1989. *An analysis of the development of management systems in the tropical moist forests of Uganda.* In Management of Tropical Moist Forests in Africa. FAO Forestry Paper 88.

Karani, P.K. 1986. Observations on the productivity of matoke(bananas)(Musa spp) under agroforestry at Entebbe, Uganda. *Commonwealth Forestry Review* 65:241-250.

Katende, A.B., Ann Birnie and Bo Tengnäs. 1995. Useful trees and shrubs for Uganda: identification, propagation and management for agricultural and pastoral communities, Kampala, Uganda.

Kayanja, F.I.B., and D. Byarugaba. 2001. Disappearing forests of Uganda: The way forward. *Current Science* 81:936-947.

Kilahama, F.B. 1994. *Trees and indigenous ecological knowledge about Agroforestry practices in the rangelands of Shinyanga region, Tanzania.* Ph.D dissertation, University of Wales, Bangor, UK

Kinnaird, M.F. 1992. Competition for a Forest Palm: Use of Phoenix reclinata by Human and Nonhuman Primates. *Conservation Biology* 6:101-107.

Kisamba-Mugerwa, W. 1998. Private and communal property rights in rangeland and forests in Uganda. *Land Reform, Land Settlement and Cooperatives* 1.

Kiwanuka, L.S. 1991. "A Decade of Uganda's Forestry Sector 1980-89." World Congress on National Parks and Protected areas, Amboseli National Park, Kenya, 1991.

Kiyingi, S.N. 1991. *Women in Agriculture*. Entebbe, Uganda

Kothari, B. 1996. Towards a Praxis of oppressed local knowledge: Participatory Ethnobotanical research in indigenous communities of Equador. Ph.D, Cornell University.

Langlands, O. 1973. *Preliminary report on land use in Uganda*.Kampala, Uganda

Langoya, C.D., and C. Long. 1997. Local communities and Ecotourism Development in Budongo Forest Reserve, Uganda. *Development Forestry Network Paper 22e.* London, Overseas Development Institute.

Leach, M. 1992. "Women's crops in women's spaces: Gender relation in Mende rice farming," in *Bush Base Forest farm: Culture, Environment and Development*. Edited by E. Croll and D. Parkin. New York: Routledge. p. 76-96.

—. 1994. Rainforest relations: Gender and Resource Use among the Mende of Gola, Sierra Leone. International African Library. London: Edinburgh University Press.

Leach, M., and J. Fairhead. 1993. Whose social forestry and why? People, trees and managed continuity in Guinea's forest-savannah mosaic. *Zeitschrift Wirtschaftsgeografie* 37:86-101.

Leeuwen, L. v. 1998. *Approaches for successful merging of indigenous forest related knowledge with formal forest management: how can modern science and traditions join hands for sustainable forest management?* Wageningen, National Reference Centre for Nature Management, Werkdocument W-165.

Lubowa, D. 1996. "Methods and Approaches: The Importance of Cosmology," in *Grassroots Indicators for Desertification Experience and Perspectives from Eastern and Southern Africa*. Edited by H. H. a. T. O. Angura, pp. 180. Ottawa: IDRC.

Madge, C. 1990. *Money, medicine and masquerades: Women, collecting and rural development in the Gambia*. University of Birmingham UK.

Maine, H. 1920. *Ancient Law*, 10 edition. London, UK, Murray

Makubuya, K. 1981. "*Land Law Reform and Development in Uganda*." Rural Rehabilitation and Development, Makerere University, Kampala, Uganda.

Mathias-Mundy, E., and C. McCorkle. 1989. Ethnoveterinary medicine: An annotated bibliography. Bibliographies in technology and social change No. 6. Iowa State University, Technology and Social Change Program.

Matsui, A. 1996. On Cultural Evolution: Social Norms, Rational Behavior, and Evolutionary Game Theory. *Journal of the Japanese and International Economies* 10:262-294.

Maundu, P. 1995. Methodology for collecting and sharing indigenous knowledge: a case study. *Indigenous Knowledge and Development Monitor* 3.

May, T. 1997. *Social research: issues, methods and processes*, 2nd edition. Buckingham, London: Open University Press.

McKey, D., O.F. Linares, C.R. Clement, and C.M. Hladik. 1993. "Evolution and history of tropical forests in relation to food availability-background," in *Tropical Forests, People and Food. Biocultural Interactions and Application to Development*, 13 edition, *Man and Biosphere*. Edited by C. M. Hladik, A. Hladik, O. F. Linares, H. Pagezy, A. Semple, and M. Hadley, pp. 17-24. UNESCO and Parthenon, New York.

McNeely, A.J. 2000. "*Links between Cultures and Biodiversity*." Cultures and Biodiversity Congress 2000, Yunnan, P.R. China, 2000.

—. 2001. "*Religion, traditions and biodiversity: Religious development initiatives*" in *COMPAS*.

MDSoER. 1998. *Mpigi District State of Environment Report*. Mpigi District, Uganda.

Meinzen-Dick, R.S., L.R. Brown, H.S. Feldstein, and A.R. Quisumbing. 1997. Gender, property Rights, and Natural Resources. *World Development* 25:1303-1315.

Michon, G.,R. Lombion, F. Mary, and J. Bompard. 1983. "*Shall peasant agroforests survive?*" Paper presented at the BAPI-Suan symposium on research on the impact of development on human activity systems in Southeast Asia., Institute of Ecology, Bandung, 1983.

Ministry of Finance (MoF), 2000. *Background to the budget 2000/2001*. Ministry of Finance, Kampala, Uganda.

Ministry of Water, Lands and Environment (MWLE), 2001. *The Uganda Forestry Policy*. Kampala: Government of Uganda. Kampala, Uganda.

Mugalula, M. 1995. *The Ancient Crafts of Barkcloth in Uganda*.

Mugambwa, J.T. 2002. *Principles of Land Law in Uganda*. Kampala: Fountain Publishers.

Mukwaya, A.B. 1953. *Land Tenure in Buganda; Present Day Tendencies.* East African Studies. Kampala: The Eagle Press.

Munyanziza, E., and K.F. Wiersum. 1999. Indigenous knowledge of Miombo trees in Morogoro, Tanzania. *Indigenous Knowledge and Development Monitor* 7:10-13.

Nabanoga, G.N. 1998. Socio-economic and Political Factors for Sustainable Forest Resource Use and Management: A case of Buttobuvuma forest in Mpigi District, Uganda. MSc., Agricultural University of Norway.

Nabanoga, G.N., and W.S. Gombya Sembajjwe. 2001. The effect of household endowments and entitlements on sustainability of natural forests. *International Forestry Review* 3:34-41.

Nagujja, Z. 1993. A review of Laws and Decided Cases on the Law of Succession: A report prepared for the Ministry of Women in Development, Culture and Youth, Kampala, Uganda.

Nakakaawa, A.C. 1999. Attitudes of Local Communities towards Ecotourism in Mabira Forest Reserve, Uganda. B.Sc., Makerere University, Uganda.

National Aboriginal Forestry Association (NAFA), 1996. *Aboriginal forest-based ecological knowledge in Canada*. The Canadian forest service.

National Environmental Management Authority NEMA, 1998. *State of Environment Report*. Uganda.

Norem, R.H., R. Yoder, and Y. Martin. 1988. Indigenous-agricultural knowledge and gender issures in third world agricultural development In: *Indigenous knowledge systems: Implications for agriculture and international development studies in technology and social change program* No. 11. Ames. Edited by D.M. Warren, L.J. Slikkerveer, and S.O. Titilola, pp. 91-100. Iowa: Iowa State University Research Foundation.

Ndemere, P. 1997. *Multiple-use Forest Values, Silvicultural Impacts of Timber Management, and Sustainability of Forest Management in Uganda's Budongo and Mabira Forest Reserves*. Ph.D. dissertation, State University of New York USA.

North, C. 1990. *Institutions, Institutional change and economic performance.* Dambridge University Press, Cambridge, USA.

Obi-Chinwuba, S.N. 1988. "Rights in Economic trees," in *Whose Trees? Proprietary Dimensions of Forestry*. Edited by L. Fortmann and J. W. Bruce, pp. 34-39. Boulder and London: Westview Press.

Obua, J. 1996. Conservation and Ecotourism in Kibale National Park, Uganda. Ph.D. dissertation, University of Wales, Bangor, UK.

Ogle, B. 1996. "People's dependency on forests for food security. Some lessons learnt from a programme of case studies," in *Current Issues in Non-Timber Forest Products Research*. Edited by M. R. Pérez and J. E. M. Arnold, pp. 219-241. Bogor, Indonesia: CIFOR-ODA.

Oluka-Akileng, J.F. Esegu, A.A. Kaudia, and A. Lwakuba. 2000. *Agroforestry handbook for the banana-coffee zone of Uganda: farmers' practices and experiences*. Vol. 21. RELMA technical handbook serie*s*. Nairobi, Kenya: Foreign.

Omagor, N. 1999. Swamp forest plant resources in Uganda: their uses and conservation challenges. *International Tree Crops Journal* 10:107-120.

Paudel, S., and K.F. Wiersum. 2002. Tenure arrangements and management intensity of Butter tree (Diploknema butyracea) in Makawanpur district, Nepal. *International Forestry Review* 4:223-230.

Pfeiffer, J., and R. Butz. Forthcoming.

Phillip, M.S. 1962. *The Management of Tropical High Forests.* Uganda Forest Department, Kampala, Uganda.

Place, F., and K. Otsuka. 1997. *Population Pressure, Land Tenure, and Tree Resource Management in Uganda*. Environment and Production Technology Division; International Food Policy Research Institute, Washington, D. C. and International Center for Research in Agroforestry; Tokyo Metropolitan University. No. 24.

—. 2000. The role of tenure in the management of trees at the community level: Theoretical and Empirical analyses from Uganda and Malawi. Environment and Production Technology Division; International Food Policy Research Institute, Washington, D. C. and International Center for Research in Agroforestry; Tokyo Metropolitan University. No. 9.

Posey, D.A. 1985. Indigenous management of tropical ecosystems: The case of the Kayapo Indians of the Brazilian Amazon. *Agroforestry Systems* 3:139-158.

—. 2000. "Ethnobiology and Ethnoecology in the context of National Laws and International Agreements affecting Indigenous and Local Knowledge, Traditional Resources and Intellectual Property Rights.," in *Indigenous Environmental Knowledge and its Transformations: Critical Anthropological Perspectives*, vol. 5, *Studies in Environmental*

Anthropology. Edited by R. Ellen, P. Parkes, and A. Bicker, pp. 35-54. Amsteldijk, The Netherlands: Harwood academic publishers.

Prance, G.T.W., W. Balee, B.M. Boom, and R.L. Garneiro. 1987. Quantitative enthnobotany and the case for conservation in Amazonia. *Conservation Biology* 1:296-310.

Price, L.L. 2001. Demystifying farmer's entomological and pest management knowledge: A methodology for assessing the impacts on knowledge from IPM-FFS and NES interventions. *Agriculture and Human Values* 18:153-176.

—. 2003. "Farm women's Rights and roles in Wild Plant Food Gathering and management in Northeast Thailand," in *Women and Plants: Gender relations in Biodiversity management and conservation*. Edited by P. Howard, pp. 13. London and New York: ZED and St. Martin's Press.

Quisumbing, A.R., K. Otsuka, S. Suyanto, and E. Payongayong. 2001. *Land, Trees, and Women: Evolution of Land Tenure Institutions in Western Ghana and Sumatra*. International Food Policy Research Institute 121, Washington, USA.

Rau, B. 1991. From feast to famine: Official cures and grassroots remedies to Africa's food crisis. London & New Jersey: Zed Books Ltd.

Ray, B.C. 1977. Sacred spaces and Royal Shrines in Buganda. *History of religions.* 16:363-73.

Renkema, G. 2003. Cultural values of forests in Joint Forest Management in Orissa, India. MSc. thesis. Forest and Nature Conservation Policy, Wageningen University, the Netherlands.

Rocheleau, D., and D. Edmunds. 1997. Women, men and trees: gender, power and property in forest and agrarian landscapes. *World Development* 25:1351-1371.

Rocheleau, D.E. 1987. "Women. Trees and Tenure: implications for agroforestry research and development," in *Land, Trees and Tenure Proceedings of an International Workshop on Tenure Issues in Agroforestry*. Edited by J. B. Raintree, pp. 412. Nairobi and Madison: ICRAF and the Land Tree Centre.

—. 1988. "Women, Tree and Tenure: Implications for Agroforestry," in *Whose trees? Proprietary Dimensions of Forestry.* Edited by F. Louise and J. W. Bruce. London: Westview, pp. 254-272.

Roscoe, J. 1965. *The Baganda; An account of their native customs and beliefs*, Second edition. London: Trank Cass & Co. Ltd.

Rubaihayo, E.B. 1992. "The diversity and potential use of Local Vegetables in Uganda." *The National Plant Genetic Resources Workshop: Conservation and Utilisation., 1992*, pp. 109-114.

—. 1994. Indigenous vegetables of Uganda. *African Crop Science Journal* 3:1337-1340.

—. 1995. "*Conservation and use of traditional vegetables in Uganda.*" Papers presented at Workshop held on 29-31 August 1995 'Genetic Resources of Traditional vegetables in Africa; Options for Conservation and Use'. Nairobi, Kenya, 1995.

—. 2002. The Contribution Of Indigenous Vegetables to Household Food Security-Uganda: IK Notes No.44. Knowledge and Learning Center African Region, World Bank, Washington, USA.

Rusten, P.E. 1989. *An investigation of an indigenous knowledge system and management practices of tree fodder resources in middle hills of central Nepal*, Ph.D. dissertation. Michigan State University, USA.

Schanz, H. 1999. "*What is a forest? What is forestry? Science on boundaries*. Wageningen University, the Netherlands. Inaugural address."

Schoonmaker, K.F. 1994. "Challenges in the collection and use of information on livelihood strategies and natural resource management.," in *Beyond Farmer first: Rural People's Knowledge, Agricultural Research and Extension Practice.* Edited by I. Scoones and J. Thompson, pp. 124-133. London: Intermediate Technology Publications.

Schroeder, R. 1993. Shady practices: Gender and the political ecology of resources stabilization in Gambian garden/orchards. *Economic Geography* 69:349-365.

Sebina-Zziwa, A.J.N. 1999. *The Paradox of Tradition: Gender, Land and Inheritance Rights Among the Buganda*. PhD in Anthropology, University of Copenhagen, Denmark.

Shepherd, G. 1992. Managing Africa's tropical dry forests: a review of indigenous methods. Vol. Paper No.14. ODI Ocassional Paper. London, UK: Overseas Development Institute.

Siegel, S. 1956. Non-parametric Statistics: For the behavioural Sciences,. New York: McGraw-Hill Book Co.

Singhal, R. 2000. "Indigenous knowledge: Potential and Limitations for Sustainable Forest management." in *Forestry, Forest Users and Research*: New ways of learning. Edited by A. Lawrence pp. 133-138. Wageningen, the Netherlands. European Tropical Forestry Research Network

Skutsch, M.M. 2000. Conflict management and participation in community forestry. *Agroforestry Systems* 48:189-206.

Titilola, T. 1994. Indigenous Knowledge Systems and sustainable agricultural development in Africa: essential linkages. *Indigenous knowledge and Development Monitor* 2.

Tiwari, B.N. 1994. Indigenous techniques for propagation of fodder trees in the western hills of Nepal. *Banko Janakari* 4:180-183.

Turner, N. 2003. "'Passing on the news': Women's Work, Traditional Knowledge and Plant Resource Management in Indigenous Societies of North-western North America," in *Women and plants: Gender Relations in Biodiversity Management & Conservation*. Edited by P. Howard. London & New York: Zed Books.

Uganda Bureau of Statistics (UBOS), 2000. *Livelihood strategies and household income*. Uganda Government.

Uganda Forest Department (UFD), 1997. Uganda Forest Department Nature conservation Master Plan (draft version).

UNDP, 1997. *Uganda Human Development Report*. UNDP National Reports. United Nations Development Programme, New York, USA.

Warner, K. 1993. Patterns of farmer tree growing in Eastern Africa: A Socio-economic analysis. ICRAF, Oxford Forestry Institute.

Warren, D.M., and K. Cashman. 1988. "Indigenous Knowledge for agriculture and rural development: Some practical applications." *Indigenous knowledge systems, Washington D.C., 1988.*

Were, G.S., and D.A. Wilson. 1970. *East Africa through a Thousand Years.* Evans Brothers Limited.

White, F. 1983. *The vegetation of Africa*. Natural Resources Research 20. Paris.

Whitehead, A. 1979. "Some preliminary Notes on the Subordination od Women," in *IDS Bulletin*, vol. 10, pp. 10-13.

Wiersum, K.F. 1996. "Normative pluriformity in forest management: professional and community perspectives." *In Pluralism and sustainable forestry and rural development,*FAO, Rome, Italy pp. 365-379.

—. 1997a. Indigenous exploitation and management of tropical forest resources: an evolutionary continuum in forest-people interactions. *Agriculture, Ecosystems and Environment* 63:1-16.

—. 1997b. From natural forest to tree crops, co-domestication of forests and tree species, an overview. *Netherlands Journal Agricultural Science* 45:425-438.

—. 1999. *Social forestry: changing perspectives in forestry science or practice?* Ph.D. dissertation, Wageningen University, The Netherlands.

—. 2000. "Incorporating Indigenous Knowledge in Formal Forest Management: Adaptation or Paradigm change in Tropical Forestry?," in *Forestry, Forest Users and Research: New ways of learning*. Edited by A. Lawrence, pp. 19-32. Wageningen, The Netherlands: European Tropical Forestry Research Network.

Wiersum, K.F., and G.A. Persoon. 2000. "Research on conservation and management of tropical forests: Contributions from the social sciences in the Netherlands.," in *Tropical Forest Resource Dynamics and Conservation: From Local to Global Issues*, vol. 33. Edited by K. F. Wiersum, pp. 1-24. Wageningen, The Netherlands: Tropical Resource Management Papers.No. 33

Wiersum, K.F., and M. Slingerland. 1996. *Use and management of two multipurpose tree species (Parkia biglobosa and Detarium microcarpum) in agrisilvopastoral land use systems in Burkina Faso*. Antenne Sahelienne Document de projet No. 41. Wageningen Agricultural University, the Netherlands.

Wilson, W. 1991. "The Fulani model of sustainable agriculture," in *African American Studies, University of Maryland*. Baltimore, USA

Wilson, M. 2003. "Exchange, patriarchy, and status: women's homegardens in Bangladesh," in *Women and Plants: Gender relations and Biodiversity management and conservation*. Edited by P. Howard. London and New York: ZED and St. Martin's Press.

Wily, L.A. 2000. Democratising the Commonage: The changing legal framework for natural resources management in eastern and southern Africa with particular reference to forests. IUCN, Nairobi, Kenya.

World Bank. 2001. *World Development Indicators*. World Bank, Washington, USA.

—. 2003. *World Development Indictors*. World Bank, Washington, USA.

WRI. 2001. *Earth Trends,* Washington D.C., USA.

Yin, R.K. 1994. *Case study Research: Design and Methods*. Thousand Oaks, CA: Saga Publications.

SUMMARY

Forest resource access is often conceptualized as a 'bundle of rights' held by different social groups at different times. In Uganda, similar to other parts of the world, professional foresters and scientists concerned with resource conservation have conceived of forests mainly in terms of access rights that are formalized through legal boundaries based upon a strong notion of property (especially State and private) This study argues that local people's access to forest resources is not only based on such formal bundles of legal rights, but also entails local norms and 'morals' that regulate access to land and other forest resources. Such 'bundles of rights' or 'powers' are embedded within specific cultural social, political and economic contexts and are related to intra-community and intra-household power relations, and particularly to gender relations.

The most important 'bundle of rights' to resources is usually considered to be that relating to land, where it is widely recognised that legal (*de jure*) and customary (often *de facto*) tenure may differ significantly. However, it is less often recognized that other land-based resources such as plants, trees, crops or pastures may have their own 'tenure', separate from any rights in land that may exist, and that the bundle of associated 'rights' may also be held *de jure* or *de facto*. While the concept of 'tree tenure' has constituted part of the forester's conceptual toolkit for the past few decades, it is far less commonly recognized that rights often extend to other wild or domesticated plants as well. Such rights are not only related to trees and plants growing in official forest reserves where the State restricts access, but also to trees and plants growing on communal or private land. Further, the relationship between land tenure and 'plant' or 'tree tenure' is not always straightforward – trees and plants may belong wholly to the owners of the land, or they may belong entirely or in part to others. The various tenure regimes often exist in parallel and may overlap in relation to different individuals, groups, spaces and species. The rights to own land and the rights to specific landscape spaces, the rights to own trees and plants and the rights to tree and plant products, may be distinct from each other and may be conferred on different social groups, depending on factors such as final use of plant products, individual competency, age and sex. Further, such rights may depend upon management practices carried out by individuals that act as obligations to ensure continuity of rights over time. Most often, such 'bundles of rights' are not only prescribed in formal legal or customary rules: they are as well shaped by cosmologies, cultural norms and daily practices, and while their existence may be difficult for outsiders to detect and their effects may apparently be subtle, local community members are quite aware of them, generally attempt to respect them, and are also cognisant of the existence of sanctions (spiritual or human) should these rules or norms be violated.

The most important feature of the 'bundle of rights' that characterizes local forest resource access and management is the variation between different groups of local people regarding access to and use of forest resources. This intra- and inter-community variation not only relates to household variables such as wealth, education, livelihood activities and landholding, but also to intra-household variables such as age, kin relations and sex.

The goal of this research was to clarify how access, use and local management of plant and tree resources within forested landscapes are gendered and which factors condition these relations. More specifically, the study aimed at:

- Investigating how socio-economic and cultural characteristics of local populations condition forest resource dependencies, and how such dependencies condition the use and management of plant resources in forested landscapes;
- Analyzing how and why access, use, and management of tree and plant species that occur in different landscape spaces are gendered, and what the implications of these relations are for forest policy.

The study focused specifically on the relations between gendered *de jure* and *de facto* land tenure regimes, gendered spaces, and gendered rights relating to plants and trees, and how these are conditioned by gendered norms and power relations more generally. The study concludes that, in Uganda, and especially among the Buganda, the State and male peasants own land and trees both *de jure* and *de facto*, which creates one set of 'boundaries' that must be respected. The distribution of useful species within these boundaries, and the gender division of labour that associates certain species and uses more with one sex than the other, means that these boundaries will be continuously transgressed. Further, social obligations and social relations play an important role in defining who has what types of rights. State forest reserves are illegally accessed; nevertheless, there are local informal social 'rules' and 'rights' that are associated with this access. The act of transgressing one boundary may simultaneously mean respecting another, although the *emic* boundaries are not fixed in space or time but are rather related to specific resources and networks of spaces. Physical and socio-cultural boundaries are being transgressed in the effort to access, use and manage plant resources to maintain both local livelihoods and cultural identity.

There are only a limited number of studies relating to indigenous use and management of forest resources and of gender differentiation in such practices in the Ugandan context. In view of the new Ugandan 2001 Forest Policy, it is important that better insights into such practices are obtained. The study of the gendered use and management of forest resources in Uganda contributes to the body of scientific knowledge on local plant and tree management systems that are ecologically and socio-culturally specific. This is important considering the widespread failure of many top-down, 'scientifically' designed forest resource conservation schemes to effectively conserve forest resources, alleviate poverty and improve local livelihoods and welfare.

Chapter 2 provides an overview of the conceptual framework that formed the basis for the study. After discussing the need to differentiate between professional and local perspectives on forest resource use, it synthesizes three major conceptual issues entailed in investigating and understanding local perspectives, i.e. property rights regimes, indigenous or local knowledge and management systems, and social and gender relations. Special attention is given to the need to highlight gendered access, use and management of plants in forested landscape spaces. The study attempted to understand how local people conceptualise forests and forest resources, which led to the use of the concept of 'forested landscapes', which, for example, recognises no dichotomy between forests and agricultural landscapes. The concept of forested landscapes focuses on a diversity of land-use zones that contain forest resources, and entails investigation of the heterogeneous and complex characteristics of forest-people relations, as well as their relations to local livelihoods and State forest resource conservation policies and practices.

Chapter 3 describes the research methodology. The main study components consisted of a forest resource use survey to ascertain inter-community and intra-community differences in forest use and dependencies, and comparative ethnobotanical case-studies focused on four forest species to investigate access, use and management of specific species by individuals and households in specific forested landscapes. The species case studies produced rich insights for understanding people–forest resource relations within a specific socio-cultural context by revealing the complexities and nuances that could not be investigated while using only a survey approach, whereas the survey helps to generalise the case study findings. As well, the ethnobotanical approach helped to identify specialised or particularistic knowledge and practices whereas the survey helped to reveal more general knowledge and practices (or 'general principles') held by the community as a whole.

The survey was administered in central Uganda in two locations with similar agro-ecological and cultural characteristics, but different livelihood patterns and with different levels of forest degradation: Buttobuvuma Forest Reserve and the communities close to it in Mpigi District, and Mabira Forest Reserve and its enclave communities in Mukondo District. These areas are representative of the coffee/banana belt land-use conditions in the major agricultural production zone in central Uganda, and both are inhabited by the Ganda tribe pertaining to the Buganda kingdom (Lugandan speaking). At each location, one study village was randomly selected: Sanga, a forest enclave community in the Mabira forest (pop. 610), and Kisamula/Malube village (pop. 1300) that surrounds the Buttobuvuma forest reserve in Mpigi District.

For the resource survey, two methods were used to collect data. First, transect walks and participatory mapping coupled with group interviews served to investigate village structure and land-use patterns. Next, a household survey involving 40 and 36 households in Sanga and Kisamula/Malube villages, respectively, was carried out to ascertain the relation between household characteristics and forest resource use. For the ethnobotanical case studies, four species (Fig – Ficus natalensis, Jackfruit – Artocarpus heterophyllus, Palm – Phoenix reclinata and Cat's whiskers – Cleome gynandra) were identified during focus group discussions as being important both culturally and as livelihood resources. The selected species represent a range of characteristics: single or multi-purpose use, wild or domesticated, trees or plants, cosmologically significant or insignificant, and market or subsistence use. In-depth, open-ended interviews were conducted with both men and women within 20 purposively-selected households that were active users of the different species. Detailed information on Ficus natalensis, Artocarpus heterophyllus, Phoenix reclinata, and Cleome gynandra was gathered from 20, 12, 20 and 11 respondents, respectively.

Chapter 4 provides information on the local context. First, it presents a general description of the geographic conditions and forest resources in the study area. Next it provides a general overview of forest management in Uganda, giving special attention to historical changes in land and tree tenure and their significance for forest management. Since indigenous use and management of forest and tree resources not only depends on formal and customary tenure but as well on socio-cultural organization, a general overview of the Buganda tribe is given focusing specifically on gender relations and belief systems.

Chapter 5 explores intra- and inter-village differences in forest resource dependency and use and relates these to variables such as wealth, landholding, education, household demographic structure, and livelihood activities. The findings indicate that, although annual household income was significantly higher in Kisamula, overall the differences between household

characteristics and endowments were not significant between villages. Regarding between-household differences, across both villages it appeared that larger landholdings were associated with older household heads, and female headed households were more likely to have smaller holdings than male headed households. On average, households had a fairly high level of dependence (above 50%) on forest products as a source of firewood, poles, medicinal plants and handicraft materials. The people in the study area are predominantly peasant farmers who grow food crops for mainly subsistence. The division of labour in the study area is also examined. The women are more involved in petty trading, crafts materials and fuel wood collecting. The men are more involved in wage work, beer brewing and illegal charcoal making. Women and children's labour predominates in all reproductive tasks except for house construction. In both cropland and home gardens, men and women participate in land clearing and preparation and planting. Weeding in croplands and home gardens is predominantly a women's activity, although croplands are perceived to be a male space. With respect to forested landscapes, there were also substantial gender differences: generally, women are significantly more dependent on home gardens as sources of forest products in comparison with men, who were more dependent upon cropland and forest reserves.

Villagers identified several boundaries within the forested landscape that did not conform to conventional foresters' boundaries. Non-timber products and medicinal plants are collected from both privately-owned as well as state-owned forested landscapes. Handicraft materials are collected from the state-owned landscape both from the permitted locations (buffer zones) and the prohibited area (state forests). Timber products are only harvested from the state forest reserve since few mature timber trees are found in the private landscapes. Thus, villagers create resource use boundaries based at least in part on need and location of the resources, making the forested landscape appear more like a network of niches with specific uses, which vary with respect to history, cultural and material significance and access rights. Gendered behavioural norms and the gender division of labour are major determinants of the use of species and spaces in forested landscapes, where women are more involved with subsistence uses and men with income-generating uses.

Chapter 6 presents the results of the case studies in terms of access to and use of selected tree and plant species in specific landscape spaces. It presents an in-depth analysis of species-specific patterns, adding further nuances to the overall conditions of local forest use and management as described in Chapter 4. It also discusses the extent to which species-specific rights are similar to, or different from, more general patterns of forest resource access evident in the study communities. This chapter provides a detailed analysis of whether, in addition to formal rights to trees, there are *de facto* informal rights to harvest and use particular tree and plant species and, if so, to whom these rights pertain and how these rights are related to boundaries regarding (a) formal land and tree tenure, (b) particular landscape niches in which species are found, and (c) uses of tree and plant products, including the final destination of such products such as for own consumption, household consumption, exchange, or sale.

Chapter 7 presents the tree and plant case study results regarding management practices in specific landscape spaces. Local forest resource management practices and their rationales, which reflect local knowledge, are discussed in relation to gender differences, subsistence strategies and cultural regulations regarding natural resource use. Special attention is given to assessing whether, in addition to gender-specific uses and access rights to plants, there are (a) associated gender-specific local management practices, knowledge and rationales and, if so, (b) how these might be related to specific forest landscape spaces, as well as (c) how both in

turn may be related to gendered beliefs and norms, as well as to subsistence practices and social status of individuals and households.

Chapter 8 presents an overview of the results and implications for forest policy. It argues that there are interactions between local social norms and cosmology, on the one hand, and formal property rights on the other, where both sides of this equation are gendered. Gender relations, which are embedded in social norms and belief systems, define a dynamic gendered division of labour that further reinforces the gendered use of tree and plant resources and spaces. At the same time, formal rights to land and the resources thereon, including trees, are also gendered – in Uganda if not *de jure*, then *de facto,* largely in accordance with customary tenure but also in accordance with local norms. This implies that gendered spaces are created based at least in part on customary gendered rights to own land and to use, manage or dispose of land and the resources thereon. This is complicated by the existence of separate and gendered rights to trees and even to plants on the land that are distinct from but conditioned by rights to the land itself. Together, these beliefs, norms, rights and divisions of roles tend to create gendered tree and plant species and spaces, which might be conceptualised as 'gendered spaces determine gendered species' (which species are 'male' or 'female' depends on the gendered rights to the spaces where the species are located), or as 'gendered species determine gendered spaces' (rights to spaces depend upon on which species are found there and whether these are 'men's' or 'women's' species). The empirical findings show that such relations are not unidirectional, but bivariate at their simplest. There are yet other complicating factors: not only does the use of trees and plants become gendered and defined in terms of spaces, species and products, but also in terms of the nature of use, particularly the distinction between market and subsistence use. Further, at times it is not species *per se* that are gendered, but rather the different species products. There are also local relationships that further condition the various sets of rights, both formal and informal: marriage and other kinship ties, and social obligations of reciprocity, neighbourliness and friendship that are often based in part upon gender and in part upon age.

The study clearly reveals the multidimensionality, nestedness and layered nature of rights that are revealed when plotting gendered land and tree tenure, species use and management practices on the same map, where what comes to the fore are gendered rights to spaces and species (where these are interlocking rather than discrete), and gendered domains of action that socially construct individual's and groups' resources rights and privileges, thus conditioning resource use and management.

Understanding these complex interrelations has important implications for planning official forestry development programmes with the aim to conserve forest resources and to achieve equity and increased welfare. The results indicate that the conventional legal administrative approach reflected in formal definition of a 'bundle of rights' and the delineation of legal boundaries regarding the prohibitions of forest resource use is too simplistic. Local communities have a much more fluid set of 'boundaries' of access rights to forest resources. There are informal systems of norms and rights that are locally associated with access to forest resources, and the act of transgressing a legal boundary may mean simultaneously respecting another informal boundary. The study clearly shows that the ability of forest-dependent people to obtain access to forested landscapes is mediated by context-specific political, economic, social and cultural frames within which access to resources are sought. The study thus demonstrates the need to also transgress boundaries of professional disciplines and better integrate biophysical and sociological domains in order to understand context-specific access, use and management of plant resources in forested landscapes from an *emic* perspective

Within the Buganda region, it appears that men have stronger 'rights' to use and manage various landscape niches in comparison to women, who are more circumscribed to spaces that either have no strong associated rights regime (e.g. common lands) or to those traditionally considered as 'women's spaces' (home gardens). Informal system of rights parallel to the formal or customary land and tree tenure systems that give men control over land and tree resources, still recognize women's rights in several respects (to specific species, spaces, practices, products and uses) although women are not as privileged as men. This therefore means that women's tree and plant rights in many households may be best guaranteed (either maintained or expanded) through the formalization of what at present appear to be informal rights vested in social institutions and by formally increasing their rights.

SAMENVATTING

De regels ten aanzien van het gebruik van bosproducten worden vaak opgevat als een 'bundel van rechten'. Landgebruiksrechten, zoals weerspiegeld in het onderscheid tussen staatsgronden, gemeenschappelijke dorpsgronden en particuliere gronden, worden meestal als de belangrijkste component uit deze bundel van rechten beschouwd. Professionele bosbeheerders en bosbouw wetenschappers interpreteren de regels ten aanzien van het gebruik van bosproducten voornamelijk in het kader van deze formele 'bundel van rechten'. Hoewel er vaak wel erkenning is voor het onderscheid tussen juridische (*de jure*) en in de praktijk gevormde (*de facto*) landgebruiksrechten, wordt nauwelijks onderkend dat de feitelijke rechten voor het gebruik van wilde planten, bomen of gewassen vaak juist onafhankelijk zijn van deze landgebruiksrechten. Het gebruik van deze natuurlijke hulpbronnen wordt gekenmerkt door een eigen bundel van *de jure* en *de facto* rechten ten aanzien van het verzamelen van producten en het beheer van nuttige soorten. Deze rechtsbundels zijn meestal niet alleen afhankelijk van formele juridische en gebruiksrechten, maar ook van spirituele waarden, culturele normen en dagelijkse praktijken. De rol van deze factoren is vaak moeilijk te onderkennen voor buitenstaanders en hun effect kan subtiel zijn. Leden van lokale gemeenschappen zijn zich echter wel zeer bewust van dergelijke regels en respecteren ze meestal, ook vanwege mogelijke spirituele of menselijke sancties bij het niet opvolgen van dergelijke normen en regels.

Het belangrijkste kenmerk van de rechtsbundel met betrekking tot toegang tot en gebruik van lokaal belangrijke bosproducten is de variatie in rechten tussen verschillende lokale (bevolkings)groepen. Deze variatie omvat zowel verschillen binnen en tussen lokale gemeenschappen en binnen en tussen huishoudens. De variatie op huishoudelijk niveau is niet alleen afhankelijk van factoren zoals financiële situatie, niveau van onderwijs, type huishoud activiteiten en grondbezit, maar ook van factoren zoals leeftijd, familierelaties en geslacht.

De doelstelling van dit onderzoek was te bestuderen hoe de toegang tot en het gebruik en lokaal beheer van bomen en bosplanten afhangen van geslachtsgerelateerde normen en welke factoren aan deze relaties ten grondslag liggen. Het onderzoek had specifiek tot doel:

- Te onderzoeken welke sociaal-economische en culturele kenmerken van de lokale bevolking ten grondslag liggen aan de afhankelijkheid van bosproducten, en hoe deze afhankelijkheid wordt weerspiegeld in het gebruik en beheer van bosplanten;
- Te analyseren hoe en waarom de toegang tot, alsmede gebruik en beheer van bomen en bosplanten, die voorkomen in verschillende landschapselementen, afhankelijk zijn van geslachtsgerelateerde normen, en wat de implicaties van dergelijke relaties zijn voor bosbeleid.

De studie was vooral gericht op de relaties tussen de formele en feitelijke verschillen in geslachtsgerelateerde normen met betrekking tot (1) landbezitsverhoudingen, (2) toegang en gebruik van verschillende landschapselementen en (3) gebruiksrechten op bomen en bosplanten. Tot nu toe zijn maar een beperkt aantal studies in Oeganda uitgevoerd die dit

lokale gebruik en beheer van nuttige bosplanten en hun mate van specificiteit naar geslacht hebben bestudeerd. In het kader van het nieuwe Oegandese bosbeleid (2001), dat de noodzaak tot lokale participatie in bosbeheer benadrukt, is het wenselijk dat er een beter inzicht in deze lokale praktijken wordt verkregen. Ook draagt deze studie bij aan de wetenschappelijke kennis over geslachtsspecifiek gebruik van lokale plantensoorten en over lokale beheersystemen die aangepast zijn aan zowel ecologische als sociaal-culturele omstandigheden. Deze kennis is van belang gezien het feit dat veel bosbeschermingsprojecten, met het doel duurzaam bosbeheer, armoedebestrijding en verbetering in lokale leefomstandigheden te realiseren, in de praktijk niet effectief blijken te zijn.

Centraal in het conceptuele model om de opvattingen van de lokale bevolking over bossen en hun gebruik van natuurlijke hulpbronnen te beschrijven zijn: (1) systemen van bezitsrechten, (2) inheemse kennis en beheersystemen en (3) sociale en geslachtsgebonden relaties. Omdat in de lokale opvattingen meestal geen onderscheid wordt gemaakt tussen bossen en landbouwgebieden, wordt in deze studie gebruik gemaakt van het begrip 'beboste landschappen'. Dit begrip verwijst naar het feit dat er diverse lokale landgebruiksystemen zijn, waarin bomen en bosplanten een rol spelen. Het begrip weerspiegelt de heterogene en complexe mens-bos relaties, en de noodzaak om deze te bestuderen in relatie tot zowel de lokale huishoudstrategieën en het overheidsbeleid ten aanzien van bosbeheer en –behoud.

De studie werd in twee locaties in centraal Oeganda uitgevoerd: het Buttobuvuma bosreservaat met omliggende dorpen in Mpigi district en het Mabira bosreservaat met de erbinnen liggende nederzettingen in Mukondo district. Deze twee studiegebieden vertonen dezelfde agro-ecologische en culturele kenmerken, maar verschillen qua levensomstandigheden en niveau van bosdegradatie. Zij zijn representatief voor het centraal Oegandese landschap met als typisch landbouwsysteem het koffie/bananen productiesysteem. Beide gebieden zijn bewoond door de Ganda stam die een onderdeel vormen van het Buganda koninkrijk. In elk gebied werd één dorp geselecteerd voor de studie: Sanga, een nederzettingsenclave met 610 inwoners binnen het Mabira bosreservaat, en Kisamula/Malube, een nederzetting met 1300 inwoners grenzend aan het Buttobuvuma bosreservaat.

De studie bestond uit een inventarisatie van lokaal bosgebruik en een vergelijkende ethnobotanische studie. De inventarisatie had tot doel om inzicht te krijgen in verschillen in afhankelijkheid en gebruik van bosproducten tussen en binnen lokale gemeenschappen. Hiervoor werden eerst op participatieve wijze met de lokale bevolking transect wandelingen en dorpskarteringen gemaakt. Deze leverden in combinatie met groepsinterviews informatie op over de dorpsstruktuur en het patroon van landgebruik. Daarna werd een huishoud survey uitgevoerd bij respectievelijk 40 en 36 huishoudens in Sanga en Kisamula/Malube. De ethnobotanische studie betrof een gedetailleerde studie over de lokale regelingen en praktijken ten aanzien van de toegang tot, en het gebruik en beheer van vier plantensoorten, namelijk Ficus natalensis (vijgenboom), Artocarpus heterophyllus (broodvrucht), Phoenix reclinata (een dadelpalm soort) en Cleome gynandra (Cat's whiskers). Deze soorten komen zowel in het staatsbos, op dorpsgronden, op particuliere akkers en in erftuinen voor. Bij leden van huishoudens die actief gebruik maakten van deze planten, werden diepte interviews gehouden met zowel mannen en vrouwen over het gebruik van de soorten. Afhankelijk van de plantensoort werden gegevens verzameld bij tussen 11 tot 20 respondenten.

De resultaten van de studie laten zien dat in Oeganda, en specifiek onder het bestudeerde Buganda cultuurgebied, er een gedifferentieerd boslandschap bestaat, waarbinnen diverse

landschapszones voorkomen die elk gekarakteriseerd worden door een stelsel van specifieke rechten op bezit- en bezitsoverdracht, gebruik en beheer van bomen en boomproducten. Het formele en feitelijke recht om land en bomen te bezitten behoort aan de overheid of aan mannen. Echter de feitelijke aanwezigheid van nuttige bomen binnen deze formeel begrensde gebieden, en de geslachtsgerelateerde normen ten aanzien van arbeidsinzet van vrouwen bij het gebruik van deze nuttige soorten, heeft tot gevolg dat deze formele grenzen constant overtreden worden. Daarnaast spelen ook sociale verplichtingen en relaties een belangrijke rol bij de feitelijke toedeling van gebruiksrechten. Dit heeft geleid tot een boslandschap dat gekarakteriseerd wordt door een netwerk van ruimtelijke niches met elk een specifieke vorm van gebruik. De gebruiksvormen variëren naar gelang de historische, culturele en materiele betekenis evenals de toegangsrechten van deze "landschapszones" en is geslachtsafhankelijk. De combinatie van lokale geloofssystemen, sociale normen, rechten en gebruikelijke taakverdeling heeft tot gevolg dat er zowel geslachtsgebonden ruimtelijke gebieden en geslachtsgebonden boom- en plantensoorten bestaan.

Of mannen of vrouwen een specifieke soort in een landschapszone gebruiken is afhankelijk van verschillende factoren. Zo is het gebruik van bomen en planten niet alleen geslachtsafhankelijk in relatie tot de aanwezige plantensoorten, de groeiplaats en de producten, maar ook van het *type* gebruik: zelfvoorziening voornamelijk door vrouwen en commercieel gebruik voornamelijk door mannen. Daarnaast bestaan er diverse formele en informele sociale relaties zoals gezins- en familierelaties, wederzijdse verplichtingen en buurt- en vriendschapsrelaties die gedeeltelijk zijn gebaseerd op geslacht en gedeeltelijk op leeftijd, en die ook weer het geslachtsafhankelijke gebruik kunnen beïnvloeden.

Het blijkt dat in het Buganda gebied mannen sterkere rechten dan vrouwen hebben bij het gebruik en beheer van de verschillende landschapseenheden. De vrouwen zijn voornamelijk afhankelijk van landschapseenheden zoals communale gronden waarvoor geen sterke regels gelden, of voor landschapseenheden zoals erftuinen die traditioneel als een vrouwelijk domein werden beoordeeld. In de informele rechtssystemen hebben mannen, net zoals bij de formele of gebruiksrechten, de voornaamste verantwoordelijkheid over land en bomen. Maar ook al hebben de vrouwen minder privileges, de rechten van de vrouwen op specifieke soorten, producten en toepassingen worden wel erkend. Dit betekent dat in veel gevallen de rechten van vrouwen op land- en boomgebruik het best gegarandeerd zouden kunnen worden (of zelfs uitgebreid) door formele erkenning en versterking van de huidige informele rechtssystemen en de daaraan ten grondslag liggende sociale normen.

Geconcludeerd kan dus worden dat de rechten met betrekking tot gebruik van land en plantensoorten en het beheer hiervan *multi-dimensionaal* gelaagd en vervlochten zijn. Het onderscheid tussen geslachtsafhankelijke soorten en geslachtsafhankelijke ruimtelijke eenheden betreft geen onafhankelijke maar overlappende eenheden. Het gebruik en beheer van natuurlijke hulpbronnen is afhankelijk van geslachtsspecifieke handelingen, die vervolgens leiden tot een sociaal geconstrueerd stelsel van individuele en groepsgebonden rechten en privileges.

Het inzicht in het bestaan van dergelijke complexe relaties heeft belangrijke gevolgen voor het plannen van officiële ontwikkelingsprogramma's gericht op zowel bosbescherming en een eerlijker verdeling van bosproducten in het kader van welvaartverbetering. De conventionele benadering gebaseerd op wettelijke regels met betrekking tot bosbezit en een boszonering gebaseerd op administratieve grenzen aan bosgebruik is te simplistisch. Lokale dorpsgemeenschappen onderscheiden een meer veelzijdig en genuanceerd stelsel van

toegangsrechten tot diverse bosproducten. Het informele stelsel van normen en rechten met betrekking tot het gebruik van bosproducten kan betekenen dat de overschrijding van de juridische grenzen juist het gevolg is van het respecteren van de lokale informele grenzen. De studie bewijst dat de mogelijkheden voor lokale gemeenschappen om toegang te verkrijgen tot diverse gebieden in beboste landschappen afhankelijk is van de lokaal specifieke omstandigheden op politiek, economisch, sociaal en cultureel gebied. Daarom toont de studie het belang aan van de noodzaak om de grenzen van professionele disciplines te overschrijden en een betere integratie van de biofysieke en sociologische wetenschapsdisciplines na te streven. Dit is noodzakelijk om tot een beter inzicht te komen over de lokale perspectieven met betrekking tot de locatie-specifieke toegang tot en gebruik en beheer van bomen en planten in beboste landschappen.

APPENDIX 1

PLANT SPECIES COLLECTED IN THE STUDY AREA AND LOCATION OF COLLECTION

Buttobuvuma-Kisamula-Malube plant species			
Botanical name	**Local name**	**Use code***	**Location ****
Aframomum mildbraedii	Matungulu	FR	FR
Albizia coriaria	Mugavu	MP, FW	FR, HG, FL
Alchornea cordifolia	Luzibaziba	FW	FR
Antiaris toxicaria	Kirundu	PL, T	FR
Artocarpus heterophyllus	Fene	FR, FW	FR, HG, CL, FL
Aspilia mossambicensis	Makaayi	MP	HG
Bredelia micrantha	Katazamiti	PL, FW	FR
Coffea spp	Coffee	FW	FR, HG, CL
Canarium schweinfurthii	Muwafu	MP, FR, FW	FR, HG, CL
Carica papaya	Paapaali	FR	HG
Celtis meldibraedii	Lufugo	PL	FR
Chenopodium opulifolium	Mwetango	MP	HG
Combretum molle	Ndagi	MP, C	FR
Cyphostemma noduglandulasum	Bombo	MP	HG, CL
Entada abyssinica	Mwolola	MP	FR, HG, FL
Erythrina abbysinica	Gilikiti	MP	FR, HG
Ficus exasperate	Luwawu	FW	FR, HG
Ficus mucuso	Kabalira	FW	FR
Ficus natalensis	Mutuba	CF, FW	HG
Funtumia africana	Namukago	FW	FR
Garcinia buchananii	Musaali	MP, FR	HG
Harungana madagascariensis	Mulirira	FW	FR, HG
Lovoa trichillioides	Nkoba	FW, T	FR
Macaranga monandra	Mwokyanyama	FW, C	HG, FR
Malantacloea sp.	Mawulugungu	CF	FR
Mangifera indica	Muyembe	CF	FR, FL

Marantacloea perpunea	Njulu	FR, FW, MP	FR, HG,CL
Margaritaria discoideus	Kamenyambazzi	MP	FR
Markhamia lutea	Nsambya	PL	HG, FR
Meisopsis eminii	Musizi	FW, T	FR
Mondia whytei	Mulondo	MP	FR
Neoboutonia macrocalyx	Mweganza	FW, PL, C	FR
Papyrus sp	Kitoogo	CF	FR
Persea americana	Avocado	FR	HG, CL
Phoenix reclinata	Lukindu	MP, CF	FR
Piptadeniastrum africana	Mpewere	FW, MP	FR
Polyscia fulva	Setala	FW, C	FR
Prunus africana	Ntaseesa	FW, C	FR
Psidium guajava	Mupeera	FR, FW	HG
Rubia cordifolia	Kasalabakesi	MP	FR
Sapium ellipticum	Musasa	FR	HG
Solanmu gigantum	Setaaba	FW, C	FR
Spathodea campanulata	Kifabakazi	MP	FR, HG
Trema orientalis	Kasisa	PL, FW	FR
Unknown 1	Katakula	MP	FR
Unknown 2	Kattaddogo	MP	HG, CL
Unknown 3	Muzukizi	MP	HG
Unknown 4	Nalongo	MP	HG
Vangueria apiculata	Mutugunda	FR	HG
Vernonia amygdalina	Mululuuza	MP	FR, HG, FL, CL
Vernonia auriculifera	Kikokooma	FW	HG

Mabira-Sanga plant species

Botanical name	**Local name**	**Use code***	**Location ****
Acacia polyantha	Kibere	FW PL C	
Aerva lanata	Olweza	MD	CL FL FR
Albizia coriaria	Mugavu	MD	CL FL
Albizia galberrina	Nongo	SH	FR CL
Alstonia boonei	Mubajangalabi	MD T	FR
Artocarpus heterophyllus	Fene	FR FW SH	CL HG
Blighia unijugata	Mukuzanyana	FW PL	
Canarium schweinfurthii	Muwafu	FR	HG CL
Carica papaya	Paapaali	MD FR	CL HG
Celtis meldibraedii	Lufugo	C FW PL	FR
Chrysophyllum albidum	Nkalati	T PL	FR
Crotolaria intermedia	Akasambandege	MD	CL FL
Dracaena fragrans	Luwanyi	BM	CL
Entada abyssinica	Mwolola	MD	CL FL
Erythrina abbysinica	Gilikiti	MD	CL FL
Eucalyptus sp.	Kalitunsi	FW	HG

Ficus exasperate	Luwawu	FR FW SH	CL
Ficus mucuso	Mukunyu	FW	CL
Ficus natelensis	Mutuba	SH FD	CL
Ficus ovata	Mukookowe	FW	CL
Malantachloa perpunea	Njulu	CF	FR
Malantacloea sp.	Mawulugungu	CF	FR
Mangifera indica	Muyembe	FR FW SH	CL HG
Markhamia lutea	Nsambya	PL SH FD FW	CL
Meisopsis eminii	Musizi	FW T	CL FL
Melicia excelsa	Muvule	FW T	
Monodora myristica	Nagomola/ Muvumbulabyama	MD	CL FR
Morus alba	Mukooge	FR	CL
Oxyanthus speciosus	Kamwanyimwanyi	PL FW	FR
Oxygonum sinuatum	Kafumitabagenge	MD	CL FL HG
Persea americana	Avocado	FR FW	CL HG
Piptadeniastrum africana	Mpewere	MD CF	FR
Prunus africana	Ntaseesa	FW C	FR CL
Sapindus saponeria	Muyiki	CF	
Sapium ellipticum	Musasa	FW C	CL
Senna spectabilis	Gasiya	FW PL	CL
Solanum aculeastrum	Ekitengotengo	MD	CL FL
Spathodea campanulata	Kifabakazi	MD	CL FL
Syzygium comminii	Jambula	FR FW	HG
Syzygium cordatum	Kanzironziro	MD	FL
Teclea nobilis	Nzo	FW T	FR CL
Trema orientalis	Kasisa	FW C	FR
Trichilia prieuriana	Sesambya	PL	FR
Unknown 5	Mpimbiri	MD FW C	FR
Unknown 6	Akawule	MD	FR
Unknown 7	Mikisesangwa	MD	CL FL FR
Unknown 8	Lukiiko	MD	CL FL
Unknown 9	Kasatila	MD	CL FL
Unknown 10	Olweto	MD	CL FL
Unknown 11	Akasunsa mukila	MD	CL FL FR
Unknown 12	Mafuta	FW PL C	FR
Unknown 13	Wujju omuganda	MD	CL FL
Vernonia amygadalina	Mululuuza	MD	FL
Warbugia ugandensis	Barwegiila	MD	FR
Zanthoxylum chaybeum	Entaleyadungu	MD	FR

**PL= Poles; FW= Fuel wood; C= Charcoal; M= Medicinal plants; FR= Fruit; CF= Craft materials; T= Timber; SH = Shade; FD =Fodder; BM= Boundary marker.*

*** HG= Home Garden; CL= Cropped land; FR= Forest reserve; FL= Fallow land*

APPENDIX 2

PERSONS CONSULTED DURING DATA COLLECTION

A: Persons consulted during data collection- Mabira-Sanga

Mr. Affeda Joseph
Mr. Agondwa Peter
Mr. Buyinza
Mr. Galubale Stefano
Mr. Ibanda Robert
Mr. Kadogo
Mr. Kadondwa Silvatori
Mr. Kafuuko George
Mr. Kalemera Francis
Mr. Kato Hussein
Mr. Katumba Stefano
Mr. Kawangula Adam
Mr. Kiyonga David
Mr. Lukulakilo
Mr. Lukyema Sebastian
Mr. Lutakome G. William
Mr. Mboda Emasu
Mr. Mukula Moses
Mr. Munani Kalaveri
Mr. Musabulya Fende
Mr. Musisi Semu
Mr. Ndikoola
Mr. Okot
Mr. Okumu Peterson
Mr. Okyedde Saulo
Mr. Olwati Fabiano
Mr. Onyango Nicolous
Mr. Osoga
Mr. Oyogo John
Mr. Tibiwa
Mr. Tigawalana Sebastian
Mr. Waiswa Moses
Mr. Wampamba Andrew
Mr. Amatte
Mrs. Amatte
Mrs Musabulya Fende
Mrs Kadandu
Mrs. Katumba
Mrs. Azidilu Elena
Mrs. Bwanga Dimintilia
Mrs. Farasico
Mrs. Kajumba Rose
Mrs. Kalemera M.
Mrs. Kiwanuka
Mrs. Lubwama
Mrs. Lukyema
Mrs. Mubiazalwa
Mrs. Nazziwa Deborah
Ms. Josephine
Ms. Maama Maureen
Ms. Magola
Ms. Nabakooza
Ms. Nakabo
Ms. Nakanabi M
Ms. Nakanwagi
Ms. Nankumba S.
Mzee Dabuulu Silver
Mzee Kiwanuka G.W.

B: Persons consulted during data collection- Butto-buvuma-Kisamula-Malube

Mr. Bakasibila Sperito
Mr. Bakuwera
Mr. Kafeero Emanuel
Mr. Kajubi
Mr. Kajubi Baziri
Mr. Kalyesubula Laurence
Mr. Kasasa Ben
Mr. Kato Luka
Mr. Kato Mathias
Mr. Keziromi James
Mr. Kilwaana Peter
Mr. Kiwanuka Saulo
Mr. Kkaddu Efraym
Mr. Kyayera A.
Mr. Lumu Paul
Mr. Lyazi Paul
Mr. Mugelwa Sam
Mr. Munani Donozio
Mr. Mutagubya
Mr. Mutyaba Tofar
Mr. Ndiwalana
Mr. Serunkuma Bumbakale
Mr. Ssebuyiga Musa
Mr. Ssemakula Vicent
Mr. Sserunjogi
Mr. Ssonko Godfrey
Mr. Taamale Paul
Mr. Waswa
Mr. Zigwa Henery
Mr. Zzibu Leo
Mr. Zzimula
Mrs Mukasa
Mrs Muwutu
Mrs. Kalyesubula Justine
Mrs. Mukuuma Betty
Mrs. Teddy
Ms. Lubaali Damalie
Ms. Nabakiibi hadija
Ms. Nagaddya Juliet
Ms. Najjuma Florence
Ms. Najuma Fatuma
Ms. Nakasenge M.
Ms. Nakate Kaawa
Ms. Nakato Ann
Ms. Nakayiza Paula
Ms. Nakazzi Annette
Ms. Nakyanja Sawuya
Ms. Nalongo Mariya Solome
Ms. Nalubwama Grace
Ms. Nalwanga Imelda
Ms. Namaalwa F.
Ms. Namasinga B
Ms. Nambatya Jane
Ms. Nambi Rose
Ms. Namuleme Isha
Ms. Namusisi Margaret
Ms. Nansubuga Florence
Ms. Nansubuga J.
Ms. Nasali
Ms. Nazziwa Monica
Ms. Yudaya
Nalongo Kikomeko Isha
Nalongo Mulondo
Namwandu Mary
Salonga Mulondo H.

ABOUT THE AUTHOR

Born on the 27th February 1969 in Ninzi-Kalisizo, Rakai District, Uganda, Gorettie Nsubuga Nabanoga, graduated with bachelor of science degree (Hons) in Forestry at Makerere University in 1994. As part of her BSc. Forestry program, she carried out research on the *Profitability of Eucalyptus growing in Mpigi District, Uganda*. She was then employed by the Department of Forestry at Makerere University as an Assistant Lecturer before she registered for a Master of Science degree in Management of Natural Resources (MNRSA) at the Agricultural University of Norway in 1996. Under this study program, Ms. Nabanoga was professionally re-oriented towards social approaches as well as inter- and multi- disciplinary and holistic approaches in solving natural resources management problems. As part of the requirements for the MSc. degree, she carried out research in Mpigi District, Uganda on the *Socio-economic and Political factors for sustainable Forest Resources Use and Management*. She successfully completed her MSc. MNRSA studies in Norway in 1998 and returned to Makerere University where he worked as lecturer in the Department of Forestry. She was appointed Head of Department of Community Forestry and Extension in 1999 when the Department of Forestry was transformed into the Faculty of Forestry and Nature Conservation (FFNC). She was registered for PhD degree studies in 2001to work with the Department of Environmental Sciences- Forest and Nature Conservation Policy and the Department of Social Sciences, Wageningen University, in The Netherlands.

At Makerere University, she conducted and spearheaded lots of socio-economic research relating to biodiversity, use and management of forest resources. She has vast experience in Agroforestry and Community forestry research and training, for which she is involved with African Network for Agroforestry Education (ANAFE/ICRAF) and the Uganda Forestry Resources and Institutions Centre (UFRIC). She is also one of the social forestry scientists of the GEF-Biodiversity East African Cross-Boarder project, investigating non-timber forest products (NTFPs) and their users in Uganda. She has participated in the development and training of trainers for the Strategic Forest Management Planning Process for the EU-Project, under the Forest Department in Uganda. She also participated in the EU project that carried out the evaluation of Open Forest Degradation Processes in Uganda, for Sub-Saharan Africa. She developed, in collaboration with Makerere University (FFNC) and The Agricultural University of Norway (Noragric) and coordinates the one semester training NORAD funded program for the students of MSc. MNRSA of the Agricultural University of Norway. She has supervised several BSc Forestry students.

She has served as a consultant to the EU-Project as part of the Strategic Forest Management Planning Process Mission for Forest Department in Uganda; the GEF-Biodiversity East African Cross-Boarder project in reparation of a discussion paper on Non-timber forest products (NTFPs) and their user groups; ANAFE in Rwanda and Burundi for training needs assessment; the Norwegian Forestry Society for the Evaluation and Impact study of the Pilot Wood farmers component of the Per-Urban Plantations Project and the Uganda Tea Growers Corporation (UTGC) for the feasibility study for the establishment and maintenance of Fuelwood plantations within the framework of the Small holder Tea Development Programme (STDP).

Publications

Nabanoga G.N. and W.S. Gombya-Sembajjwe, 2001. The effect of household endowments and entitlements on sustainability of natural forests. The International Forestry Review **3** (1), 34-41.

Nabanoga G.N.K., 1998. Socio-Economic and Political factors for Sustainable Forest Resource Use and Management in Uganda, Noragric Norway.

Gombya-Sembajjwe, Bahati J., Nabanoga G.N., Kapiriri M, 1993. Analysis of the socio-economic and institutional changes in communities close to selected Natural Forests in the four climatic zones of Uganda, IFRI Uganda.

Nabanoga G.N., 1993. The profitability of Eucalyptus growing in Mpigi District, Uganda.