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**TAKTSE COMMUNITY FOREST MANAGEMENT PLAN**  
**(1<sup>st</sup> Revision)**



**Plan period: (2023-2033)**

**Chiwog: Taktse**

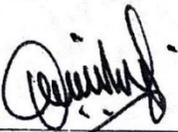
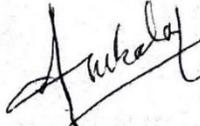
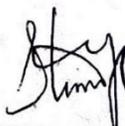
**Gewog: Drakteng**

**Dzongkhag: Trongsa**

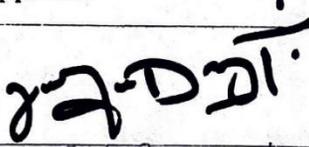
## APPROVAL SHEET

<b>Name of Community Forest</b>	Taktse
<b>Village</b>	Taktse
<b>Chiwog</b>	Taktse
<b>Gewog</b>	Drakteng
<b>Dzongkhag</b>	Trongsa
<b>Production area (Hectare/Acre)</b>	201/544.71
<b>Protection area (Hectare/Acre)</b>	33/89.43
<b>Total Community Forest Area (Hectare/Acre)</b>	234/634.14
<b>Total CFMG member (No. of HH)</b>	48

### Prepared and Submitted for Approval

	<b>Community Forest Management Group</b>	<b>Forestry Representative (CFMP Facilitators)</b>	<b>Gewog Administration</b>	<b>Social Forestry Section</b>	<b>Divisional/ Park Office</b>
<b>Signature</b>					
<b>Name</b>	Chimi	Tashi	Dubala	Karma Dorji	Pankey Dukpa
<b>Title</b>	Chairperson	Sr. Forest Ranger I	Gup	Head	Chief Forestry Officer

### Reviewed and Submitted for Approval

<b>Signature</b>		
<b>Name</b>	Tsheltrim Dorji	Sonam Tenzin
<b>Title</b>	Focal Officer	Chief Forestry Officer
<b>Division</b>	Forest Resource Planning and Management Division	Forest Resource Planning and Management Division

APPROVED BY:



DIRECTOR  
DEPARTMENT OF FORESTS AND PARK SERVICES

*Approved vide Note sheet no. DoFPS/FRPMD/FRPIS/CF\_1(b)/1206 dated 16<sup>th</sup> June, 2023*

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## Acronyms

ac.:	Acres
AAC:	Annual Allowable Cut
BDBL:	Bhutan Development Bank Limited
CC:	Community Center
CF:	Community Forest
CFMG:	Community Forest Management Group
CFO:	Chief Forestry Officer
Cfts.:	Cubic feet (volume measurement)
Chiwog:	Village Hemlet
CLCS:	College of Language and Cultural Studies
DFO:	Divisional Forest Office
DoFPS:	Department of Forests and Park Services
DOR:	Department of Road
FNCRR, 2017:	Forest and Nature Conservation Rules and Regulations, 2017
FRDD:	Forest Resources Development Division
Gup:	Locally elected leader
G2C:	Government to Citizen Service
ha.:	Hectares
m <sup>3</sup> :	Cubic meter (Volume measurement)
LULC:	Land Use Land Cover, 2016
Nu.:	Ngultrum (Bhutanese Currency)
NRPC:	Natural Resources Pricing Committee
NWFP:	Non-Wood Forest Produce
SRFL:	State Reserved Forest Land
PES:	Payment for ecosystem Services
Tshogpa:	Representative of the CFMG in CF management committee

## **I. Executive Summary**

*This plan is revised Taktse Community Forest Management Plan for its second term management by 48 households of Taktse village. During this management, 10 households joined the CF as new member. CF has only one block.*

*The gross area of CF is 234 hectares and production area is 201 hectares extended from the previous area of 66 hectares with increase in the membership and also covering the water sources that requires protection and explore opportunities to initiate Payment for Environmental Services for water services with potential beneficiaries.*

*Forest type of the CF is cool broadleaved forest. The average basal area of CF is 27m<sup>2</sup>/ha. The quantitative resource assessment was done using circular plot method by assigning 72 systematic plots.*

*The AAC of the CF is 30 drashings, 35 chams, 22 tsims, 14 dangchungs and 395 numbers of firewood equivalent to 2315 cfts of timber trees and 13,634 cfts of non-timber trees. CFMG faces deficits for construction of new houses which is required for allotment from SRFL of Chendebji or Bumthang areas. Inaccessibility to extract timber tree from CF is a biggest challenge that CFMG faces at the moment. The timber requirement for renovation will be met from CF. There is potential to sell excess firewood to College of Language and Cultural Studies and other institutions to generate income for the CFMG.*

*Removal of unwanted shrubs, thinning, plantation maintenance, CF boundary clearing, firewood/poles harvesting and initiate payment for environmental services-water services are some of the activities that CFMG shall implement during this management plan period. CFMG shall also initiate loan facility from the CF fund.*

*CF book and record keeping training and other Silviculture related training may be provided from Divisional Forest Office, Bumthang.*

*Mr. Tashi, Sr. Forest Ranger I working under Bumthang Division Headquarter facilitated revision of this management plan.*

## PART A: MANAGEMENT PLAN

### II. Introduction

Taktse Community Forest is located above the village and College of Language and Cultural Studies under Drakteng Gewog, Trongsa dzongkhag. This is the second term CF management plan as per the decision of CFMG submitted to the Range Officer, Trongsa during his consultation conducted during the month of August, 2022. The CF shall be managed by 48 households from Taktse village that has increased from 38 households in the first term management of CF.

The gross area of CF has increased to 578.21 acres from previous area of 163.01 acres due to eligibility of area ceiling from 3 hectares to 5 hectares and increased number of interested households.

Cool broadleaved forest is type of forest in the entire CF area with dominant stand usable for firewood. There are other trees suitable for timber such *Persea spp.*, *Acer spp.*, and *Betula spp.* which are distributed sporadically in the CF area.

Annual Allowable Cut (AAC) of the CF is 2315 cfts of timber trees and 13634 cfts of firewood equivalent to 30 drashings, 35 chams, 22 tsims, 14 dangchungs and 395 numbers of firewood (Cham & drashing sized).

The objective of CF management area;

- *To improve current forest conditions and ensure sustainable utilization of forest resources (Timber, firewood and bamboo)*
- *Protect forest for future generations*
- *To protect water catchments*
- *Generate income*

Cleaning/thinning, CF boundary clearing, plantation maintenance, plantation of *Borinda grossa*, conduct patrolling and conducting normal meetings are some of the activities that CFMG shall carry out during this plan period under the guidance of forestry officials of Drakteng Beat and Trongsa Range Office.

Part A of this management plan contains management aspect of the plan including technical prescriptions whereas Part B contains CF by-laws.

### III. Review of the past management plan

The monitoring and evaluation of CF for the last ten years was carried out by Range Office, Trongsa and following are the summary of report.

#### *Financial status*

Community Forest Management Group built their fund from collection of annual fees, fines from the absentees, sale of firewood. The details of the fund status of CFMG is indicated in the following table;

<b>Total capital (Nu.)</b>	<b>Cash in hand (Nu.)</b>	<b>Bank balance (Nu.)</b>
325961.87	1100	324861.87

#### *Activities carried out*

CFMG carried out the following activities during for better development of CF;

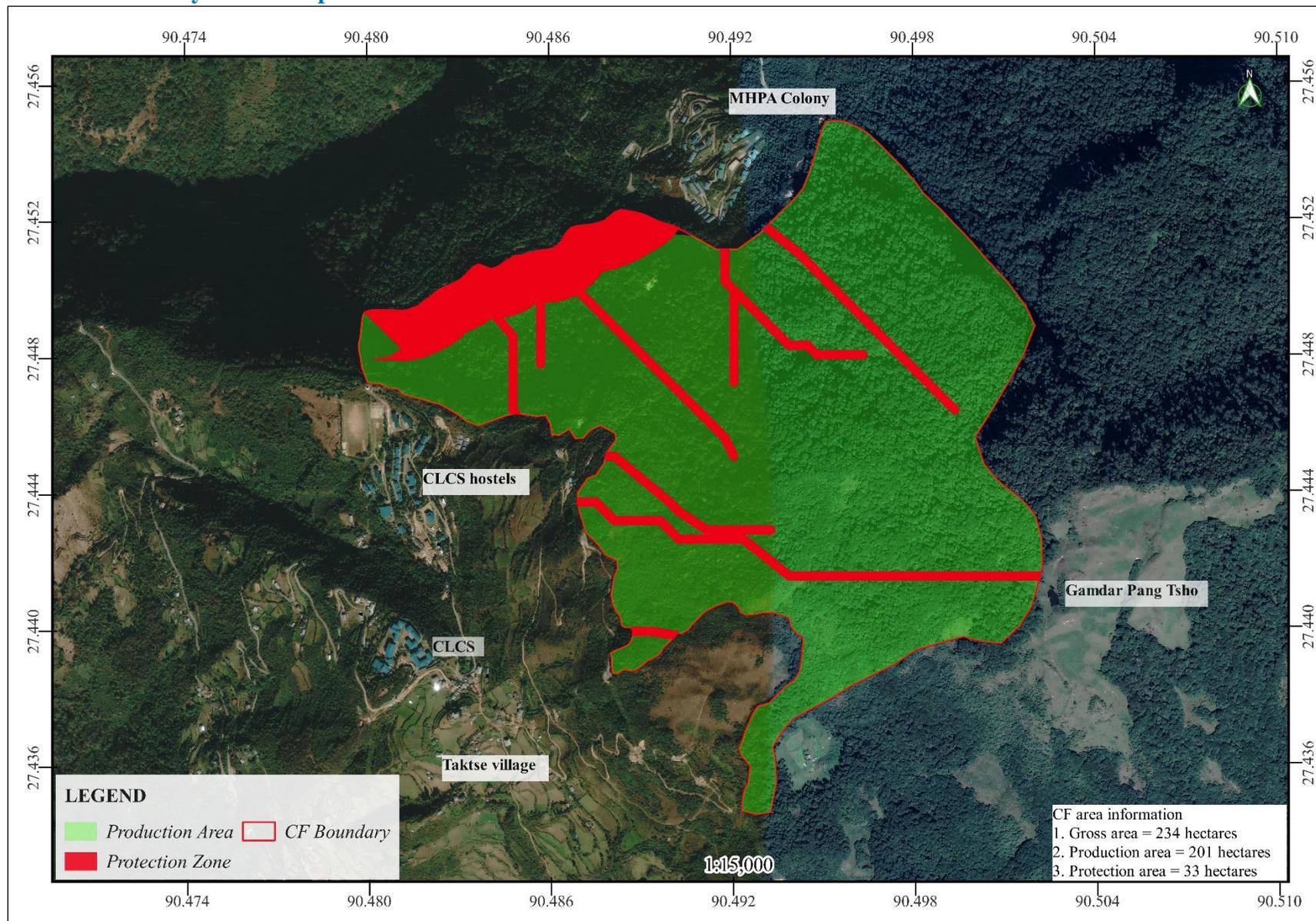
- Plantation of 20 acres by GBCL in 2019
- Boundary clearing of CF
- Cleaning of the forest 3 acre
- Conducted 10 annual meetings
- Conducted patrolling on monthly basis

#### *Number of timber trees and other resources extracted*

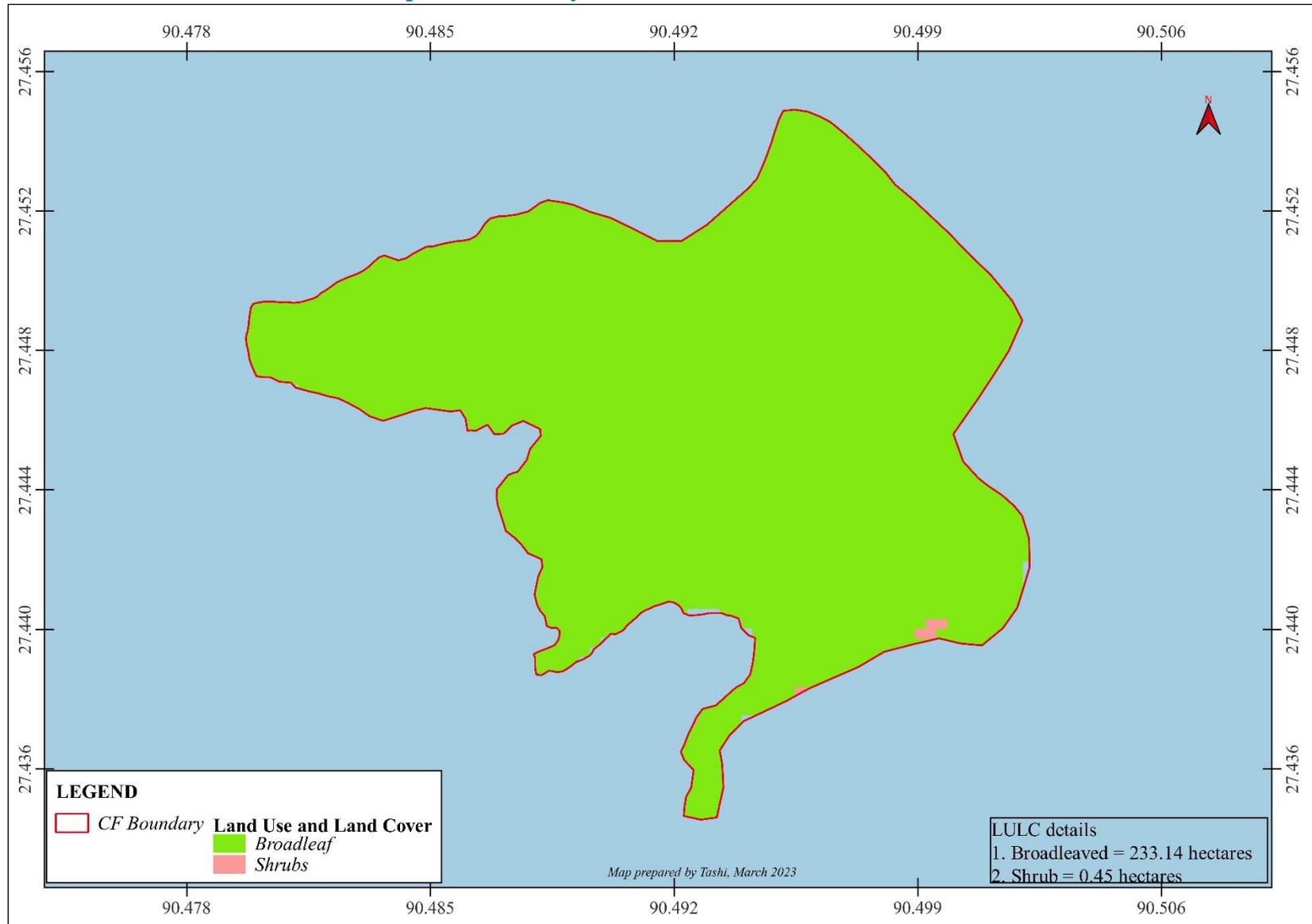
CFMG have extracted the following forest resources from their CF during the management term;

- 300 tsims for fencing purposes
- 210 numbers of trees for firewood and
- 90 numbers of poles

## IV. Community Forest Map



## V. Land use and Land Cover Map of Community Forest



## VI. Community Forest boundaries

Boundaries	Features
West	Dang susa
East	Gamdur pang Tsho
South	Atur Phey
North	Brangsebji-MHPA Dam Colony

## VII. Planning Process

Date	Activities
29-30/11/2022	Consultation meeting conducted by Range Officer on the revision of management plan and decisions for the second term management. Area extensions was also earmarked in the Google Earth interface.
17,18 &19/01/2023	Quantitative resource assessment carried out by the staffs assigned under Range Office
21-24/01/2023	CF management planning and by-law formulations

## VIII. Social information

Name of the villages	Taktse, Tangjipang, Yudochen, Taktse Zurp
Ethic groups with CFMG	Mangdep
Basic amenities	Lhakhang, farm road, electricity, CLCS, High School, Primary School, BHU-gradeII, Shops, MHPA Dam Colony,
Total households (HH) number of CFMG	48
Population of CFMG	91+105
% male and % female	46 & 54 respectively
Main source of income	Vegetables, dairy products,
Cattle population of the CFMG	209
Main crops	Wheat, buckwheat, maize, paddy
Cropping pattern	Potato>buck wheat> paddy nursery plantation maize>Paddy transplantation(irrigation)>Millet
Any other information	Vegetables cultivated throughout the year. Chilli cultivated in Tashidingkha area.

## IX. Forest Information

CF consists of only one block. CF is covered with cool broadleaved forest with bamboos in some part of the area. The forest contains dominants of oak and other non-timber species suitable for firewood purposes. Desirable species are available in few pockets and are located in far flung inaccessible areas and it will challenging for CFMG to harvest easily. There are plantations within the area established during its first management term which will be managed for its better growth during this management term period. CFMG still have interest to grow *Borinda grossa* bamboo through wilding process so that it benefits them for the bamboo demand.

### Format 1. Preliminary Forest Resource Assessment Format

Name of Community Forest	Taktse
Date of Assessment	19/01/2023
Name of block	Taktse
Block area	234 ha
Name of recorder	Tshering Wangdi

#### a. Forest & Habitat Type (tick all those present)

Forest <input checked="" type="checkbox"/>	Thicket/pole stage <input type="checkbox"/>	Shrubland <input type="checkbox"/>	
Grassland <input type="checkbox"/>	Plantation <input checked="" type="checkbox"/>	Other <input type="checkbox"/>	
Vegetation type			
Subtropical forest <input type="checkbox"/>	Chir pine forest <input type="checkbox"/>	Warm broadleaved forest <input type="checkbox"/>	Blue pine forest <input type="checkbox"/>
Cool broadleaved forest <input checked="" type="checkbox"/>	Mixed conifer forest <input type="checkbox"/>	Fir forest <input type="checkbox"/>	Other <input type="checkbox"/>

#### b. Forest Condition (complete if the block is mainly forest)

Write the names of the 3 main tree species	
Local name	Scientific name
Thobshing	<i>Quercus lanata</i>
Phangoshing	<i>Quercus lamellosa</i>
Sokeyshing	<i>Castanopsis hystrix</i>
<b>(i) Plantation</b>	
Is there any plantation?	Approximate height of planted trees (m)
Yes <input checked="" type="checkbox"/>	
No <input type="checkbox"/>	
Year planted	Is the plantation?
2013	Under stocked <input type="checkbox"/>
	Stocked <input checked="" type="checkbox"/>
	Overstocked <input type="checkbox"/>

#### (ii) Forest Condition -Age

Mature <input checked="" type="checkbox"/>	Pole stage <input type="checkbox"/>	Shrubland <input type="checkbox"/>	Any <input type="checkbox"/>
Main canopy of mature trees	Main canopy of pole-stage trees	Main canopy of shrubs, young trees or regeneration	No continuous canopy. Isolated trees only

#### (iii) Forest Condition - Canopy density (main canopy)

Dense <input checked="" type="checkbox"/>	Open <input type="checkbox"/>	Very open <input type="checkbox"/>
Canopy density > 70%	Canopy density < 70%	No real canopy. Isolated trees only

#### (iv) Forest Condition – Regeneration (including coppice regrowth)

Abundant <input type="checkbox"/>	Scattered/few <input checked="" type="checkbox"/>	None <input type="checkbox"/>
Regeneration easy to find in most places	Regeneration only in some places and hard to find	No regeneration
Write the names of the 3 main tree species in the regeneration		
1) <i>Alnus nepalensis</i>	2) <i>Betula spp.</i>	3) <i>Castanopsis hystrix</i>

Regeneration: Seedlings > 30cm and < 1.3m height

(v) Forest Condition – Approximate density of seed trees		
High <input type="checkbox"/> > 50 seed trees per ha	Moderate <input checked="" type="checkbox"/> 10 - 50 seed trees per ha	Low <input type="checkbox"/> < 10 seed trees per ha

Block Condition – Summary			
Use the forest condition class box below to get an average condition for the block			
Poor <input type="checkbox"/>	Average <input type="checkbox"/>	Good <input checked="" type="checkbox"/>	Very Good <input type="checkbox"/>
Does the main forest canopy consist of large, mature trees?		Yes <input type="checkbox"/>	No <input type="checkbox"/>

Forest Condition Class Box				
Age	Canopy density	Regeneration & coppice	Seed tree class	Condition
Mature forest	Dense	Abundant		Very good
		Scattered/few		Good
	Open	Abundant		Good
		Scattered/few		Average
Pole stage forest	Dense	Abundant		Good
		Scattered/few		Average
	Open	Abundant		Average
		Scattered/few		Poor
Shrubland and young growth	Dense		Moderate or High	Average
	Dense		Low	Average
	Open		Low	Poor
Any	Very open	None		Poor

c. Open spaces (complete if there are significant open spaces in the block)	
Approximate total open space area (ha)	2
Dominant vegetation type in the open space	<i>Artemisia sp.</i>
Cause of open space e.g. grazing, fire, harvesting, etc.	Grazing

d. Grazing and fodder (complete if the forest block is used for grazing or fodder)			
Grassland type			
Natural <input type="checkbox"/>	Man-made <input type="checkbox"/>	Mixture <input type="checkbox"/>	Predominantly forest <input checked="" type="checkbox"/>

Main fodder species being used (list 3 only)	
Local name	Scientific name
Sokey	<i>Castanopsis spp.</i>

Pasture quality (list the 3 dominant species in the grassland)		
Local name	Scientific name	Palatable/unpalatable

Use pattern	Seasonal <input checked="" type="checkbox"/>	All year <input type="checkbox"/>
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Type of user	Migratory <input type="checkbox"/>	Local <input checked="" type="checkbox"/>	Both <input type="checkbox"/>
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<b>e. Catchment Condition</b>			
(i) Catchment condition – soil cover			
Soil cover		Soil cover class	
> 50% of the soils are covered by vegetation		high	<input checked="" type="checkbox"/>
25 - 50% of the soils are covered by vegetation		moderate	<input type="checkbox"/>
< 25% of the soils are covered by vegetation		low	<input type="checkbox"/>
(ii) Catchment Condition - Soil type and erosivity			
Soil type (colour, texture and type)			
Erosive <input type="checkbox"/> disperses and/or breaks up in water easily		Non-erosive <input checked="" type="checkbox"/> stable to water flow	
(iii) Catchment Condition - Slope			
Slope (degrees)		Slope steepness class	
<10°		Gentle	<input type="checkbox"/>
10° – 30°		Moderate	<input checked="" type="checkbox"/>
> 30°		Steep	<input type="checkbox"/>
Catchment Condition – Summary (Use the catchment condition class box below to get the average condition for the block)			
Less critical <input checked="" type="checkbox"/>		Moderately critical <input type="checkbox"/>	Highly critical <input type="checkbox"/>

Catchment Condition Class Box			
Slope category	Soil erosivity	Cover class	Condition class
Flat	Erosive	Moderate or high	Moderately critical
		Low	Highly critical
	Non erosive	any	Less critical
Moderate	Erosive	Moderate or high	Moderately critical
		Low	Highly critical
	Non erosive	Moderate or high	Less critical
		Low	Moderately critical
Steep	Erosive	Moderate or high	Moderately critical
		Low	Highly critical
	Non erosive	Moderate or high	Moderately critical
		Low	Highly critical

f. Fauna (List any animal or bird species seen or which are known from the block)	
Local Name	Scientific name
Tag	<i>Panthera tigris</i>
Wam	<i>Ursus thibetanus</i>
Shaw	<i>Rusa unicolor</i>
Bja	<i>Straited Laughingthrush</i>

g. Biotic Pressures (tick those present)			
Fire	Common <input type="checkbox"/>	Occasional <input type="checkbox"/>	Absent <input checked="" type="checkbox"/>
Grazing	Heavy <input type="checkbox"/>	Limited <input checked="" type="checkbox"/>	Absent <input type="checkbox"/>
Shrub layer	Dense <input type="checkbox"/>	Moderate <input checked="" type="checkbox"/>	Absent <input type="checkbox"/>

<b>g. Biotic Pressures (tick those present)</b>			
Fodder collection (list main species used)	Common <input type="checkbox"/>	Limited <input checked="" type="checkbox"/>	Absent <input type="checkbox"/>
NWFP collection (list the main products including bamboo & cane)	Common <input type="checkbox"/>	Limited <input checked="" type="checkbox"/> <i>Mushroom, fern, Elatostemma spp.</i>	Absent <input type="checkbox"/>
Leaf litter collection	Common <input type="checkbox"/>	Limited <input type="checkbox"/>	Absent <input checked="" type="checkbox"/>
Encroachment	Common <input type="checkbox"/>	Occasional <input type="checkbox"/>	Absent <input checked="" type="checkbox"/>
Pole harvesting	Common <input checked="" type="checkbox"/>	Occasional <input type="checkbox"/>	Absent <input type="checkbox"/>
Fuelwood harvesting	Common <input checked="" type="checkbox"/>	Occasional <input type="checkbox"/>	Absent <input type="checkbox"/>
Timber harvesting	Common <input checked="" type="checkbox"/>	Occasional <input type="checkbox"/>	Absent <input type="checkbox"/>
Hunting	Common <input type="checkbox"/>	Occasional <input type="checkbox"/>	Absent <input checked="" type="checkbox"/>

<b>h. Management Options (list any potential management options (activities) for the block)</b>	
1	Cleaning and thinning
2	Plantation maintenance
3	Harvesting of firewood (over-matured trees) for generation of income

<b>Definitions</b>	
Broadleaf forest	75% or more of the tree species present are hardwoods
Conifer forest	75% or more of the tree species present are coniferous
Mixed forest	All other combinations of tree species
Mature Forest	Vegetation dominated by mature trees (trees > 40 cm dbh)
Thicket/pole stage	Vegetation > 3m in height consisting of young trees usually < 40cm dbh
Shrubs	Non-tree species > 2m in height (often thorny and multi-stemmed)
Shrub-land	Vegetation dominated by woody multi-stemmed plants or single stemmed plants and regeneration mostly < 3 m tall
Grassland	Vegetation dominated by grass species and where only a small part of the area is covered by trees or shrubs.
Crown cover	The percentage of the area covered by the crowns of trees forming the main canopy (usually mature trees)
Regeneration	Seedlings, saplings and coppice regrowth of naturally occurring tree species that are less than 1.3 meters tall but greater than 30cm tall
Seed trees	Mature trees with healthy crowns capable of producing flowers and seed
Soil Cover	The percentage of the area with soil surface covered either by live vegetation or a layer of other plant vegetation

## X. FOREST MANAGEMENT

### *Forest management Procedures*

Forest Produce/Services	Timber	Firewood	Fencing Post	Water	Bamboo/NWFPs
Forest	<i>Castanopsis, Alnus, Persea spp.</i> and <i>Michelia spp.</i>	Prapizu (local name) <i>Castanopsis spp., Persea spp., Quercus lamellosa, Quercus glauca</i> and <i>Rhododendron spp.</i>	<i>Domshing, Labum, Sorse, Choga, Rosay, Chuthai Gu, Zhungi shing, Bumsem, Labum</i>	Zangbaedro, Kamalo, Gepgem Emsa Phancho, Kogola and Durselem	Rabey, Koktab, Rui
Problem	<ul style="list-style-type: none"> <li>• Inaccessibility issues</li> <li>• Illegal extraction of burrs</li> <li>• Wastes left in the forest</li> </ul>	<ul style="list-style-type: none"> <li>• GI pipe of CLCS exposed on the surface that would hinder extraction of firewood</li> <li>• Far from the motorable road</li> <li>• Inaccessibility issues</li> </ul>	<ul style="list-style-type: none"> <li>• Far flung from the road</li> </ul>	<ul style="list-style-type: none"> <li>• Drying up of springs</li> </ul>	<ul style="list-style-type: none"> <li>• Inaccessible</li> </ul>
Opportunity	<ul style="list-style-type: none"> <li>• Construction of farm road would ease for extraction of forest resources</li> <li>• Installation of cable crane for extraction of timber resources</li> </ul>	<ul style="list-style-type: none"> <li>• Hold discussion with CLCS administration</li> <li>• Construct farm road and access road</li> <li>• Installation of cable crane for extraction of firewood (over-matured trees)</li> </ul>	<ul style="list-style-type: none"> <li>• Construction of farm road may reduce distance for extraction of forest resources</li> </ul>	<ul style="list-style-type: none"> <li>• Initiation of PES schemes to ensure sustainable supply of water resources for drinking purposes</li> </ul>	<ul style="list-style-type: none"> <li>• Commercialize bamboo for house construction and explore for personal use and industrial use in future</li> <li>• Estimate the quantity of available bamboo with technical support from Forestry</li> </ul>

					Officials of the concerned jurisdiction.
Management objectives	<ul style="list-style-type: none"> <li>To improve current forest conditions and ensure sustainable utilization of forest resources (Timber, firewood and bamboo)</li> <li>Protect forest for future generations</li> </ul>	<ul style="list-style-type: none"> <li>Generate income</li> </ul>	<ul style="list-style-type: none"> <li>To improve current forest conditions and ensure sustainable utilization of forest resources</li> </ul>	<ul style="list-style-type: none"> <li>To protect water catchments</li> <li>Generate income</li> </ul>	<ul style="list-style-type: none"> <li>Generate income</li> </ul>
Activities	<ul style="list-style-type: none"> <li>Boundary clearance, Plantation, Cleaning (H)</li> <li>Plant trees in barren areas (Toebay pang, Dungkar pang, near cremation ground, Zaley pang (H)</li> <li>Plantation of walnut, blue pine species (H)</li> <li>Cleaning and thinning (M)</li> <li>Wilding of <i>Borinda grossa</i> (L)</li> <li>Conduct patrolling of CF</li> </ul>	<ul style="list-style-type: none"> <li>Contribute labors if required for construction of farm road that may benefit for the extraction of firewood. (H)</li> <li>Harvest over matured trees if cable crane is installed for those far flung stands. (L)</li> <li>Sell excess firewood (H)</li> </ul>	<ul style="list-style-type: none"> <li>Thinning and cleaning to encourage growth of the desired stand (M)</li> </ul>	<ul style="list-style-type: none"> <li>Conduct Consultation meeting (H)</li> <li>Implement the PES if found feasible (M)</li> </ul>	<ul style="list-style-type: none"> <li>Look for potential market demand for the bamboo (<i>Rabay</i> and <i>Koktab</i>) (H)</li> <li>Sell bamboo (L)</li> </ul>

Procedures	<ul style="list-style-type: none"> <li>• Issue permit in 10<sup>th</sup> month of Bhutanese month</li> <li>• Conduct marking 11<sup>th</sup> month of Bhutanese month</li> <li>• Extract in 2 years</li> <li>• The deficit timber for new construction shall be processed through CC from Bumthang area upon recommendation of CF Chairperson and Beat Officer, Drakteng Beat.</li> </ul>	<ul style="list-style-type: none"> <li>• Issue permit in 10<sup>th</sup> month of Bhutanese month</li> <li>• Conduct marking 11<sup>th</sup> month of Bhutanese month</li> <li>• Firewood should be extracted in 5 months years</li> </ul>	<ul style="list-style-type: none"> <li>• Issue permit in 10<sup>th</sup> month of Bhutanese month</li> <li>• Conduct marking 11<sup>th</sup> month of Bhutanese month</li> <li>• Flag poles shall be allotted on ad-hoc basis (death case and any requirements)</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct consultation meeting on possibility of PES scheme with the beneficiaries (CLCS, Schools, shopkeepers and other relevant institutions.</li> <li>• If found feasible for PES scheme, conduct PES processes with technical support from the Department of Forests and Park Services under Ministry of Energy and Natural Resources.</li> </ul>	<ul style="list-style-type: none"> <li>• Issue permit even to the local collectors (Mushroom and wild vegetables).</li> </ul>
Responsibility	Chairperson, Secretary and Forest Officials	Chairperson, Secretary, Forest Officials and firewood buyers. CFMG members to contribute labors if required.	Chairperson, Secretary and Forest Officials	Chairperson, Secretary and Forest Officials, CLCS personnels	Chairperson, Secretary and CFMG members

## XI. Demand Assessment

Produce	Annual estimated requirement		No. of hh requiring annually (C)	Total requirement of the produce annually		Total requirement of produce in 10 years	
	Number (A)	Vo. in cft (B)		Number	Vol. in cft	Number	Vol. in cft
<b>New constructions</b>							
Drashing	25	1545	1.4	35	2163	350	21,627
<b>Renovation</b>							
Drashing	3	185	10	30	1854	300	18,537
<b>Cattle shed construction (Drashing)</b>	1	62	5	5	309	50	3090
<b>Toilet construction (Cham)</b>	1	11	4	4	42	40	424
<b>Fencing Posts</b>	30	42	24	720	1015	7200	10,152
<b>Firewood (drashing sized)</b>	1	62	48	48	2976	480	29,760

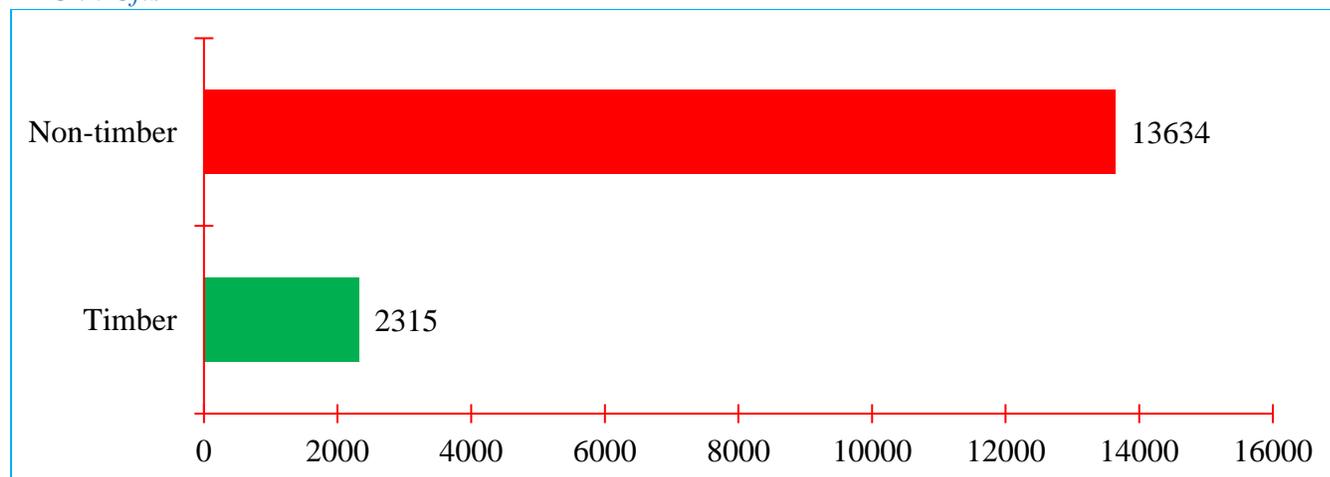
Note: Conversion factor based on FRDD, 2004 (10.2)

*The values are rounded over to a whole number*

## XII. AAC of the CF

The AAC of the CF in terms of volume in cfts and number of trees are indicated in the following charts.

*AAC in Cfts*

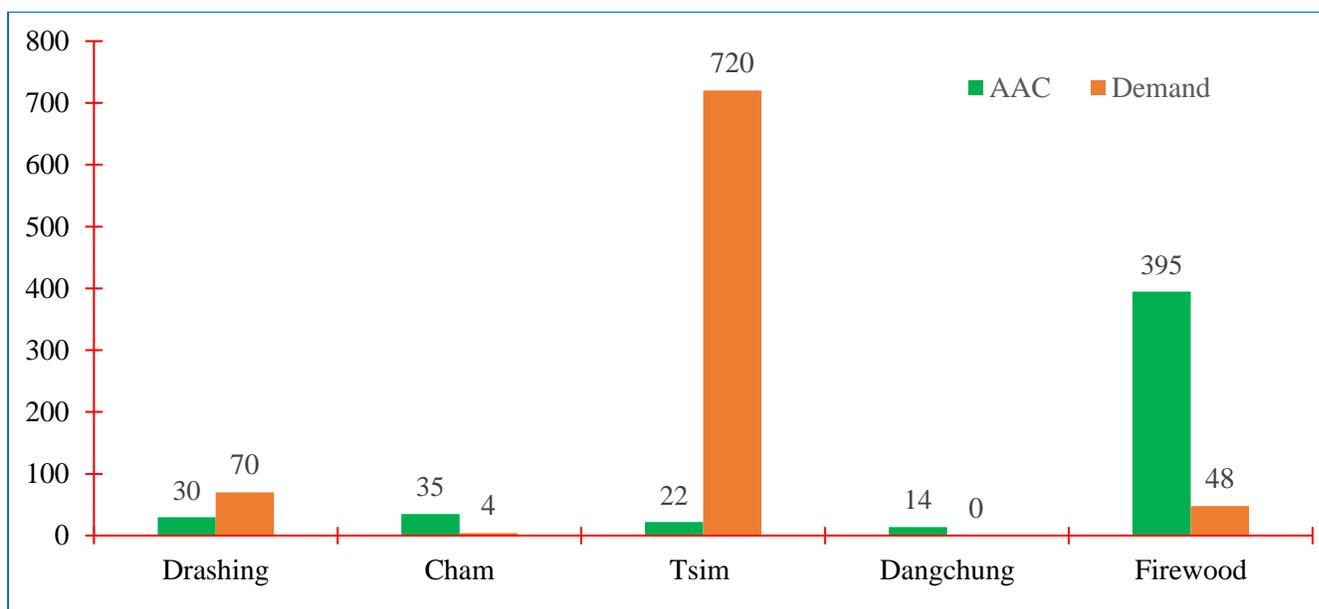


### AAC in 'number of trees'

Category of timber	Drashing	Cham	Tsim	Dangchung
Timber (T-Trees)	30	35	22	14
Non-timber (N-Trees)	141	254	458	457

### XIII. AAC and demand comparison

There are deficits of Drashing category of timber against the demand of CFMG. The timber for construction and renovation of houses (65 number annually) shall be allotted from potential areas of Chendbeji or Bumthang as timber are not accessible for harvesting. The deficits for Tsim-sized trees shall be met from the excess Chams and Tsims of non-timber category stock that has potential stock of (712 numbers) and with additional of available 22 number timber tree fills the gap.



### XIV. Participatory Environment Assessment

Activity proposed in Taktse CF	Potential Environmental Effects				Potential Socio-Economic Effects			
	Soil	Water	Wild animals	Plants	Traditional forest use	Cultural and religious values	Local employment	Local benefits from forest produce
Timber harvesting	-	-	-	-	0	0	+++	+++
CF forest patrolling	++	+	+	+++	0	0	0	+++
Thinning and cleaning	+++	0	0	+++	0	0	+	+++
CF boundary and bush clearing	0	0	0	++	0	0	0	0
Plantation	++	++	+	++	-	0	+	+++

Farm road construction	-	-	0	-	0	-	+	+++
Initiation of PES activities	0	+++	++	++	0	++	0	+++

+++ Positive effect    - - - Negative effects    0 – No effect

### Procedures to address potential negative effects

Activity	Procedure
Timber harvesting	Felling directions should be considered so that regenerations and surrounding stands are not damaged. Silviculture considerations must be taken during tree marking. Avoid felling within 15 meters of streams and water sources and 15 meters uphill and 15 meters downhill of the farm road.
Farm road construction	Obtain Environment Clearance from Dzongkhag Administration. Follow best practices of road constructions and avoid damages to water sources and the trees. Construct base wall and retention walls wherever necessary.
Plantation	Plantation of native species should be given priority. Encourage local people to plant fodder grass and trees make fodder resources available.

### XV. Forest Produce Ranking

	Timber	Firewood	Poles	Water	Bamboo/NWFPS
Timber		Firewood	Timber	Water	Timber
Firewood			Firewood	Water	Firewood
Poles				Water	Poles
Water					Water
Bamboo/NWFPS					

**Score details:** Water (4), Firewood (3), Timber (2), Poles (1) and Bamboo/NWFPS (0)

## XVI. Monitoring plans- Participatory forest resource impact monitoring

Activity	Indicator	How it will be monitored	Responsibility	Comments
Patrolling	<ul style="list-style-type: none"> <li>Number of patrolling conducted and offenders apprehended</li> </ul>	<ul style="list-style-type: none"> <li>Regular patrolling</li> </ul>	CFMG Secretary will make schedule of members on rotation basis	The patrol team will cover whole forest area
Thinning and cleaning	<ul style="list-style-type: none"> <li>Area thinned and quantity of cleaning works carried out.</li> </ul>	<ul style="list-style-type: none"> <li>Physical monitoring from DFO and Range Office</li> </ul>	Trongsa Forest Range Office in collaboration with CF Executive Committee	
Farm road construction	<ul style="list-style-type: none"> <li>Length of farm road constructed</li> </ul>	<ul style="list-style-type: none"> <li>Physical observation and on-site measurements</li> </ul>	Trongsa Forest Range and Drakteng Beat Office	Seek administrative and financial approvals from Gewog Administration in close consultation with Chiwog Tshogpa
Timber harvesting	<ul style="list-style-type: none"> <li>Number of trees, poles and firewood harvested</li> </ul>	<ul style="list-style-type: none"> <li>Collection permits</li> <li>Forest utilization register</li> </ul>	Drakteng Beat Office and CFMG	
Firewood harvesting	<ul style="list-style-type: none"> <li>Number of firewood trees harvested and sold</li> </ul>	<ul style="list-style-type: none"> <li>Collection permits and books of accounts</li> </ul>	CFMG, firewood buyers	Seek approval from the Department if cable crane installation of required
CF boundary clearing	<ul style="list-style-type: none"> <li>Length of boundary cleared</li> </ul>	<ul style="list-style-type: none"> <li>Physical verification and labor contribution by the CFMG members</li> </ul>	CF committee management and Drakteng Beat Office	Trongsa Forest Range to provide technical advises
Plantation maintenance	<ul style="list-style-type: none"> <li>Number of casualties replaced</li> </ul>	<ul style="list-style-type: none"> <li>Physical verification and annual</li> </ul>	CF management committee and	DFO, Bumthang may carry out the technical

		monitoring reports	Forestry Officials	plantation monitoring
Initiate PES scheme	<ul style="list-style-type: none"> <li>• Number of beneficiaries identified</li> <li>• Consultations meeting conducted and its agreement</li> </ul>	<ul style="list-style-type: none"> <li>• Annual monitoring reports</li> </ul>	DoFPS, Bumthang Division and CFMG	Consultation meeting to be conducted with CLCS and other beneficiaries

**XVII. Monitoring plans- Participatory social and institutional impact monitoring**

Activity	Indicator	How it will be monitored	Responsibility	Comments
CFMG general meeting	<ul style="list-style-type: none"> <li>• Number of participants in the meeting</li> </ul>	<ul style="list-style-type: none"> <li>• Review and CF record books</li> </ul>	CFMG executive and Trongsa Forest Range	Invite CFO & GT Chairperson during 5 <sup>th</sup> year and 9 <sup>th</sup> year monitoring and evaluation.
Book Keeping training	<ul style="list-style-type: none"> <li>• Number of trainings conducted.</li> <li>• Cross checking books of accounts</li> </ul>	<ul style="list-style-type: none"> <li>• Books of accounts</li> </ul>	Trongsa Range Office	Involve Trongsa Forest Range for monitoring
Resource sharing on equity basis	<ul style="list-style-type: none"> <li>• Resources allocated to the members (timber, firewood, poles)</li> </ul>	<ul style="list-style-type: none"> <li>• CF record books</li> </ul>	CFMG management committee	The deficit timber will be allotted from Bumthang area
CF Management Committee Meeting	<ul style="list-style-type: none"> <li>• Number of women attended the committee meetings</li> </ul>	<ul style="list-style-type: none"> <li>• CFMG record books</li> </ul>	Chairperson	

**XVIII. Monitoring plans- Participatory environmental impact monitoring**

Possible negative impact	Indicator	How it will be monitored	Responsibility	Comments
Over exploitations of resources creating vast openings	<ul style="list-style-type: none"> <li>• Increased openings of forest</li> <li>• Status of regenerations</li> </ul>	<ul style="list-style-type: none"> <li>• Regeneration surveys should be conducted</li> </ul>	DFO, Site In-Charge and CFMG members	Regeneration survey methods adapted in FMUs shall be followed
Damages to regeneration and drainage systems while constructing farm road/access road	<ul style="list-style-type: none"> <li>• Number of Saplings damaged</li> </ul>	<ul style="list-style-type: none"> <li>• Physical observation</li> <li>• Physical observation</li> </ul>	Trongsa Range Office	Dzongkhag Environment Officer to be invited if the damages are severe

## XIX. Annual Work Plan

Location	Activity	Year										Responsibility	
		1	2	3	4	5	6	7	8	9	10		
Whole CF	CF boundary clearing (2 meters width)	■					■						Chairperson, CFMG members and Beat Officer
Toebay pang, Dungkar pang, near cremation ground, Zaley pang	Carry out plantations			■									CFMG and Forestry Officials
Toemilem	Plantation maintenance								■				
Toemilem	Plantation of <i>Borinda grossa</i>		■										
Whole CF	Harvest timber and firewood/fencing posts	■	■	■	■	■	■	■	■	■	■	■	
Desuelum	Construction of access road/farm road												
Desuelum	Cleaning and thinning				■					■			
Whole CF	Conduct patrolling	■	■	■	■	■	■	■	■	■	■	■	
	Hold discussion with CLCS administration on the exposed GI Pipe that runs inside CF	■											
	Conduct general meeting and committee meeting	■	■	■	■	■	■	■	■	■	■	■	
	Book keeping training		■										
	Silviculture training			■									
	Submission annual work plan and progress report to Range Officer through Beat Officer, Drakteng	■	■	■	■	■	■	■	■	■	■	■	
	Conduct annual monitoring of CF	■	■	■	■	■	■	■	■	■	■	■	

## XX. Evaluation of management plan

Taktse CF management plan shall be evaluated jointly by a team from Divisional Forest Office during **last quarter of the 5<sup>th</sup> year** of the plan period and final evaluation and revision shall be done at the **last quarter of the 9<sup>th</sup> year** of the plan period.

Annual monitoring reports shall be conducted by Trongsa Range and Drakteng Beat Office and submitted to Division for compilation and record. The usual entry into FIRMS shall be done by the Beat Office.

## **PART B: CF BY-LAWS**

### **XXI. Name of the Community Forest**

The name of the CFMG shall be named as **Taktse Drongdey Nagtshel Tshogpa** Community Forest.

### **XXII. Membership Arrangements**

Any people who wishes to become the member of CF should produce *Gung* and *Thram*.

#### *New membership*

- New *Gung* and *Thram* shall be allowed to become a member of CF
- He/she shall pay Nu. 600/- per day to compensate the daily labor contributed by the CFMG members split from the previous members. Otherwise, the member shall pay Nu. 800/- per day as compensation for labor contributed.

#### *Resignation from the memberships*

- Member who resigns voluntarily due to loss of interest shall be allowed to leave the group without any benefits.
- Member leaving the group with disability issues shall be provided with equal share of the CF fund.
- Member wishing to resign from the group and wishes to go for resettlement shall be given equal share.

### **XXIII. Formation of Management Committee**

CFMG shall ensure to keep the following criteria for election of management committee members;

- Trusted by CFMG members
- Should be literate to maintain proper records
- Have good communication skills and good relation with the CFMG members
- No limitations for gender and social status

CFMG management committee shall comprise of four members viz. Chairperson, Secretary, Treasurer and Marking representative.

#### *Terms of references of Management Committee*

- Ensure to fulfill the objective of CF management plan
- Coordinate and implement the planned activities of CF
- Timely review and prepare annual work plan
- Collect fund from the members and make decisions for expenditure
- Negotiate and solve any problems and disputes that might arise within and outside the CFMG

- Fix schedule for meetings and CF developmental works
- Enforce fines and penalties to the offenders

#### *Tenure of the management committee members*

The office bearers shall serve for five years after which CFMG shall decide for election of new members or continue with the current members. Any member can resign without completing his/her tenure under any unavoidable circumstances. The election shall be done through a general meeting.

#### *Roles and responsibilities of Chairperson*

- Signatory authority to any type of correspondences and collection permits
- Monitor the activities of committee and management groups
- Enforce fines and penalties in accordance with the rules prescribed in the by-laws
- Assist visitors to the CF
- Form patrolling group on monthly basis
- Joint signatory for withdrawal of CF fund

#### *Roles and responsibilities of Secretary*

- Officiate Chairperson
- Maintain proper records for labor and meeting attendance register
- Maintain minutes of meeting and seek endorsement by the end of the meeting
- Coordinate to issue collection permits
- Prepare annual work plan and progress report and present to the members during general meetings.
- Coordinate activities in the field
- Countersign for the withdrawal of CF fund

#### *Roles and responsibilities of Treasurer*

- Maintain proper records for financial transactions
- Present status of CF fund to the members during general meeting to ensure transparency
- Collect permit fees, fines, penalties and membership fees
- Coordinate to withdraw money from the bank

#### *Roles and responsibilities of marking representative/Tshogpa*

- Assist Forest Officials during annual marking of forest resources in CF.
- Initiate to carry out auditing of fund if required

#### *Rights and responsibilities of CFMG members*

- Right to information of the CF
- Right to conduct audits
- Right to access benefits from the CF
- Report any illegal activities or forest fire
- Contribute labor during CF developmental activities
- Attend to meetings called by Chairperson
- Right to re-elect CFMG management committee members

### *Incentives for the management committee*

The following incentives shall be paid to the committee members according to the distances or places visited for the benefit of CF management;

- Official purposes within the village shall be paid Nu. 500/- per day
- Official purposes till Trongsa shall be paid Nu. 1000/- per day
- Official purposes out of Trongsa dzongkhag shall be paid Nu. 1500/- per day

### *CFMG management Committee members*

Sl.#	Name	Designation	Contact Number
1	Chimi	Chairperson	77451520
2	Ugyen Wanggmo	Secretary	77451524
3	Jigme	Treasurer	17366637
4	Shacha Dorji	Marking Representative	17495275

### **XXIV. Fees**

The following fees shall be levied or collected;

Sl.#.	Products	Fees (Nu.)	Remarks
1	Drashing	100/- per tree	
2	Cham	50/- per tree	
3	Tsim/fencing posts	15/- per tree	Nu. 20/- per tree if sold
4	Dangchung/flag poles	15/- per tree	Nu. 20/- per tree if sold
5	Firewood	100/- per tree	If lops and tops transported mechanically shall be levied Nu. 100/- per Bolero trip or Power tiller
6	Bamboo	5/- per pair	
7	Membership fees	200/- per household	Mandatory collection

### **XXV. Offences in Community Forest**

Any persons whether CFMG member or outsiders, following fines/compensations shall be levied by the Management Committee;

Sl.#.	Products	Fines (Nu.)	Compensation
1	Illegal harvesting of timber and firewood	Nu. 100/- per cft on log/sawn volume as per the provision of section 416(1) of Forest and Nature Conservation Rules and Regulations, 2017. Any subsequent offence in CF may be dealt as per the provision of FNCRR, 2017, section 401, sub-section 1, 2 and 3.	As per prevailing NRPC rate.

2	Taking NWFPs from CF	Nu. 10/- per bundle or any relevant quantity	As per existing market rates
3	Damages caused to saplings and seedlings in the plantation area	Replant the quantity of seedlings/sapling damaged and ensure its survival	
4	Taking bamboo from the CF	Nu. 15/- per pair	
5	Absent from CF developmental work	Nu. 700/- per day	
6	Absent from CF meetings	Nu. 500/- per day	
7	Forest fire outbreak	As per prevailing FNCRR	
8	Poaching wildlife	As per prevailing FNCRR	

#### **XXVI. Management of CF fund and Credit**

CFMG shall continue to manage their fund with BDBL, Trongsa. The Treasurer shall have right to keep cash of Nu. 25,000/- for running the ongoing activities of the CF. The withdrawal of fund shall require joint signatory of Treasurer, Chairperson and Secretary where amount shall be determined during the committee meeting or the general meeting. Any income for CFMG shall be deposited within ten days of receipt by the Treasurer and maintain proper records for future purposes.

CFMG shall source fund from the following areas;

- Annual membership fees
- Collections fees of forest produces
- Fines and penalties
- Interest from the loans
- Bank interest
- Sale of surplus firewood and other forest produces

CFMG shall utilize the fund in following areas;

- Loans
- “*Semsoo*” to the bereaved CFMG members.
- Provide refreshments during CF developmental works and meetings
- Incentives to CF committee members while on official tour
- Provide refreshments to the visitors
- Procurement of office stationeries and equipment

The percent of fund utilization should be followed as per the provisions of CF manual book as reflected in page no. 64.

### *CFMG Loans*

The loans shall be approved by the management committee for following purposes;

- Purchase of power tiller
- Purchase of Power Chain Saw
- Construction of house
- Loan disbursement for activities not listed above shall be decided by the management committee for denial or approval.

All formalities including the application for loans shall be followed as per the suggestions of forestry field manuals for Bhutan, Community Forest Manual, Third edition, 2018. The following conditions shall apply for approval of loan from the CF fund;

- Loan shall be initiated for disbursement only after the bank balance of Nu. 500,000/- (Five Hundred Thousand)
- Loan ceiling of not more than Nu. 50,000/- shall be approved
- Interest rate of 5% per annum
- Suitable mortgage requirement shall be decided by the management committee
- Loan term not more than one year shall be approved
- Interest should be paid on monthly basis or can be paid by the end of one year along with the principal amount
- If repayment of interest and the principal is delayed, 10% penalty shall be levied.

### **XXVII. Benefit Sharing Mechanisms**

- CFMG shall share forest products on need basis. Loans shall be disbursed as per the requirement of members, if not, it should be disbursed to all the members by arranging their turns.
- The firewood shall be shared equally among the members on annual basis.
- The deficit timber for new construction and renovation of houses shall be requested from SRFL of Bumthang or Chendebji areas. However, these deficit resources shall not be claimed on ‘**quota system**’.
- During the disasters, CFMG shall help the victims with *Semsoo* to be secured from the CF fund. They will also make sure to rebuilt temporary shed to the victim.
- CFMG shall not share cash from the accumulated fund unless required under unavoidable circumstances. However, in such cases approval from CFO shall be required.
- Timber allotted to CFMG member shall not be used for commercial purposes.
- Contribution for the welfare of disadvantaged member of CFMG shall be made on need basis.
- The allotment of quantity of timber shall not exceed AAC at any cost.
- The application for forest produce shall be done during the 9<sup>th</sup> month of Bhutanese Calendar and marking shall be executed in 10<sup>th</sup> month of Bhutanese Calendar.
- Applications for new construction shall be forwarded to Drakteng CC upon the recommendation letter of the CF Chairperson.

## **XXVIII. Meetings**

CFMG shall conduct two types of meetings viz. general and committee meetings.

### *General meeting*

The meeting shall be conducted once in a year during the month of November where annual monitoring shall be carried out in parallel. During the meeting, following activities and discussions shall be done;

- Present account of CF fund by treasurer
- Issue collection permits
- Collect annual fees from the members
- Collect absentee fines (meeting and work)
- Prepare annual progress report and work plan for the upcoming year
- Discuss on source fund from the relevant donors or Gewog Administration
- Discuss any issues and problems related to the administration of CFMG

### *Committee meeting*

The committee meetings shall be conducted twice a year in order to approve annual timber/firewood applications. However, the meetings shall be conducted on need basis or urgency of work. The Committee shall discuss on the welfare of CFMG and explore possible solutions to address issues and problems raised by the CFMG members.

## **XXIX. Conflict management**

The disputes within the CFMG and outsiders shall be settled by Chairperson. If the case is unable to settle by the Chairperson, it shall be forwarded to Gup and if it escalates, the case shall be forwarded to Range Officer/Chief Forestry Officer and then to District Court for final settlement.

## **XXX. Amendment of CFM plan**

The CFMG shall seek the approval with written application addressed to CFO, Bumthang Division or Director, DoFPS for the amendment of the CFM plan/by-laws. The proposed amendment of CFM plan/by-laws should be supported by minutes of general meeting of CFMG duly signed thereof.

## **XXXI. Power of the Department**

Department is fully empowered to take action with regard to both forestry and other developmental activities in part or whole of the Community Forests. In addition, the Department is specifically empowered to:

- i. Take action against violators of the Act, Rules or Management Plan, regardless of whether requested by the CFMG or not.
- ii. Inspect, monitor, review the records and otherwise supervise the activities of the CFMG, and take action (including cancellation/suspension of the CFMG's certificate, where warranted under these Rules) against the CFMG or any of its members who may be acting in violation of the provisions of the Management Plan or any provisions of the FNCRR, 2017.
- iii. Cancellation/suspension/reinstatement of CF Certificates shall be dealt as per the provisions of FNCRR, 2017 (Section 102, 103, 104, 105(1&2), 106 & 107 (1, 2 &3)).

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## Annexes

### Annex 1: CF application and the membership list

Sl.#.	Name	Gung no.	Thram no.
1	Rinchen Yangzom	TSA-1-415	851
2	Dema (Sisigang)	TSA-1-15	426
3	Kelzang (Taktse)	TSA-1-06	432
4	Chokcho Mo	TSA-1-12	865
5	Sonam Wangmo	TSA-1-20	442
6	Dema (Daphel)	TSA-1-405	842
7	Pema (Bubja)	TSA-1-27	462
8	Dechen Zangmo	TSA-1-18	440
9	Norbu Dema	TSA-1-03	430
10	Tshering Yangchen	TSA-1-24	?
11	Zangmo (Shokshowong)	TSA-1-21	445
12	Thinley Dema	TSA-1-22	587
13	Shara Wangmo	TSA-1-02	428
14	Lhadon	TSA-1-14	425
15	Sonam Choden	TSA-1-27	462
16	Tshering Choden	TSA-1-53	460
17	Dema Lhamo	TSA-1-352	610
18	Langamo	TSA-1-26	433
19	Chimi Zangmo	TSA-1-01	427
20	Kelzang Yangchen	TSA-1-366	879
21	Leki Zangmo	TSA-1-19	441
22	Tashi Zangmo	TSA-1-25	450
23	Tashi Yangzom	TSA-1-09	435
24	Badumo	TSA-1-08	434
25	Sangamo	TSA-1-31	464
26	Tashi Zangmo (Guminang)	TSA-1-418	453
27	Rinzin Wangmo	TSA-1-365	655
28	Tshering Lhamo	TSA-1-10	436
29	Choden	TSA-1-28	154
30	Dorji Zangmo	TSA-1-402	888
31	Thukten Wangmo	TSA-1-17	439
32	Sonam Peldon	TSA-1-16	438
33	Khandu Wangmo	TSA-1-342	459
34	Doelkarmo	TSA-1-05	431
35	Dorji Tenzin	TSA-1-04	429
36	Penden	TSA-1-30	468
37	Dorjimo (Chamjing)	TSA-1-364	906
38	Kinley Wangmo	TSA-1-07	858
39	Pedey	TSA-1-432	433
40	Singye Dema	TSA-1-434	963
41	Lhazom	TSA-1-406	865
42	Dema (Chudeygang)	TSA-1-11	461

43	Gangtey	TSA-1-nill/17	839
44	Kinley Dorji	TSA-1-367	430
45	Dema (Yudochen)	TSA-1-nill/25	465
46	Yuzer Dema	TSA-1-nill/48	840
47	Rinzin Mo	TSA-1-263	718
48	Rinchen Zangmo	TSA-1-451	586

*Annex 2: CF Boundaries and geocoordinates*

Boundaries	Features	Northing	Easting
West	Dang susa	27.447036°	90.480038°
East	Gamdur pang Tsho	27.440851°	90.502546°
South	Atur Phey	27.434415°	90.492689°
North	Brangsebj-MHPA Dam Colony	27.453047°	90.491465°

*Annex 3: CF sample plot GPS coordinates*

Plot ID	Northing	Easting		Plot ID	Northing	Easting
1	27.45328	90.49611		43	27.44516	90.49425
2	27.45169	90.48700		44	27.44516	90.49607
3	27.45168	90.48882		45	27.44515	90.49789
4	27.45166	90.49428		46	27.44514	90.49972
5	27.45165	90.49610		47	27.44356	90.48696
6	27.45165	90.49792		48	27.44356	90.48878
7	27.45007	90.48335		49	27.44355	90.49060
8	27.45007	90.48517		50	27.44355	90.49243
9	27.45006	90.48699		51	27.44354	90.49425
10	27.45006	90.48881		52	27.44353	90.49607
11	27.45005	90.49063		53	27.44353	90.49789
12	27.45004	90.49245		54	27.44352	90.49971
13	27.45004	90.49428		55	27.44351	90.50153
14	27.45003	90.49610		56	27.44193	90.48878
15	27.45002	90.49792		57	27.44193	90.49060
16	27.45002	90.49974		58	27.44192	90.49242
17	27.44846	90.48152		59	27.44191	90.49424
18	27.44845	90.48334		60	27.44191	90.49606
19	27.44844	90.48516		61	27.44190	90.49788
20	27.44844	90.48699		62	27.44190	90.49970
21	27.44843	90.48881		63	27.44189	90.50152
22	27.44842	90.49063		64	27.44031	90.48877
23	27.44842	90.49245		65	27.44030	90.49059
24	27.44841	90.49427		66	27.44029	90.49423
25	27.44841	90.49609		67	27.44028	90.49605
26	27.44840	90.49791		68	27.44028	90.49787

27	27.44839	90.49973		69	27.44027	90.49969
28	27.44839	90.50155		70	27.44026	90.50151
29	27.44683	90.48152		71	27.43867	90.49422
30	27.44683	90.48334		72	27.43866	90.49605
31	27.44682	90.48516				
32	27.44681	90.48698				
33	27.44681	90.48880				
34	27.44680	90.49062				
35	27.44679	90.49244				
36	27.44679	90.49426				
37	27.44678	90.49608				
38	27.44677	90.49790				
39	27.44677	90.49972				
40	27.44518	90.48879				
41	27.44518	90.49061				
42	27.44517	90.49243				

Annex 4: Compilation sheet (Timber Trees)

<b>OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)</b>									
1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Acer		
<i>coll</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.113	0.050	0.286	0	0.00	0.00	0.00	
20-29	0.047	0.334	0.050	0.286	2	0.57	0.03	0.19	
30-39	0.093	0.691	0.050	0.286	6	1.71	0.16	1.18	
40-49	0.156	1.190	0.050	0.286	5	1.43	0.22	1.70	
50-59	0.233	1.839	0.050	0.286	0	0.00	0.00	0.00	
60-69	0.327	2.642	0.050	0.286	1	0.29	0.09	0.75	
70-79	0.436	3.605	0.050	0.286	0	0.00	0.00	0.00	
80-89	0.561	4.733	0.050	0.286	0	0.00	0.00	0.00	
90-99	0.701	6.026	0.050	0.286	0	0.00	0.00	0.00	
100-109	0.857	7.491	0.050	0.286	0	0.00	0.00	0.00	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Betula		
<i>col1</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.096	0.050	0.278	1	0.28	0.00	0.03	
20-29	0.047	0.335	0.050	0.278	1	0.28	0.01	0.09	
30-39	0.093	0.773	0.050	0.278	4	1.11	0.10	0.86	
40-49	0.156	1.449	0.050	0.278	3	0.83	0.13	1.21	
50-59	0.233	2.396	0.050	0.278	1	0.28	0.06	0.67	
60-69	0.327	3.643	0.050	0.278	0	0.00	0.00	0.00	
70-79	0.436	5.218	0.050	0.278	0	0.00	0.00	0.00	
80-89	0.561	7.145	0.050	0.278	0	0.00	0.00	0.00	
90-99	0.701	9.448	0.050	0.278	0	0.00	0.00	0.00	
100-109	0.857	12.150	0.050	0.278	1	0.28	0.24	3.38	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Oak Spp. (central)		
<i>coll</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.095	0.050	0.278	0	0.00	0.00	0.00	
20-29	0.047	0.340	0.050	0.278	2	0.56	0.03	0.19	
30-39	0.093	0.796	0.050	0.278	5	1.39	0.13	1.11	
40-49	0.156	1.505	0.050	0.278	2	0.56	0.09	0.84	
50-59	0.233	2.508	0.050	0.278	1	0.28	0.06	0.70	
60-69	0.327	3.837	0.050	0.278	1	0.28	0.09	1.07	
70-79	0.436	5.526	0.050	0.278	1	0.28	0.12	1.54	
80-89	0.561	7.603	0.050	0.278	0	0.00	0.00	0.00	
90-99	0.701	10.096	0.050	0.278	1	0.28	0.19	2.80	
100-109	0.857	13.033	0.050	0.278	0	0.00	0.00	0.00	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Persea spp.		
<i>col1</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.086	0.050	0.278	3	0.83	0.01	0.07	
20-29	0.047	0.295	0.050	0.278	5	1.39	0.07	0.41	
30-39	0.093	0.673	0.050	0.278	11	3.06	0.28	2.06	
40-49	0.156	1.250	0.050	0.278	2	0.56	0.09	0.69	
50-59	0.233	2.051	0.050	0.278	0	0.00	0.00	0.00	
60-69	0.327	3.099	0.050	0.278	0	0.00	0.00	0.00	
70-79	0.436	4.414	0.050	0.278	1	0.28	0.12	1.23	
80-89	0.561	6.016	0.050	0.278	0	0.00	0.00	0.00	
90-99	0.701	7.921	0.050	0.278	1	0.28	0.19	2.20	
100-109	0.857	10.147	0.050	0.278	0	0.00	0.00	0.00	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Michelia spp.		
<b>coll</b>	<b>col2</b>	<b>col3</b>	<b>col4</b>	<b>col5</b>	<b>col6</b>	<b>col7</b>	<b>col8</b>	<b>col9</b>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.086	0.050	0.278	3	0.83	0.01	0.07	
20-29	0.047	0.297	0.050	0.278	2	0.56	0.03	0.17	
30-39	0.093	0.678	0.050	0.278	1	0.28	0.03	0.19	
40-49	0.156	1.259	0.050	0.278	0	0.00	0.00	0.00	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Other BL (Central)		
<i>col1</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.078	0.050	0.278	6	1.67	0.03	0.13	
20-29	0.047	0.287	0.050	0.278	2	0.56	0.03	0.16	
30-39	0.093	0.687	0.050	0.278	2	0.56	0.05	0.38	
40-49	0.156	1.323	0.050	0.278	1	0.28	0.04	0.37	
50-59	0.233	2.236	0.050	0.278	1	0.28	0.06	0.62	
60-69	0.327	3.462	0.050	0.278	1	0.28	0.09	0.96	
70-79	0.436	5.037	0.050	0.278	1	0.28	0.12	1.40	
80-89	0.561	6.993	0.050	0.278	2	0.56	0.31	3.89	
90-99	0.701	9.361	0.050	0.278	1	0.28	0.19	2.60	
100-109	0.857	12.171	0.050	0.278	0	0.00	0.00	0.00	

Compilation sheet (Non-timber trees)

<b>OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)</b>									
1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Acer		
<i>col1</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.113	0.050	0.278	0	0.00	0.00	0.00	
20-29	0.047	0.334	0.050	0.278	0	0.00	0.00	0.00	
30-39	0.093	0.691	0.050	0.278	2	0.56	0.05	0.38	
40-49	0.156	1.190	0.050	0.278	2	0.56	0.09	0.66	
50-59	0.233	1.839	0.050	0.278	1	0.28	0.06	0.51	
60-69	0.327	2.642	0.050	0.278	0	0.00	0.00	0.00	
70-79	0.436	3.605	0.050	0.278	1	0.28	0.12	1.00	
80-89	0.561	4.733	0.050	0.278	0	0.00	0.00	0.00	
90-99	0.701	6.026	0.050	0.278	0	0.00	0.00	0.00	
100-109	0.857	7.491	0.050	0.278	0	0.00	0.00	0.00	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Betula		
<i>col1</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.096	0.050	0.278	0	0.00	0.00	0.00	
20-29	0.047	0.335	0.050	0.278	1	0.28	0.01	0.09	
30-39	0.093	0.773	0.050	0.278	1	0.28	0.03	0.21	
40-49	0.156	1.449	0.050	0.278	0	0.00	0.00	0.00	
50-59	0.233	2.396	0.050	0.278	0	0.00	0.00	0.00	
60-69	0.327	3.643	0.050	0.278	0	0.00	0.00	0.00	
70-79	0.436	5.218	0.050	0.278	0	0.00	0.00	0.00	
80-89	0.561	7.145	0.050	0.278	0	0.00	0.00	0.00	
90-99	0.701	9.448	0.050	0.278	0	0.00	0.00	0.00	
100-109	0.857	12.150	0.050	0.278	0	0.00	0.00	0.00	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Oak Spp. (central)		
<i>coll</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.095	0.050	0.278	100	27.78	0.47	2.64	
20-29	0.047	0.340	0.050	0.278	89	24.72	1.16	8.41	
30-39	0.093	0.796	0.050	0.278	77	21.39	1.99	17.03	
40-49	0.156	1.505	0.050	0.278	47	13.06	2.04	19.65	
50-59	0.233	2.508	0.050	0.278	26	7.22	1.68	18.11	
60-69	0.327	3.837	0.050	0.278	11	3.06	1.00	11.72	
70-79	0.436	5.526	0.050	0.278	6	1.67	0.73	9.21	
80-89	0.561	7.603	0.050	0.278	9	2.50	1.40	19.01	
90-99	0.701	10.096	0.050	0.278	2	0.56	0.39	5.61	
100-109	0.857	13.033	0.050	0.278	5	1.39	1.19	18.10	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Rhododendron spp.		
<b>col1</b>	<b>col2</b>	<b>col3</b>	<b>col4</b>	<b>col5</b>	<b>col6</b>	<b>col7</b>	<b>col8</b>	<b>col9</b>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.074	0.050	0.278	131	36.39	0.62	2.69	
20-29	0.047	0.255	0.050	0.278	68	18.89	0.89	4.82	
30-39	0.093	0.579	0.050	0.278	38	10.56	0.98	6.11	
40-49	0.156	1.072	0.050	0.278	12	3.33	0.52	3.57	
50-59	0.233	1.755	0.050	0.278	4	1.11	0.26	1.95	
60-69	0.327	2.646	0.050	0.278	0	0.00	0.00	0.00	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name		Taktse CF			4. Block Area		234	Hectares	
2. Block Name		Taktse			5. Compiling date		25/01/2023		
3. No of plots		72			6. Species group		Persea spp.		
<i>coll</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>	
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)	
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)	
10-19	0.017	0.086	0.050	0.278	8	2.22	0.04	0.19	
20-29	0.047	0.295	0.050	0.278	18	5.00	0.24	1.48	
30-39	0.093	0.673	0.050	0.278	4	1.11	0.10	0.75	
40-49	0.156	1.250	0.050	0.278	15	4.17	0.65	5.21	
50-59	0.233	2.051	0.050	0.278	11	3.06	0.71	6.27	
60-69	0.327	3.699	0.050	0.278	2	0.56	0.18	2.06	
70-79	0.436	4.414	0.050	0.278	0	0.00	0.00	0.00	
80-89	0.561	6.015	0.050	0.278	1	0.28	0.16	1.67	
90-99	0.701	7.921	0.050	0.278	0	0.00	0.00	0.00	
100-109	0.857	10.147	0.050	0.278	0	0.00	0.00	0.00	

**OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)**

1. CF Name	Taktse CF	4. Block Area	234	Hectares				
2. Block Name	Taktse	5. Compiling date	25/01/2023					
3. No of plots	72	6. Species group	Other BL (Central)					
<i>col1</i>	<i>col2</i>	<i>col3</i>	<i>col4</i>	<i>col5</i>	<i>col6</i>	<i>col7</i>	<i>col8</i>	<i>col9</i>
		(3 decimals)	(3 decimals)	(3 decimals)	(0 decimals)	(2 decimals)	(2 decimals)	(2 decimals)
dbh class (cm)	class basal area (m2)	class volume (m3)	plot size (ha)	expansion factor	tally	nrha (stems/ha)	basha (m2/ha)	volha (m3/ha)
10-19	0.017	0.078	0.050	0.278	206	57.22	0.97	4.46
20-29	0.047	0.287	0.050	0.278	129	35.83	1.68	10.28
30-39	0.093	0.687	0.050	0.278	90	25.00	2.33	17.16
40-49	0.156	1.323	0.050	0.278	28	7.78	1.21	10.29
50-59	0.233	2.236	0.050	0.278	0	0.00	0.00	0.00
60-69	0.327	3.462	0.050	0.278	0	0.00	0.00	0.00
70-79	0.436	5.037	0.050	0.278	0	0.00	0.00	0.00
80-89	0.561	6.993	0.050	0.278	0	0.00	0.00	0.00
90-99	0.701	9.361	0.050	0.278	0	0.00	0.00	0.00
100-109	0.857	12.171	0.050	0.278	0	0.00	0.00	0.00