

<Village Name> VILLAGE COUNCIL

HARVESTING PLAN

<Forest Name>

<From Date> – <To Date>

1: ABBREVIATIONS

CBH	Circumference at Breast Height
MD	Trees under harvestable size – denoted red in the inventory
KT	Trees of harvestable size – denoted green in the inventory
MK	Trees bigger than the harvestable size – denoted blue in the inventory
MT	Total length of transects surveyed
EK	Area of Productive Forest (i.e. harvestable area)
NK	Area multiplication factor

cm Centimetre

km Kilometre

ha Hectare

2: EXECUTIVE SUMMARY

This document should be used in conjunction with the management plan prepared by <Village Name> VNRC with the facilitation of the Mpingo Conservation Project and approved by Kilwa District Council on the <Management Plan Approval Date>. This document sets out guidelines for the harvesting of timber in <Forest Name>.

Ideally harvesting should be carried out during the dry season, from the beginning of June to the beginning of December. Carrying out harvesting at this time reduces soil erosion and compaction caused by trucks passing with a heavy load.

Total area	X ha
Conservation Zone	X ha
Area available for harvesting	X ha
Habitat type	<Miombo woodland / East African Coastal Forest>
Species covered	<Mpingo (<i>Dalbergia melanoxylon</i>), Mtondoro (<i>Julbernardia globiflora</i>) etc.>
Owners	<Village Name> village
Managers	<Village Name> Village Natural Resources Committee
Management type	PFM following FSC Certification guidelines

Based on a Participatory Inventory carried out between <Start Date> and <End Date>, the only species found in harvestable quantities was <Mpingo (*Dalbergia melanoxylon*), Mtondoro (*Julbernardia globiflora*) etc.>. The table below sets out the quota of each species that can be sustainably felled within the five year period covered by this harvesting plan. The calculations made to derive this quota are explained in section 11.

Off-cuts left behind by the logging crews should be carefully stored as these have a high value and can be sold at a later date.

Species	Size Class	Measurements (CBH)	5 Year Quota
Mpingo	KT (green)	76 – 151 cm	
Mpingo	MK (blue)	152+ cm	
Mtondoro	KT (green)	142 – 283 cm	
Mtondoro	MK (blue)	284+ cm	

3: INTRODUCTION

It is important that members of the Village Natural Resources Committee carry out the harvesting plans according to the rules set out in the management plan and this harvesting plan. If more timber is harvested than the quota that has been set out in this harvesting plan, the Village Land Forest Reserve will not have been managed sustainably and the Director of Forests may revoke its status. It is advisable for Village Natural Resources Committee members to read all sections of the management plan and this harvesting plan carefully. If there is any doubt over how the procedure for logging works, the Village Natural Resources Committee should contact either the District Forestry Officer or the Mpingo Conservation Project.

4: OBJECTIVES OF THE HARVESTING PLAN

This sets out clear guidelines regarding the sustainable felling of the following timber species in <Forest Name>:

- Mpingo (*Dalbergia melanoxylon*), legal minimum diameter at breast height 24cm
- Mtondoro (*Julbernardia globiflora*), legal minimum diameter at breast height 45cm

This harvesting plan treats each species separately, and provides a distinct quota for sustainable harvesting of each considered. Timber species not listed above must be the subject of other harvesting plans or not harvested at all.

5: ANNOUNCEMENT OF HARVESTING

Details of approved requests for harvesting timber from the Village Land Forest Reserve must be posted on the village notice board(s) at least 2 days before harvesting takes place. This notice should include:

- a) Who made the request (name of company and their representative).
- b) When request received, date of meeting approved, and dates harvesting expected to take place.
- c) Species type and quantity timber to be cut (estimated number of logs and rough number of truck loads).
- d) Expected income /price paid for the timber.
- e) Actual income that was be received from harvesting (to be filled in immediately after final payment is received).
- f) The name of the area(s) inside the Village Land Forest Reserve where harvesting will be carried.

6: HARVESTING AREA

Harvesting should **NOT** take place in the following areas:

- Within 60 metres of the banks of a permanently flowing river or permanent water source.
- Within 20m of a spring or the banks of any regularly flowing stream or 30m of the banks of any regularly flowing small river as specified within the Management Plan.
- Within a buffer distance (from the banks) equal to the width of any gully formed by ephemeral wet season stream, e.g. not within 2m of the banks of a gully which is 2m wide.
- Steep slopes (to reduce the impact of harvesting on soil erosion). These areas qualify as Hazard Land as defined in the Village Land Act 1999 Part III.
- Areas that are considered as sacred and have religious significance to members of the community.
- Around reservoirs of water (permanent and temporary) that may be important to local fauna.
- Areas close to a temporary watercourse, where close is defined as being within a distance from the banks equal to the width of the gully.

7: FOREST CLEARANCE

Unauthorised felling of timber can affect the sustainability of the Allowable Cut. Under FSC certification rules, if unauthorised felling is not detected or reported to the Group Certificate Manager, the amount of timber felled will be deducted from the total allowable cut.

Road construction through the Village Land Forest Reserve is permitted where this is approved by the District Council or in order to facilitate harvesting under an approved Harvesting Plan. However the area of forest thus cleared should be minimised, and designed to minimise the environmental impact.

Harvesting should generally be carried out evenly across the Village Land Forest Reserve and not concentrated in one specific area. The felling sites chosen should allow easy access to the logging crew in order to reduce the damage to additional trees and vegetation. The skidding direction should be carefully chosen in order to reduce damage to other trees.

8: HARVESTING SUPERVISION AND SAFETY

No felling can take place in a forest without a member of Uwambali, the Lindi Loggers Union, or another qualified person being present to supervise that the harvest is carried out safely. Good harvesting techniques ensure the safety of the workers, and reduces damage to standing trees.

Important safety procedures include:

- Protective equipment should be used by all cutting crew including gumboots, helmets, nose protector and gloves.
- A First Aid Kit must be used in all logging activities.
- Axes and cross cut saws should be kept sharp.
- The use of chainsaws is forbidden.
- Felling techniques should allow for the minimisation of waste.
- Application of a felling technique to control the direction of fall of a tree.
- No smoking is allowed in the Village Land Forest Reserve.
- Workers are not allowed to start a fire inside the Village Land Forest Reserve.
- No fuel tanks should be kept inside the forest.

9: SUSTAINABLE FORESTRY

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. In terms of forest management this means that we must not cut down trees more trees than can be replaced. This means that the timber harvested must not exceed the natural growth rates or greatly alter the structural composition of the forest. It is also necessary to take into account that some trees will die naturally. All of these factors have been incorporated into the quota calculation.

10: HARVESTING QUOTA

The table below lists each species, the trunk circumference pertaining to each of the three size classes, and the quota that can be sustainably felled from the forest productive area over the five year period covered by this harvesting plan. Trees in size class MD (red) are under the legal minimum diameter for harvesting and cannot be felled.

Species	Size Class	Measurements (CBH)	5 Year Sustainable Quota
Mpingo	MD	38 – 75 cm	
Mpingo	KT	76 – 151 cm	
Mpingo	MK	152+ cm	
Mtondoro	MD	71 – 141 cm	
Mtondoro	KT	142 – 283 cm	
Mtondoro	MK	284+ cm	

11: CALCULATION OF QUOTA

- 1) X transects were walked between <Start Date> and <End Date>. The transects were each 10 metres wide and had a total length of X km hence the total area surveyed was X ha.
- 2) In order to estimate the number of trees in the whole area, we divide the total area of Productive Forest by the distance walked during the surveys. This we call the area multiplication number, which is later used to extrapolate how many trees there are in the whole of the Productive Forest.

Total length of transects (MT)	X km
Area of productive forest (EK)	X ha
Area multiplication number NK = EK / MT	X

- 3) The number of trees counted during the Participatory Inventory is listed for each species.

Number of Trees Counted	MD	KT	MK
Mpingo			
Mtondoro			

- 4) Next one must calculate what would be a sustainable quota of those trees counted on the transects. MD (red) trees are too small to fell, so they are ignored. The calculation is made by reference to the Mpingo Conservation Project table of sustainable quotas. It takes into account the length of time the tree takes to grow to harvestable size and how many trees will die naturally before they reach that size. One can be more confident about stocks estimates for common trees than one can about rare trees; in general longer transects will produce higher estimates, and this is also reflected in the quota tables. The sustainable quota of observed trees of each species is given in the table below.

Sustainable Quota of Trees Counted	MKT	MMK
Mpingo		
Mtondoro		

- 5) MD (red) trees will grow into KT (green) and MK (blue) trees to replace the ones that have been felled. But if there are not enough it is necessary to revise the quota downwards in order to be sustainable. Also roughly one third of red trees will die before they ever reach green tree size. This next stage calculates the necessary adjustment factor.

Species	Mpingo	Mtondoro
Adjusted total of Red Trees MD' = MD x 2 / 3		
Total J1 = KT + MK		
Total J2 = (MD' + KT + MK) / 2		
Total J3 = Minimum (J1, J2)		
Red Ratio Adjustment Factor NZM = J3 / J1		

- 6) Finally we incorporate all of the above calculations to give us the quota of trees that can be harvested sustainably from the entire productive area of the forest. The formulae to use are:

Harvesting Quota of KT (green) $KKT = MKT \times NZE \times NZM$

Harvesting Quota of MK (blue) $KMK = MMK = KBT \times NZE \times NZM$

The final quotas for each species are thus:

Sustainable Quota of Trees in Productive Forest	KKT	KMK
Mpingo		
Mtondoro		