
Dorib Yarkyel Puensum Community Forest Management Plan
(1st Revision)



**SAMAR GEWOG
HAA DZONGKHAG
(PLAN PERIOD: 2022-2032)**

APPROVAL SHEET


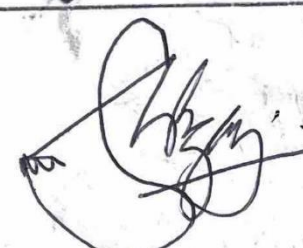
APPROVAL SHEET

Name of Community Forest	Dorib Yarkyel Puensum
Village	Dorikha
Chiwog	Dorikha
Gewog	Samar
Dzongkhag	Haa
Production area(Hectare/Acre)	163.38 Ha
Protection area(Hectare/Acre)	11.81 Ha
Total Community Forest Area(Hectare/Acre)	175.19 Ha
Total CFMG Member(No. of HH)	45

PREPARED AND SUBMITTED FOR APPROVAL

Community Forest Management Group	CFMP facilitator (Forestry Representative)	Gewog Administration	Range Office Haa Range	Division/Park Office
Signature				
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Title	Chairman, Dorib Community Forest, Samar, Geog	Haa Range	Gup	Chief Forestry Officer

REVIEWED AND RECOMMENDED FOR APPROVAL

Signature		
Title	Focal Officer	Chief Forestry Officer
Division	Forest Resource Planning and Management Division	Forest Resource Planning and Management Division

APPROVED BY:


DIRECTOR/DIRECTOR GENERAL
DEPARTMENT OF FORESTS AND PARK SERVICES

Approved vide Notesheet No.DoFPS/FRPMD/FRPIS/CF_1(b)/2022-2023/1184 on dated June 13, 2023

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1 Acronyms

AAC.....	Annual Allowable Cut
AWP.....	Annual Work Plan
BC.....	Bhutanese Calendar
CF.....	Community Forest
CFMG	Community Forest Management Group
DBH.....	Diameter at Breast Height
CFO.....	Chief Forest Officer
DoFPS	Department of Forest & Park Services
SFED	Social Forestry & Extension Division
FNCRR.....	Forest and Nature Conservation Rules & Regulations

2 Executive Summary

Dorib Yarkyel Puensum Community Forest (CF) fall under Sama Geog in Haa Dzongkhag. It is located 20 kilometres away from Haa town at an elevation of 3370 masl. It was initiated in the year 2011 with 38 Community Forest Management Members (CFMG). With time, villagers who were initially not members of the CFMG developed interest in the CF increasing the members of the CFMG. This management plan consists of 45 CFMG members including the 9 new members. To ease management, the CF was previously identified in the vicinity of the village covering an area of 101.55 hectares including the protected areas within the CF.

The CF was initiated with objectives to conserve and preserve the natural resources with better management schemes for the younger generations. The CF's engagement in ecotourism activities was highlighted as an essential objective. Department of Forest and Park Services (DoFPS) financially and technically supported the establishment of the CF. However, the financial cost of revising the Management Plan was borne by the CF with technical assistance from DoFPS.

The spruce forest dominates but Blue pine and Oak tree compositions are also evident. The forest resources for rural purpose can easily be accessed from the CF. Due to the bark beetle infestation of timbers inside the CF, sanitation works have been carried out by the CFMG. The excess timbers from the infested sites were commercialized for generating CFMG fund. Therefore, besides the generation of fund from royalties; fine and penalties and bark beetle infested timbers have been the source of income for the CF in past years.

To fulfill the objectives of sustainable forest management, relying solely on timbers and NWFPs from the CF to meet the economic needs deem unfulfilling especially when there is a potential for the CF members to engage in Ecotourism within and in the vicinity of the CF. Thus, initiation of the Ecotourism activities is considered a key activity in the revised management plan.

The revised management plan is focused on the management, protection and conservation of the CF through the application of good governance principles. Economic advancement referring to gender equity promotion, environment sustainability, and poverty reduction are included within the mission, vision and objectives of the CF. Achievement of transparency and accountability through the participation of the community in any kind of activities are also to be checked.

3 Review of Past Activities

The CF has benefited the community in various ways. Since the initiation of the CF in 2011, conservation of natural resources including wildlife has been enhanced to great heights.

Availing service has been eased especially when it comes to RHBT. In the last 10 years, the CFMG achieved the annual harvesting limit (AHL) with an allotment of 244 drashings to genuine rural house builders.

Parts of the CF was infected with bark-beetle. It was a cause of great concern because of the possibility of infection of the whole CF. With technical support from DoFPS, sanitation operation was carried in the CF; those affected timbers were harvested and commercialized.

Around 1,34,000.00 cubic feet (cft) of infested timbers have been harvested generating an income of more than Nu. 44,000,000 after excluding the expenses incurred during the

sanitation operations. The earned amount funded activities of the CF. It was sanctioned as loans with minimal interest and used for study visits greatly benefitting the CFMG.

The CF was protected from illegal activities (illegal harvesting of timbers and natural resources). The successful protection of the CF was a result of combined efforts from the CFMG; 23 % of women and 77% of men were found to participate in CF protection activities. The smooth running and benefits associated with the CF aroused interest in non-members to take the opportunity of becoming members from the next management plan.

The CFMG has gained experiences in implementing the management plan. They understand the condition of the local forest and its management on sustainable basis, there is a sense of ownership, and maintaining transparency amongst the CFMG is prioritized. The CFMG consider CF fund management, preparation of annual work plan, implementation and decision making in CFMG meetings and CF committee meetings not only familiar but also essential.

As a pilot project (without experiences) requiring constant and continuous technical support from forestry offices, lapses in record keeping and short-term period of Community Forest Management Committee (CFMC) was recorded. It happened because of shortage of forestry officials in the forestry offices. With the revision of the expired management plan, the community desires to improve all the shortcomings from the past. Further, an extension to the management of CF to initiate ecotourism opportunities to improve the livelihood for the younger generation is also proposed.

4 Vision, Mission, Mandates and Objectives

Vision:

“Sustaining Dorib Yarkyel Puensum Community Forest resources & biodiversity for the present and future generations”

Mission:

“Conserve and manage community’s forest resources to ensure social, economic and environmental sustainability”

Mandates:

Conservation, protection, sustainable management and utilization of community forests including forest soil, water resources and biodiversity through the application of good governance principle.

Ensure rules governing CFMG such as FNCRR, FNCA and any other Acts/Rules are adhered through participation, facilitation and enactment of enabling policies, legislations, strategies, plans, and programs.

Dorib Yarkyel Puensum Community Forest Objectives.

1. To protect from outsiders collecting harvesting/extracting of forest produce from their community forest.
2. To protect the local water sources from degradation and drying.
3. To improve the regeneration of oak trees for fodder production
4. To protect the forest from disease infection and forest fire
5. Development of Ecotourism facilities for Community Forest Management Group and enhancing the management of Community Forest.

6. To maintain Clean Environment within Community Forest area.

5 Part A: Management Plan

Introduction

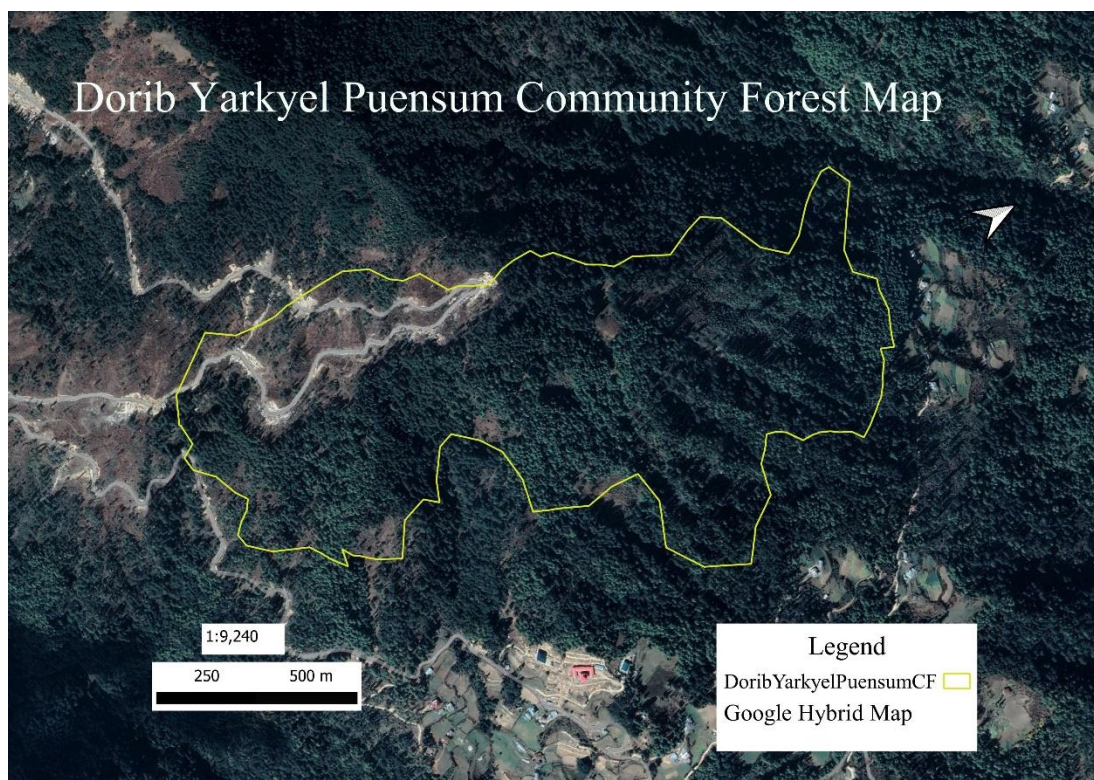
In the past, the people of Koina and Dorikha village have not felt the deteriorating of their forest so, they hardly perceived protection and improvement of the forest as a necessity. However, with construction of road in the villages by NRDC, the forest resources were accessed by a wider range of people leading to their reduction. The gradual loss of forest products from the vicinity of the villages was a concern for the local communities. That's when the communities decided to apply for Community Forest and that's how the CFMP (2011-2020) has been Approved and Implemented.

To extent the trend of protecting the forest in the vicinity of the communities, the communities are revising the Management Plan with the help of Territorial Forest Division, DoFPS.

CF Map: Location and Boundary Description

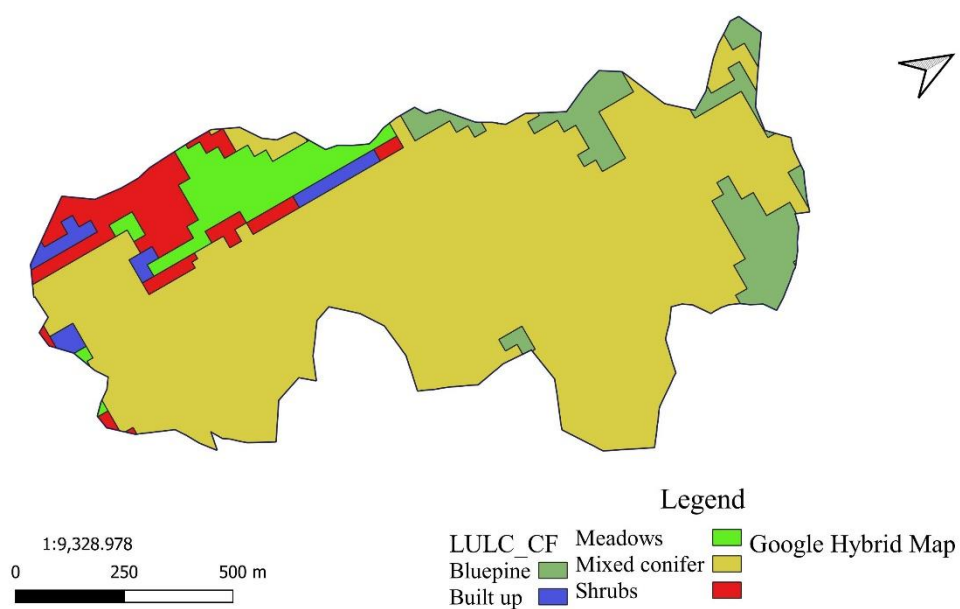
<i>Boundaries</i>	<i>Describe the permanent features</i>
West	Haa-Samtse Highway
East	Farm road from Dorikha to Koina
South	Stream and valley of Salumbjatsha
North	Zachekha_ridge

Boundary Map of Dorib Yarkyel Puensum Community Forest



Land Use Data and the CF boundary Map

Land Use Land Cover (LULC)-Dorib Yarkyel Puensum Community Forest



Traditional Rights and Responsibilities

Services/ Products	Rights	Responsibilities	Traditional Management system
Timber	Every household from the Community Forest registered as member has the right over the timbers for rural use provided the CF has AAC	CF Chairman and Secretary issues permit as per Management Plan and timbers are marked by Forestry Officials involving Re-Soop	Traditional Rights over management of Forest as Community Forest.
Firewood	Everyone registered as CF member has the rights provided individual holds a valid permit.	CF Chairman and Secretary issues permit as per Management Plan and timbers are marked by Forestry Officials involving Re-Soop	Traditional Rights over management of Forest as Community Forest.
Fodder	Community members have free access to fodder collection but outsiders are not allowed	Community does not have to obtain forest permit when collected as back loads or head loads.	Community members themselves have access to the fodder resources, which is usually collected on the basis of first-come-first serve
Leaf litters	CF members have rights on leaf litters and its collection.	Free access for community members.	Collection of leaf litter is traditionally controlled by the community itself, which does not allow any outsider to collect litter from the forest.
Stone (Boulder)	CF members have rights over the stone/boulders and its collection for rural use	CF Chairman and Secretary issues permit as per Management Plan and after site visit to the site.	Collection of stones from the area manually.

Area information	
Name of the area	Area (Ha)
Production Mgt Circle	83.51
Protection Mgt Circle	5.02
Non Production Mgt Circle	13.03
Total Community Forest Area	101.55

Social Information

Information	Description
Name of the villages	Dorib Yarkyel Puensum
Ethnic groups with CFMG	Doribs
Basic amenities	Highway, Farm road, Electricity, Mobile network connection, RWSS and RNR-EC.
Total Household number of CFMG	45
Population of CFMG	342
% Male and % Female	51% and 48%
Main source of income	Sale of livestock dairy products, potato, vegetables, apple, trade and business
Cattle population of the CFMG	362
Main crops	Wheat, Buckwheat and Potato
Cropping pattern	Mixed cropping & crop rotation
Any other information	

Forest Information

Dorib Yarkyel Puensum Community Forest is a mixed conifer forest, dominated by Spruce and Blue pine. In some areas the forest vegetation is composed of Oak, Hemlock, Taxus, Betula and Fir species with thick undergrowth consisting of Pyrus species. Throughout the forest, good regeneration of Blue pine is observed, followed by Spruce.

The forest area possesses gentle slopes of 5-10 % slopes with few steep slopes of more than 50% slope gradient. The soil in general appears to be loamy with high consistence of clay; there is little or no potential of erosion. The Catchment areas are in moderate conditions and

majority falls in gentle slopes.

Erosion is negligible within the Community Forest due to the good forest canopy. However, there is a need for plantation assessment in the areas of salvage operations. The availability of resources like timbers, fodder, leaf litter, and firewood are adequate, and there exist potential grazing areas. The condition of the CF appears, in general, to be average. The main forest canopy consists of Spruce followed by Blue pine. Tree population and species composition varies, although it is observed that there are more young trees than that of mature trees. Healthy trees capable of producing good seeds are also available in the community forest.

The CF area has potential site views, biking route/trail and various developmental sites feasible for Ecotourism.

Forest Conditions:

Use the forest condition class box below to get the average condition for the CF						
Poor	<input type="radio"/>	Average <input checked="" type="radio"/>	Good	<input type="radio"/>	Very Good	<input type="radio"/>
Does the main forest canopy consist of large, mature trees?			Yes	<input type="radio"/>	No	<input type="radio"/>

Fauna

<i>Local Name</i>	<i>English/Common name</i>	<i>Zoological name</i>
Shaw	Sambar Deer	<i>Cervus unicolor</i>
Kasha	Barking Deer	<i>Muntiacus muntjak</i>
Ripha	Wild pig	<i>Sus scrofa</i>
Leko	Kalij Pheasant	<i>Lophura leucomelanos</i>
Dhom	Himalayan black bear	<i>Ursus thibetanus</i>
Zheem	Blood Pheasant	<i>Ithaginis cruentus</i>
Jee-dha	Monal Pheasant	<i>Lophophorus impejanus</i>
Lha-chum	Musk deer	<i>Moschus moschiferus</i>
Jichu	Birds	

List of Forest Products, Who Collects from Forest

<i>List of products and services</i>	<i>Who collect from forest</i>		<i>Collection by Outsiders</i>
	<i>Male (M)</i>	<i>Female (F)</i>	
Mushroom	M	F	

Timber	M		Nil
Fire wood	M	F	
Fodder	M	F	
Leaf litter		F	

Forest Type or Vegetation Type:

<i>Forest Types</i>	<i>Tick (✓)</i>	<i>Remarks, if any</i>
<i>Mixed conifer forest</i>	✓	<i>It consist of blue pine, spruce, hemlock & oak with inclusive of average stand.</i>

Main timber Species

Local Name	English Name	Botanical names
Tongphu	Bluepine	<i>Pinus wallachina</i>
Seyshing	Spruce	<i>Percea spinulosa</i>
Bji shing	Oak	<i>Quercus semicarpifolia</i>

Forest Condition- Age

Mature	<input type="checkbox"/>	Pole stage	<input type="radio"/>	Shrub land	<input type="radio"/>	Any	<input type="radio"/>
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	

Forest Condition- Canopy Density (main canopy)

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

Forest Condition-Regeneration

Abundant	<input type="checkbox"/>	Scattered/few	<input type="radio"/>	None	<input type="radio"/>
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)Blue pine		2) Spruce		3) Oak	
Regeneration: Seedlings > 30cm and < 1.3m height					

Forest Condition-Approximate density of Seed tree (if any)

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

Block Condition

Poor	<input type="radio"/>	Average	<input type="radio"/>	Good	<input type="checkbox"/>	Very Good	<input type="radio"/>
Does the main forest canopy consist of large, mature trees?				Yes	<input type="checkbox"/>	No	<input type="radio"/>

Catchment Condition

Soil cover		Soil cover class	
> 50% of the soils are covered by vegetation		High	<input type="checkbox"/>
25 - 50% of the soils are covered by vegetation		moderate	<input type="radio"/>
< 25% of the soils are covered by vegetation		Low	<input type="radio"/>
Slope gradient			
Slope (degrees)		Slope steepness class	
<10°		Gentle	<input type="radio"/>
10° – 30°		Moderate	<input type="checkbox"/>
> 30°		Steep	<input type="radio"/>

Catchment Condition-Summary

Less critical	<input type="checkbox"/>	Moderately critical	<input type="radio"/>	Highly critical	<input type="radio"/>
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Biotic Pressure Indications

Indication	<i>Present</i>	<i>Limited</i>	<i>Absent</i>
Fire			✓
Grazing			
NWFP collection (list the main products including bamboo & MUSHROOM)		✓	
Encroachment			✓
Hunting			✓

Others (describe) Bark beetle affecting the stand			
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6 CF Resource and Participatory Resource Assessment

PRODUCTS	FUEL WOOD	HOUSE BUILDING TIMBER	LEAF LITTERS	FODDER
Main Species	Oak & Spruce	Blue Pine & Spruce	Blue pine	Oak
Supply	No oak trees available, lops & tops and fallen trees	Insufficient timber size trees	Sufficient trees for leaf litter collection	Sufficient trees for fodders
Problems	Limited hard wood	Availability of Drashing-size timber is very less	Unfair distribution of leaf litters	Heavy over- lopping of oak trees for fodder
Opportunity	Deformed, diseased, dead, and lops and tops	Average numbers of matured trees	Sufficient trees for leaf litters	Sufficient trees for fodder
Management Objectives	To supply the Firewood on sustainable basis	Preserve and protect matured seed trees and sustainable harvesting	Fair & equal distribution of leaf litters	Supply of fodder on sustainable basis
Strategies	To thin out all the matured trees leaving seed trees. Carry out sanitation.	Utilize AHL strategy and thin out for improved stand.	Fixation of collection time	Avoid excessive lopping of oak trees
Activities	No marking of standing trees for firewood. Allot only fallen, lops and tops	Thinning and sanitation operation. Strict to AHL	Thinning activities and timely collection	Monitoring and implementation of management practices

Forest Product Demand Assessment			
Products	Number of HH that require annually	Requirement of the product (Annual)	Requirement in 10 years
New construction	02		
	Drashing	36	360
Renovation	03		
	Drashing	12	120
Cattle shed	04		
	Drashing	8	80
Flag post	01		
	Poles	108	1800
Fuel wood	14		
	Lops and tops	23TL	230TL
Fencing post	5x10 nos. per HH		
	Poles	50nos.	500nos.

Operation Inventory analysis and Annual Allowable Cut

Operation Inventory Analysis		
: Average Volume per Ha (m3/ha)	241.82	
: Average Basal Area per Ha (m2/ha)	20.50	
: Average Number of Trees per Ha	153.24	
Annual Allowable Cut		
Annual Allowable Cut-Calculation	Net ProArea*Volume/Ha/Rotation age	
Net Production Area in Ha	83.51	
Average Vol/Ha	241.82	
	Conifer (Vol(m3/ha))	Brl (Vol(m3/ha))
Average Vol/Ha	231.62	10.20
AAC for Confi	161.18	7.74
AAC for Brl		
Total AAC in m3	161.18	
Total AAC in Cft	5,692.95	

AAC vs. Demand

Limit/Demand/timber	Dangchung	Tsim	Cham	Drashing	Firewood
Annual harvesting limit	6	6	51	18	-
Annual demand	50	0	0	50	3

The annual demand for drashing is 50 numbers but to manage it scientifically, only 18 drashings can be allotted for rural house building timber including renovation and cow shed construction. The demand for dangchung required for fencing post is 50 numbers but only 6 numbers can be harvested. Additional harvesting can be done from areas that needs thinning operations if available. The Firewood demand for the locality is very high in comparison to its availability but it can be met from lops and tops from RHBT harvesting timbers, fallen branches from the forest. *Since the harvest of timbers from the Community Forest including the sanitation has exceeded the AAC of previous CFMP, the rural harvesting from the CF will be avoided unless it's from sanitation operation i.e dead, dying and diseased trees.*

Problem and Opportunities


Problems	Opportunities	Management objectives	Activities for management of the forest
The timbers cannot be extracted as desired as no access to road at the northern part.	Can harvest those matured trees through sawing at site and can also conserve from illegal harvest	1. Protection 2. Sustainable utilization and management 3. Utilization of Forest Product 4. Improvement of the forest	1. Sanitation Operation 2. Plantation 3. Thinning 4. Singling 5. Cleaning activities.

Utilization	Improvement	Protection	Silvicultural system	Comments
Drashing and Cham will be utilized for RHBT on sustainable basis.	Sanitation operation, Inducing regeneration, Plantation, Cleaning & thinning.	Protection from the illegal activities. Protection of natural regeneration and thinning	Single tree selection system for RHBT and clear felling at Sanitation with adherence to Guidelines	Pole stage trees with quality species and mother trees shall be retained.

Forest Product availability and Species Preference

SPECIES	Preference / Availability	FOODER	FIREWOOD	FLAGPOLES	LEAF LITTER	AGRIIMPLEMENT	TIMBER	FENCING POST
Blue Pine (Tongphu)	P		0000	0000	00000	00	00000	00000
	A		**	***	*****	*	**	****
Larch (Zew)	P		000	00		00	00	0000
	A		*	*		*	*	*
Fir (Dungshing)	P		000				000	00
	A		*				*	
Spruce(Seyshing)	P		0000	0000		0	0000	000
	A		**	**		*	**	****
Hemlock (Bashing)			000	00		00	000	000
			*	**		*	*	**
Oak (Bjishing)		00000	00000					00
		*	*					*

P: Preference A: Availability 00000 - Highly preferred 0 - Low Preference/rarely used*****
 - Easily available * - Little available

Forest product	Timber	Fire wood	Fodder	Grazing	Water	Leaf litter s	Fencing post
 Timber	X						
Fire wood	Timber	X					

Fodder	Timber	Fodder	X				
Grazing	Timber	Fire wood	Fodder	X			
Water source	Water source	Water source	Water source	Water source	X		
Leaf litters	Timber	Fire wood	fodder	Leaf litter	Water source	X	
Fencing post	Timber	Fire wood	fodder	Fencing post	Water	Leaf litters	X
Total	5	3	4	0	6	2	1

Forest Product Preference Ranking Matrix

** Water source is a highly preferred natural resource and grazing is the lowest preferred in their matrix ranking

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Participatory Environment Assessment

+++ = Positive Effects ---- = Negative Effects 0 = No Effect

	Potential Environmental Effects				Potential Socio-Economic Effects			
Activity proposed	Soil	Water	Wild animals	Plants	Traditional forest use	Cultural & religious values	Local employment	Local benefits from produce
Fire wood harvesting	-	-	-	-	0	0	0	+++
Timber harvesting	--	--	--	---	+	+	++	++
Harvesting of poles types	-	-	-	-	+	+++	0	++
Plantation	+++	+++	++	++	--	++	--	0
Forest fire control	++	++	+++	+++	0	0	0	+
Forest protection	+	+++	+++	+++	++	+	0	--
Collection NWFP	-	-	0	-	0	++	+	+++
Grazing control	++	++	++	++	-	0	0	--
Thinning	-	-	-	-	0	0	+	+++

Addressing Potential Negative Effects

Activity	Procedure
Timber Harvesting	- No felling and dragging of logs will be permitted on the steep slopes and marking & felling in the catchment area will not be permitted. Avoid felling in Wildlife habitats - tree felling within the distance of 600 feet up hills and 300 feet down hills will be prohibited.
Collection of leaf litters	- collection of leaf litters will be controlled in the area which required shed and mulching for the seedlings and trees
Fodder collection	- Over lopping of trees for fodder will not be permitted
Fuel wood & Pole harvest	-Supply and issuance of fuel wood will be made on need basis.
Forest Fire prevention	-No temporary make shifts will have allowed in the Community Forest and CFMG create fire lines in sensitive areas

6.1 Monitoring Plan

- Timely monitoring of regular CF activities by CFMG and T-Range.
- Should monitor growing stock, forest condition, harvesting limit and income generation.
- Benefit sharing, decision making and financial management.
- The T-Range will provide technical assistance as and when required.
- Submission of annual report to the T-Range pertaining to CF activities.
- T-Range have to submit annual report to TD, and copy to SFED.
- The joint report will be submitted to the DoFPS regarding activities related to CF management plan if any.

Forest Resource Monitoring Plan

Objective	Indicator	Monitoring procedure	Responsibility	Comments
To increase fuel wood production on a sustainable basis	The lops and tops utilization and woods left unattended to be allotted.	Checking/patrolling after timber is being lifted/ checking from the record of CFMG	CFMG committee & members	T-Range staff will assist
To increase and improve regeneration	Status of regeneration in sanitation area assessment	Regeneration survey in sanitation area and effort plantation if required.	CFMG committee & members	T-Range staff will assist
To preserve and protect pole size timbers	Status of trees	No harvesting of timbers besides AHL except for sanitation operation.	CFMG committee & members	T-Range staff will assist
To ensure equitable distribution of leaf litter	Nos. of back load collected	From the records of CFMG	CFMG committee & members	T-Range staff will assist

Social and Institutional Monitoring Plan

Objective	Indicator	Monitoring procedure	Responsibility	Comments
Traditional forest use	Increased forest stocks in edge of villages	Sighting of felling near villages	CFMG	T-Range will assist
Local benefits from forest produce	Having equal share from forest produce	Collection permit & CFMG records	T-Range & CFMG	TD & T-Range will assist

Environmental Monitoring Plan

Potential negative impact	Indicator	Monitoring procedure	Responsibility	Comments
Soil	Landslide	Look for eroded area	CFMG	TD & T-Range will assist
Water	Detection of new stream or drying up of streams in CF area	Check for drying up of streams and no marking and felling of trees at water source.	T-Range & CFMG	TD & T-Range will assist
Wild animals	New species arrival	Sighting	T-Range & CFMG	TD & TR will assist
Plants	Occurrences of new species	Sighting	CFMG	TR will assist
Protection (forest fire)	Fire incidence	From CFMG record	CFMG	Committee members and T-Range
Affect of bark beetle inside CF	Dying of trees due to beetle infestation	Sanitation operation and eliminating the new infestation	CFMG and T-Range	CFMG propose and T-Range process
Damage of natural regeneration	Rolling of timbers at extraction site	Ressop and CFMG will monitor in loss of regeneration	CFMG and T-Range	CFMG verify the destruction

Annual monitoring of CF and CFMG should be carried out by concerned forestry office jointly with CFMC.

6.2 Management Activities in Community Forest

Ecotourism Management Plan

The CF has potential to establish ecotourism within the CF as the CF area is suitable for hike, bird watching, trekking, visiting spiritual and holy sites like *Neys*. The CFMG members have educated youths, trained guides to assist both national, international and regional tourists. The CFMG members in the village can enhance their houses for homestay, adding the amenities like hot stone bath, cultural visits, etc.

Activity: Proposal for Ecotourism will be initiated and upon approval from relevant agencies, the projects shall be implemented on cost sharing basis.

Procedure: A separate business plan for eco-tourism will be drafted and approved including the management procedures, with bylaws for the project implementation purpose for the project period

Sanitation Operation

Since the CF area is being infested by Bark Beetles; the infestation is spreading to young stand, sanitation operations are deemed necessary. This is to protect the whole CF area from infestation of bark beetles. Therefore, cleaning and clearing of dead and

rejected logs from the harvest areas need to be disposed and newly infested timbers should be harvested before the infestation spreads further.

Activity:

1. Site verification of utilizable logs and poles left from previous sanitation operations and dispose it as per guidelines, rules and regulations
2. Enumerate the standing trees infested with beetles and carryout sanitation operations

Procedure:

1. CFMG to approach the nearest forest office and submit detail report. The forestry office to verify and assist technically.
2. Range Office to assist technically and process for separate approval for Sanitation work. Upon receipt of approval, the CFMG to carryout sanitation work as per Guidelines

Waste Management inside CF

Activities	Responsibility	Action
Littering/Disposal of any waste inside CF and vicinity of the same is an offence.	If anyone is found littering or disposing the waste in CF/SFRL, he/she shall be apprehended and handed over to CFMC.	The CFMC shall impose fine and penalties in consultation with relevant agencies. (Gewog/Forest/Dzongkhag/Environment)
Monitoring and waste collection by CFMG	Whenever there is cleaning program at the village/community level through the relevant agencies, the cleaning shall be done inclusive of CF area.	CFMC will engage a group to CF area for waste cleaning.
No applicant shall leave or litter in CF during timber extraction or any other works inside CF	Resoop shall inspect waste disposal by the timber harvesters and report to CFMC in the event of waste disposal/leaving waste inside CF	The CFMC shall deal the case with relevant agencies.

Annual Work Plan (AWP)

Objective	Activity	Location	Qty	Unit	Month	Remarks
Development of Ecotourism facilities for Community Forest Management Group.	1. Development of foot trail	Within CF	1	No	-	
	2. Initiation of home stay	Dorikha	2	HHs	-	
	3. Development archery range	Dorikha	1	No	-	

To maintain Clean Environment within Community Forest area.	Monitoring and waste collection by CFMG	Whole CF	-	-	Every month	
To protect from outsiders collecting harvesting/extracting of forest produce from their community forest.	Patrolling and Monitoring by Resoop and CFMG members	Whole CF	1	Nos	Every month	
To protect the local water sources from degradation and drying.	Avoid harvesting of produce from local water source and streams	Catchment area	2	Nos	Every month	
To improve the regeneration of oak trees for fodder production	Timely removal of leave litters from regeneration areas	Whole CF	2	Ha	8 th month	
To protect the forest from disease infection and forest fire	1. Monitoring and harvesting of bark beetle affected trees	Whole CF	-	-	Ad hoc	
	2. Fire monitoring and fire line creation	Whole CF	1	Km	Nov-Dec	
To conduct Farmers study visit to other Community Forests	Visit to other CF and learn as part of study visit.	Old age persons	45	Nos	Once in 10 Years	

Evaluation of CMF Plan

The community forestry activities will be evaluated annually. At end of the 5th year, midterm review will be conducted. Before the expiry of CFMP, a new management plan will be drafted for ten years. Assistance in evaluating the CF after 5 years and in the preparation of the subsequent plan will be sought from the Forestry office.

Calamity Intervention

During unforeseen events, such as forest fire, windstorm, flood, pest & diseases inside the community forest, upon verification and reports submitted by the Haa Range, Paro Forest Division may intervene or seek further instructions from the Department.

The timbers from any unforeseen events shall be utilized by genuine beneficiaries for domestic use. The utilization monitoring will be done as per the rules and regulations in line with Department of Forest and Park Services. The timber will be sold only if it is found in excess.

In times of any calamities in CF, all members should come to assist and intervene to combat the disaster.

7 Part B: By-Laws

7.1 Membership Arrangements

The membership shall be only the one who has census, house no. Thram no. and native of the particular village.

a) New membership: *Insiders-*

- The insider who has settled in the village and is willing to participate as a member has to pay Nu. 1500.00 as an entry fee.
- A person settled in the village after purchasing can join as CF member after payment of membership fee of Nu 1500.00
- Members willing to avail timbers and other benefits from the Community Forest, should utilize the benefits within Dorikha vicinity and on the land that is recorded to this CFMP.

b) Leaving the membership.

- Person can leave the group without any benefits from the CF if he/she has not availed any timbers and loan benefits from CF.
- A person leaving the management group should refund the cost of timbers availed from CF and should clear the loan availed.
- If a person has not constructed house and found the timbers being stacked for construction and planning to leave the group, the timbers shall be forfeited.
- A person from the group shall be terminated if he/she doesn't comply the terms and conditions of the Management Plan shall be dealt as per guidelines 2018 of DoFPS

c) Expenses for Expenditure incurred

- Expenses incurring for the official works shall be borned from CFMG management fund
- Involvement of government officials: as per eligible mileage for the person who gets involved.
- Boundary demarcation: DSA and transportation
- Expenses for foodings (Lunch and Refreshment) incurred for any CFMG meeting shall be from CFMG fund.
- Expenses for CF Management Plan shall be borned from CFMG fund.

d) Management Committee Formation

The CF shall have three management committee members

- a) Chairperson: - Ugyen Tenzin
- b) Secretary: - Chenchho
- c) Treasurer: - Tshewang Tobgay

e) Payment/Incentives for CF officials and TERMS (years)

No monthly incentives for Chairman and Treasurer unless they perform duties involving transportation of officials and accompanying with officials for the purpose of CF. Nu. 1500.00 per day/occasion shall be paid for the person/vehicle involved.

Secretary is paid with Nu. 1500.00 per month as an incentive for documentation and taking charge of CF officials works. Official terms shall be based on the availability and willingness. Prior handing taking should be done before to resignation of official. Board

members are being formed for CFMG comprising of executives and representatives from members, thus board member fee shall be fixed by the CFMG time to time when required.

Royalty Rates for allotment of RHBT from CF

The royalty for the timber allotment for RHBT shall be as per FNCRR-2017- 2022, amendments and rules that has been enacted to the latest

7.2 Terms of Reference for CF Management Committee

• TOR for Chairperson

- Heads the CFMG and shall lead the meetings.
- Calls meetings whenever necessary and informs concerned persons about date, time and place and the reasons for the meeting.
- Chairs and facilitates meetings and makes sure each person is allowed to speak, thereby giving everyone a fair chance to speak and raise issues
- Approves applications for forest products (with Secretary).
- Countersigns financial transaction and authorization to draw cash from the bank account (with Treasurer).
- He/She shall keep relation with other organizations to take up the CF related works.
- Chairperson shall initiate to receive guest related to CF works and take up the matter with relevant agencies.
- He/She should lead any project that benefits the CFMG and take up for completing the project in accordance to rules and regulations.

• TOR for Secretary

- Assists the Chairperson and officiate him/her during his/her absence.
- Manages the correspondence (writing of letters and minutes of meetings) for the CFMG.
- Maintain the files of the CFMG.
- Maintains the list of CFMG members.
- Approves applications for forest products (with Chairperson) in line with CFMP.
- Keeps minutes of CFMG meetings.
- Prepares Annual Progress Report (with other CF Management Committee members).
- He/she shall keep the records of the activities and provide it to relevant agencies whenever asked for presentation.

• TOR for Treasurer

- Looks after any financial transactions on behalf of the CFMG.
- Keeps records of expenditure and labor contribution during CF activities

<ul style="list-style-type: none"> ● Gives a detailed account of how much money or labor has been contributed, how much has been spent and how much is still left, at every CFMG meeting (or as required) ● Prepares the Annual Financial Report for the CFO (with the assistance of other CF Management Committee members). ● Countersigns financial transaction and authorization to draw cash from the bank account (with Chairperson).
<ul style="list-style-type: none"> ● TOR for Ressorp <ul style="list-style-type: none"> ● Verify the timber marking ● Patrolling and keeping information on illegal timber extraction. ● Ressorp will be identified every year on rotational or willingness of the person in general meeting. <p>Board member</p> <ul style="list-style-type: none"> ● Apart from Executive members, a board member will be formed for transparency of the work inside CF. ● They comprise of all executive members (permanent) with an additional 1 CF members ● During board members meeting, minimum of 2/3 of board members inclusive of one ressorp or a member from CFMG should be present.

7.3 Roles and Responsibility of CFMG

<ul style="list-style-type: none"> ● To follow the procedures and rules of the CFMG as outlined in the CFMP and By-laws. ● Participation in CFMG planning and decision-making. ● Election of CF Management Committee members. ● Participation in drafting of the CF management plan and CFMG by-laws. ● Participation in CFMG meetings. ● Co-operation with the CF Management Committee in carrying forest management and other management operations especially by contributing labor if required. ● Co-operation with the CF Management Committee regulating forest use by other CFMG members and by outsiders ● Become involved in other CFMG activities as planned ● Report any illegal activities including poaching inside CF. ● They have the rights to eliminate the management committees from their roles if necessary. ● They also have the right to do auditing.

Membership fee and fees collection

Sl No	Forest Products/ Membership fees	Procedures	Fees(Nu)
1.	Membership fees	Collection shall be done upon receipt of application by the treasurer & deposit in the CFMG account.	Nu. 1500/- per hh.

2.	Timber:	Chairperson and Secretary will collect the fees/fines and Gewog Forest or T-Range will assist.	As per FNCRR-2017- 2022, amendments and rules that has been enacted to the latest.
	Drashing		
	Cham		
	Tsim		
	Dangchung		
3.	F/Wood (hard & soft)	**In view of many trees to be felled, one drashings will be allotted in lieu of 40 tsim and 50 dangchungs for cattle shed construction**	
	NWFP		
	Stone and Boulders		

8 Offences and Penalties

Timber Products	CFMG members		Non CFMG members	
	Fines/Penalty	Products	Fines/penalty	Products
Timbers, including firewood	The fines and compensations or penalties for both member and non-member shall be calculated based on volume and shall be imposed fine and compensation as per FNCRR-2017-2022, amendments and rules that has been enacted to the latest and deposit in CFMG Account.			
Leaf litter	Only one person is admissible from each CF member's household. Nu. 3000/- will be levied for non-members and seized the leaf litters.			
Construction of temporary camping sites	Illegal construction of structures or temporary camping sites inside CF shall be liable for fine Nu.5000.00 per incident and such structures shall be removed immediately.			
Forest Fire	As per FNCRR-2017- 2022, amendments and rules that has been enacted to the latest.			
Labour & meeting	A fine Nu. 700/- will be imposed to the absentee members and no aged, infant and disabled person will be entertained during working hours. Subsequent absentee will be subject to fine for Nu. 1400/- and if he/she fails to attend meeting for 3 rd time, he/she shall be terminated as per the rule. Substitute for meeting should be within the community.			
Stone	Illegal stone collection from CF is not allowed. However, genuine applicants can avail stones for rural house building as per quantity that is eligible as per FNCRR. Only manual surface collection is allowed.			
Consideration	Sympathetic consideration will be given to those members with genuine reasons (death/illness).			
CFMG fund	All CF members have right to know the details of fund management of CFMG. If there is any mismanagement of fund by CFMG, the matter shall be informed to CFMC and resolve it. If the fund is mismanaged by CFMC, the matter shall be informed in written form to relevant agencies without hesitating, provided the information made is true.			

Informant	Any information made to CFMC or any other relevant agencies, the informant shall be kept confidential and shall protected. The information made by informant should be true and reliable for investigation by CFMC and relevant agencies.
Miss use of power by CFMC and others	CFMG will resolve the case within CFMC and then immediate information to Forestry Office if not resolved. Immediately terminate the person from CFMC and further be dealt as per the rules and regulations. The case shall be dealt through Gewog office by CFMG and Forestry Office.

9 CFMG Fund Management

Possible source of fund:

- Every cash collected as membership fees, forest product fees, penalties, compensation etc, will be regarded as community forest fund.
- Cash generated from the sale of surplus timber or any timbers harvested through open auction/allotment.
- Any reward or donations received in the name of CFMG shall be considered as CFMG fund.
- Any financial transaction from CFMG fund for any purpose should be done jointly by Chairman, a member from CFMG and Secretary

Fund management:

- CF should have bank account with any financial institutions.
- The account shall be operated under the joint signatory nominated personal by CFMG.
- Money receipts should be issued for all payments received.
- Contingency fund of Nu. 5,000 may be kept with the Secretary/Treasurer.
- Amount up to over Nu. 5,000 (five thousand only) should be deposited within 10 days. Failure to deposit on time, the Treasurer shall be liable to pay the interest rate and deposit in the CF account.
- All money received should be recorded in the Cash Book by the Secretary.
- The Treasurer collects all contributions, fees, fines, donations and maintain records
- The Treasurer shall present the schedule of collections to the CFMG at least annually.
- There should not be any over-writing, use of correction of fluid, tearing of pages, etc. in the record keeping books and money receipts including permit books.
- All financial records should be made available to authorized auditing team/inspection team anytime.

Expected expenditures/benefit sharing:

Areas of fund use	Limit %
CF development activities (CF review, nursery creation, plantation, thinning, cleaning, salvage operation, sanitation, boundary demarcation, fire line creation, etc.)	Not less than 25
CFMG enhancement (Loan, capacity building, study visits, meeting, workshops, networking, visitors in CF, income generation and enterprises development, etc.).	Not more than 50% of the total fund

Reserve fund in the Bank (security)	Not less than 5%
Others (to be decided by the CFMG members on e.g. incentives to victims of natural calamities, incentives to disadvantaged members/households, contribution to community <i>Lhakhangs</i> , water supply, farm road, etc.)	Not more than 20%
<p>Disbursement Procedure:</p> <ul style="list-style-type: none"> Any expenditure up to Nu. 10,000 shall be decided by the CF Management Committee and beyond that amount the decision shall be made by the 2/3rd majority of the CFMG members. The Treasurer shall maintain all detail expenditure records (receipts, vouchers, bills, including minutes of meetings, etc.). All such expenses shall be immediately recorded in the cash book. The Treasurer shall present the details of expenditure to the CFMG members and concerned inspection team(s). The concerned Forestry Officer shall ensure the compliance of above provisions. <p>CFMG fund for loan</p> <p>Every CFMG member shall be given opportunity to avail loan from their respective CFMG fund with dully filled the annexure form (I) to CFMG. The loan interest and term shall be decided by CFMG; however, any due loan should have liquefied before expiry of the CFMP or whichever comes in rule (<i>term/CFMP duration</i>):</p> <ul style="list-style-type: none"> Loan from CFMG fund shall not be given to non CFMG members. The borrower must be of 18 years and above. Only one member from the household is eligible for loan at a time. Should not have any outstanding loan in the CFMG. The borrower should have his/her census in a household who is member of the CF. Need of mortgage or guarantor shall be decided by the CFMG. <p>Eligibility and Mortgage</p> <ul style="list-style-type: none"> Loan from CFMG fund shall not be given to non CFMG members. The borrower must be of 18 years and above. Only one member from the household is eligible for loan at a time. Should not have any outstanding loan in the CFMG. The borrower should have his/her census in a household who is member of the CF. No mortgage is required for getting loan from CFMG. Loan distribution is limited to Nu. 50,000.00 if the saving balance is Nu. 2,00,0000.00 and shall subject to increase to Nu.10,0000.00 with an increase in saving balance to Nu. 5,00,000.00. The interest rate per annum within the loan range of Nu. 50,000.00 is fixed at 6% and increase to 7% if the loan amount is within the range of Nu. 50,0000- Nu. 1,00,000.00. Loan distribution shall be done only once in a year. 	

Loan Review

At the end of each year, the CF Management Committee shall review all the loans and repayments. The same should be submitted to Range Office for review and comments. The information shall be shared during the CFMG general meetings/assemblies.

10 Meetings

General meeting shall be done twice in a year on 1st month for planning, 10th month for reviewing (Bhutanese calendar). And the other meetings shall conduct as and when required.

11 Conflict Management

The Management Committee Members shall first attempt to resolve any conflicts arising among the CFMG members.

- In case of failure to resolve the conflict, the matter shall be forwarded to the Forestry office.
- If this also fails to resolve the conflict, it will be forwarded to the Gup.
- For those cases still remaining unresolved, it shall be forwarded to the Dzongkhag Court.

12 Amendment of CFM Plan

- Whole CFMG members shall jointly make minor changes in the CF plan if necessary and submit the proposal to Forest Range Office for information and enacting as amendment.
- Should there be any major changes CFMG will seek approval from Department otherwise, it shall be done only after plan period i.e. 10 years.

13 Illegal activities from CF

Any timbers/forest products extracted and transported from CF should be accompanied by CF collection permit and other forestry related documents like Approval, COSTDMO, ITMO or IMO. Failure to produce the documents shall be an offence or an attempt to commit an offence either by CFMG or outsiders.

Therefore, fine and penalties shall be levied to the offender. The Compensation and Fines shall be deposited to CFMG account upon settlement of the cases. Secretary shall follow up on the case with relevant agency. As per FNCRR 2017 and amendments, the informer or the detector shall be eligible for reward of 25% from the fines levied.

Similarly, any offence related to wildlife, the offender shall be handed over to the relevant agencies according to the offence/crime committed. CF shall not handle the case of wildlife poaching.

14 Power of the Department

- The Department of Forests and Park Services has the right to all wildlife, parts of wildlife, stones and minerals as per prevailing Forest Act/Rules.

- All Forest products for sale within and outside the Community Forest shall be inspected.
- The Department will assist in apprehending illegal cases jointly, upon applied by the CFMG, if the case becomes serious.
- The department has the authority to cancel the CF Certificate if the activities were inconsistent with the management plan.

15 Annexure: I. Member list

No.	Household Representative	Citizen ID No	Male Nos	Female Nos	HH members	House No.	Tram No.
1	Singye Dorji	10504000377	2	2	4	Cha-4-139	43
2	Tenzin Pem	10504002001	3	-	3	Cha-4-142	57
3	Kinley Wangmo	10504000721	3	2	5	Cha-4-140	101/36
4	Dawa Nerey Nga	10504000388	5	6	11	Cha-4-141	115/49
5	Kakamo	10504000412	3	3	6	Cha-4-143	110/45
6	Nima Tshering	10504000423	7	5	12	Cha-4-144	53
7	Yeshey Dema	10504000434	1	4	5	Cha-4-145	111/46
8	Gyem Tshering	10504000436	7	10	17	Cha-4-146	342/61
9	Penjor	10504000448	4	2	6	Cha-4-148	118/42
10	Lhaden Pemo	10504000457	2	2	4	Cha-4-149	244
11	Kuenga	10504000464	7	7	14	Cha-4-150	102/37
12	Ganglo	10504000477	9	6	14	Cha-4-151	105/40
13	Wangchuk	10504000488	8	11	19	Cha-4-152	101/44
14	Jamyang Tenzin	10504000718	1	1	2	Cha-4-163	106/41
15	Zeko	10504000573	2	6	8	Cha-4-170	349/63
16	Desang Dorji	10504005882	3	6	9	Cha-4-171	351
17	Dechen Wangdi	10504000952	3	3	6	Cha-4-172	358/62
18	Drokpa Dorji	10504000959	4	5	9	Cha-4-174	384/67
19	Tashi Pem	10504000601	0	2	2	Cha-6-175	424
20	Tshering Tobgay	10504000739	4	3	7	Cha-4-207	371
21	Tshering	10504000642	8	7	15	Cha-4-248	82
22	Rinzin Wangchuk	10504000687	2	2	4	Cha-6-06	23
23	Sonam Bidha	10504000499	2	2	4	Cha-4-N/23	308
24	Kachimo	10504000531	4	1	5	Cha-4-339	47
25	Jamyang Tenzin	10504000466	4	2	6	Cha-4-46	313

26	Leptha	10504000727	7	4	11	Cha-6-13	66
27	Wangdi	10504000700	2	3	5	Cha-6-08	48
28	Pem	10504000565	4	2	6	Cha-6-18	307
29	Tshewang Dem	10504001112	7	4	11	Cha-4-242	88
30	Rinzin	10504000626	4	4	8	Cha-4-199	381
31	Tashi Tshering	11410002535	10	4	14	Cha-6-22	65
32	Pema Zam	10504000554	4	4	8	Cha-6-16	312
33	Rinzin Dem	10504000617	3	6	9	Cha-4-178	69
34	Kuenga	10504000877	3	10	13	Cha-4-133	216
35	Sonam Tobgay	10504000711	6	2	8	Cha-6-09	56
36	Tshewang Dorji	10504000693	4	3	7	Cha-4-341	366
37	Nimchu	10504000673	3	3	7	Cha-6-07	42
38	Chimi Rinzin	10504000673	7	1	8	Cha-6-04	50
39	Chencho	10504000435	2	1	3	Cha-4-Nill	-
40	Ugyen Tenzin	10504000690	3	2	5	Cha-4-Nill	64
41	Tshewang Bidha	10504000421	1	2	3	Cha-4/N-/15	306
42	Sanga Dorji	10504000511	3	3	6	Cha-5-01	54
43	Ninda Wangmo	10504000498	-	1	1	Cha-4-Nill	408
44	Tshendu	10504000597	2	3	5	Cha-6-272	409
45	Dechen Wangmo	10504000421	3	4	7	Cha-4-N/12	409

16. Annexure II: OPERATIONAL INVENTORY: Compilation Sheet

OPERATIONAL INVENTORY: COMPILATION SHEET (FIXED-SIZE PLOT)									
1. CF Name		Dorib Yarkyel Puensum CF				4. Block Area		101.55 Ha	
2.Block Name			Dorib Yarkyel Puensum				5. Compiling date		
3. No of plots		60				6. Species group	MC, BP and Brl		
<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)	
Spruce									
10 --19	0.017	0.11	0.05	0.333	25	8.33	0.14	0.88	
20-29	0.047	0.37	0.05	0.333	29	9.67	0.45	3.62	
30-39	0.093	0.88	0.05	0.333	10	3.33	0.31	2.92	
40-49	0.156	1.66	0.05	0.333	15	5.00	0.78	8.28	
50-59	0.233	2.76	0.05	0.333	16	5.33	1.24	14.70	
60-69	0.327	4.21	0.05	0.333	15	5.00	1.64	21.07	
70-79	0.436	6.07	0.05	0.333	20	6.67	2.91	40.44	
80-89	0.561	8.34	0.05	0.333	15	5.00	2.81	41.72	
90-99	0.701	11.08	0.05	0.333	1	0.33	0.23	3.69	
100-109	0.858	14.29	0.05	0.333	0	0.00	0.00	0.00	
110-119	1.03	18.02	0.05	0.333	1	0.33	0.34	6.01	
120+	1.217	22.29	0.05	0.333	1	0.33	0.41	7.43	
Blue pine									
10 --19	0.017	0.10	0.05	0.333	20	6.67	0.11	0.64	
20-29	0.047	0.35	0.05	0.333	20	6.67	0.31	2.33	
30-39	0.093	0.83	0.05	0.333	29	9.67	0.90	8.00	
40-49	0.156	1.58	0.05	0.333	19	6.33	0.99	10.03	
50-59	0.233	2.66	0.05	0.333	20	6.67	1.55	17.73	
60-69	0.327	4.09	0.05	0.333	3	1.00	0.33	4.09	
70-79	0.436	5.94	0.05	0.333	2	0.67	0.29	3.96	
80-89	0.561	8.23	0.05	0.333	2	0.67	0.37	5.49	

90-99	0.701	10.97	0.05	0.333	1	0.33	0.23	3.66
Fir								
10 --19	0.017	0.14	0.050	0.333	3	1.00	0.02	0.14
20-29	0.047	0.44	0.050	0.333	1	0.33	0.02	0.15
30-39	0.093	0.94	0.050	0.333	2	0.67	0.06	0.63
40-49	0.156	1.66	0.050	0.333	1	0.33	0.05	0.55
50-59	0.233	2.61	0.050	0.333	4	1.33	0.31	3.48
60-69	0.327	3.81	0.050	0.333	0	0.00	0.00	0.00
70-79	0.436	5.26	0.050	0.333	1	0.33	0.15	1.75
80-89	0.561	6.98	0.050	0.333	3	1.00	0.56	6.98
Hemlock								
10 --19	0.017	0.07	0.05	0.333	19	6.33	0.11	0.45
20-29	0.047	0.23	0.05	0.333	7	2.33	0.11	0.55
30-39	0.093	0.52	0.05	0.333	2	0.67	0.06	0.35
40-49	0.156	0.95	0.05	0.333	2	0.67	0.10	0.64
50-59	0.233	1.54	0.05	0.333	0	0.00	0.00	0.00
60-69	0.327	2.30	0.05	0.333	1	0.33	0.11	0.77
70-79	0.436	3.25	0.05	0.333	2	0.67	0.29	2.16
80-89	0.561	4.39	0.05	0.333	1	0.33	0.19	1.46
90-99	0.701	5.73	0.05	0.333	1	0.33	0.23	1.91
100-109	0.858	7.29	0.05	0.333	1	0.33	0.29	2.43
Other Conifer								
10 --19	0.017	0.08	0.05	0.333	6	2.00	0.03	0.16
20-29	0.047	0.28	0.05	0.333	2	0.67	0.03	0.19
30-39	0.093	0.63	0.05	0.333	1	0.33	0.03	0.21
Other Broadleaf								
10 --19	0.017	0.08	0.050	0.333	7	2.33	0.04	0.19
20-29	0.047	0.28	0.050	0.333	11	3.67	0.17	1.02
30-39	0.093	0.64	0.050	0.333	15	5.00	0.47	3.20
40-49	0.156	1.19	0.050	0.333	8	2.67	0.42	3.18
50-59	0.233	1.96	0.050	0.333	4	1.33	0.31	2.61
60-69	0.327	1.34	0.050	0.333	0	0.00	0.00	0.00

17. Annexure III: OPERATIONAL INVENTORY: Stand and Stock

STAND AND STOCK SHEET														
1. Name of CF	Dorib Yarkyel Puensum Community Forests													
2. Species Group	MC/BP/Brl													
3. No of plots	60													
4. Name of Block	1													
STAND & STOCK TABLE SHEET 1 - NUMBER OF TREES														
Estimated parameter:	: Average Number of Trees per Ha													
	Dbh class (cm)													
Species group	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120+	total	%
Spruce	8.33	9.67	15.00	5.07	8.73	7.04	6.48	7.89	0.28	-	0.28	0.28	69.06	45.06%
Blue pine	6.67	6.67	9.67	6.33	6.67	1.00	0.67	0.67	0.33	-			38.67	25.23%
Fir	1.00	0.33	0.67	0.33	1.33	-	0.33	1.00					5.00	3.26%
Hemlock	6.33	2.33	0.67	0.67	-	0.33	0.67	0.33	0.33	0.33			12.00	7.83%
Other Conifer	2.33	3.67	5.00	2.67	1.33	-							15.00	9.79%
total conifer	24.67	22.67	31.00	15.07	18.07	8.38	8.15	9.89	0.95	0.33	0.28	0.28	139.72	91.18%
Broad Leaved	1.97	3.10	5.07	2.25	1.13	-							13.52	8.82%
total broadleaf	1.97	3.10	5.07	2.25	1.13	-	-	-	-	-	-	-	13.52	8.82%
total all species	26.64	25.77	36.07	17.32	19.19	8.38	8.15	9.89	0.95	0.33	0.28	0.28	153.24	100.00%
%	0.17	0.17	0.24	0.11	0.13	0.05	0.05	0.06	0.01	0.00	0.00	0.00	1.00	
STAND & STOCK TABLE SHEET 2 - BASAL AREA														
Estimated parameter:	: Average Basal Area per Ha (m2/ha)													
	Dbh class (cm)													
Species group	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120+	Total	%
Spruce	0.14	0.45	0.31	0.78	1.24	1.64	2.91	2.81	0.23	-	0.34	0.41	11.26	54.91%
Blue pine	0.11	0.31	0.90	0.99	1.55	0.33	0.29	0.37	0.23	-			5.09	24.84%
Fir	0.02	0.02	0.06	0.05	0.31	-	0.15	0.56					1.16	5.68%
Hemlock	0.11	0.11	0.06	0.10	-	0.11	0.29	0.19	0.23	0.29			1.49	7.27%
Other Conifer	0.03	0.03	0.03	-									0.10	0.47%
total conifer	0.41	0.92	1.36	1.92	3.11	2.07	3.63	3.93	0.70	0.29	0.34	0.41	19.10	93.15%
Broad Leaved	0.04	0.17	0.47	0.42	0.31								1.40	6.85%

total broadleaf	0.04	0.17	0.47	0.42	0.31	-	-	-	-	-	-	-	1.40	6.85%
total all species	0.45	1.10	1.83	2.34	3.42	2.07	3.63	3.93	0.70	0.29	0.34	0.41	20.50	100.00%
%	0.02	0.05	0.09	0.11	0.17	0.10	0.18	0.19	0.03	0.01	0.02	0.02	1.00	
STAND & STOCK TABLE SHEET 3 - VOLUME														
Estimated parameter:	: Average Volume per Ha (m3/ha)													
	Dbh class (cm)													
Species group	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	100-109	110-119	120+	Total	%
Spruce	0.88	3.62	2.92	8.28	14.70	21.07	40.44	41.72	3.69	-	6.01	7.43	150.75	62.34%
Blue pine	0.64	2.33	8.00	10.03	17.73	4.09	3.96	5.49	3.66	-			55.91	23.12%
Fir	0.14	0.15	0.63	0.55	3.48	-	1.75	6.98					13.69	5.66%
Hemlock	0.45	0.55	0.35	0.64	-	0.77	2.16	1.46	1.91	2.43			10.71	4.43%
Other Conifer	0.16	0.19	0.21	-									0.56	0.23%
total conifer	2.27	6.83	12.10	19.49	35.91	25.93	48.32	55.65	9.26	2.43	6.01	7.43	231.62	95.78%
Broad Leaved	0.19	1.02	3.20	3.18	2.61	-							10.20	4.22%
total broadleaf	0.19	1.02	3.20	3.18	2.61	-	-	-	-	-	-	-	10.20	4.22%
total all species	2.46	7.85	15.30	22.67	38.53	25.93	48.32	55.65	9.26	2.43	6.01	7.43	241.82	100.00%
%	0.01	0.03	0.06	0.09	0.16	0.11	0.20	0.23	0.04	0.01	0.02	0.03	1.00	