

# RONG-AN INC



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## LOGGING PROJECT -SFEP 1/2022

**Upper Berbice-Essequibo District**

### Project Summary

*Re Application for an Environmental Authorization*



Google Map showing Apoteri Village, LB Essequibo R, Opposite SFEP 1/2022

**Prepared by Forestry Training Centre Inc.**

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## **FOREWORD**

This revised version of the Project Summary is based on the Project Summary published by the EPA in December 2022. In essence, the original Project Summary has been reorganised and major blocks of new content (in dark red font) have been added.

## **ACRONYMS**

AAC	Annual Allowable Cut
EPA	Environmental Protection Agency
FTCI	Forestry Training Centre Incorporated
GFC	Guyana Forestry Commission
LC	Large Concession
RAI	Rong-An Inc.
VWL	Variety Woods and Greenheart Limited

# 1.0 INTRODUCTION

## 1.1 RAI-the developer of SFEP 1/2022

Rong-An Inc. (RAI), the holder of SFEP 1/2022 was incorporated in Guyana on September 1, 2006 (see Annex I). The company is based at Lot A, Block 2, Public Road, Land of Canaan, East Bank Demerara, Guyana (see Annex II) and are the grantees of LC 1/2021 (Upper Cuyuni-Barama District) and LC 1/2017 (Upper right bank, Berbice River).

RAI’s management team is set out in Table 1 and its organization chart is shown at Annex III. Altogether, the company has forty-one (41) field operatives available for the development of SFEP 1/2022 and it benefits from the collective experience of five nationalities on its payroll, (see Figure 1). In addition, RAI has at hand forest inventory crews and road alignment crews respectively which the company uses on a contractual basis.

Table 1: List of RAI's core management staffs

#	Name	Designation	Nationality	Remarks
1	Chen Ming	Corporate Secretary	Chinese/ Guyanese	>22 years conducting business in Guyana; managing RAI since 2006
2	Tang Ingsiong	General Forest Manager	Chinese	>24 yrs. logging experience in Guyana, including Barama Company Limited and Demerara Timbers Limited
3	Kevindra Tularam	Sales/Marketing Manager	Guyanese	4 years’ experience at GFC doing environmental monitoring; 7+ years at RAI supporting forest planning and timber marketing activities.
4	Chan Sia Poh	Chief mechanic	Malaysian	24+ years working as a mechanic across three enterprises (BCL, DTL & RAI) in Guyana; 7+ years with RAI.
5	Anas Bin Semail	Chief Surveyor	Indonesian	>22 years forest surveying experience, including six years in Guyana.

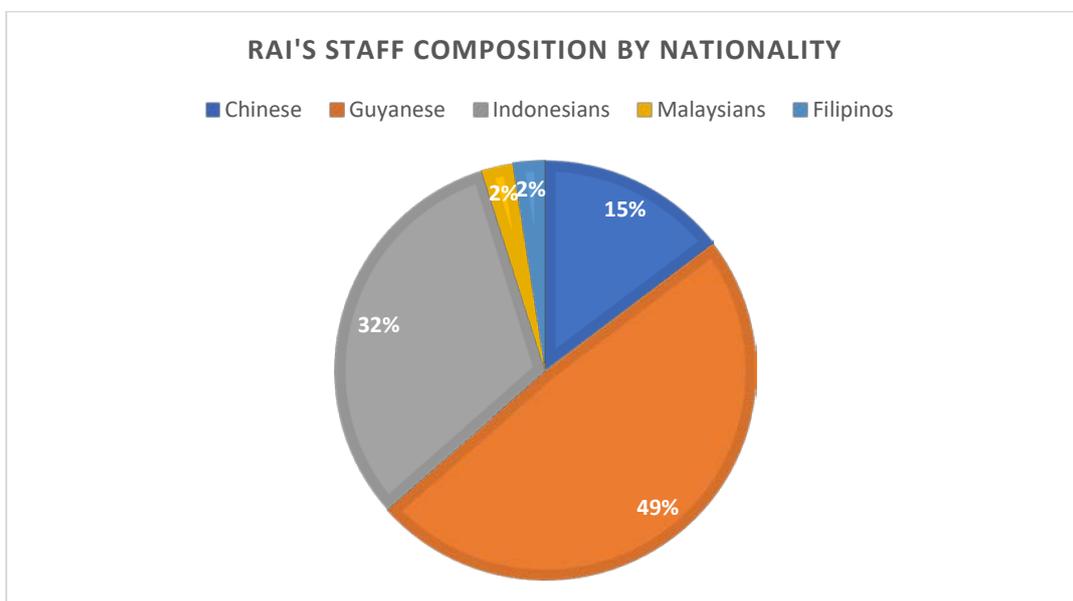


Figure 1: RAI's staff composition by nationality



## 2.0 Detailed Description of the Proposed Logging Project

### 2.1 Physical location of the Project

SFEP 01/22 represents an area 65,844.9 hectares of intact forest resources situate in the upper Essequibo-Berbice District (see Annexes IV, V and VI).

The concession may be accessed via Kwakwani, right bank Berbice River, thence to Bissaruni Junction (Kwakwani-Orealla Road), thence southerly along the Haimorakabra Road to its junction with RAI's access road within SFEP 1/2022, at a point with coordinates (UTM) 21N 377800, 459200 (see Figure 3).

Alternatively, the area may be accessed via UNAMCO Road, thence south-easterly via RAI's extended logging Road to a point on the Haimorakabra road having approximate UTM Coordinates 21N 379700, 484000 new road segment, thence southerly along the Haimorakabra Road to a junction having UTM Coordinates 21N 377800, 459200, within SFEP 1/2022 from which point RAI's new road extends westwards for about 15km to left bank Berbice River, at a point having approximate UTM Coordinates 363900, 458900.

For reconnaissance purposes, the concession may be accessed via Massara on right bank Essequibo River (about 110km above Kurupukari), however there no roads or trails easterly to the Berbice River or beyond.



Figure 3: Part of Map of Guyana showing large concessions north of SFEP 1/2022

## 2.2 Land use

### 2.2.1 Communities

The concession area is intact and **devoid** of any human activity at this time. GGMC has awarded thirty-one (31) mining concessions within the concession area: however, there are no miners within the area and all the concessions are inactive.

The nearest village is Apoteri, at the confluence of the Rupununi River and left bank Essequibo River. Apoteri is 89.6 km east of Annai, and 99km south of Kurupukari. The estimated population is 270 persons<sup>1</sup>: 143 females, 127 males, 54 households. Tract A of Apoteri's extension lie on left bank Essequibo River, above Apoteri, while Tract B also lie on left bank Essequibo River, below the mouth of Rupununi River. Apoteri is separated from the concession area by the Essequibo River (>1km distance) and there are no area conflicts between the SFEP 01/2022 and the Apoteri Village property.

Further there are major swamp forests between left bank Berbice River and the right bank Essequibo River, at the western area of SFEP 1/2022 and this will also serve as a natural buffer for residents of Apoteri.

### 2.2.2 Socio-economic activities

The concession area shares a common natural boundary with LC 2/17 held by VWL immediately to the north. (see Figure 3). The concession area also shares common boundaries with nine small concessions: four concessions on the southern boundary, and five on the eastern boundary (see Figure 4, Annex VII).

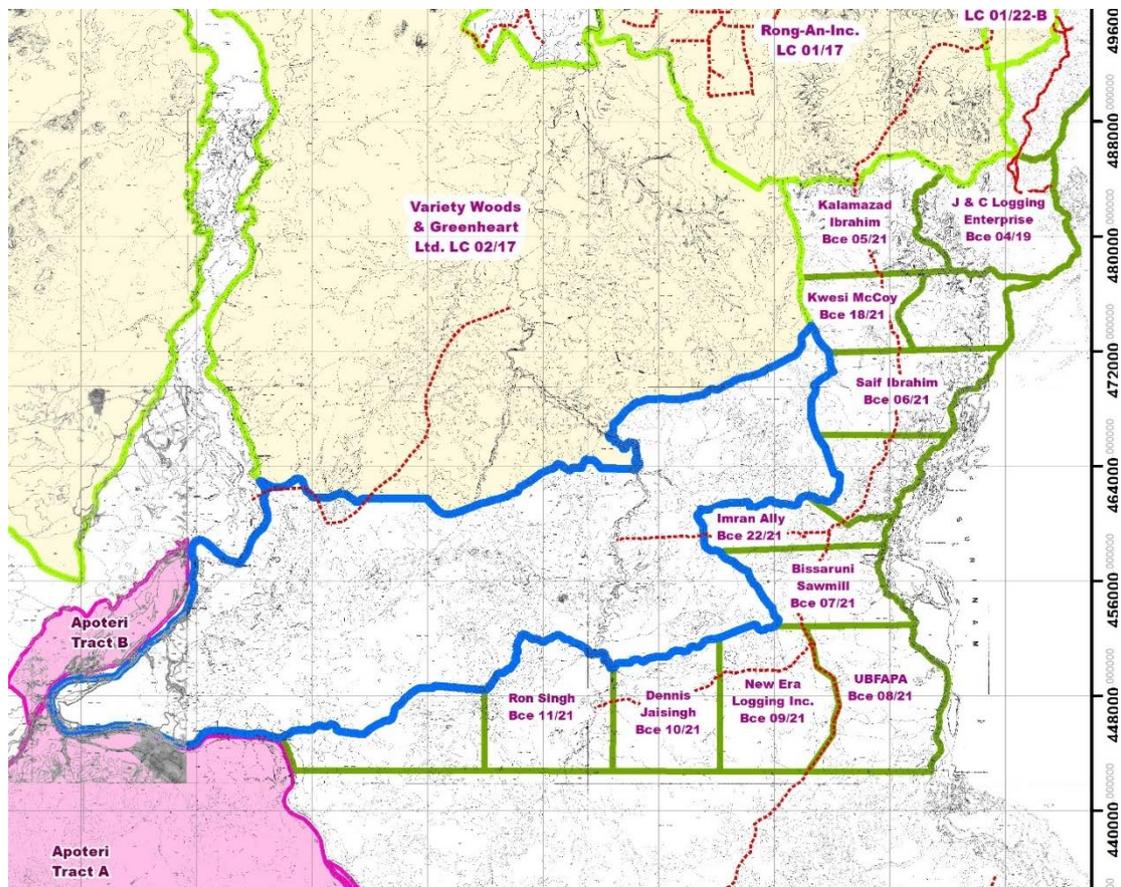


Figure 4: Diagram showing SFEP 01/2022 (blue border) in relation to other forest concession.

<sup>1</sup> NRDDB

RAI is the holder of LC 01/2017 in the same general area, north of SFEP 01/2022 and east of LC 02/2017 (see Figure 4). RAI maintains a **cordial relationship** with all the nine forest concessionaires.

Thirty-one (31) mining properties lie within SFEP 1/2022: they are all inactive due mainly to the poor state of the Haimorakabra Road.

To date no indigenous groups, farmers, miners, or fishermen have been encountered within the concession area.

## 2.3 Feasible and reasonable alternatives

Apart from 31 mining concessions within the concession area, the project area is encircled by logging concessions and mining concessions respectively. Logging within the concession area is the only compatible commercial activity that would be feasible in the area.

Access options and the distance from Kwakwani >140km would make eco-tourism and farming extremely challenging.

RAI's calculation is that the company will harvest **less than one percent** of the concession area per annum, and therefore, as far as forestry activity is concerned, the conservation values inherent to the area particularly in terms of watersheds and conservation of biodiversity will be conserved.

## 2.4 Existing baseline information

### 2.4.1 Topography

The area is flat to undulating with extensive flood plains on right bank Essequibo River and left bank Berbice River. In fact, it is apparent that there is considerable inland flooding during the rainy season, particularly between right bank Essequibo River and left bank Berbice River. East of Berbice River, the terrain is characterised by hills with elevations of up to 500 feet.

The area is drained principally by the Berbice River and its tributaries, including Rattlesnake River on its left bank (see Annex VI).

### 2.4.2 Vegetation

The vegetation of the area is intact. The forest there is characterised as Central Guyana Wet Forest: the dominant merchantable species in terms of number of trees per 100ha, are: Mora (*Mora excelsa*) 392 trees, Wamara (*Swartzia leiocalycina*) 337 trees Greenheart (*Chlorocardium rodiei*), 256 trees; Morabukea (*Mora gonggrijpii*), 250 trees; Soft Wallaba (*Eperua falcata*), 220 trees; and Purpleheart (*Peltogyne pubescens*), 26 trees.

On the basis of the forest types (see Annex VIII), initial projections are that productive forests cover just 48.8% of the concession area. (One of RAI's first tasks will be to 'ground truth' the forest types via forest inventories.

Exploratory work to date indicates that RAI will be able to harvest 13.33m<sup>3</sup> of merchantable trees per hectare, using a 40year felling cycle.

### 2.4.3 Soil types

Soil types are critical for determining what operations are possible in wet weather: for example, a logger can work on sandy soils even in the wet season. The soil types prevailing on the concession area are Endoaquults -covering 50.6% of the area, and Kanhaplustults -covering 28.4% of the area (see Annex IX). Endoaquults occur mostly on flat terrain and are deep poorly drained, dark coloured, alluvial soils: roadworks and timber harvesting are best done in the dry season. Kanhaplustults are deep well drained soils characterised by a red-yellow colour.

#### 2.4.4 Fauna

Although no *recent* formal wildlife surveys have been done to date, it is apparent that the fauna is abundant in the concession area.

There have been sightings of mammalian fauna such as tapir (Tapiridae) monkeys (Cebidae) agouti (Dasyproctidae) deer (Cervidae), jaguars and pumas (Felidae), and wild hogs (Tayassuidae). There is also very abundant avian fauna, that include parrots (Psittacidae) and toucans (Ramphastidae) and hawks (Accipitridae)

Several black Caimans (Alligatoridae) were encountered during reconnaissance work and the dominant fish in the waterways is Perai (Serrasalminidae)

### 2.5 Layout of the project

The project will occupy the entire concession area, although **much of the area will be totally devoid of logging activity** based on the forest types, soil types and stream patterns.

Most of RAI's field operatives will operate from its base camp at LC 1/2017. RAI will maintain small 6–8-person forward camps at 'SFEP 1/2022' to support forest inventory, road construction, and timber harvesting activities.

90% of field operations will occur on both banks of the Berbice River. The locations for the temporary forward camps will vary with the field activities. Field crews will use creek water or harvested rainwater duly filtered and inoculated. Pit latrines will be used for human waste. Other Liquid domestic waste will be fed into soak-away pits constructed for the purpose, while solid domestic waste will be buried in pits-specially dug for that purpose. (Due care will be taken that pit latrines and waste pits are located far away from waterways).

Simple solar powered devices will be used at forward camps.

### 3.0 THE DESIGN OF THE PROPOSED LOGGING PROJECT

#### 3.1 Overview

RAI plans to harvest timber from the concession area in line with parameters agreed with GFC and transfer the timber to LC 01/2017, where it will be integrated with timber that RAI produces at that concession. RAI intends to harvest a wide range of species using the principles of reduced impact logging (RIL) and prescriptions of the COP. The concession area will be organized into three compartments (see Table 2). In addition, the area is organized into 1000mx1000m blocks, each block having a unique alpha-numerical code. RAI will adopt a systematic system of forest development in line with the AAC, FMP and AOP agreed with the GFC.

Table 2: Table presenting List of Compartments, SFEP 1/2022

No.	Designation	Area (ha)	Remarks
1	East Berbice	19,601.0	
2	West Berbice	23,243.0	
3	Essequibo	23,000.9	An area of not less than 1, 445.40 (representing 4.5% of productive forests within SFEP 1/2022) will be set aside as a biodiversity reserve within this compartment.
Total		65,844.9	

RAI has opted for a 40-year felling cycle that allows the company to harvest 13.33m<sup>3</sup>/hectare. Therefore, RAI's projections are that each year, based on parameters for a sustainable harvest, and indicative forest types appearing on the vegetation map, the company will harvest 8,177.86 m<sup>3</sup> per year from six (6) blocks. The logs produced within the concession will be shipped to RAI's concession LC 1/2017; at LC 1/2017 RAI will make decisions based on current marketing conditions.

#### 3.2 Proposed activities/operations

##### 3.2.1 Overview

The basic activities will involve:

- conducting forest inventories.
- conducting major earthworks: site preparation, road building, skid trail construction, laying out culverts and bridges and log/lumber depot construction.
- Selective and directional felling of trees, skidding logs to log markets, and conveying the logs via RAI's logging roads and a portion of the Haimorakabra Road to LC 1/2017.
- Sorting and stocking the logs by species, dimensions as per 'customer orders,' and
- Environmental management.

##### 3.2.2 Objectives of management

RAI will be guided by the following protocols:

- Optimum utilization of the concession area for the sustainable production of timber for the local and export markets, in line with sector standards for the conservation of biodiversity, watershed and landscapes.
- Full attention to appropriate OSH practices
- Respect for other resources users and other developers utilizing RAI's logging roads or otherwise traversing the concession area.

### 3.2.3 Timber Harvesting

The logging operations will follow RIL principles and address the requirements of the COP and GFFO. The procedures/protocols to be followed in the development of the concession area are summarized as follows:

- a) **Construction of primary and access roads:** RAI will use topographic maps and prescriptions of the COP to determine the most cost-effective routes for its primary and secondary road network. *Advantage will be taken of existing roads where feasible.*
- b) **Productive forests:** RAI will conduct additional reconnaissance work to determine the extent of productive (and non-productive forests), and to reassess the integrity areas already selected as biodiversity reserves.
- c) **Biodiversity reserve:** RAI will assess areas based on sightings of fauna and flora and establish partnerships with other agencies, including NGOs to manage these as biodiversity reserves.
- d) **Compartments and blocks:** Work has already been done to divide up the concession area into four compartments to allow for the orderly and systematic development of the forest concession. RAI will move to divide up areas designated as productive forests (Table 3).
- e) **100% pre-harvest inventory:** RAI will conduct 100% pre-harvest inventory within all blocks. This is essential to obtain stock maps that will form the basis for planning timber harvesting operations, including the identification of buffer zones and other applicable restrictions.
- f) **Data processing:** RAI will conduct processing of inventory and topographic data using computer hardware and software and integrating critical prescriptions of the Code of Practice for Timber Harvesting (for example the setting out buffer zones).
- g) **Skid trail layout, Log market layout:** RAI will use the stock maps produced to plan skid trails and log markets to match harvesting stock.
- h) **Skid trail, log market construction:** RAI will construct skid trails with a bulldozer prior to tree felling.
- i) **Tree marking and liana cutting:** RAI will have planning teams that will conduct tree marking and liana cutting prior to felling once the alignment of the skid trail is completed. *(Tree marking and liana cutting speed up the rate and at which trees are felled by conducting all the preparatory tree felling activities and allowing the feller to focus on the actual felling activity).*
- j) **Directional tree felling:** RAI will conduct directional felling of trees to conserve timber quality and to facilitate the skidding.
- k) **Skidding of logs to log markets:** RAI will use choker skidders with appropriate logging rigs to remove logs from stump to mill sites.
- l) **Scaling & Grading:** RAI's staff will be trained to scale and grade timber.
- m) **Occupational health and safety:** RAI will implement occupational health and safety measures in accordance with the COP and proper RIL practices.

### 3.3 Project Outputs

The major project output will be 8,177.86m<sup>3</sup> of timber (logs or squares) per year; most of this timber will be extracted during the periods February -April and July-October.

In addition, the logging operations will generate waste including the following on an annual basis :

- a) Wood waste, 35 metric tons.
- b) Solid domestic waste:8 tonnes)
- c) waste oil 80 liters,
- d) Other waste 250 kg.

### 3.4 Project Size, Capital Investment, Number of Employees, Production Output

#### 3.4.1 Investments

RAI proposes to invest US\$1.9 million in the development of the concession area over period 2023-2024, with roading works accounting for 80% of the budget (see Table 3).

Table 3: Projected investments: 2023-2024: SFEP 1/2022

#	Period	Details	Amount (\$US)	%
1	2023	Short term staff recruitment and training	2,500.00	0.1
2	2023-2024	Reconnaissance surveys & Forest Inventory (100%) (Phase 1)	80,000.00	4.1
3	2023-2024	Road surveys, road surveys and alignment, road construction + mobilization of heavy-duty equipment	1,550,000.00	80.0
4	2023-2024	Consultations with stakeholders	5,000.00	0.3
5	2022-2023	Other expenses (for example, licenses and permits, preparation of AOP, purchase of forest monitoring equipment, setting up permanent monitoring stations, etc.	300,000.00	15.5
<b>Total</b>			<b>1,937,500.00</b>	<b>100.0</b>

#### 3.4.2 Staffing

RAI's projections are that up to 54 field operatives (41 employees and a total of 13 contractors) at hand will be engaged in the development of SFEP 1/2022. All employees and contractors will use personal safety gear that RAI will provide. All employees will be required to subscribe to RAI's environmental policies.

#### 3.4.3 Annual production output

RAI projects a sustainable *annual* output of 8177.86m<sup>3</sup> of logs covering 20 species of timber. This implies a mean monthly production of 675.0 m<sup>3</sup>.

#### 3.4.4 Risks and challenges

RAI is the holder of LC 1/2017 situate in the same general area and is familiar with operational challenges or conditions in the area.

Two challenges are anticipated as RAI embarks on this project. Firstly, during the rainy season, roads can be reduced to inoperable conditions due to challenges in doing preventative road maintenance in the rainy season. RAI will collaborate with other loggers and eventually the mining community in the management of its concession-based logging roads.

## 4.0 POTENTIAL EFFECTS ON THE ENVIRONMENT

Due to the heavy-duty vehicles required to build roads and to manipulate logs, the proposed logging project will cause major perturbations to the forest environment, within areas that will be harvested.

The primary perturbations are summarised below (and set out in more detail at [Annex XI](#)):

- a) *Physical impacts* on the environment from noise, vibration, and fumes, generated by a variety of heavy-duty equipment; possible changes to the chemical and physical conditions of surface water due to erodible soil particles entering the surface water from the air or from overland water-flows carrying sediment after rainfall; alterations to the microclimate in areas where timber harvesting occur due to canopy modification after tree felling, and road and skid trail construction or maintenance;
- b) *Impacts on the biological environment* -alteration of forest habitats, alteration of forest structure, ecological changes; forced migration of fauna, etc.
- c) *Impacts on the socio-economic environment* due primarily to RAI's practices for discouraging hunting and fishing in the areas where it works, and conflicts arising from the shared use of its forest roads.

## 5.0 PLANS TO MITIGATE ENVIRONMENTAL IMPACTS

### 5.1 Primary Mitigation measures

The primary mitigation measures that RAI will employ are summarised below and set out in more detail at [Annexes XI and XII](#)):

- a) *Employee education*: RAI will ensure that all employees are aware of the negative impacts that logging creates as well as impacts arising from the improper disposal of waste. RAI will use regular briefing sessions as well as pamphlets published by various agencies, to foster appropriate behaviour. Briefing sessions will also cover the application of GFC and EPA Guidelines.
- b) *Appropriate waste management practices*: RAI will take care to dispose of waste in an acceptable manner so that potential pollutants do not enter the environment, and water bodies.
- c) *Collaboration with stakeholders*: RAI will collaborate or engage with other legitimate resource users as far as practicable to share responsibility and costs for environmental management and to reduce conflict.
- d) *Use of RIL practices*: RAI will use *Reduced Impact Logging* practices which emphasizes planning of all interventions in the forest resources, the proper use of machines, due to attention to occupational safety and health practices, and general forest conservation practices. Whenever necessary, RAI will request the services of the *Forestry Training Centre Inc. for training targeting RIL courses*.
- e) *Heavy-duty machine diversity*: RAI will maintain the appropriate diversity of machines to ensure the most efficient field practices. Care will be taken to maintain machines in optimal mechanical conditions to reduce leaks of fuel or oil.
- f) *Environmental data*: RAI will set up a network of permanent sampling points that collect air quality data and water quality data, respectively. RAI will discuss with the Hydrometeorological Department the establishment of a mini-meteorological station to collect data specific to that area. RAI will make sure that it makes annual budgetary provisions for ensuring the collection of environmental data. The budgetary provisions will also make provisions for the recruitment of consultants.

- g) *Robust system of collecting, analyzing, and reporting on environmental data.* RAI will maintain a robust system of records to facilitate environmental management and the preparation of environmental reports.

## 5.2 Waste management

Tree debris, comprising tree crowns and log ends due to the bucking of logs at stump will be left in the forest (at stump). Log ends arising from trimming logs at log markets and bark will be collected and deposited in natural depressions on the forest floor or special pits constructed to receive effluents from camps. Wood ends will also be used in conjunction with roadside ditches to restrict sediments from entering natural waterways.

Liquid waste generated at forward camps will be channelled to special pits dug to a depth of about 9m, and lined with tree debris where some filtration will occur and where the filtered waste water will infiltrate into the soil. Such pits will be put at least 500m from camps and 300m from waterways. Kitchen waste including cooked food as well as discarded plant-based material will be put into pits lined with wood ends. Cans and bottles will be duly covered with earth after dumping to avoid injury to animals that forage in such pits.

Plastics, metal parts, batteries will be put into drums and buried at pre-determined points that will be well marked. RLSS' chainsaw operators will re-use waste oil in their chainsaws. Chemical waste such as paint and grease will be put into drums and buried at pre-determined duly designated points on the forest floor.

## 5.3 Other measures

RAI's environmental management framework will develop specific plans covering the following:

- a) **Stakeholder engagement plan:** the intention here is to pre-empt complaints from other developers within and around the concession area with a view to addressing these as quickly as possible.
- b) **Road corridor management plan:** RAI will attempt to prescribe the way its own employees and other parties use its road to guarantee the safety of all parties.
- c) **Wildlife Management Plan:** RAI will aim to eke out agreements with other parties to help conserve and protect wildlife in and around the concession area.
- d) **Forest Monitoring Plan:** RAI will position itself to monitor its performance during logging operations, to ensure compliance with prescriptions aligned to the Environmental Authorization and GFC requirements and to gather environmental data for that area.

## 6.0 PUBLIC CONSULTATIONS

### 6.1 Stakeholders in the immediate vicinity of the forest concession.

RAI has had no contact with miners who have mining concessions within and around the concession area. Informal consultations were conducted with a couple of the loggers who have forest concessions, and these have one concern: when will the Haimorakabra Road be repaired to an extent that allows them to extract timber from their concessions.

### 6.2 The Apoteri Community

The residents of Apoteri have been consulted exhaustively in relation to all forest concessions in the upper Essequibo River, including RAI (LC 1/2017), VWL (2/2017) and current *inactive* concessions (formerly) held by Grandbright, Simon & Shock, Sherwood Forest Inc., and Conservation International's Conservation Concession, respectively. In fact, residents of Apoteri were actively involved in reconnaissance work and forest inventory for those forest concessions. FTCI has not recorded or detected anywhere, any complaint or concern regarding the development of forest concessions in the upper Essequibo District.

For the development of SFEP 01/2022, two facts safeguard the community:

- a) Firstly the Essequibo River is at least 1 km wide in the vicinity of Apoteri central Village), therefore the river as a natural boundary affords major protection for that Community.
- b) Secondly, the entire area on right bank Essequibo River that is 'adjacent' to Apoteri Village is a huge swamp (see Annex VIII), a consequence of that area being part of the flood plain of the Essequibo River and subject to extensive flooding in the rainy season. RAI most likely will conserve that area as a biodiversity reserve.

### 6.3 Other core stakeholders

Consultations over the last ten years in the Kwakwani, Aroaima, Hururu and Ituni Districts respectively conducted by FTCI, and other parties have yielded just three positive facts:

- a) More loggers in the district implies higher volumes of business and more employment options for those communities.
- b) RAI has traditionally provided machinery assets to assist community-based forestry organizations and independent loggers to extract their produce.
- c) RAI purchases logs from community-based forestry organizations and independent loggers in the upper Berbice District; this speeds up their production cycles and cash flow.

## 7.0 ASSUMPTIONS

For RAI, the concession area will be feasible for logging, due to its proximity to LC 01/2017.

The other loggers in the area will have to collaborate with RAI because they would not have the means to conduct maintenance of the Haimorakabra Road to any significant standard. In addition, the haul distance to Kwakwani will represent a major challenge for the forest concessions south of SFEP 01/2022. All this implies, and support the assumption, that RAI will be able to establish MOUs with those concessionaires in relation to road corridor management, wildlife management and general environmental monitoring.

Miners on the concession area are unlikely to develop their concessions unless there are major 'gold shouts'. Carrying out mining operations at that latitude in Guyana will be a logistical nightmare unless there are gold shouts and the miners can charter helicopters to take in urgent spare parts, or extract persons who become ill or are injured. The assumption here is that less than 10% of the mining concessions will be developed.

## 8.0 NON-TECHNICAL SUMMARY OF PROJECT

### 8.1 Business Objectives

RAI's primary business objective is to harvest merchantable timber from the concession area and then transport the logs by road from the concession via the Haimorakabra Road and its own logging road to LC 1/2017.

### 8.2 Administrative /technical requirements

To develop SFEP 1/2022, RAI requires an Environmental Authorization from the EPA. The Environmental Authorization is a prerequisite for the GFC to grant a large concession to RAI in order that the company will formally start timber harvesting, and ancillary operations.

In granting a large concession to RAI, the GFC applies criteria that determine where and in which areas logging will occur, the total area that may be harvested per year, and the maximum volume that will be harvested per year.

For SFEP 01/2022, GFC's provisional prescriptions are:

- a) The production criteria will be based on a felling cycle of 40 years-meaning that for each unit area harvested, harvesting will only be allowed in that unit after a period of 40 years. In addition, the logger would be allowed to harvest a maximum of 13.33m<sup>3</sup> per hectare.
- b) The available productive area approved for SFEP 1/2022 is to be harvested by the concessionaire is 30,674.65 ha (46.6% of the concession area).
- c) RAI must maintain a biodiversity reserve with a minimum area of 1,445.40ha
- d) The annual area to be harvested is 613.49 ha (six blocks); this means that less than 1.0% of the concession area will be harvested per year, over a period of 40 years.
- e) The maximum volume to be harvested per year is **8,177.86m<sup>3</sup>**.

In addition, three critical prescriptions must be followed:

- a) RAI must conduct pre-harvest 100% forest inventory for every 100ha block to be harvested and submit the data for GFC's validation. (RAI has already embarked on 100% forest inventory)
- b) RAI must prepare a 3–5-year Forest Management Plan, in line with GFC guidelines, setting out the nature and scope of timber harvesting operations for a specific area of the concession. This plan will include considerations for staffing, staff training, environmental management, stakeholder collaboration, road construction schedules, timber harvesting schedules, and timber marketing plans. (RAI has already drafted a forest management plan)
- c) RAI is required to prepare *annual operation plans* (AOPs), in line with GFC guidelines, setting out in detail, *inter alia*, plans for forest inventory, road construction and maintenance, staff recruitment and training, vehicular assets, timber harvesting plans, and forest monitoring plans for each calendar year. These AOPs must be approved by the GFC. (RAI has already drafted APO2022 and is in the process of drafting APO2023 (which is due on November 30, 2022

Needless to say, RAI will follow all prescriptions, such as the Code of Practice for Field Operations, prescriptions aligned to the Environmental Authorization, and other applicable guidelines and policies.

### 8.3 First operational steps

In the pursuit of its forest concession development, RAI's first steps will be to:

- a) Verify the boundaries of the forest concession, resolve any conflicts with any other party and post signboards for the benefit of stakeholders.
- b) Conduct forest reconnaissance activity aimed at identifying other land use events within the concession area, identify existing roads and paths within the concession area, and start the process of developing partnerships (with miners and communities) wherever appropriate.
- c) Set up buffer zones wherever appropriate. (Typically, loggers maintain a distance of at least 500m from the edges of mining communities, farmsteads, and mining operations; also, loggers maintain a buffer zone of at least 500m from the boundaries of adjacent Indigenous communities).
- d) Identify the area for the biodiversity reserve, and then organize the concession area into three compartments, which are duly given a designation for easy reference. (The compartments have already been determined; work is ongoing on the location of the biodiversity reserve).
- e) The entire productive area of the concession is then divided into 1000m x 1000m (100ha) blocks: each block is then given a unique alpha-numerical code, which allows the location of any event to be described in detail.

### 8.4 Timber harvesting Operations

Based on current data sets, RAI and GFC has agreed that six @100ha blocks may be harvested per year. For any given calendar year, RAI will indicate in which blocks it will conduct 100% forest inventory, then duly submit the inventory data for each block to the GFC for validation purposes. Once GFC approves of the quality of the forest inventory, the company will prepare stock maps- showing the number of trees, the species of trees and their spatial distribution, and extraction routes via primary roads, secondary roads, and skid trails – for the stock it plans to harvest. Stock maps for all the blocks to be harvested will be the basis for an annual operational plan. An AOP for any given year must be submitted to GFC for approval during period November-December of the preceding year. Figure 5 illustrates the annual, cyclic activities that RAI will follow; however, the geographical area will change in accordance with the sequence of operations set out in the forest management plan.

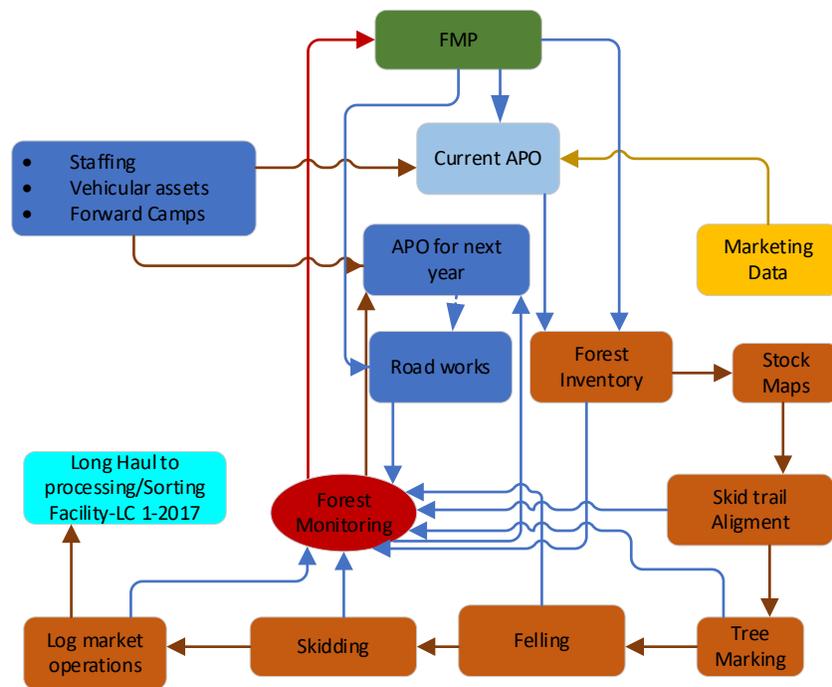


Figure 5: Chart illustrating RAI's annual cycle of events for the area embodied in SFEP 1/2022.

Apart from the blocks to be harvested for the year at hand, the Company will prepare an annual operational plan setting out *inter alia* the following:

- the personnel and machinery assets available to harvest the stock contained on the stock maps
- the primary and secondary road works respectively planned for the current year for the extraction of the logs to be harvested
- any developmental works planned for the base camp or forward camps.
- blocks to be inventoried in the next calendar year.

## 8.5 Log market operations

Logs extracted from stump by skidders are normally taken to log markets for grading and sorting as well as for GFC documentation requirements. Logs will then be transported by trucks from the log market on the concession area to RAI's facility, Yarrowkabra, Linden-Soesdyke Highway.

## 8.6 Forest monitoring

A major field operation is forest monitoring. The company maintains a constant check as to whether filed operations are proceeding according to plan. A robust forest monitoring system is particularly important to ensuring due compliance with all applicable guidelines generally and environmental management in particular.

Forest monitoring is also critical for informing positive change for the years ahead. Therefore, feedback from forest monitoring is vital for altering content in the existing forest management plan as well as strategic planning.

## 8.7 Project Duration

This project is projected to last for twenty-five years with the option for renewal for another twenty-five years.

## ANNEXES

Annex I: Extract: RAI's Certificate of Incorporation



Company No.: 5637

COMPANIES ACT OF GUYANA

CERTIFICATE OF INCORPORATION

RONG-AN INC

I hereby certify that the above-mentioned Company, Articles of Incorporation of which are attached, was incorporated under the Companies Act of Guyana on the 1st day of September, 2006.



  
Registrar of Companies

Dated this 17th day of July, 2014

Annex II: Copy of RAI's TIN Certificate

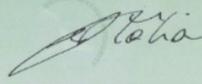
  
**Certificate of Registration**  
Taxpayer Identification Number (TIN)

**Taxpayer Name:** RONG-AN INC  
**Business Name:**  
**Taxpayer Type:** COMPANY  
**Address:** LOT 'A' BLOCK '2' PUBLIC ROAD  
LAND OF CANAAN  
EAST BANK DEMERARA

**Date Issued:** September 19, 2016      **Date Amended:** September 19, 2016  
This Taxpayer has been registered under the provisions  
of the Income Tax (Amendment) (No. 2) Act # 15 of 2006

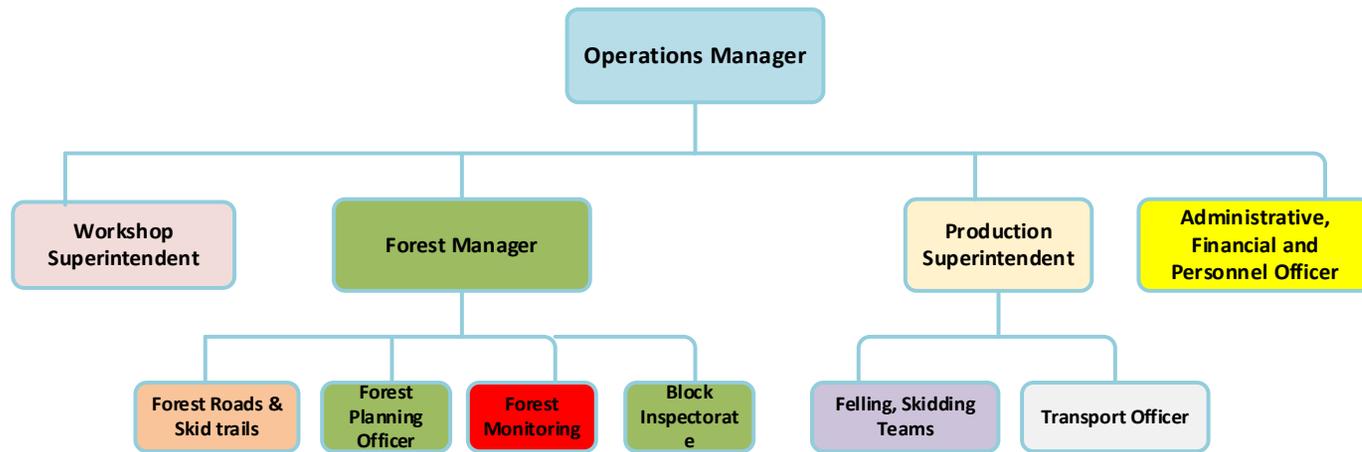
**Tax Office:** HEAD OFFICE

**TIN:** 010311292

  
\_\_\_\_\_  
**Commissioner General**  
Guyana Revenue Authority

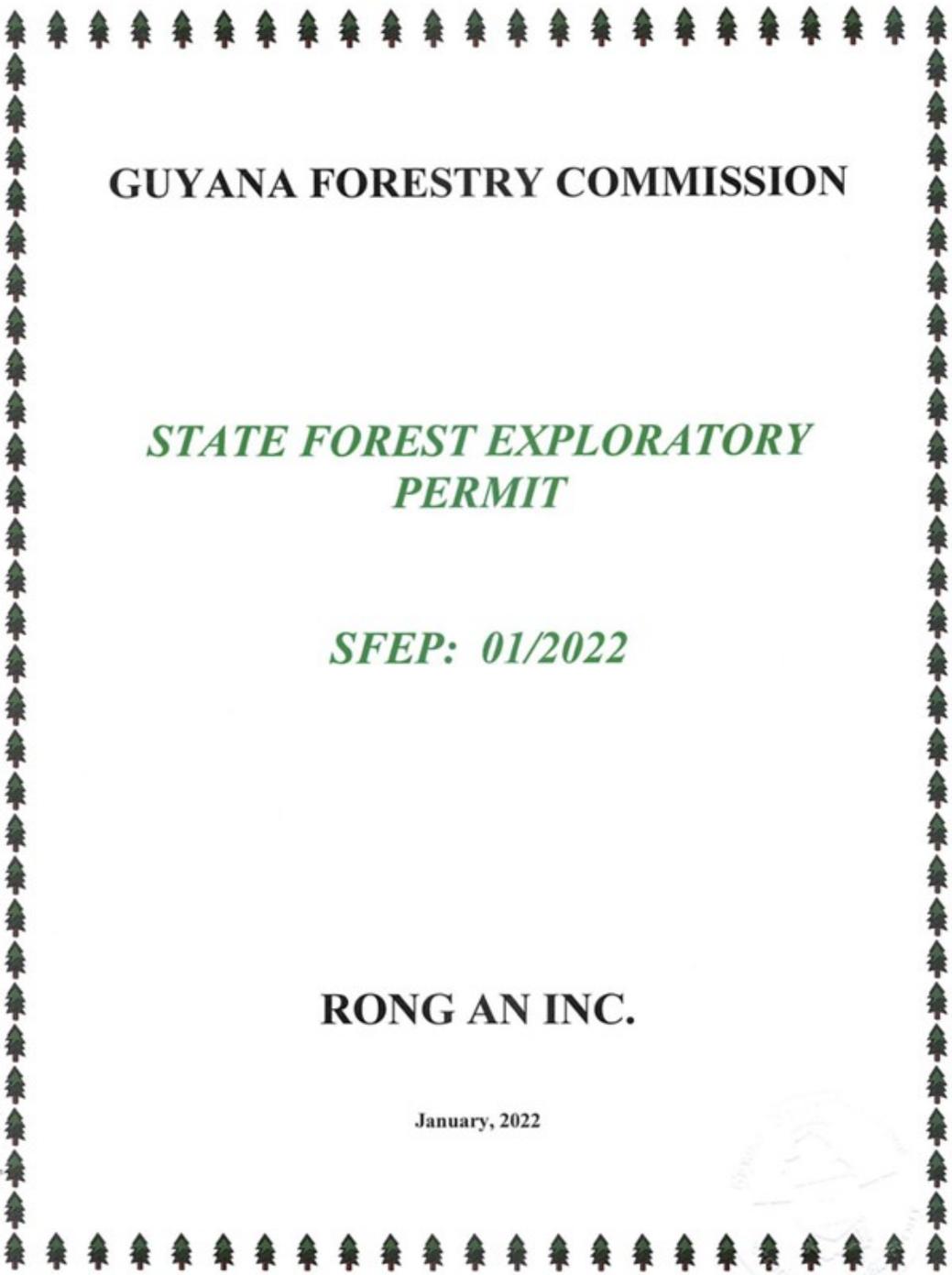
GRA10140653

Annex III: Organizational Chart: RAI



**Note**

The Forest monitoring officer is responsible directly for environmental matters and stakeholder issues



**GUYANA FORESTRY COMMISSION**

***STATE FOREST EXPLORATORY  
PERMIT***

***SFEP: 01/2022***

**RONG AN INC.**

January, 2022



*CH*

*✓*

**Rong-An-Inc SFEP 01/22**

**Left & Right Bank Berbice River, Right Bank Essequibo River.**

Commencing at the **mouth** of an **unnamed tributary** on the **right bank Essequibo River** having approximate **UTM** geographic coordinates of **03 38 559 E, 04 63 336 N**; thence up the **left bank** of this **unnamed tributary** for an approximate distance of **6.5 km** to the **mouth** of a **unnamed tributary** having approximate **UTM** geographic coordinates of **03 43 991 E, 04 62 469 N**; thence up the **left bank** of this **unnamed tributary** to a point near its **source** having approximate **UTM** geographic coordinates of **03 45 649 E, 04 62 093 N**; thence by a **cut line** in a **Easterly** direction for an approximate distance of **4.4 km** to a point on a **Trail (Road)** having approximate **UTM** geographic coordinates of **03 50 132 E, 04 62 123 N**; thence along this **trail** in a **North-easterly** direction for an approximate distance of **9.8 km** to a point on an **unnamed tributary** having approximate **UTM** geographic coordinates of **03 58 619 E, 04 64 148 N**; thence down the **right bank** of this **unnamed tributary** to its **mouth** on an **unnamed tributary** of the **Berbice River** having approximate **UTM** geographic coordinates of **03 60 024 E, 04 64 080 N**; thence across an **down the right bank** of this **unnamed tributary** for an approximate distance of **1.6 km** to the **mouth** of another **unnamed tributary** of the **Berbice River** having approximate **UTM** geographic coordinates of **03 61 142 E, 04 64 831 N**; thence up the **left bank** of this **unnamed tributary** for an approximate distance of **1.3 km** to a point having approximate **UTM** geographic coordinates of **03 62 146 E, 04 64 216 N**; thence by a **cut line** in a **Easterly** direction for an approximate distance of **2.1 km** to a point on the **Berbice River** having approximate **UTM** geographic coordinates of **03 64 279 E, 04 64 191 N**; thence across an **down the right bank Berbice River** for an approximate distance of **5.6 km** to a point where it **intersect** a **Trail (Road)** having approximate **UTM** geographic coordinates of **03 62 674 E, 04 66 518 N**; thence along this **Trail** in a **North-easterly** direction for an approximate distance of **17.4 km** to the **intersection** with a large **unnamed tributary** of the **Berbice River** having approximate **UTM** geographic coordinates of **03 76 735 E, 04 74 133 N**; thence up the **left bank** of this **large unnamed tributary** to a point where it **intersects** an **old trail** having approximate **UTM** geographic coordinates of **03 78 270 E, 04 70 918 N**; thence along this **trail** in a **South-westerly** direction for an approximate distance of **6.4 km** to a point having approximate **UTM** geographic coordinates of **03 77 662 E, 04 65 709 N**; thence by a **cut line** in a **South-easterly** direction for an approximate distance of **1.9 km** to a point near the **source** of a **large unnamed tributary** of the **Berbice River** having approximate **UTM** geographic coordinates of **03 78 299 E, 04 63 838 N**; thence down the **right bank** of this **large unnamed tributary** of the **Berbice river** to a **point opposite** the **mouth** of an **unnamed tributary** having approximate **UTM** geographic coordinates of **03 69 068 E, 04 61 364 N**; thence across and up the **left bank** of this **unnamed tributary** for an approximate distance of **10.8 km** to the **mouth** of an **unnamed tributary** having approximate **UTM** geographic coordinates of **03 74 345 E, 04 53 329 N**; thence up the **left bank** of this **unnamed tributary** to a point near its **source** having approximate **UTM** geographic coordinates of **03 72 676 E, 04 53 282 N**; thence by a **cut line** in a **South-westerly** direction for an approximate distance of **2.3 km** to a point near the **source** of another **unnamed tributary** of the **Berbice River** having approximate **UTM** geographic coordinates of **03 70 485 E, 04 52 425 N**; thence down the **right bank** of this **unnamed tributary** to its **mouth** on the **right bank Berbice River** having approximate **UTM** geographic coordinates of **03 62 910 E, 04 50 270 N**; thence down the **right bank Berbice River** for an approximate distance of **2.3 km** to a point opposite the **mouth** of a **large unnamed tributary** having approximate **UTM** geographic coordinates of **03 61 702 E, 04 51 367 N**; thence across and up the **left bank** of this **unnamed tributary** to a point near its **source** having approximate **UTM** geographic coordinates of **03 54 213**

**E, 04 48 740 N**; thence by a **cut line** in a **North-westerly** direction for an approximate distance of **3.5 km** to a **point** near the **source** of an **unnamed tributary** of the **Essequibo River** having approximate **UTM** geographic coordinates of **03 50 733 E, 04 49 064 N**; thence down the **right bank** of this **unnamed tributary** to its **mouth** on the **right bank Essequibo River (this point being Massara)** having approximate **UTM** geographic coordinates of **03 39 794 E, 04 45 420 N**; thence down the **right bank Essequibo River** for an approximate distance of **45.3 km** to the **mouth** of an **unnamed tributary**, this being the point of commencement.

**Save and except all lands legally held.**

**Coordinates have not been field- evaluated.**

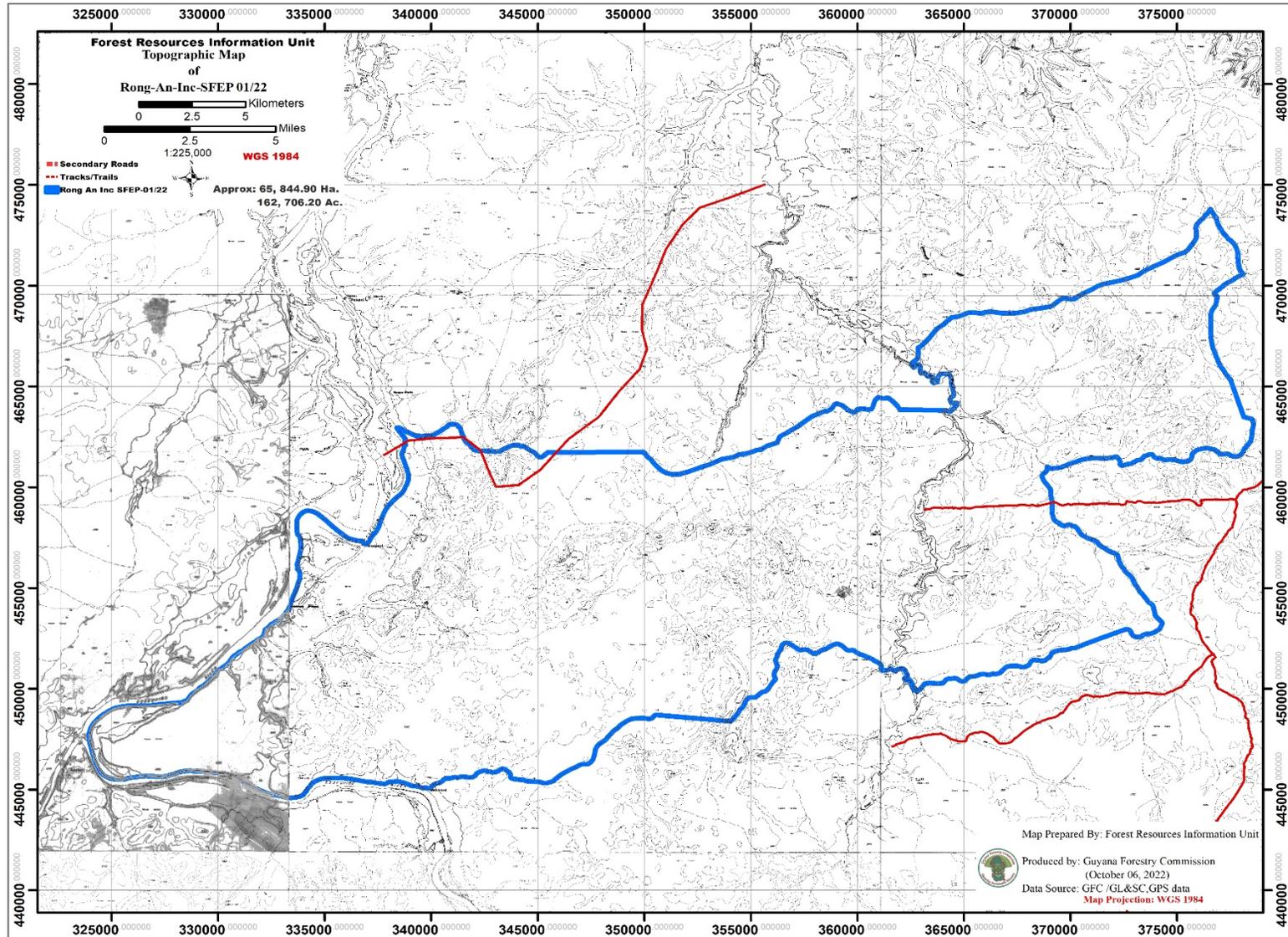
**Description subject to change upon verification**

**Approximate area: 65,844.9 Hectares (162,706.2acres).**

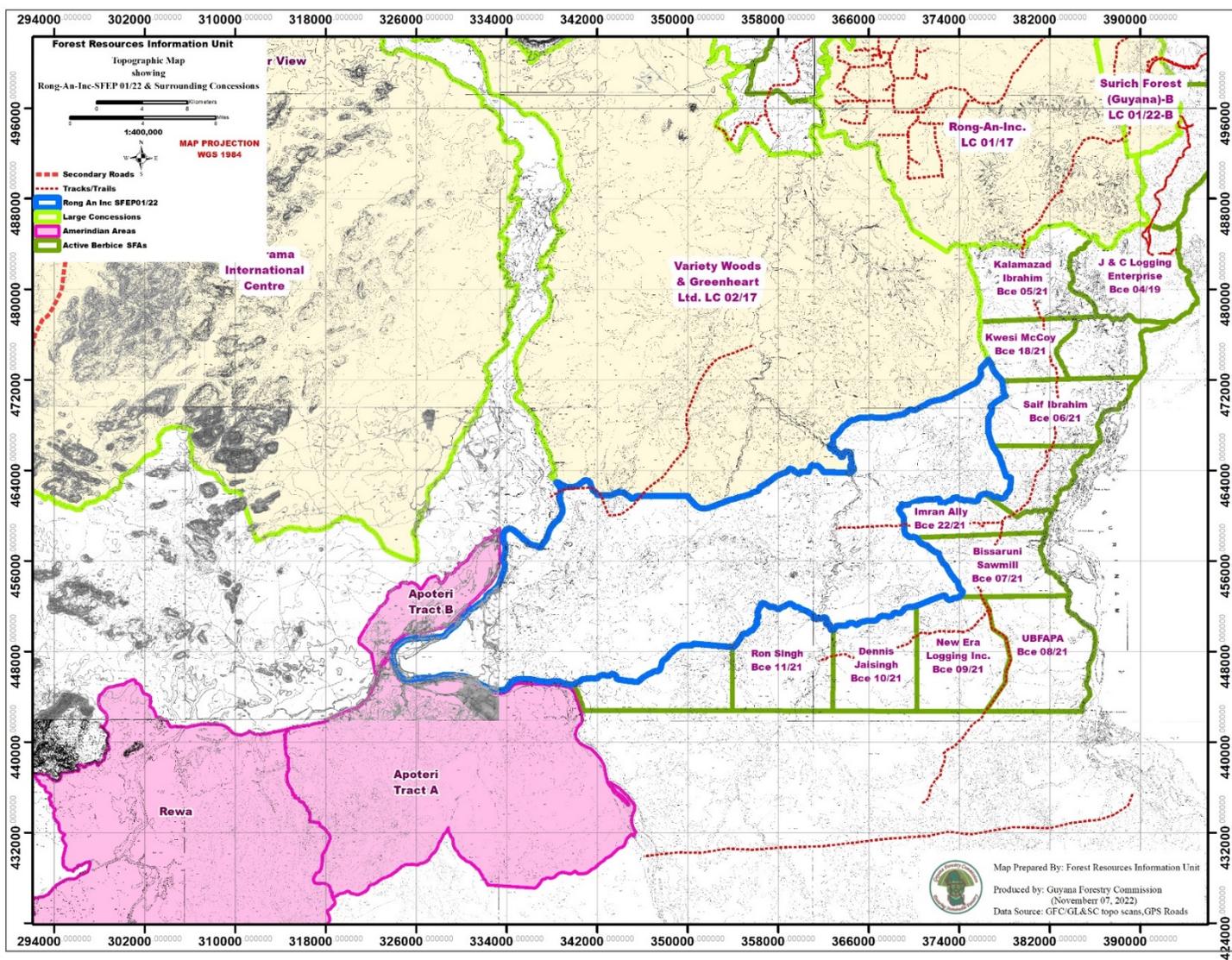
**Map reference: 56 SE, 57 NE, SE, SW.**

**WGS Projection**

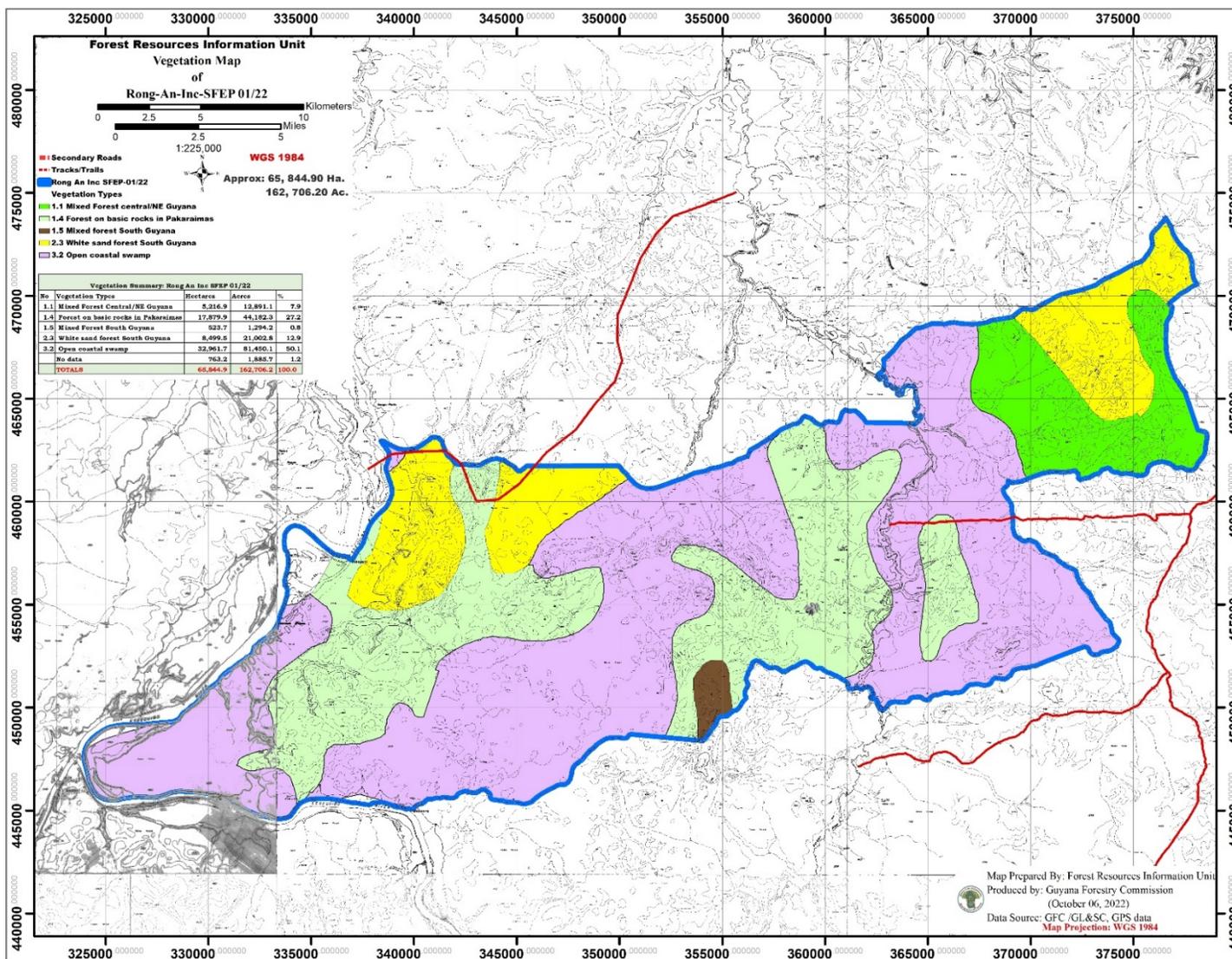
Annex VI: Topographic map of the concession area (SFEP 1/2022)



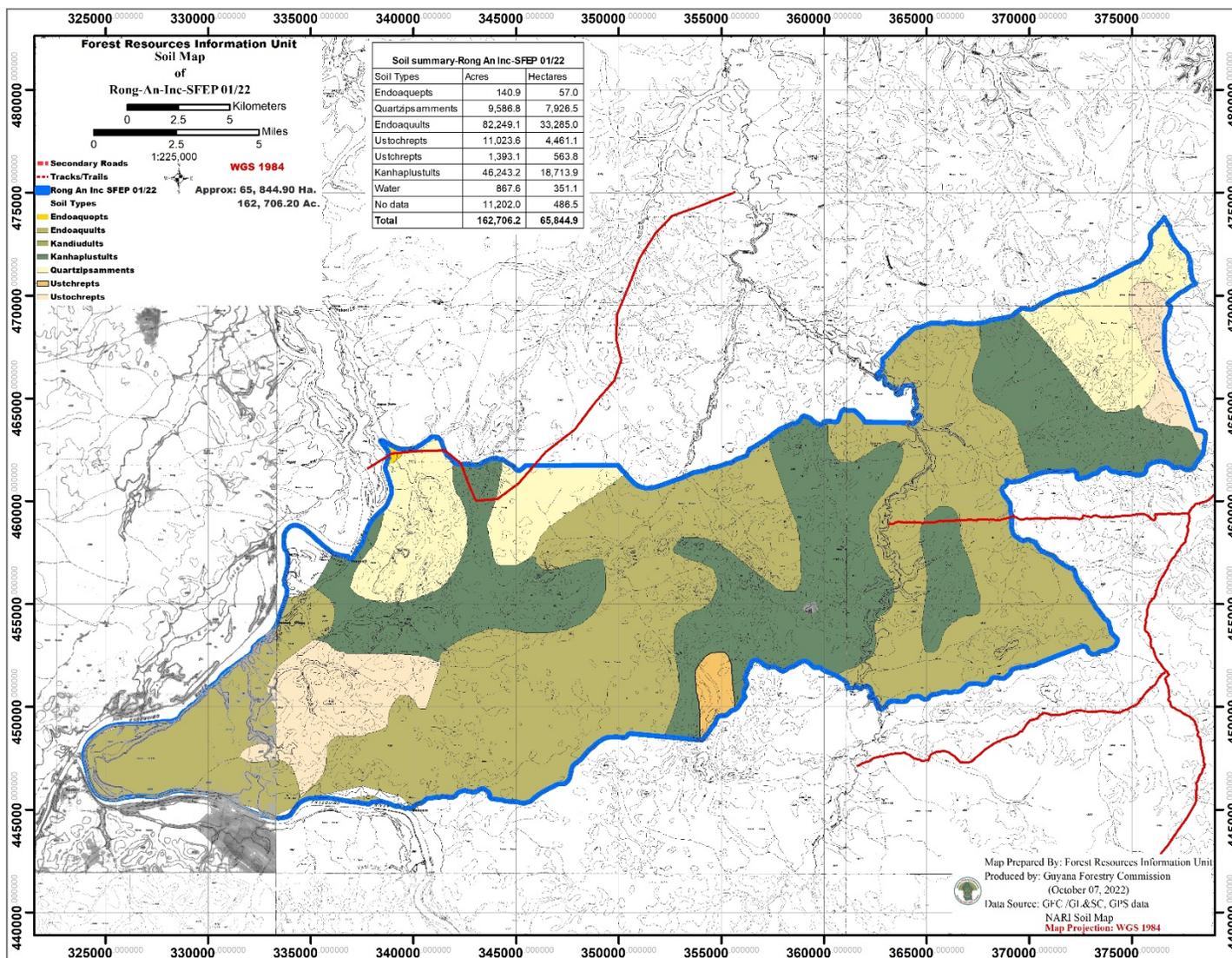
Annex VII: Map of SFEP 1/22 and surrounding areas.



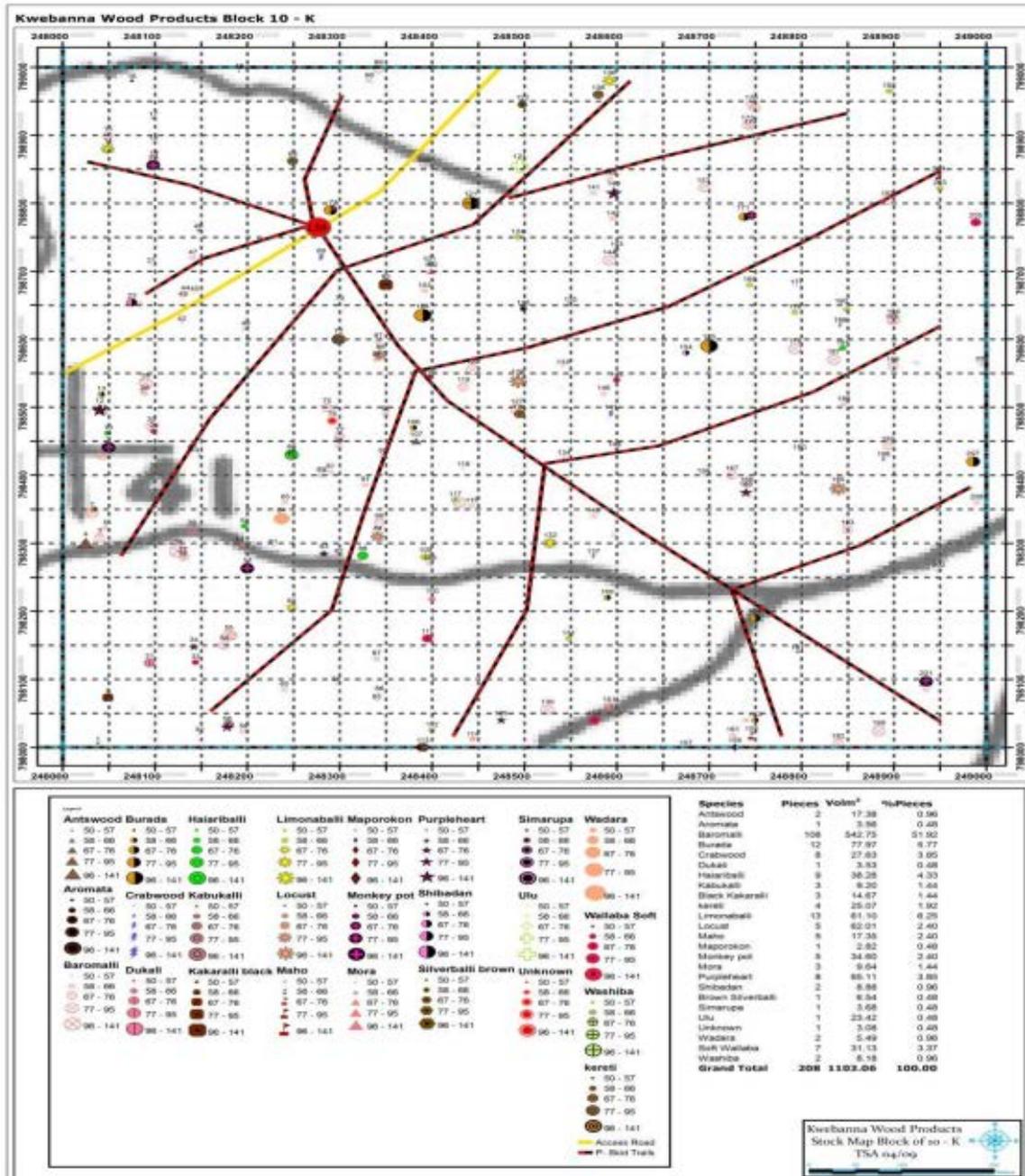
### Annex VIII: Vegetation Map of Concession Area(SFEP 1/2022)



Annex IX: Soil map of the concession area(SFEP 1/2022)



Annex X: Copy of typical tree location map.



**Annex XI: Potential negative impacts and corresponding mitigation measures.**

Predicted impact.	Proposed mitigation measures	Lead agency	Time frame for implementation
<b>1. Physical Environment</b>			
1.1 Earthworks will lead to , scarification of soil surface, sub-soil exposure , erosion, soil compaction, and water logging	<ul style="list-style-type: none"> <li>• Plan roads, bridges and culverts paying attention to topography and the use of stock maps.</li> <li>• Use appropriate machines for all earth works to reduce the time taken to complete each activity.</li> <li>• Consider the weather pattern before initiating major earthworks.</li> <li>• Follow the recommendations of the CoP (Sections 4.5-4.7, Section 5)</li> </ul>	RAI	During the entire time frame for the project.
1.2 Air quality: Dust and smoke (especially along roads) minor changes in micro-climate	<ul style="list-style-type: none"> <li>• Vehicles will travel slowly &lt;25 km/hr whenever they pass homesteads or communities.</li> <li>• All machines must be fully functional to maintain emissions within manufacturers’ parameters.</li> </ul>	RAI	During the entire time frame for the project.
1.3 Water resources: negligible increases in turbidity, temperature, ph.; oil spills	<ul style="list-style-type: none"> <li>• Strict adherence to RIL principles and prescriptions of the CoP, especially regarding buffer zones along waterways.</li> <li>• Maximum care to be taken to ensure all vehicles and machinery are in a proper state. Dispense or change lube oil only in designated areas.</li> <li>• EPA’s Brochure on Water conservation to be placed at all public points around the concession.</li> <li>• Regular briefing sessions for field staff would be formalised.</li> <li>• Care taken to avoid excessive spillage of borax solutions whenever used to treat (some species of) timber.</li> </ul>	RAI, GFC	During the entire time frame for the project.
<b>2. Biological/ecological environment</b>			
2.1 Timber harvesting: destruction of juvenile trees, genetic erosion of species, decline in soil fertility, spillage of oil, increased potential for blow downs	<ul style="list-style-type: none"> <li>• Implement a system for conducting pre-harvest inventories and preparing stock maps.</li> <li>• Use directional felling techniques for felling trees.</li> <li>• Plan skid trails based on stock maps.</li> <li>• Use winching techniques.</li> <li>• Use heavy duty machines that are fully functional.</li> <li>• Train all field operatives in RIL practices</li> </ul>	RAI	During the entire time frame for the project.
2.2 Wildlife: modification, destruction of habitats, population changes	<ul style="list-style-type: none"> <li>• Ensure a systematic manner of timber harvesting so that once a block is harvested, the operation moves on, so that no further disturbances occur.</li> <li>• Prohibit employees from hunting and fishing.</li> <li>• Unique ecosystems, habitats and species will be conserved, by restricting logging in areas where they occur.</li> </ul>	RAI	During the entire time frame for the project.

Predicted impact.	Proposed mitigation measures	Lead agency	Time frame for implementation
2.3 Ecological relationships; Modifications of ecological relationships.	<ul style="list-style-type: none"> <li>Implement proper RIL practices and prescriptions of the CoP (Sections 8, 9 &amp; 10)</li> <li>Prohibit the use of fires on the forest floor.</li> </ul>	RAI, GFC	During the entire time frame for the project.
<b>3. Socio-economic environment</b>			
3.1 Conflicts: restrictions of access, alienation of rights	<ul style="list-style-type: none"> <li>Engage residents in discussion and consultations to address mutual concerns: ensure the company is positioned to receive and address complaints.</li> </ul>	RAI	As required
3.2 Social problems: crime, use of alcohol, other disagreeable behaviour; increase in life threatening behaviour through exposure to various illnesses.	<ul style="list-style-type: none"> <li>Work with public agencies (Police, staff of the Ministry of Health, and staff of the Ministry of Regional Development) in Regions 7, to address emerging issues.</li> <li>Keep proper records of emerging problems and pass these on to the appropriate agencies.</li> </ul>	RAI	As required
3.3 Road safety: high probability of road accidents.	<ul style="list-style-type: none"> <li>Work with MOPW, the GPF, the mining community and other stakeholders to ensure adherence to proper road use practices and to identify road locations requiring special attention.</li> <li>Make sure that each vehicle is in a full functional state prior to its use on the roadways, within and outside of the concession area.</li> <li>Place appropriate cautionary signs at sharp turns, steep grades, and bridges and near populated areas.</li> <li>Promote proper skills set among drivers through Training.</li> </ul>	RAI	During the entire time frame for the project.
3.4 Waste management: illnesses resulting from a polluted environment	<ul style="list-style-type: none"> <li>Observe prescriptions of the Code of Practice for forest operators. 3rd Ed. Sections 8.0, 9.1, 9.2.</li> <li>Hold frequent briefing sessions with staff to ensure a shared understanding of the consequences of poor control over waste management.</li> <li>Distribute and put-up EPA's brochure on waste management at all camps.</li> </ul>	RAI	Monthly
3.5 Indigenous, archaeological assets: loss, destruction modification of habitats, landscapes	<ul style="list-style-type: none"> <li>Identify and isolate any assets encountered and post appropriate advisory signs and notices; ensure such sites are recorded on all stock maps.</li> <li>Consult with the Amerindian Affairs Ministry and the Walter Roth Museum on collaborative efforts to protect any assets discovered.</li> <li>Collaborate with communities to address the conservation of existing and emerging assets.</li> <li>Offer Training &amp; incentives where appropriate</li> </ul>	RAI	As required

Annex XII: Projected situation following mitigation measures.

Environment Type	Project Activities	Project Phase	Potential Environmental Impact	Main Mitigation Measure	Impact Significance after Mitigation
Physical Environment (Land/Soil)	Clearing of lands for the construction of base camps, roads, log markets and mechanical workshops	Operations	<ul style="list-style-type: none"> <li>Removal of specific site vegetation to facilitate the construction of project facilities has the potential to expose the soil to erosion,</li> <li>Scarification of soil surface and sub-soil, soil compaction.</li> </ul>	<ul style="list-style-type: none"> <li>Minimize removal of vegetation and encourages the re-vegetation of site impacted by clearance.</li> <li>Installation of drainage system to accommodate surge in storm water.</li> </ul>	Ex: Ir: Lt: Un: M: In: Lp
	Operation of Machineries	Operations	<ul style="list-style-type: none"> <li>Soil compaction from multiple passes of heavy vehicles over soil surface.</li> </ul>	<ul style="list-style-type: none"> <li>Avoid the use of heavy vehicles during periods of heavy rainfall.</li> <li>Design specific routes for heavy vehicles and equipment to use.</li> </ul>	Ex: Ir: Lt: Un: M: Sig: Lo
	Waste Disposal (solid and liquid waste)	Operations	<ul style="list-style-type: none"> <li>May result in soil contamination from indiscriminate disposal of liquid, solid and hazardous waste</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of a sound waste management system at the location of operation</li> </ul>	Lo: Rv: St: Av: M: In: Hp
	Fuel and Oil transportation, handling, and storage	Operations	<ul style="list-style-type: none"> <li>Pollution from fuel and oil because of a spill during transportation, handling, or storage.</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that fuel, oils, and hazardous liquids are stored in a bunded are that has an impervious surface.</li> <li>Due care will be applied to prevent spillage whilst handing fuel, oils, and potential hazardous liquids.</li> </ul>	Lo: Ir: Lt: Av: Im: In: Lp.  Lo: Ir: St: Av: Im: In: Lp

Environment Type	Project Activities	Project Phase	Potential Environmental Impact	Main Mitigation Measure	Impact Significance after Mitigation
Physical Environment (Water Resources)	Clearing of lands for the construction of base camps, roads, log markets and mechanical workshops	Construction/ Operations	<ul style="list-style-type: none"> <li>Potential increase in sediment loads and turbid streams due to surface runoff and erosion. Removal of vegetation</li> </ul>	<ul style="list-style-type: none"> <li>Implementation of erosion control measures.</li> <li>Channel storm water to a settling/forested area before discharge into creeks.</li> <li>Create buffer zone around streams and creeks.</li> </ul>	Lo: Ir: St: Un: M: Sig: Hp
	Construction of bridges and the installation of culverts	Construction/ Operations	<ul style="list-style-type: none"> <li>Possible reduction of stream flow from the installation of bridges and culverts</li> </ul>	<ul style="list-style-type: none"> <li>Construct bridges and culverts in accordance with the GFC's Code of Practice for Timber Harvesting Operations</li> <li>Temporary water-crossings to be decommissioned after usage to ensure that they do not collapse and block stream flow.</li> <li>Design bridges to allow for the free flow of water, taking into consideration water flow during period of extremely high intensity rainfall.</li> <li>Road culverts should be aligned perpendicular to the road and horizontal to the flow of water</li> </ul>	Lo: Ir: Lt: St: Un: Im: Sig: Hp: Av: Lp
	Waste Disposal (solid and liquid waste)	Construction/ Operation	<ul style="list-style-type: none"> <li>Contamination of water in proximity to disposal,</li> </ul>	<ul style="list-style-type: none"> <li>Avoid the dumping of waste in creeks and streams.</li> </ul>	Lo: Ir: St: Un: M: In: Lp

Environment Type	Project Activities	Project Phase	Potential Environmental Impact	Main Mitigation Measure	Impact Significance after Mitigation
			<ul style="list-style-type: none"> <li>modifications in water temperature, turbidity, ph.</li> <li>• Pollution with oil</li> </ul>	<ul style="list-style-type: none"> <li>• Development and implementation of a waste management plan.</li> </ul>	
	Fuel and Oil transportation, handling, and storage	Construction/ Operation	<ul style="list-style-type: none"> <li>• Contamination of water in proximity to disposal, modifications in water temperature, turbidity, ph.;</li> <li>• Pollution with oil</li> </ul>	<ul style="list-style-type: none"> <li>• All fuel, oils and hazardous liquids will be stored away from streams and creeks.</li> <li>• Ensure that all fuel, oils, and hazardous liquids that will be used by the operation is stored and used in a banded area.</li> </ul>	lo: Ir: Lt: Un: M: In: Lp
Physical Environment (Air)	Operation of chainsaws	Construction/ Operation	<ul style="list-style-type: none"> <li>• Noise, dust, and smoke generated from the operation of the various equipment.</li> <li>• Changes in microclimate.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that all operative working in proximity to mills and saws be provided with personal protective gear.</li> </ul>	Lo: Ex: Ir: Lt: Un: M: Sig: Hp
	Operation of heavy-duty vehicles and equipment	Construction/ Operation	<ul style="list-style-type: none"> <li>• Noise generated for the operation of the various pieces of equipment.</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure that all operative working on and in proximity to are provided with personal protective gear</li> </ul>	Lo: Ex: Ir: Lt: Un: M: Sig: Hp
	Clearing of lands and of logs and other materials	Construction/ Operation	<ul style="list-style-type: none"> <li>• Excessive exposure of soil and constant traversing of heavy-duty vehicles over exposed soil</li> </ul>	<ul style="list-style-type: none"> <li>• All employees working in dusty environs will be provided with dust masks.</li> <li>• Speed limits will be instituted for vehicles using dusty areas.</li> <li>• During extensive dry periods dusty areas will be soaked on a regular basis.</li> </ul>	Lo: R: St: Av: M: In: Lp
	Operation of heavy-duty vehicles and equipment.	Operation	<ul style="list-style-type: none"> <li>• Dust and particulate matter resulting from the</li> </ul>	<ul style="list-style-type: none"> <li>• All employees working in dusty environs will be provided with dust masks.</li> </ul>	Lo: Ex: Ir: Lt: Un: M: Sig: Hp

Environment Type	Project Activities	Project Phase	Potential Environmental Impact	Main Mitigation Measure	Impact Significance after Mitigation
			operations of chainsaws and movement of vehicles.		
	Disposal of wood Waste	Operation	<ul style="list-style-type: none"> <li>Improper disposal of waste generated wood processing activities at Base Camp</li> </ul>	<ul style="list-style-type: none"> <li>All dust generate from chainsaws and mills will be spread on the forest floor.</li> </ul>	Lo: Ex: Ir: St: Un: M: Sig: Hp
Biological & Ecological Environment (Flora)	Clearing of lands for the construction of base camps, roads, log markets and mechanical workshops	Construction	<ul style="list-style-type: none"> <li>Destruction of trees and from the clearing of lands for construction purposes.</li> </ul>	<ul style="list-style-type: none"> <li>Clearing of vegetative areas will be restricted to areas where construction activities will occur.</li> </ul>	Ex: Rv: St: Un: Im: In: Hp:
	Harvesting of Logs (Logging and extraction)	Operation	<ul style="list-style-type: none"> <li>Reduction in tree species specific to the areas of logging.</li> <li>Genetic erosion of species</li> <li>Decline in soil fertility due to removal of biomass from poor soils,</li> <li>Increased potential for blow downs of residual trees due to freer flow of air though the canopy/under-storey.</li> </ul>	Use of the GFC COP2018	Lo: Ex: Ir: Rv: Lt: St: Un: M: Sig: Hp: Lp
Biological & Ecological Environment (Fauna)	Clearing of lands for the construction of base camps, roads, log markets and mechanical workshops	Construction	<ul style="list-style-type: none"> <li>Modification, fragmentation, and destruction of habitats (especially in terms of cover and food sources); depletion in number, /variety of some species.</li> </ul>	<ul style="list-style-type: none"> <li>Use of the GFC's COP related to the harvesting of logs and all other guidelines that protect biodiversity.</li> </ul>	Ex: Rv: St: Un: Im: In: Hp:

Environment Type	Project Activities	Project Phase	Potential Environmental Impact	Main Mitigation Measure	Impact Significance after Mitigation
	Presence of humans	Construction and Operation	<ul style="list-style-type: none"> <li>Increase in the level of predation, modifications of prevailing ecological relationships: plant-plant, plant-animal, animal-animal</li> </ul>	<ul style="list-style-type: none"> <li>All employees will be educated on the conservation and protection of wildlife.</li> </ul>	Lo: R: St: Av: M: In: Lp
Socio-economic Environment (Occupational Health & Safety)	All construction and Operation activities	Construction/ Operation	<ul style="list-style-type: none"> <li>Risk of accidents from the used of the various equipment onsite</li> </ul>	<ul style="list-style-type: none"> <li>All employees will be educated about the Company's OSH practices.</li> <li>All working environments will be presented with First Aid kits.</li> <li>Appropriate signage will be posted around all working areas.</li> <li>Relevant and appropriate safe gear will be provided to all employees.</li> </ul>	Lo: R: St: Av: M: In: Lp
	Operation of machineries and equipment	Construction /Operation	<ul style="list-style-type: none"> <li>Continuous exposure to excessive noise and vibration from the operation of equipment.</li> </ul>	<ul style="list-style-type: none"> <li>All employees working in environs that cause them to be exposed to occupational hazards will be provided with protective gear.</li> </ul>	Lo: Rev: St: Av: M: Sig: Hp
	Conflict results from the Change in Land Use activities	Construction /Operation	<ul style="list-style-type: none"> <li>Restriction of access, alienation of rights, unplanned changes in lifestyle, restrictions on hunting.</li> </ul>	<ul style="list-style-type: none"> <li>All employees will be educated on how to defuse conflicts.</li> <li>Regular monitoring will be conducted to ensure that no illegal activity occurring within concession and if</li> </ul>	Lo: Rev: St: Av: M: In: Lp

Environment Type	Project Activities	Project Phase	Potential Environmental Impact	Main Mitigation Measure	Impact Significance after Mitigation
				such is observed it will be reported to the relevant authority.	
Socio-economic Environment (Employment)	Increase in workforce	Construction /Operation	<ul style="list-style-type: none"> <li>Increase in the incidences of crime, increase in the use of illicit drugs and alcohol, socially unacceptable behaviour and inappropriate with members of close-by communities.</li> </ul>	<ul style="list-style-type: none"> <li>Illicit drugs and alcohol will not be allowed at camps.</li> <li>All employees will be trained at a minimal level on how to engage with members of close-by communities.</li> </ul>	Lo: Rev: St: Av: M: Sig: Hp
	Hiring of Workforce	Construction /Operation	<ul style="list-style-type: none"> <li>Skills transfer , Training opportunities job creation, increase incomes and cash flows</li> </ul>	<ul style="list-style-type: none"> <li>Members of close-by communities will be sought after.</li> </ul>	Lo: Rev: St: Av: M: Sig: Hp
	Regional Development	Construction /Operation	<ul style="list-style-type: none"> <li>Improvement of infrastructure.</li> <li>Crime; use of alcohol; health risks, disagreeable behaviour</li> </ul>	All staff will be trained in-house on OSH and security	
Socio-economic Environment ( Archaeological Resources)	Construction and operational activities	Construction /Operation	Loss, destruction, or modification of the assets	<ul style="list-style-type: none"> <li>If evidence is found, all activities in the vicinity of findings will be suspended.</li> <li>The relevant authorities will be notified.</li> </ul>	

Impact Significance (parameters)

Lo-localised, Ex-Extensive/ Rev-Reversible, Ir-reversible; / St-short term, Lt-long term/ Av-Avoidable, Un-Unavoidable.

M-Mitigable, Im-Immitigable/ Sig-Significant, In- Insignificant/ Hp-High probability, Lp-Low probability

