Ultimate Forests Company

Five-Year Forestry Management Plan 2022-2026



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I. Introduction

This Forest management plan indicates how, where, when, and by whom Forest operations are performed. Regular references are made to supplementary documents to allow the reader to find more information on specific subjects, e.g., the UFCL operations policy and procedures manual.

In developing this management plan, concerned stakeholders have been consulted and engaged through various activities, including, but not limited to, Environmental Impact Assessments, Participatory Rural Appraisals, and Biodiversity studies, to survey their opinions. Where practical, these opinions have been considered in this management plan. When requested, the company should engage transparently with stakeholders to consider their concerns regarding managing the forest areas under our control.

The Forestry department and operations are guided by our mission, vision, and Values as stipulated below.

Vision

To be the leading regional partner for sustainable timber products

Mission

- To provide our customers with high-quality wood products that meet the highest international standards.
- To create value for our communities and our stakeholders.
- To manage our forests responsibly and sustainably.

Values

- Integrity
- Sustainability
- Efficiency

- Honesty

1.1 Forestry Management Objectives

- Protect the remaining natural forests that grow along streams and rehabilitate forest trees that have been destroyed and degraded by illegal activities
- To establish a multi-faceted wood corporation and turn Rwanda's forest areas into a center of forestry excellence and best practices, with investments in pole plants, sawmilling, and other value-added processes, and to serve as a role model for Rwanda and East Africa.
- Establish profitable commercial timber forests of fast-growing tree species that have adapted well to the Rwandan environment and have successfully been grown in this country.
- Identify community-orientated supported projects in which the company can assist in the facilitation and execution
- Introduce an out-grower scheme whereby the Nyungwe buffer zone would be a nucleus resource and Centre of excellence providing extension assistance to the local community
- To strategize and meet the government's goals of alleviating rural poverty and stimulating the development of the local private sector through contracting and spin-off private enterprise.

1.2 Activities

The main activities that the UFCL will carry out at the Buffer Zone are:

a) Silviculture operations (Nursery, Planting, Tending, Pruning, Thinning, etc.)
b) Timber harvesting
c) Sawing & drying, e.g., for sawn boards
d) Distribution and sale of value-added products to the timber processing industry
e) Improvement and maintenance of the road infrastructures within the plantation

UFCL Partners

- The Government of Rwanda (GoR)

  Our point of contact with the Rwandan government is the Rwanda Forestry Authority (RFA), and we have a good ongoing working relationship with them. All of our communications with reference to the following take place inside this department: It is with RFA that all our communications regarding the following take place:

  - Concession demarcation
  - Concession volumes
  - Potential encroachment
  - Harvesting Permits
  - Annual harvesting sustainable cut.

  The UFCL management team shall constantly visit the RFA offices for consultative meetings. This ensures that our communication channel remains open and our operation continues to be promoted.

- The Rwanda Development Board (RDB)

  RDB is tasked by the GoR to facilitate the expansion of the private sector to accelerate the country's economic development. The Nyungwe National Park, where our concession is located, falls within the RDB management portfolio, and their support is instrumental in our operations. Our Development Officer has daily interventions with the Park Security Officers where various topics are discussed, e.g., fire, theft, poaching, etc.

- Rwanda Agriculture Board (RAB)

  The RAB station located at Kitabi falls within our general concession area, though it is not included in our concession land holdings. We will engage with RAB daily for operational matters, sharing our harvesting plan to keep their staff informed about UFCL activities on the land. At this initial phase of our project, this relationship benefits us.

Section 1: Forest Description

General overview of the Forest environment

1.1. Location

The Ultimate Forests Company Nyungwe Plantations are in Rwanda's Western and Southern Province. The operations will be in the following districts: Nyamagabe, Nyaruguru, Karongi, Nyamasheke, and Rusizi districts. The project area covers 107,478 hectares, but all areas were not included in the concession – refer to MicroForest for accurate compartment areas. The project is accessible through all-weather roads about 54 km from Huye. The district

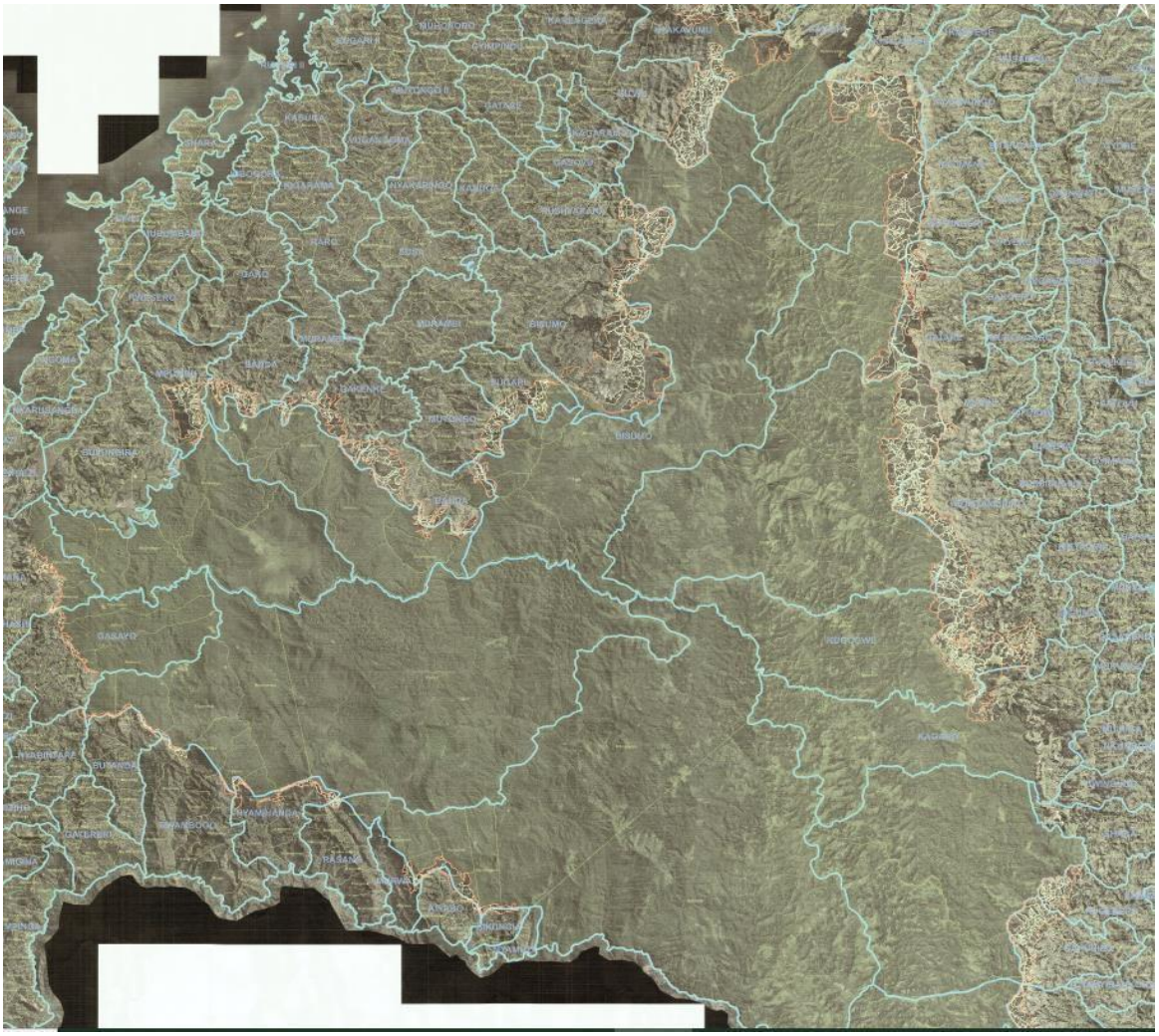
extends between latitudes 2^0 1' 50" and 2^0 4' 51"south and longitudes 29^0 28' 56" and 29^0 05' 52" east.

The total concession plantation area is 9,344.21hectares, of which currently 8,052.4 hectares have been established with Pine, Acacia, Cupressus, and Eucalyptus plantations identified as commercial, and a further 8,49.21hectares are conserved in their natural state, of which none is considered High Conservation Value (High Conservation Area Assessment Report, 2024)

The natural forest in Nyungwe National Park (NNP) is the core conservation area. It represents an afro-montane forest that is globally important in terms of biodiversity. Dominating the shores of Lake Kivu in the south-west of Rwanda and adjoining the national park of Kibira in Burundi. According to RFA, NNP is probably the largest mountain rainforest in Africa (97,000 ha). Its altitude ranges between 1900 - 2950m above sea level. NNP is a complex mosaic of vegetation types that include diverse fauna, some of which are regionally endemic to the Albertine Rift; unfortunately, the forest is threatened by human population density around it the reason why the buffer zone's existence to mitigate these impacts.

The buffer zone was established by the Rwandan Government in the 1980s with the primary purpose of protecting the Nyungwe Forest Reserve, now a National Park. This conservation objective should still be maintained, although the buffer zone will be run as a separate, stand-alone, privately managed commercial entity. The key reason for the buffer zone establishment remains paramount, and the zone's management will consider this a key developmental objective.

Map 2: Forest areas around Nyungwe National Park Topography



The forest lies on the eastern side of the Albertine Rift Valley and is dominated by steep topography. Many of the valleys have slopes as great as 80 percent, and the altitude change between the ridgetop and the valley can be as high as 400m.

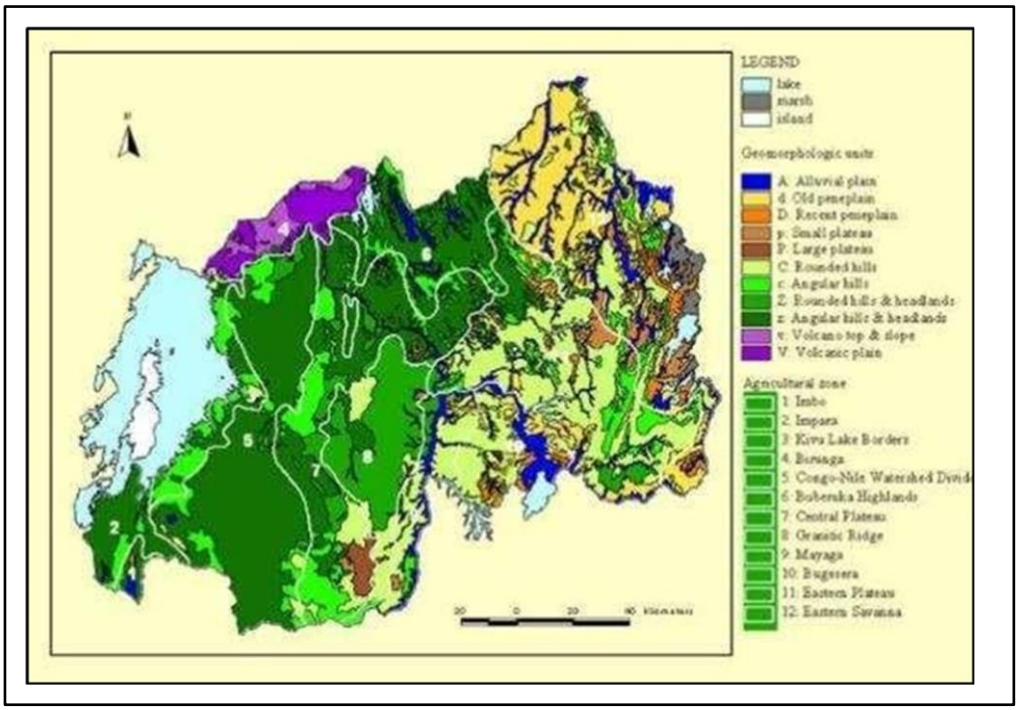
The geology is very diverse because it is on the rift. Most soils are well-weathered and structurally suitable for tree growth. However, the high rainfall has resulted in leached soil conditions, and in some areas, there is definite evidence of nutrient deficiencies (Boron in particular) (See Figure 1).

The Rwandan terrain is hilly and mountainous, with an altitude varying between 900 m and 4.507m. The components of that terrain are Congo-Nile Ridge overlaying Lake Kivu with an altitude between 2500 m and 3000 m. It is dominated in the Northwest by the volcanic ranges consisting of five volcanic massifs, of which the highest is Karisimbi, with

an altitude of 4507 m.

The central plateau presents a terrain of hills with an altitude ranging between 1500 m and 2000 m. The lowlands of the East are dominated by a depression characterized by hills with more or less round tops and 1000 to 1500 m in altitude. The lowlands of the southwest of Bugarama Plain, with an altitude of 900 m, are part of the tectonic depression of the African Rift Valley. The plantation has an altitude similar to that of the NNP, which lies within its altitude range of 1,600 to 2,900 meters.

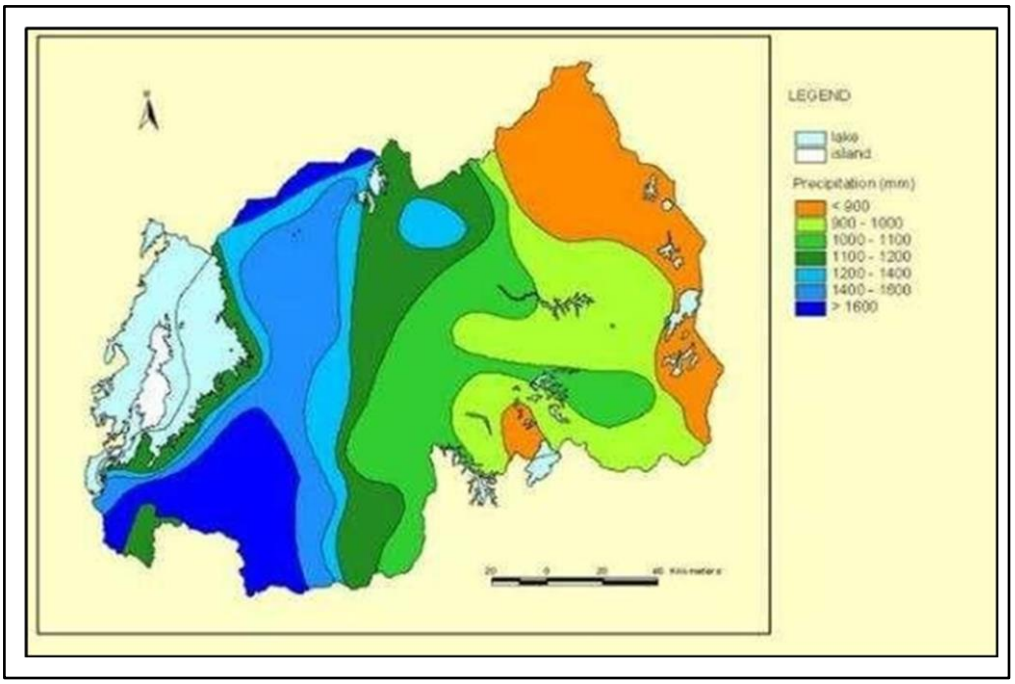
Figure 1. Geomorphologic units of Rwanda



1.2. **Climate**

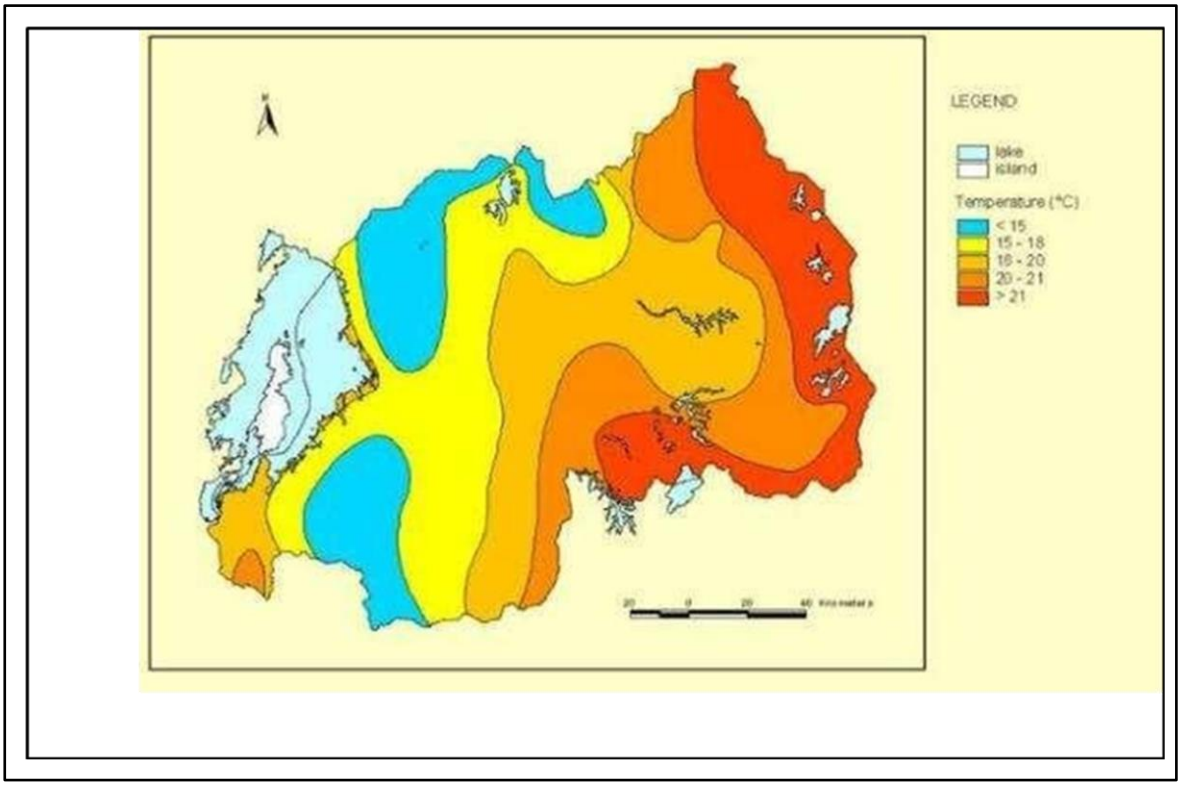
The climate is very mild, with rainfall in places well over 1600mm per annum. Rainfall distribution peaks in January to May and again in mid-October to mid-December, with a definite dry season from June until mid-September.

Figure 2. Annual precipitation pattern for Rwanda



Average daily maximum temperatures range between 23.5 to 27 degrees Celsius, with average daily minimums ranging from 12.5 to 14.5 degrees Celsius.

Figure 3. Average annual temperature pattern for Rwanda



1.3. Geology and Soils

Rwanda's altitude ranges between 1,000 m in the southwest (Bugarama) and 4,500 m in the northwest (Volcanoes Range). The terrain is laid out in tiers in three distinct compartments from west to east. In the west of the country, there is the Congo-Nile ridge, which overhangs Lake Kivu, then the Volcanoes Range and the Central Plateau, and finally, the eastern lowlands.

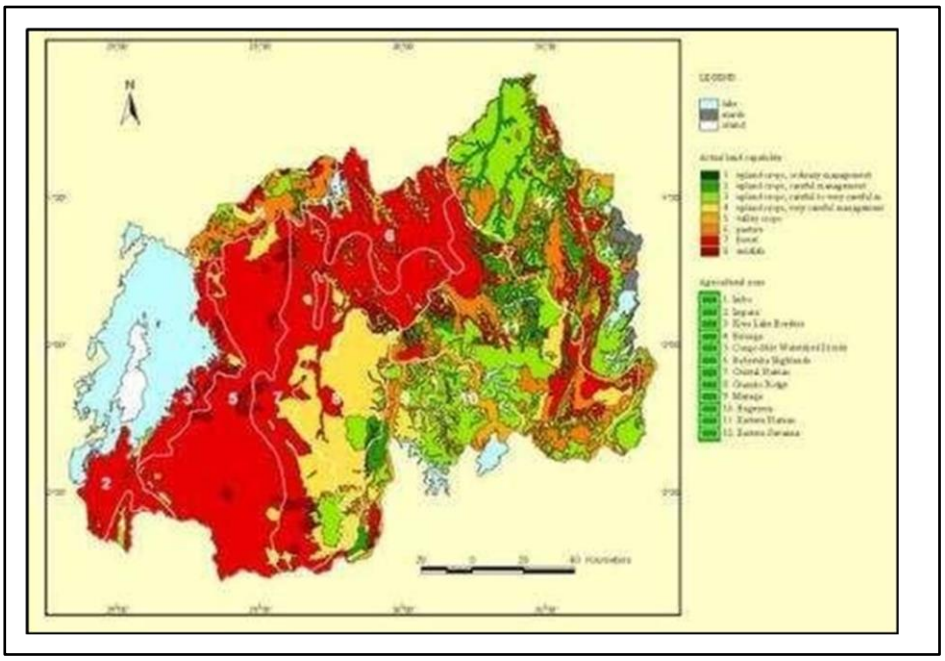
The bedrock of Nyungwe Forest is mainly composed of very old Precambrian rocks differentiated in three geological parts (Storz 1983). In the eastern part of the forest, the substratum is derived from granites and granitic rock usually poor in nutrients (Sorg 1978). In the western part of the forest schist, quartzite, and dolerite are the main parent rocks deriving to more fertile soils.

Rwanda's soils come from the physical-chemical alteration of schistose, quartzite, gneissic, granite, and volcanic rocks, which make up the superficial geology of the country. The terrain's morphology, layering of the terrain, the variety of soils, and regional climatic differences have endowed Rwanda with diversified ecosystems rich in biological diversity.

There are six groups of soil:

- Soils derived from schistose, sandstone, and quartzite formations found in the Congo-Nile Ridge, part of the Central Plateau, and on highlands in Gicumbi
- Soils derived from granite and gneissic formations found around Muhanga (Central Plateau) and in the East Province plains
- Soils derived from intrusive basic rocks in the north of Kigali and west of Gicumbi
- Alluvial and colluvial soils of marshes and valleys, which comprise mineral soils found in the valleys of the east and the organic soils of the valleys of Akagera, Nyabarongo, and Rugezi
- Soils derived from recent volcanic materials found at the Piedmont of volcanoes
- Soils derived from old volcanic materials were found on the plateau of Rusizi in the southwest of the country.

Figure 4. Land capabilities based on slopes, soil types and rainfall



Based on currently available information, Land Classification in the concession can be broken down into:

Commercial = 8052.4 ha

Conservation Area = 849.21 ha

High Conservation Value Areas = 0

1.4. Present land use

The most useful items that the communities collect from the forest are firewood for charcoal burning, timber sawing, fodder collection, firewood for household use, water fetching, crop growing, animal grazing, mining, etc. Although the community is aware that it is illegal to fetch any item from the plantation buffer zone or the natural forest of NNP, people are still poaching forest products amongst those listed above.

Forest management structure and responsibilities

The following positions will often work on the plantation and surroundings:

- Chief Executive Officer oversees all aspects of Ultimate Forests Company operations in the Concession.
- Forestry Coordinator to oversee the UFCL Forestry operations in the concession
- Foresters – UFCL has a Silviculture Forester, planning Forester, harvesting and

sawmill forester, two silviculture team leaders, two Planning Team leaders, and two Harvesting Supervisors supervising the operations.

- Sawmill Production Coordinator to oversee the sawmilling operations in the concession
- CSR Led supported by the Community Development Officer (CDO)to oversee all social aspects of the company's business and social projects conducted by the company in surrounding communities.
- People Department Lead to oversee all aspects of the welfare of our staff /employees.
- Chief Finance Officer – Responsible for all in Company Finance
- Safety and Health Environmental Risk and Quality Specialist. to oversee all the health and safety issues.

1.5. **Health and Safety Issues**

The plantation's health and safety requirements conform with Rwandan legislation, the International Labour Organization (ILO), and Forest Steward Council principles. These standards have been incorporated into the company's Policy and Procedures Manual where applicable.

The nearest government health facility is located within 0.5 km (Gatare Health Center), which is where work over the next 5 years is planned.

1.6. Natural environment

Nyungwe forest and the buffer zone have one of the largest populations of endemic species in Africa. Of the 86 mammal species present, 14 are endemic to the Albertine Rift. The forest is home to 14 species of primates, including large troops of colobus monkeys that often travel in groups of 300 or more individuals. Two hundred and eighty avian species have been identified in the forest, with 26 Albertine Rift endemic species and 121 forest species.

There are also 43 species of reptiles, 8 of which are endemic. Thirty-one species of amphibians are present, with 15 endemic species. There are innumerable invertebrate species present, and Nyungwe is especially known for its abundant butterfly populations, which include 21 Albertine Rift endemic species. The floral community consists of over 1100 species, with 137 endemic species.

1.7. Wetlands and Rivers

Rwanda has a dense hydrographic network divided into two unequal watersheds situated on either side of the Congo-Nile ridge: The Congo basin and the Nile basin. Nyungwe is the watershed for over 70 percent of Rwanda; its streams feed the Congo and the Nile basins. It thus protects a major watershed not just for surrounding communities but also for communities much further downstream. The Congo basin consists only of short rivers, which flow into Lake Kivu. River Rusizi is in the south, with its outflow towards Lake Tanganyika.

The Nile basin covers the greatest part of the territory. Most rivers originate from the slopes of the Congo-Nile ridge. The two main rivers, namely Nyabarongo and Akanyaru, together with their numerous tributaries, form downstream from Lake Rweru, the river Akagera, which drains the best part of Rwanda's waters towards the Nile, forming the border with Burundi in the south and Tanzania in the east. The hydrography of Nyamagabe District is subdivided into two basins: On one hand is the Rukarara river basin, where rivers Kato and Nyagisenyi are located. On the other hand, there is river Mwogo basin with rivers Gihimbi, Nyamugali and Nkungu. Nyamagabe District hydrography is equally characterized by several seasonal rivers.

1.8. Biodiversity

Nyungwe Park's biodiversity is astonishing by African standards and is one of Africa's most endemic species-rich areas. Along with its biodiversity, Nyungwe is an important water catchment for Rwanda and contains many natural resources integral to Rwanda's human population. Nyungwe is under constant threat from anthropogenic and environmental stresses.

The plantation buffer zone was planted to conserve and protect the national park's biodiversity.

Also, refer to the January 2018 Bio-diversity assessment.

1.9. Flora

The vegetation in the project area holds minimal significance, and it is believed that the project will not result in any major environmental impact.

1.10. Fauna

The Forest is a buffer zone of Nyungwe National Park (NNP), so this area is likely to be home to some animals found in the National Park.

1.11. Other Fragile Eco-sites and High Conservation Value

The area is near a natural forest and gazetted national park, making it a very sensitive area; however, the natural area will not be affected by the plantation activities. The buffer Zone and the NNP are well and clearly demarcated such that there will not be an interference or conflict of boundaries between the two. The buffer zone promotes and complements the conservation efforts of the NNP.

Although no High Conservation Value areas were found during the Biodiversity Study(2018) shows that the precautionary approach is followed with all operations to ensure that possible sites of conservation importance are not disturbed.

1.12. Roads

The road connection to the main production site is through the Kigali – Huye /Rusizi road, which has been recently worked on.

There are some roads that run through plantations that the local administration constructed, and many of these roads serve neighboring communities.

Table 1. List of Concession access roads

Plantation/District	Block	Harvesting Year	Administrative name	Block to be served	Distance /Km
Nyamagabe	D&E	2018/2019	Kitabi-Bunyambirir i- Gatare	D, E, F, G	35
	E&F	2019/2020			

	E&F & G	2020/2021			
	F&G	2021/2022	Gasalenda-Gatare-Gishyita	I, J, G	73.7
	F& G &I	2022/2023			
	G& H &I	2023/2024			
	G&I	2024/2025			
	I	2025/2026			
Nyamasheke&Karongi	R	2018/2019	Kamatsira-Ibanda-Uwinka	R, Q	29.9
	R	2019/2020			
	R	2020/2021			
	R	2026/2027	Tyazo-Kamatsira-Hangari-Gisovu	R, P, O, N, M, K	71.8
	R	2027/2028	Wisumo-N26	N, M	2
	Q&R	2028/2029	Kamatsira-Bushekeri	R	40
	R	2029/2030			
	Q&R	2030/2031			
Nyaruguru	A&B &C	2031/2032	Kitabi-Shaba-Nyabimata	A,B, C	49.9
TOTAL					**302.3**

All of these need to be substantially upgraded into all-weather roads. Little or no maintenance has resulted in the degradation of these roads.

Figure 5. Main district road passing through the western section of Zone 4, showing damage to the surface during wet weather.



1.13. **Infrastructure**

From March 2022, the sawmill will begin operations in compartment G42, and an office, as well as staff house, shall be renovated for Forestry and Sawmill administration in Gatare Sector, Nyamagabe District.

Section II. Forest Management

II.1. Management Systems:

- Storing of information and Forestry management related to data
- Information transfer and training
- Corrective and preventive action
- Operational Auditing and Compliance Monitoring
- Monitoring and Reporting

Budgets and capital expenditure

The budget and capital expenditure will be based on economic sustainability and plans for financial security in the long term.

II.2. Planning

2.1. Land Use

Various maps will be developed:

- Medium level for tactical planning purposes (Medium term 1-5 years)
- Detailed maps for operational planning purposes (Short term 1 year)
- Natural (including conservation and open areas) maps

These maps also include information on the concession's boundaries, roads and compartments. Contours, rivers, and other physical details will be added. MicroForest keeps all data and plans all operations in the forest. The planning forester is responsible for updating and maintaining this data with the support of the IT Infrastructure Lead.

The current compartment boundaries will be reviewed during replanting to consolidate compartments into larger manageable areas, approximately 25 – 40 ha in size. Boundaries will be moved to easily recognizable features such as roads, streams and ridges, and in places where these cannot be used, a gap of two planting rows should be kept unplanted.

The Forests will be managed on the following working cycles below:

- PST – Pine saw timber (approximately 20 years' rotation);
- EST – Eucalypt saw timber (approximately 15 years' rotation);
- FST – Furniture wood saw timber (this will include all other species such as *Acacia melanoxylon*, Cypress, and other Indigenous species in forest form) (rotations may vary based on species);
- EPT – Eucalypt pole timber (12 years' rotation);

2.2. Wet Soils

If needed, UFCL might perform soil assessments in the forest area scheduled for harvest next year to pinpoint areas susceptible to seasonal wetness. Alternatively, the Silviculture forester can attend a course on wet soil identification, enabling a swift onsite assessment.

Where these places exist, they should only be harvested during the dry seasons to prevent

soil damage and erosion caused by vehicles driving across the field during the rainy season.

When trees are already growing in wetlands, it may be essential during harvesting to extract this timber with cable systems to minimize further soil damage. UFCL will not replant these areas with commercial forestry but shall instead allow natural regeneration and succession to return the area to a natural state.

2.3. Environmental Assessments for Afforestation

An Environmental Impact Assessment (EIA) of the forest area was conducted in 2013 by Green Wise Consult Limited, with the Rwanda Development Board issuing a certificate of approval (Certificate Number: RDB/3/EC/JDK/183/08/13) for the EIA on 06 August 2013. The developer shall, in addition to forest management (growing and harvesting) and wood industry standards required to conform with minimum basic safety, health, operational, and environmental protection, present written commitments to RDB undertaking to comply with the following conditions:

- Observe all relevant national policies and legislation guiding this project throughout its life cycle.
- Works likely to produce excessive vibrations, noise and lights shall be carried out during day hours to avoid disturbance to the population of the Park.
- All workers should have Personal Protective Equipment and use them all the time at work.
- Access to working areas shall be restricted to the workers, and visitors shall be allowed and guided.
- Prepare an emergency and contingency plan and put safety and risk avoidance measures in place.
- Constantly liaise with relevant authorities and consult stakeholders, including local communities in case of any new development or changes in regards to the implementation of the project plan activities.
- Follow all national social and environmental protection policies and standards, and make every effort to maintain and improve at all times.
- Conduct periodic Environmental Audits and facilitate monitoring by relevant authorities.

- Design and implement an internal Environmental and Safety Policy and Awareness Programme.
- Get ready to incorporate changes that may be imposed to the project implementation and exploitation in case planned activities result in the abnormal conduct or change of habits of the chimpanzees and other fauna species in the park; the information and redesign suggestions shall be provided by RDB park wardens and other players in the conservation who shall on daily basis monitor the movement and behavior of the fauna in the park.
- Liaise with existing beneficiaries of the buffer zone like beekeepers and others whose activities are aimed at the protection of the park, promotion of tourism, and wealth of the people around the park to maintain their valuable activities and livelihood.
- Strong Erosion control measures should be put in place to avoid severe erosion effects that may follow vegetation clearing and land preparation for tree plantation.
- Work closely together with the Rwanda Forestry Authority on the methods of harvesting, on the species to be grown, and the sequence of the works suitable for the region and its climatic conditions.
- Measures to relocate and multiply endemic and protected flora and fauna species that are likely to be deranged and/or destroyed on the project site should be envisaged.
- Solid wastes shall be managed by segregating the wastes at their production point (segregation at source) according to their type (degradable and non-degradable), and each type shall have its appropriate and approved dumping site.
- Produce the effluent quality monitoring report for the
- wastewater treatment plants are to be installed on a quarterly basis to verify compliance with effluent quality requirements.
- Take measures to ensure that soil and water are not contaminated by spillages resulting from fuel and oil spills or leakages.
- As a result of the influx of job seekers and the social interaction between the construction workers and the surrounding communities, HIV / AIDS incidences are likely to increase. There should be awareness campaigns in and around the campsites.
- Hire an environmental conservationist to help in the self-monitoring of the implementation of the EMP and these conditions, and to assist in finding suitable

mitigation measures in case of unforeseen situations during the execution of your project.

- Prepare Annual Environmental Reports and any other reports requested by competent authorities and the Government.
- Obtain all other relevant permits for other connected projects/activities like quarry exploitation, etc.

2.4. Environmental assessments for new developments

Any new development on plantations should be verified against the EIA MP regarding change of land use to determine if an internal screening assessment or external EIA approval is required before development can begin.

2.5. Research

The company will undertake a tailored program of applied research to develop the most appropriate policies and technologies for the management and operation of the plantations. In addition, UFCL should monitor and import best practices and research findings from the Rwandan Forestry Research Institute and other forestry operations and agricultural industries.

UFCL's applied research program will focus on the following:

- **Nursery practices and cloning** – improving the methods of producing seedlings through better containers, better hygiene, and the latest clonal propagation methods.
- **Site-species matching/provenance trials** – laying out multi-species trials at various sites within the reserves to assess the most suitable species or provenance of a particular species.
- **Establishment techniques** – trials investigating different methods of pre-plant preparation and planting to enhance the chance of survival and subsequent growth of the trees.
- **Nutrition** – optimal nutrition regimes based on the species requirements and the site on which it is growing.
- **Spacing trials** – trials where trees are planted at different spacing to determine the optimal stand density to obtain the desired final product.
- **Harvesting techniques** – Operational trials are conducted to determine the most

productive yet environmentally acceptable and safe method of harvesting.

- **Yield predictions and growth modeling** – establishing permanent sample plots to develop growth and yield models which will help with future growth predictions.
- **Pruning and thinning regimes** – trails that will determine the optimal thinning and pruning regimes to obtain the desired final product
- **Work standards for laborers and machines** – Operational trials to determine set standards through work study observations which will be used to manage operations.

UFCL's strategy will be to enter into agreements with established research institutes, and universities to do research on a cooperative basis. This will ensure a high quality of research and will assist in disseminating the results of UFCL's research to other forestry institutions and operations in the country, thus assisting the country in maximizing the productivity of its natural resources and in achieving its sustainable development objectives.

III. Silviculture

III.1. Nursery management

The company will operate the nursery for two periods of 5 months per year. At the start, the nursery shall be required to produce sufficient seedlings both to replant the areas to be harvested, and to plant current unplanted available areas following assessment of these areas. Refer to the nursery management prescription and APO's for further details.

III.2. Slash management

Smaller branches and needles should be allowed to remain to break-down naturally. Where there are significant amounts of post-harvest slash, this shall be harvested for charcoal processing. Where applicable, remaining slash not essential for nutrient retention may be offered to the local community as fuel.

Those areas which were originally planted and no longer have a viable crop, due to whatever reason, will be assessed and a strategic decision will be made whether to replant these areas or not.

As a standard practice the company rules out the burning of pre plant slash waste, due to

the perceived erosion risk associated. If for some reason the management team feel that the risk in a certain area is very low to non- existent, a slash burning special permission will be granted, upon inspection of the site, by the Company Forestry Management Team only.

III.3. Establishment

Establishment on the forest will be done through a cable marking; manual pitting and manual planting operation, marking should be done to facilitate the harvesting at the end of the rotation.

a. Planting

Planting should take place during both rain seasons when conditions are most favorable.

The planting season around Nyungwe National Park would normally extend from September through to March. However, this will be totally dependent on the annual rainfall received in the current year.

b. Weeding

After establishment, ring-weeding is done with a hoe; where applicable this may be followed by a manual slashing of the remaining vegetation. All climbers growing in planted compartments should be cut down during normal weeding operations, either during the establishment phase or prior to thinning.

The number of weeding times will be a function of the natural vegetation, the climate, the spacing of the plants, and the type of weeding performed prior. If only manual weeding is to be performed, slashing should be done every 6 weeks, and hoeing within the pit should be every 12 weeks. Weeding should continue until canopy closure occurs; for fast-growing eucalyptus, this may be as early as 18 months, and for pines at 36 months.

c. Pruning

Only one 2-meter pruning will be implemented at age 4-5 years for accessibility purposes

for Pine plantations. However, if the market preference changes dramatically, the company shall introduce a tailor-made pruning regime for all pine species to be grown at Nyungwe to improve the wood quality and its suitability for sawn-timber production.

A bashing operation may be considered in some Eucalyptus compartments for access and fire control purposes.

d. Thinning

UFCL will establish how to conduct the thinning Controls, thinning prescriptions, and APO's.

IV. Forest Protection

4.1. Fire protection

The current fire risk in the plantation catchment area is low, and this shall be constantly monitored to verify there is no change in fire risk. The main dry season runs from June to October. Existing fire protection plans shall be reviewed by May every year. (i.e., before the start of the next fire season).

At the beginning of the dry season, the plantation should liaise with local leadership and explain to them the dangers of fires, organize meetings with the neighbors through their leaders, and clearly explain to the people the dangers of starting a fire, the destruction of property it can cause and penalties for anybody found responsible for lighting fires in forest reserves or public land. UFCL should educate local people about the dangers of dry season fires. The purpose of such education/sensitization to local people is to reduce or eliminate fires.

Amongst the practices that UFCL will seek to eradicate through education/sensitization and public relations are driving animals out of their hideouts, illegal charcoal making, or placating bees out of honeycombs.

UFCL will also emphasize to the local community that its collaboration with the Company in fire prevention on the plantation will enhance a great relationship.

4.2. Pest Control

UFCL will always contribute to strategizing and monitoring pest control. Our country has been lucky that major diseases or pests have not significantly affected pine plantations.

4.3. Erosion Control

Due to the steep terrain in Nyungwe, erosion is an issue of concern and needs to be managed as an area of high risk.

In terms of the Operational Process Control Management prescription, any

activity identified as having a potentially significant impact shall be controlled through implementing either a Management Prescription (MP) or work instruction (BOP).

These MP's and BOP's have been compiled for all operations that have been identified as having a potential soil erosion risk. Further to this, the company requires that operational impact assessments also be conducted in terms of the natural resource management and EIA FMP for activities that are considered as having a site disturbing effect:

- For most operations, this would be done using the Small Projects Impact Assessment Form
- For forest establishment, a specific Establishment Assessment Form shall be completed for every compartment established prior to establishment
- For Harvesting operations, the Harvesting MP prescribes a complete set of pre, during, post-harvest, post transport set of checklists to manage the impact of these operations, including soil erosion.
- For forest roads works, e.g., Road Construction, Road Maintenance, and Road Material Source, MP's prescribe erosion mitigation measures during these operations, and the Post Road Assessment checklist is used to check compliance with these standards. As weather impact on road systems is unpredictable, the company also prescribes ad hoc repairs to roads where maintenance has not been scheduled but damage is occurring, these are recorded as action using the Road Maintenance Register.

The company will also:

- Plant grass on exposed open areas
- Use filled sandbags to reduce water speed and erosion in drains

- Stone pitch water outflow
- Use sandbags to protect water canals

Over and above these prescriptions, the company still acknowledges that erosion impacts may occur and prescribes that these be recorded and actioned in compliance with the Corrective Action prescriptions.

In terms of the monitoring prescriptions, the following are measured regarding erosion: River / Stream quality in terms of siltation levels, soil erosion, and compaction events. The company's Annual Sustainability Report shall report any incidents of significant erosion and action taken to address these erosion incidents.

4.4. Forest Roads

The specifications for the three classes of roads are as follows:

	Class A	Class B	Class C
Road width (m)	10	8	6
Curve radius (m)	30	25	15
Max grade (degrees)	3	7	7

4.5. Monitoring and maintenance

All foresters and contractors working in the buffer zone shall monitor road conditions and drainage. A practical monitoring and corrective action procedure for road maintenance is in place to ensure that negative impacts from roads are managed as soon as practically possible.

4.6. Borrow pits

Quarries and gravel pits will be monitored for signs of erosion and any other non- conformances.

A Screening Assessment shall be done for any new gravel pits, quarries, or sandpits – or where a major expansion of an existing site is planned. This includes where work is planned to maintain Provincial roads on behalf of the authorities. All the gravel pits and quarries in the buffer zone forest have been identified; these shall be numbered and marked on maps.

4.7. Harvesting

Harvest planning covers an annual harvest plan and a five-year tactical plan, with annual plans. Compartments have been split into wet and dry weather compartments based on terrain and accessibility of equipment to prevent erosion and soil damage during the wet season.

1. Road requirements, upgrading, and maintenance are considered and included in tactical harvest plans.
2. Due to the steep terrain, harvesting systems comprise motor-manual felling and cable extraction systems and include:
   a) Pre-harvest slashing

b) Chainsaw felling uses a selective felling system against a clear-cut system.
c) Chainsaw debranching – infield debranching is done by leaving a +-30 cm. branch peg to prevent rolling/slipping of logs on steep slopes; these are then fully debranched at the roadside.
d) Eucalyptus debarking using axe-manual methods
e) Extraction of logs to the roadside is done using hand rolling (10% of the area), a land tractor mounted winch (20% of the area), and an Urus skyline (70% of the area) to reduce exposure of the soil during extraction.
f) A Logger will extract tree length timber away from the skyline deck to a merchandising deck.
g) Roadside debranching and cross cutting with chainsaws,
h) Hot decking roadside systems are essential to be able to extract the volumes of timber onto the roadside in the terrain found in the plantation.
i) Loading will be done using a 3 wheeled logger and manual loading.
j) Each team has been balanced in the tactical and annual plans in terms of unit productivity to ensure the systems are balanced.
k) Aesthetic impacts of harvesting operations next to Nyungwe National Park should be considered and mitigated on an annual basis in the Harvesting annual plan for operations.
l) In addition, the following standards shall also apply to reduce the effect of clear-cut size(s) on faunal habitat and movement and the excessive sedimentation of water courses.
m) Clear-cuts should be separated sufficiently to provide buffers serving as sediment traps and escape routes/havens for fauna.
n) Within a catchment that feeds a permanent water course no more than one third of the catchment feeding that catchment or watercourse should be clearly felled within a two-year period.
o) Harvest planning shall be flexible enough to accommodate

unforeseen climatic, market, legitimate community concerns, or other external influencing factors.

p) Harvest planning shall be updated annually.

Some of the prescriptions that have been implemented to reduce risk on steep terrain include:

- Stop all harvesting operations during rain
- Wherever practical (and safe) felling direction should be across the slope or at an angle
- Felling using a buddy system (3 staff per felling unit)
- Debranching tactics, leaving branch stubs to assist in preventing log slips on the slopes
- Debarking only the usable pole portion of the tree
- Stump treatment and stump height
- Cutting up of treetops where trees have slipped down slopes in riverside areas, stacking large branches and timber for utilization and community use, burning non-utilizable brush and leftovers afterward to finally clear the channel
- Leaving high stump on the roadside to stack logs against it – for hot decking

7. Management of natural areas

7.1. General

The Ultimate Forests Company will maintain and enhance its natural resource base, endorsing the concept of sustainable forest management, which will ensure a sustained contribution of the company to the country, its people, and our future.

7.2. High Conservation Values

Currently, there are no known High Conservation Value areas within the plantation. The plantation is managed in a way that protects the High Conservation Values found within the Nyungwe National Park.

7.3. Conservation Areas

Initially areas on plantations have been identified as conservation rehabilitation areas. These are:

- Riparian zones and other wetlands which shall have a buffer zone of 10 meters on the entire watercourse as per national legislation. Currently, most riparian zones in Nyungwe buffer zone are being cultivated by local communities. The Government of Rwanda, through the Rwanda Forestry Authority, is going through a process of investigating all land claims within the buffer zone and legalizing genuine claims while negotiating withdrawal where this cultivation is illegal. Following the withdrawal of local communities and the formal handover of these areas to UFCL, they shall be allowed to naturally regenerate as seed and regeneration material is naturally available in or directly adjacent to these riparian zones.

- Where plantation species in compartments are found to be growing within riparian buffers zones, these will be removed in line with our prescriptions, and the buffer zone correctly demarcated with no re-establishment in these buffers.
- As a management strategy, these areas will be monitored for alien invasive weed regeneration. Where identified, the areas will be included in existing alien invasive weed control programs and scheduled as part of the annual planning and budgeting of operations.

- The success of these natural regeneration programs will form part of scheduled 5 to 10 yearly biodiversity monitoring programs as monitoring of natural regeneration at

more frequent intervals will not provide meaningful management information. Additional sites may be identified as plantation expansion continues.

7.4. Monitoring of Conservation Areas, Flora and Fauna

Monitoring will be done by local experts during the biodiversity studies and reviews, and in-house monitoring will be done in compliance with prescriptions found in the Conservation Management and Monitoring prescriptions.

Before harvesting any Forest Management Unit (FMU), a specific assessment will be conducted to evaluate the actual situation of the area. This ensures appropriate measures are taken to protect biodiversity, particularly Rare, Threatened, and Endangered (RTE) species if identified. This approach aims to safeguard ecological integrity while maintaining sustainable forestry practices.

7.4.1. Species inventory

Monitoring of birds, mammals, butterflies, and flora forms part of the terms of reference for the biodiversity study. See the Biodiversity Monitoring report for full details.

7.4.2. Environmental Protection

Forest guards will be employed to assist with security and identify problems that could affect access to the forest (in the case of blocked roads), as well as general issues, e.g., erosion areas, poaching, and encroachment control. An informal means of collecting environmental information is possible from their reports. These forest guards work in consultation with the Rwanda Development Board (RDB) officers on issues relating to the protection of the buffer zone and the national park.

A monthly report of animals seen will be compiled by the Forest Guards. These reports will

be filed at the Forestry Office.

Controlling Illegal activities, including but not limited to land encroachment and poaching will be the main duty of the forest guards. A team of forest guards currently patrol the Plantation daily to ensure that there is no traceable pattern of the above activities. Their main priority is poaching control, especially snare removal. Game is not commercially utilized, and no hunting is allowed on UFCL land holding.

8. Social Management

The company shall conduct Participatory Rural Appraisals (PRA's) whose goals are to:

a) Establish a collaborative two-way communication process with the local community;
b) Determine the communities' central problems and
c) Deliver tangible development projects where the local community feels a strong sense of ownership and participation.
d) The PRA process will be conducted in all the operation areas as harvesting continues through the plantation buffer zone.

The PRA is a good tool for the healthy implementation of community-based activities. Thus far, there are specific objectives with specific goals that are to be considered in the fieldwork and the plans of the project, among others are;

- To assess and identify the community needs before the company implements any community-based project
- To identify challenges and opportunities that communities are facing to implement their development activities
- To let the community members collect information, analyze problems, and identify possible solutions to their problems
- To use the information obtained to implement the community development projects
- To ensure that the BOTTOM-UP approach is efficiently applicable

One result of the PRA exercise could be an agreement on which self-help projects to proceed with immediately, whether a clinic, a school, a water pump or an agricultural support program (such as an out-grower scheme). Another result is to establish a clear two-way channel of communication where the Company explains its goals and policies and the community expresses how this affects them and how the Company can develop sensitive ways of policy implementation such as fire protection, reducing illegal grazing and timber poaching.

UFCL intends to contract out much of the plantation development including site preparation, pitting, planting, and where appropriate, seek to give preference to the local community and develop the local community capacity to take advantage of the opportunities of working with UFCL. The Company believes strongly in fostering the development of a vibrant private sector in the local area.

The Community Development Officer (CDO) will be the key UFCL staff member who will provide material assistance and expertise to men's and women's self-help groups involved in a variety of income-generating activities. Social interventions include but are not limited to beekeeping, small-scale tree nurseries, light mechanical industries, and catering.

The officers should also teach environmental and fire education in village schools to develop local knowledge about forestry and sustainable environmental development and the impact of deforestation on the community.

8.1. Communication and conflict resolution

A Community Development Officer (CDO) is permanently employed to liaise directly with local communities regarding any concerns the communities may have and manage community projects on behalf of the company. Also, refer to the Social Responsibilities section below.

Refer to the complaint and dispute resolution procedures and complaints registers.

8.2. Neighboring landowners and Interested and Affected Parties

The plantation maintains a list of all known stakeholders and neighbors that have been mapped on the Community Development Map and the Fire Map. Refer to the plantation stakeholder list for full details of recorded stakeholders.

8.3. Significant cultural-historical sites

CDO regularly communicates with communities, giving them the opportunity to report any sites they may have. The company is not aware of the existence of any burial sites or sites of cultural importance in the plantation area.

Management requirements would be agreed in cooperation with the current local role player.

8.4. Multiple resource utilization

In conjunction with local communities and regulatory authorities, non-timber forest products (NTFP) should be assessed and an agreement on their use established. Access to NTFP is agreed upon based on available products, regulatory authority requirements, and any limits or regulations and monitoring requirements to maintain NTFP sustainability.

8.5. Land ownership and claims

The plantation buffer zone is owned by the Government of Rwanda with the intention of maintaining the biodiversity integrity of the Nyungwe National Park. The Ultimate Forests Company has been granted a 49-year lease to productively manage the Nyungwe buffer zone.

In terms of the lease agreement, the company is obliged to report any illegal activities to the relevant government authorities; the company will let the Rwandan Government to resolve these illegal activities in a manner appropriate to the guiding laws, Government, and communities.

9.5 Social Responsibility

The PRA and UFCL Community Development Plan for a comprehensive overview.

Current projects planned over the next 5 years include:

Project category	**Description of the project**	**Benefit for communities**
Baseline survey	Participatory Rural Appraisal organized in Nyamagabe and Karongi Districts	720 people will benefit from PRAs in the concerned cells
Apiculture	Support beekeeping cooperatives with beehives and beekeeping equipments to increase honey production Apiaries fencing to protect them against chimps and thieves Development of a tourism bee Apiary in Nyungwe environs.	Around 5000 people will directly or indirectly benefit from the program in Karongi, Nyamasheke and Nyamagabe Districts

Clean water	Construction of water tanks and water adduction in Gatare and Buruhukiro Sectors of Nyamagabe District.	350 households will benefit from this project in Gatare and Buruhukiro sectors
Sanitation	Campaign on cleanness and prevention of diseases Construction of public latrines in Nyamagabe and Karongi	Around 15,000 people will benefit from the project in Nyamagabe and Karongi Districts.
Health	Support health posts in Buruhukiro and Gatare sectors. Extension and provision of equipment. Community campaign on disease prevention.	Around 30,000 people to benefit from the program in Buruhukiro and Gatare sectors
School infrastructure	Support primary schools in Mutuntu, Gatare and Buruhukiro sectors (Extend classrooms and sanitaries) Partner with Government of Rwanda to improve on Vocational training in Gatare or Buruhukiro sector	4,000 students will benefit from the project in Gatare and Buruhukiro sectors of Nyamagabe District.

8.6. Health and Safety

Health and Safety information will be recorded daily and reported to the Forestry Coordinator together with the Safety Health Environmental Risk and Quality Specialist. The Forestry Coordinator summarizes these statistics, which form part of his weekly management report. The Statistics are summarized monthly, discussed, and evaluated at the Monthly Management meetings. Contractors are also required to report their statistics into this reporting structure. Monthly monitoring reports summarize safety tatistics. Incidents and accidents are recorded in the database and analyzed from there.

9. Reporting

The Ultimate Forests Company will produce an Annual Sustainability Report based on guidelines that summarize the company's performance. This report will be available to interested and concerned parties on request.

Review and Updating Management Plans

This management plan shall be reassessed every year by the Forestry Coordinator, And a revision within a maximum interval of five (5) years, considering:

1) the results of monitoring and evaluation (including certification audits);
2) stakeholder engagement;
3) new scientific and technical information relevant to the Management Unit;
4) in response to changing environmental, social, and economic conditions.

Detailed operational planning will be updated annually. Relevant documents, reports, plans, or procedures shall be updated and revised as and when needed. This shall be done in response to the sensitivity of the environmental, social, and economic circumstances, the results of monitoring, evaluation, and related operational procedures, consistent with an adaptive management approach to effectively achieve the company's objectives and international standards the company subscribes to.

Availability of Plantation Management Plans and associated documents

This Forest Management Plan shall be made publicly available to contractors, suppliers, interested and affected parties upon request and approval by the CEO. Other Management Planning documentation may be made available depending on the relevance and confidentiality of the information requested and at the discretion of management.

Information considered confidential may include information:

1. Related to investment decisions.
2. About intellectual property rights.
3. About the client.
4. Which is confidential by law.
5. Whose provision could put the protection of wildlife species and habitats at risk.
6. About sites that are of special cultural, ecological, economic, religious, or spiritual significance to local communities as requested by these groups
7. any other document as deemed by the management.

General Conclusions

This Forest Management plan is integral to UFCL's Business Plan and will be effective only if implemented promptly, efficiently, and systematically. All management and general recommendations require a systematic approach and should be carried out by the designated individuals.

Both internal audits and the FSC surveillance audit shall check compliance with this management plan.

Appendix to Buffer zone Forest Management Plans

Appendix 1: Buffer zone planted species, Area and Volume

Species	Area	Av TPH	Av DBH	Av Htm	Vol/ha	Tot vol (m3)	Total Vol per sp	% Vol per sp	Total Area per Sp	% Area per sp
A mel	848.22	281	29	23	160	135,715	135,715	8.41346	848.22	10.91726
C ben	280.65	263	31	21	142	39,852	41,374	2.564923	291.52	3.752093
C rob	10.87	254	28	23	140	1,522				0
E gra	100.34	287	20	19	88	8,830	179,744	11.14298	1,540	19.82655
E maid	1,324	389	23	22	119	157,556				0
E mic	15	392	32	24	132	1,980				0
E mix	45.25	317	35	27	97	4,389				
E sal	56.37	402	17	22	124	6,989				

G rob	18.1	235	30	22	131	2,371	2,371		18.1	0.232961
H mix	250.75	309	24	19	176	44,132	44,132		250.75	3.227351
M emi	1.47	228	34	28	142	208	208		1.47	0.01892
P lat	17.78	321	30	24	185	3,289	1,155,969	71.66267	4,454	57.32535
P mix	9.12	257	34	25	193	1,760				
P ooc	17.01	331	32	23	254	4,320				
P pat	4,410	347	31	24	260	1,146,600				
S mix	335.06	274	26	21	148	49,588			365.13	4.699512
Spec mix	30.07	256	29	22	132	3,969				
Total	***7769.53***	***303***	***29***	***23***	***218***	***1,613,070***				
Planted Area	582.46									

Non planted Area	320.19									
Open Area	1,263.29									
Concession Area	**9,935.5**									

APPENDIX 2: SUMMARY OF 5 YEAR FORESTRY MANAGEMENT PLAN

STRATEGIC PRIORITIES	OBJECTIVES	FY 22	FY 23	FY 24	FY 25	FY 26	Observations
Planning	Enumeration for 90, 180 days and 1 to 2 years survival rate counting (ha)	0	119	257	319	356	The enumeration is done for young plantation
	Enumeration for thinning control (ha)	120	150	200	230	250	
	Pre-harvesting inventory (ha)	150	200	272	300	300	The enumeration is done before harvesting
Harvesting	Pine clear felling (m3)	28,710	35,314	48,393	52,253	54,672	
	Eucalyptus clear felling (m3)	1,360	8,227	11,204	11,475	11,370	
	Eucalyptus selective harvesting for poles (m3)	0	0	0	35	150	The new planted Euc. from 2015 will produce poles
	Acacia clear felling (m3)	0	40.55	30.15	48.88	65	
Sawmilling	Pine Sawn timber (m3)	14,355	17,657	24,196	26,126	27,336	The recovery rate is 50%
	Eucalyptus sawn timber (m3)	404	2,468	3,361	3,443	3,411	The recovery rate is 30%
Value addition	Timber drying (m3)	7,500	10,000	12,000	13,500	15,500	
	Timber processing/Manufacturing (m3)	3,500	5,000	6,000	7,500	8,500	
Planting	Nursery establishment (sites)	2	3	2	2	2	The sites are Kitabi, Kamatsira and Gatare
	Forest plantation establishment (ha)	119	257	288	319	356	
	Tending (Forest maintenance)(ha)	350	500	680	870	950	
Pruning	Pine 1st pruning (ha)	0	0	166	250	300	
	Pine 2nd pruning (ha)	0	0	0	0	0	This will be done in 2027
Thinning	Eucalyptus 1st thinning (ha)	100	150	240	320	250	
	Eucalyptus 2nd thinning (ha)	0	0	0	100	150	
	Pine 1st thinning (ha)	0	0	0	0	0	This will be done after 10 yrs

	Pine 2nd thinning (ha)	0	0	0	0	0	This will be done after 14 yrs
	Pine 3rd thinning (ha)	0	0	0	0	0	This will be done after 18 yrs
Forest roads maintenance	Concession access roads (km)	2	2	10	12	15	The roads surrounding F,G,H,I and J Blocks
	In compartments roads(km)	12	15	18	20	25	The roads joining F,G,H,I and J Blocks
Infrastructure	Forestry office	1	-	-	-	-	Gatare site
	Staff houses	1	-	-	-	-	Gatare site
	Sawmill	1	2	2	3	3	Gatare and Kizimyamuriro Site
	Workshop	1	2	2	3	3	Gatare and Kizimyamuriro Site