Frontier Tanzania Savanna Research Programme

Community use of non timber forest products
A case study from the Kilombero Valley

Society for Environmental Exploration
University of Dar es Salaam

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PREFACE

This section outlines the responsibilities and objectives of those bodies involved in the Kilombero Valley Integrated Environmental Management Programme (KVIEMP).

The University of Dar es Salaam (UDSM)
The University of Dar es Salaam was established in July 1970 as a centre of learning and research in the arts and the physical, natural, earth, marine, medical and human sciences. The Faculty of Sciences within the University surveys and maps the flora and fauna of Tanzania and conducts research into the maintenance and improvement of the environment and the sustainable exploitation of Tanzania's natural resources.

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The Society and the University have been conducting collaborative research into environmental issues since July 1989 under the banner of Frontier-Tanzania Research Programmes. Over 11 years, more than 2,000 international volunteers have participated in these programmes working alongside Tanzanian Catchment Forestry, Fisheries and Wildlife Officers and students to map the biodiversity of Tanzania.

Funding bodies
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Secretary: Ms. Yusta Mballa

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CONTENTS

1. INTRODUCTION

A considerable amount of research has been carried out in Africa and other parts of the tropics examining the community use of "non timber forest products" (NTFPs). In areas such as southern Tanzania, where the dominant vegetation type is *miombo*, the use of the word *forest* in this acronym can be assumed to encompass *woodland* habitats as well. NTFPs are any products, excluding commercial timber which originate from trees and shrubs or from wooded areas. Typically they include resources directly obtained from trees such as fuelwood, fruits, fodder and traditional medicine but can also include resources indirectly obtained from trees such as honey, bushmeat and fungi.

NTFPS are, almost by definition, primarily used by the local communities that surround wooded areas. Resource use tends to be low intensity and rarely provides a significant income. Instead NTFPs tend to provide an important non - financial supplement to the livelihoods of rural people. They are particularly important during periods of poor crop yields. Exceptions to this rule do exist and they tend to be represented by people with specific skills enabling them to fill a particular commercial niche. An obvious example of this is honey collection from 'local' hives. This form of resource use is highly specialised, methods of manufacture are a closely guarded secret (as experienced by KVIEMP staff when trying to interview honey makers !). Honey can be a valuable economic resource especially when transport and market factors are favourable.

There is considerable potential for the economic development of the use of NTFPs and this strategy has been used by numerous rural development projects to divert dependence away from agriculture, to increase the income of women and to facilitate the conservation of natural resources.

Two of the key aims in the one year plan of Tusonge Mbele Itete (TUMI) are, the planning of land use around Itete and the development of a community forest. In order to provide KVIEMP with a full perspective of the issues involved in these activities a short research programme examining community woodland resource use was instigated. Three approaches were used in this programme. Firstly a local villager (female) was trained in the use of questionaires and then proceeded to interview household heads in Itete. Secondly KVIEMP staff ran group meetings with a variety of resource user groups. Lastly interviews and field trips were carried out with people who held specialised information such as herbalists. These three approaches yielded different types of information, although with a certain amount of crossover, much of which provides useful insights into the issues surrounding woodland issues in Itete.

2. AIMS AND OBJECTIVES OF SURVEY

Aim: To provide an assessment of the value of the wooded areas around Itete to the local community

Objectives:

- To identify Non Timber Forest Products known and used by local people.
- To provide an assessment of resource use patterns including frequency of use, collection methods and preferences.

- To assess the contribution of NTFPs to livelihood strategies and to incomes.
- To provide an assessment of resource availability and factors effecting change.

3. METHODS

A preliminary investigation was used to identify general resource patterns and potential key informants. The findings from this were used to plan the main part of the research. For instance women were identified as the primary fuelwood collectors and so were targeted in much of the subsequent research.

Following this three approaches were used :

(i) Group discussions

Discussions with the following five groups were held :

Group 1 : Itete women. 15 persons
Group 2 : Mixed group of community representatives, Itete. 14 persons
Group 3 : Itete men, all over 50 years old. 9 persons.
Group 4 : Mtimbira women. 12 persons
Group 5 : Itete women, 4 persons

All of these were run using standard participatory research techniques principally *semi structured interviews* and *matrix ranking* exercises and were facilitated by the KVIEMP Local Coordinator and the KVIEMP Project Coordinator.

These meetings helped build up an inventory of the uses of miombo woodland resources known to local people and the preferences exhibited.

(ii) Individual interviews and guided walks (using KVIEMP staff)

Individual interviews were carried out with a representative from the Mission Health Clinic and local herbalists (both male and female). These were carried out by a variety of people including local Forest Officers and the KVIEMP Project Coordinator. Work with herbalists took the form of 'guided walks' led by the herbalist. During the walks the herbalist would explain the medicinal uses of plants encountered.

These interviews were used to gain more specific information relating to specific uses or issues.

(iii) Individual interviews carried out by a village researcher

One female villager from Itete was provided with training in the design and use of simple questionnaires by the KVIEMP Local Coordinator. This was done in order to reduce *outsider* bias in interviews. A questionnaire was then designed and developed after a few practise runs. A questionnaire was considered suitable because of the nature of the data required (quantifiable) and the fact that it requires less understanding than methods such as *semi – structured interviews.* Simple ranking

exercises involving a straight 1-2-3 preference were incorporated into the questionnaire.

In total the village researcher carried out 44 interviews with senior females in households. The households represented by these informants came to a total of 273 people with an average family size of 6.2 persons. They had been in Itete for an average of 28.4 years.

These interviews were used to obtain more quantifiable information on the frequency of use and the reasons for the use of particular resources. The interviews were also used to obtain more information from the point of view of the women of Itete. All of the informants were women.

All of the work was carried out in Kiswahili using vernacular names for plant species. The identification of most of the species named by informants was confirmed by a botanist from the University of Dar es Salaam and a local Forest Officer.

4. RESULTS

4.1 Introduction

Some vernacular names have not been identified. Although most of these comprise non - woody plants such as tubers and fungi, some may represent other tree species, or even different names for already identified trees. Their inclusion here provides an opportunity for knowledgeable botanists to assist us with their identification.

4.2 NTFP types

People in the Itete area obtain the following items from the surrounding wooded areas :

- Fuel
- Food
- Building materials
- Implements / utensils
- Canoes
- Traditional medicines
- Fibres

In the **group meetings** participants ranked these resource types in order of their importance to local households. The order given was remarkably universal and consisted of the following :

Table 1: Importance of different classes of resource use (group meetings)

Ranking	Resource type	No. of named species *
1	Firewood	32 (27)
2	Building	12 (11)
3	Medicine	160 (149)
4	Food	27 (14)
5	Utensils	
6	Other	

*** named by informants, figure in brackets represented species successfully identified.**

4.3 Firewood

Everyone spoken to, in both the group meetings and the individual interviews, used wood as their principal fuel source. When questioned informants pointed out that alternatives such as kerosene stoves were used by a few people but the constant cost involved prohibited their general adoption.

In total 32 species of tree were named in the **group meetings** as being of use for firewood. Of these 27 have been identified (see Appendix 1).

In the **individual questionaires** 17 species were named by informants.

4.3.1. Firewood preferences

Preferences for the firewood species named in the **group meetings** were assessed using a standard *pair wise ranking* method (see Appendix 7). The results of this showed considerable uniformity. The top six ranked trees are shown in Table 2.

Table 2 : Firewood preferences revealed by pairwise ranking in group meetings

Local name	Latin name	Average rank *
Muwanga	*Pericopsis angolensis*	1
Miombo	*Brachystegia spiciformis*	2
Mpingo	*Dalbergia melanoxylon*	3.6
Mpapa	*Brachystegia spp*	4.3
Mnamata	*Pseudarthia hookeri*	4.6
Msegese	*Bauhinia thonningi*	6.3

*** total ranked scores divided by five (the number of meetings)**

Pericopsis angolensis and *Brachystegia spiciformis* were the number one and two firewood types respectively according to everyone spoken to. Preference for lower ranked species is not so consistent.
Preferences for the firewood species revealed in the individual **questionaires** were assessed using a straight forward *first preference, second preference, third preference* method. Again a certain amount of uniformity was present.

Table 3 : Firewood preferences as revealed in individual questionaires using a village researcher.

F= Frequency cited as particular preference

Preference 1	F	Preference 2	F	Preference 3	F
Miombo	27	Mnamata	8	Msekesi	15
Mwanga	6	Mwanga	7	Mwanga	5
Mtalula	2	Mtalula	6	Mnamata	3
Msekesi	2	Miombo	5	Mndopeta	1
Mndopeta	1	Msekesi	4	Miombo	1
Mnamata	1	Mgeligeli	4	Mpingo	1
Chigutua	1	Mkalanga	2	Mkuyu	1
		Mtogo	2	Msembisembi	1
		Mkuyu	1	Mpapa	1
		Msolu	1	Chikwambi	1
				Chigozi	1
				Vikwambikambi	1
				Mzauzau	1

4.3.2. Resource availability

The **questionaire** included a question asking 'which firewood species is it now difficult to find'. The responses to this question are shown in the table below :

Table 4 : Firewood species difficult to find (from individual questionaires)

Species	Frequency cited
Mwanga	32
Mpingo	19
Msekesi	19
Mtalula	16
Miombo	10
Mnamata	6
Msembisembi	2
Mlama	1
Mkalanga	1
Mlama	1

Informants in the group meetings stated that they must now walk over 3 km in search of firewood.

According to participants in the **group meetings** this is having the following impacts on local people:

- It limits the time women can spend on childcare and restricts activities such as the boiling of drinking water.
- It restricts womens involvement in income generation activities such as their own farms and crafts.
- Women increasingly have less time for recreation or extended family duties.

4.3.3. Collection methods:

Both the group meetings and the questionnaire confirmed that wood is universally collected by women and children. Generally people in Itete make two big collection trips a week.

Numerous informants stated that previously only dead wood was taken for fuel. However some informants in the group meetings claimed that collection methods used in the area now included : ring barking trees; the cutting of live trees; the setting of fires to kill and dry out trees.

4.4 Building

The only informants asked about building species were those in the group meetings. Twelve species were noted by informants as being used in the building of houses. Of these eleven were successfully identified. These are all presented in the table below.

Table 5 : Species used for building (group meetings)

Vernacular	**Latin**
Chingunguta	*Dichrostachys cinera*
Mawele ganafunda	*Harrisonia abyssinica*
Mhukutotu	*Rothmannia spp.*
Miombo	*Brachystegia spiciformis*
Mkala madunda	*Markhamia spp.*
Mkalati	*Burkea africana*
Mpingo	*Dalbergia melanoxylon*
Msembi	*Dyospyros visicosa*
Mtalula	*Acacia spp.*
Mtwangu	*Miletia spp.*
Muwanga	*Pericopsis angolensis*
Mvule	*Miletia excelsa*
Mkurungu	

Tree products are principally used for roofing materials and species preference is dependent on the resistance of the wood to termite attack.

4.5 Medicine

A cumulative total of 149 vegetative species (including grasses and herbs as well as trees and shrubs) were named as having medicinal qualities (see Appendix 2). These results come from all of the groups but the bulk of the species were found out by the interviews with the herbalists. A lot of medicinal usage is a very specialist thing and it is only the herbalists who can reveal information

The range of local medicines is very extensive. They include treatments for: stomach illnesses; scabies; boils; bone fractures; mental problems; pregnancy problems; impotency and virility; female infertility; abortion; epilepsy; rheumatism; ulcers; spleen inflammations; tooth and ear pain; wounds; back problems; pneumonia, malaria; bilharzia; hernias; gonorrhoea ; snakebites. Treatments utilise the roots, bark, leaves and fruits of plants. They are applied in a variety of ways, usually as drinks and food but even as baths.

4.5.1. Frequency of resource use

In this survey traditional medicine was defined as anything coming from plants or animals and not purchased or obtained through a pharmacy. Modern medicine was defined as that which had to be bought or obtained from either a pharmacy or a *duka*.

In the **group meetings** every informant stated that they used traditional medicines at various times. The most commonly used were stomach medicines. Medicines are generally obtained from a herbalist although some households have sufficient knowledge to obtain their own treatments. A herbalist is only paid if the treatment is successful and as a result of this most people stated that they will always try traditional medicine first. If this treatment is not successful then they will go to a modern pharmacy or visit the clinic.

More detailed information was obtained from the **questionaires**. The interviewees were asked a number of questions designed to find out their preferences in terms of type of medicine and the degree to which their household has used both over the last month. The results are presented in the table below.

Table Five : Medicinal Use over last month revealed in questionaires (total of 44 informants)

Numbers who are prepared to use traditional medicine	43
Numbers who are prepared to use modern medicine	44
Numbers that have used traditional medicine over last month	19
Numbers that have used modern medicine over last month	38
Number of actual cases involving traditional medicine	37
Number of actual cases involving modern medicine	76
Average number of times households used traditional medicine	0.8
Average number of times households used modern Medicine	1.7

The variety of illnesses treated by the different forms of medicine is presented below.

Table Six : Illnesses treated by different medicines as revealed in questionaires (44 informants)

Traditional medicine		**Modern medicine**	
Illness	**Frequency**	**Illness**	**Frequency**
Stomach	6	Fever	26
Epilepsy	6	Chest	12
Ear problems	2	Stomach	7
Chest	1	Burns	2
Fever	1	Toothache	2
Male potency	1	Sores	2
Burns	1	Shingles	1
Bilharzia	1	Swollen leg	1
Spleen	1	Surgery (womb)	1
		Eyes	1

*stomach illnesses refer to diahraea, dysentery, abdominal complaints etc
*chest illnesses refer to pneumonia, coughs, chest complaints

As with the group meeting participants most informants got their traditional medicine from a 'bush doctor' and approximately half claimed not to know the ingredients of the medicine they took.

The remaining people, who knew the contents of the traditional medicine they had taken, revealed the species they had used over the last month.

Table Seven : Traditional Medicines used over last month (from questionaires)

Stomach	Epilepsy	Ear / Tooth	Chest	Potency	Burns	Bilharzia	Spleen
Mnamata Mpera Mkwaju	Mlunganu Namavi Msekesi Kilemandembu Chihegihegi	Chikwambi – kwambi Mikuyu	Mzauzau	Namandwendi Chingunguta Kilemandembu	Lisapi flowers	Chiwondoka	Kuchanda

A comparison of the perceived advantages and disadvantages of the two medicine types was obtained. This is produced below.

Table Eight: Comparison of modern and traditional medicine (from questionaires)

Modern		**Traditional**	
Benefits	*Disadvantages*	*Benefits*	*Disadvantages*
An efficient dose Good equipment	Long queues High cost Transport to clinic difficult to get Corrupt officials make life difficult	Easily available Cheap	No proper dosage given – relies on guesswork ! Bush doctors often keep you waiting

4.6. Food

A total of 27 vernacular names for different food types were found. Of these only 14 were identified. The large number of unknowns reflects the fact that food types include a large number of fungi, grains and tubers. The food types from trees come mainly in the form of fruits and include wild custard apple (*Annona senegalensis)* and tamarind (*Tamarindus indica)* (full list in Appendix 3).

More detailed information was obtained from the questionaires where informants were asked which forest food species were available at the time of questioning (November / December). The list produced over the course of 43 questionaires is presented below :

Table Nine : Forest food available in November and December

Local name	**Latin name / characteristics**
Kapungulu	Vegetable
Uyoga	Mushroom
Mbilipizi	Fruit
Liwowo	Vegetable
Mbigipingi	Fruit
Livuguia	Vegetable
Madaki	Fruit, like banana
Libwaga	Rice
Mahuku	Fruit
Lichulu	Vegetable
Lundini	Like finger millet
Magama	Fruit, like mango
Fulu	*Vitex doniana* (small black fruit)
Mndopeta	*Annona senegalensis* (wild custard apple)
Ulima	Like sweet potato
Mbwegele	Fruit, like mango
Nzaya	Type of ugali
Magombi	Fruit
Kabelege	Vegetable

Litamba	Vgetable
Lilungupemba	Similar to sorghum
Magulugulu	Fruit
Chambombo	Vegetable, like leaves of sweet potato

Every household, with the exception of one, said that they used forest food. The period of highest frequency of use was the January – March period, typically a "hungry period" awaiting the first harvest of the year.

4.7. Multi - purpose trees and shrubs

The inventory obtained from all of the work revealed that many miombo and forest species found in the local area have a multitude of uses. The table below illustrates the different uses of some of these species (see Appendix 5 for full list).

Table Ten : Multi purpose trees and shrubs

Vernacular	Latin	No. Uses	Type of use
Makala madunda	*Markhamia spp.*	4	M / U / FW / B
Mkwaju	*Tamarindus indica*	4	M / U / FW / F
Mnopeta	*Annona senegalensis*	4	M / U / FW / F
Chingunguta	*Dichrostachys cinera*	3	B / M / FW
Embe	*Mangifera indica*	3	M / FW / F
Matongatonga	*Strychnos madagascarensis*	3	M / FW / F
Mawele ganafunda	*Harrisonia abyssinica*	3	M / FW / B
Mfulu	*Vitex doniana*	3	M / FW / F
Mpingo	*Dalbergia melanoxylon*	3	M / FW / U
Msembi	*Diospyros visicosa*	3	M / FW / B
Mtaula	*Acacia spp*	3	FW / B / M
Muwanga	*Pericopsis angolensis*	3	FW / B / M
Mvule	*Milletia excelsa*	3	FW / B / U

Key : Med : medicine U : utensils (hoes / axes / beds / rope) FW : fuelwood
F : food B : building

5. DISCUSSION

5.1. The importance of woodland and forest around Itete

The results serve to emphasise the importance of the wooded areas around Itete to local people. The use of these resources illustrates an important livelihood strategy. This is indicated by the fact that the cost of 'modern' substitutes is cited as a reason for the use of both firewood and traditional medicine and that forest food is used by almost everyone in the period of food shortages.

The almost universal usage of these resources emphasises the need to conserve indigenous trees. In addition the results suggest a case for the conservation of 'blocks' of natural woodland and forest in their natural state as opposed to a management policy relying purely on tree planting to compensate for woodland loss. It is arguable that the large diversity of medicinal species and the majority of the food species, which are not actually trees but are other vegetation types associated with wooded areas, will only be found in natural woodland and forest. It is difficult to see how active management would reproduce the diversity necessary to provide these resources.

5.2. Species preferences

Non timber forest products are species specific. Not every tree provides good firewood. Food is only found on certain species and every tree is not necessarily good for building a house. Local people's preferences for species reflect this. Firewood is chosen for the heat that the wood emits, the quantity of soot and smoke given off, the ease of lighting when wet, and the magnitude of the light given off (*Dalbergia melanoxyla, mpingo,* for instance burns very brightly and can be used to light up a room).
Wood for building is selected for its strength and most importantly, for its resistance to termite attack.

5.3. Resource scarcity

Patterns of resource use and scarcity follow a distinct pattern. A woodland or a forest is not a homogenous entity, either in the species found or in the value given to it by local people. Local people target certain preferred species and when these species are no longer present they either walk further away or start using less preferred species. As the process continues villagers use species which are more and more inferior in terms of their use. An interesting area for future research will be to assess how far people must walk, in search of preferred species, before they give up and start using inferior varieties.

Another aspect of this process is collection methods. Traditional resource use is sustainable and in the case of firewood this means only collecting dead wood. As dead wood becomes increasingly scarce people will eventually resort to taking live trees.

The first signs of this process therefore are: a decline in the availability of preferred species; the use of destructive resource collection methods; villagers walking a long way to collect resources. All of these signs are present in Itete. *Muwanga* is the preferred firewood of most people and is a common *miombo* woodland tree, yet it is considered the most difficult firewood species to find. The fact that ring barking and the setting of fires was cited as one resource collection method is a cause for concern as well although this does require cross – checking.

This situation illustrates that resource scarcity occurs well before you see the obvious signs of deforestation and that management solutions in Itete need to be applied sooner rather than later.

5.4. Implications for management

The characteristics of different species and the subsequent preferences exhibited by local people means that reforestation efforts must be species and resource - use specific. It cannot be assumed that fast growing species are the answer to every situation. Teak, for example, may be fast growing but it will not help an area short of firewood because it does not burn efficiently.

The importance of firewood to local people and the fact that one of the most preferred species is considered scarce suggests that firewood species should be targeted in reforestation efforts

Species with multiple uses should also be a target for reforestation activities. It is arguable that no one but a herbalist will want to plant a tree purely for its medicinal qualities. However if that tree has other uses then it will be a an attractive option for a wider variety of people. An example is *mkwaju (Tamarindus indica)* an important stomach medicine, but also a firewood and a source of food.

Appendix 1 : Firewood Species

Local name	**Scientific name**
chingunguta	*Dichrostachys cinera*
mawelganafunda	*Harrisonia abysinica*
mbwegele	*Schlericaria birrea*
mdopeta	*Anona senegalensis*
mfukululu	*Dombeya sensinata*
mfulu	*Vitex doniana*
mfungutua	*Kigelia africania*
mgama / msaula	*Ozoroa insignis*
mgeligeli	*Brachystegia*
miombo / mkondo	*Brachystegia spiciformis*
mkahgalashingozi	*Harrisonia abysinnia*
mkala madunda	*Marhamia spp*
mkalanga	*Pterocarpus spp*
mkuyu	*Fiscus sycomorus*
mkwaju	*Tamarindus indica*
mnamata	*Pseudarthia hookeri*
mpapa	*Bracystegia*
mputi	*Markhamia spp.*
msekese	*Bauhinia thonningi*
msembisembi	*Drosperus visicosa*
msese	*Pilliostigma thoningii*
msonobali	*Senna siamea*
mtalula	*Accacia spp*
mtogo	*Diplorhinchus condylocarpon*
mtongatonga	*Strychnos cocculoides*
muwanga	*Pericopsis angolensis*
mvule	*Milecsa excelsa*
mwembe	*Mangofera indica*

Appendix 2 : Medicinal uses of local trees and plants

Local name	Scientific name	Ailment
Bugubugu	*Panicum maximum*	Toothache
Chepechepe	*Justicia flava*	Children's stomach problems
Chihenjihenji	*Paurosa spp*	Eclampsia
Chijangajanga	*Capsicum frutescens*	Pneumonia
Chilebeti	*Acokanthera schimperi*	Hernia
Chimemenambela	*Diospyros spp*	Pregnancy problems
Chinguluka	*Tapinanthus pennatulus*	Convulsions, headache
Chingunguta	*Dichrostachys cinerea*	Body aches and pains
Chitakata	*Anona squamosa*	Scabies
Chitwata	*Acalypha fruticosa*	Bone fractures
Embe dodo	*Mangifera indica*	Dysentry
Findikanguo	*Zingibar officinalis*	Mental disorder
Kalivumbura	*Salacia lehmbachii*	General pain
Kalumatika	*Desmodium spp*	Pneumonia
Karangapori i.e.	*Indigofera spp*	Delivery / labour problems
Kasuku	*Sida acuta*	Swelling of fingers
Kidevu cha mbuzi	*Cyperus spp*	Nausea, fever, sore throat
Kifa uongo / kikomaga	*Biophytum sensitivum*	Dizziness
Kifungang'ombe	*Sporobolus pyramidalis*	Headache / sore throat
Kihondoka	*Rubeaceae spp*	Gonorrhoea
Kikonge	*Sensevieria spp*	Fever, stomach pains, diarrhoea
Kikwambikwambi	*Flueggea virosa*	Chest pain
Kilemandembo	*Gardenia voleancii*	Coughs, chest pain
Kilingilingi	*Arisaema spp.*	Boils
Kiotawatwa	*Pappea capensis*	Body aches and pains
Kitakata	*Antidesma venosum*	Headache, stomach, body wounds
Kitemalumba	*Scleria parvula*	Boils
Kitukutungonda	*Vernonia hildebranditii*	Wind / stomach gasses
Kunde pori	*Eriosema psoralioides*	Bilharzia
Libetamtui	*Momordia bovinii*	Nausea
Lifungufungu	*Digera Muricata*	For women who have children and then become infertile
Liganigani	*Galinsoga parviflora*	Morning sickness
Likolowoga	*Commelina spp*	Sty on eyes
Lipelegi	*Aloe spp*	Birth wounds
Lipyapya	*Leersia lexandra*	Upele ?
Litamba	*Rhoicisses spp*	Constipation
Litutu (male)	*Asparagus spp*	Constipation
Livugua	*Asystasia charmian*	Post - delivery stomach pains
Liwingamlungu	*Triapsis mozambica*	Stroke
Lubani	*Bersama mossambiensis*	Rib pains
Ludili	*Cissampelos paviera*	Snakebite / high blood pressure
Luhomanga	*Hygrophila auriculata*	Coughing
Lukwangasali	*Similax anceps*	Sore throat
Lungumbu	*Adenia spp*	Stomach pains
Lututu (female)	*Asparagus spp*	Stomach pains
Luvumbeza	*Ocimum suave*	Birth problems with placenta
Majani ya mboga / nyungu	*Cucurbita maxima*	Birth problems with placenta

Makojakoja	*Satyrium cheirophorum*	Piles
Malumbula	*Rytigynia spp*	Stomach ulcers, back pain, snakebite
Maweliganafunda	*Harrisonia abbyssinica*	Stomach ulcer, back problems, snakebites
Mbarikilampandi / mninga maji	*Afzelia quanzesis*	Headache, back and pelvic pains
Mbongoloma	*Erythrina abysinnica*	Spleen inflammation
Mbuyu	*Adamsonia digitata*	For weak babies at birth
Mbwegeli	*Sclerocarya birrea*	Tooth ache
Mchaichai	*Cymbogon citratus*	Malaria
Mchuhungu	*Terminalia spp*	Dysentery
Mchunga	*Sonchus spp*	Ear pains
Mdengi	*Arundinaria alpina*	Joint pains
Mfukululu	*Dombea rotundiforia*	Malaria, wounds
Mfungulu	*Lonchocarpus capassa*	Infertility in women
Mfuru	*Vitex doniana*	Nausea and dizziness
Mgama / Mkrati	*Ozoroa insignis*	Anal wounds
Mgangi	*Majidea zanguebarica*	High fever
Mgudi/Mtutuma	*Sterculia appendiculata*	General pains
Mhekela	*Terminalia serecea*	Bilharzia
Midela	*Ipomea batatas*	Paralysis
Mjambapori	*Indigofera volkensii*	Fever
Mkangalaliundi (pogoro)	*Pterocarpus spp*	Dysentery
Mkomambanga	*Kapaca kiakiana*	Dysentery,
Mkorosho	*Anacardium occidentale*	Tooth ache
Mkulukuti/Nakatitu	*Marukara zanzibarensis*	
Mkulungaliwa	*Ficus spp*	Back pain
Mkusi	*Albizzia schimperiana*	Body aches
Mkuyu	*Ficus sycomorus*	Lactation problems
Mkwaju	*Tamarindus indica*	Female infertility, diarrhoea
Mlandala	*Cassia abbreviata*	Snake bite
Mlehani	*Ocimum kilimandscharicum*	Malaria
Mlengalenga	*Albizzia amara*	Cough
Mlengamachi	*Syzyguim cordatum*	
Mlongi	*Moringa oleifera*	Swelling caused by ulcer / infection
Mlundu	*(Papilioneceae)*	Tape worm
Mlungulungu	*Zanthoxylum usambarenses*	Head / tooth ache
Mndimu	*Citrus aurantium*	Constipation / difficult to urinate
Mndopeta	*Anona squamosa*	Boils
Mnepa	*(Combreteceae)*	Headache
Mngulungua	*Strychnos innoccoa*	For the early stages of mental disorder
Mninga / Mtumbati / Mtwangio	*Pterocarpus angolensis*	For prolonged periods
Mnungamo	*Harungana ?*	Birth problems
Mpapai	*Carica papaya*	For family planning
Mpapala	*Ficus spp*	Malaria
Mpengu	*Clematis spp*	Inflammation of leg or arm
Mpera	*Psidium guajava*	Diarrhoea
Mpingipingi	*Ximenia americana*	General
Mpingo	*Dalbergia melanoxylon*	Aphrodisiac
Mpira	*Saba florida*	Aphrodisiac
Mpotolo	*Steganotaenia avaliacea*	Birth problems
Mpuga	*Bridelia spp*	Bone pains
Mpugupugu	*Markhamia lutea*	Fever, stomach pains, tape worm

Mpululu (male)	*(Combreteceae)*	Fever
Mpumbunyama	*(Rubbiacea)*	Prevention of miscarriage
Mpupulu	*Comretum paniculutum*	Hiccups
Msangulakaya	*Indigofera schimperi*	Hiccups
Msekese	*Bauhinia thonningii*	Coughing
Msekuseku	*Ormorcarpum kirkii*	Rheumatism
Msembisembi	*Acalypha subsessilis*	Post - delivery problems
Msolopondu	*Maytenus undata*	Fever
Mswini	*Cassia abbriviata*	Slipped disc
Mtalawanda	*Markhamia zanzibarica*	Stomach / rib pains
Mtambalambwezu	*Growia forbesii*	Pneumonia
Mtogo	*Diplorhynchus mossabicensis*	Hernia
Mtonahimba	*Ziziphus mucronata*	Headache,
Mtondo	*Brachestagia spicifomis*	Eye problems
Mtongatonga	*Strychnos cocculoides*	Fever
Muhembeti	*Sterculia guinguloba*	Malaria
Muhiji	*Combretum schumannii*	Malaria
Muholohongwa	*Leonotis nepetifolia*	Nausea, sinus problems
Muhukutoto	*Terminalia brownii*	Oedema (too much water
Muwanga	*Pericopis angolensis*	Pelvis pains, headache
Muweriweri	*Baissea myrtifolia*	Extreme swelling of testicles
Muyegeya (Kingindo)	*Ficus capreifolia*	Fever
Muyombo	*Brachistagia bussei*	Female infertility
Mviru	*Vangueria tomentosa*	Pelvic pains, hernia
Mvungwa	*Kigelia africana*	Worms
Mwija	*Bridelia spp*	Post delivery bleeding
Mwongoloma	*Cursonia kirkii*	Spleen
Mzambarao	*Syzygium guineese*	Rib / backbone pains
Mzauzau	*Albizzia anthelmintica*	Coughing
Mzengezenge	*Annona spp*	Female infertility
Nakaberegi	*Meyna tetraphylla*	Snake bites
Nakachechema	*Dissotis/Melastomastrum spp*	Hiccups
Nakadokola	*Deinbollia borbonica*	Hiccups / wounds
Nakalyeli	*Abrus precatorius*	Nausea , boils
Nakandumba	*Euphorbia hirta*	Eye problems
Nakatetete	*Pluchea dioscoridis*	For STDs
Nakatogo	*Hunteria zeglanica*	Male infertility
Nakatutu	*Indigofera spp*	Female infertility
Nakatwata	*Acalypha spp*	Headache
Nakayoka	*Astrochlaena hyoscyamoides*	Stomach problems
Nakayoka	*Ipomoea spp*	Tape worms
Nakazizima	*Cremaspora africana*	Mental disorders
Naupiyu	*Clerodendrum spp*	Nausea, dizziness
Ndulele/nyanyapori	*Solanum incunum*	Stomach pain, spleen problems in children
Ngalichitepo	*Scutya spp*	Mental disorders
Shigoyi	*Glycine wightii*	Convulsions
Umua	*Commiphora africana*	Boils
Utondolu	*Arisaema*	Ear pains
Zizine	*Osyris lanceolata*	Headache / stomach pains

Appendix 3 : Food from woodland and forest areas

Item	Scientific name	Characteristics
Trees		
Mabungu	*Saba comorensis*	yellow fruit
Mwaya	*Trichilia africana*	seeds also used like groundnuts, can be used to make a type of ugali
Mkwaju	*Tamarindus indica*	fruit edible and tamarind juice also use
Mtopeta	*Annona senegalensis*	Wild custard apple
Mahuku	*Rothmania spp.*	berry like fruit
Mbwegeli	*Sclerocarya birrea*	small yellow fruit
Mpilipisi	*Sorindea madagascarensis*	
Mzambarau	*Syzygium cumini*	cultivated for fruit
Matongatonga	*Strychnos madascarensis*	fruit pulp is eaten
Fulu	*Vitex doniana*	black fruit
Migama		
Mibisi		
Mngutungulu		
Roots		
Mpama		Yam like
Ulima		Similar to sweet potato
Unyanya		Carrot like
Ndengendi		Yam like
Msomo		Yam like
Vinyafuli		Sweet potato
Grains		
Misapi	wild rice	Wild rice
Lundindi	like finger millet	Like finger millet
Unanga	like finger millet – found in ponds	Like finger millet - found in ponds
Mushrooms		
Uyonga		The Swahili name for mushrooms

Appendix 4 : Species used for building materials

Local name	**Scientific name**
Chingunguta	*Dichrostachys cinera*
Mawele ganafunda	*Harrsonia abysinnica*
Mhukutotu	*Rothmania spp*
Miombo	*Brachystegia spiciformis*
Mkala madunda	*Markhamia spp*
Mkalati	*Burkea africana*
Mpingo	*Dalbergia melonoxylon*
Msembi	*Dyosperus visicosa*
Mtalula	*Accacia spp.*
Mtwangu	*Melitia spp*
Muwanga	*Pericopsis angolensis*
Mvule	*Milecsa excelsa*
Mkurungu	

Appendix 5 : Multi – purpose trees

Local name	**Scientific name**	**Uses**
Makala madunda	Markhamia spp	Medicine / Utensils / Fuelwood / Building
Mkwaju	Tamarindus indica	Medicine / Utensils / Fuelwood / Food
Mnopeta	Annona senegalensis	Medicine / Utensils / Fuelwood / Food
Chingunguta	Dichrostachys cinera	Building / Medicine / Fuelwood
Embe dodo	Mangifera indica	Food / Fuelwood / Medicine
Matongatonga	Strychnus madagascarensis	Food / Fuelwod / Medicine
Mawele ganafunda	Harrisonia abysinica	Medicine / Fuelwood / Building
Mfulu	Vitex doniana	Food / Fuelwood / Medicine
Mpingo	Dalbergia melonoxylon	Medicine / Fuelwood / Utensils
Msembi	Diospyros visicosa	Fuelwood / Building / Medicine
Mtalula	Accacia spp.	Fuelwood / Building / Medicine
Muwanga	Pericopsis angolensis	Fuelwood, Building, Medicine
Mvule	Milecsa excelsa	Building / Utensils / Firewood

Appendix 6 : Utensils

Cups: meanze, murija (varnishing)
Mortar: mninga, mkuya, mfungwa
Pestle: Mtwangu, Mkoku, Mgangi, Mpingo, Mnyenye, Mkangele, Chipozi
Chairs / tables: mninga, mvule, mzazawe, mninga maji, mkangazi
Beds: mdopeta, msegese, mkomanjiku, maziwa ya mgoli
Spoons: Mputi, Mkonmanjiku, Mtopeta
Rope: miombo, Mfuti, Lujwana, mkuya, chikupi
Hoes: Mputi, Mdopeta, Navyaya, Mkuta, Mtanga, Mkwaju
Canoe: Mvule, msufi pori, Mlenda, Mninga maji, Mgwina, Mkuyu

Appendix 7 – Ranking exercises

Pair wise ranking

Informants make a list of all the species they use for firewood. This list is then put into a simple matrix – table.

Example :

Mpingo	Mp	Mw	Mi	Mp	
Mvule	Mn	Mw	Mi		
Miombo	Mi	Mw			
Mwanga	Mw				
Mninga					
	Mn	**Mw**	**Mi**	**Mv**	**Mp**

Every species is then compared to every other species with simple direct comparison. For example " do you prefer Mpingo or Mvule ". The response is then added to the table. In the tabl;e above Mpingo is favoured to Mvule.

The table above gives a score to each species allowing the degree of preference to be expressed.

Scores :

Mpingo – 4
Miombo – 3
Mpingo – 2
Mninga – 1
Mvule – 0

Simple direct ranking

Informants provide a list of species. The interviewer asks which is their favourite, their second favourite, their third favourite etc.

This method is appropriate when the list of species is very long. In such cases pair – wise ranking would take an exceptionally long time and would lead to fatigue. For the same reasons preferences should only be work out for a simple number (e.g. 10).