
**Public Environment Report for logging operation in
Vula customary land, Vangunu Island, Western
Province.**

VULA TIMBER ENTERPRISES LIMITED

2019

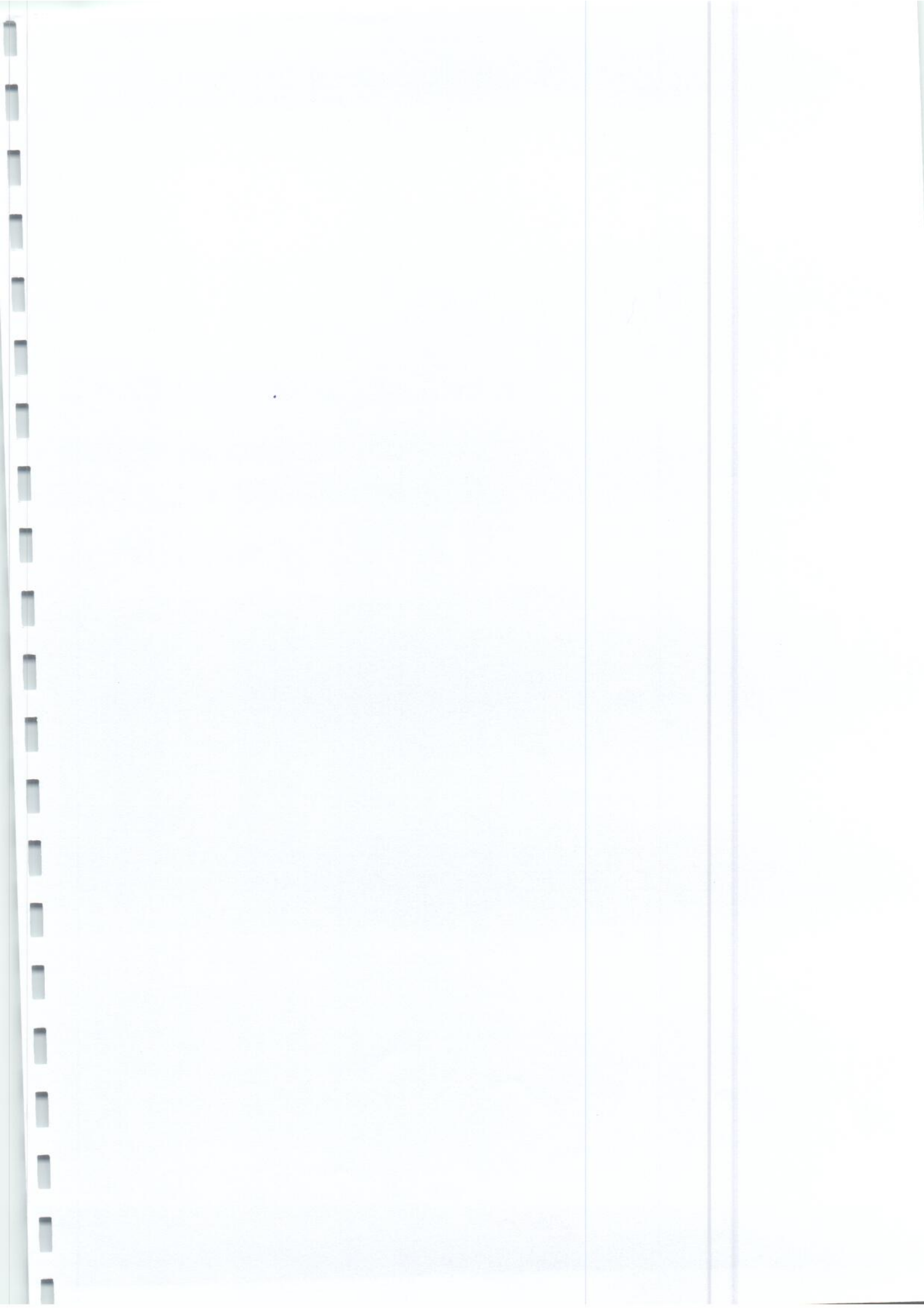
Prepared for:

Ministry of Environment, Climate Change, Disaster Management
& Meteorology

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Non-Technical Summary

This public environment report considers the proposed forestry operations by Vulau Timber Enterprises Ltd in Vulau Customary Land, in Nggatokae ward (23), located in Vangunu Island, Western Province. This operation is classified as re-entry.

The primary need for the proposed logging operations stems from the land holders' aspiration to improve their basic needs and socio-economic development. It is the desire of the land owners to put the land into productive use by harvesting the forest resource and to promote other development activities in the land areas concerned. By allowing the land, the economic utility of their customary land is put into use and hence, contribute to the national government's policy for economic diversification and growth. Logging contributes significantly to the economic growth of Solomon Islands by bringing in the much needed foreign earnings. Without logging the country's economy will have collapsed due to weak performances of other key sectors.

In developing this proposal, the Vulau Timber Enterprises Ltd and its contractor are aware of the adverse impacts associated with logging and, therefore will adopt strategies that would minimize damage and protect the special values of the forest, while simultaneously maintaining a sustainable level of use.

The main purpose of this PER is to assess the impacts of the planned logging operation in the concessions and to propose measures to mitigate adverse impacts of the operations. It addresses the requirements of the Environment Act 1998, particularly Part III on Development Control, Environmental Impact Assessment, Review and Monitoring. Public consultations with resource owners and local communities are an important aspect of the planning process for this PER.

Major project activities anticipated from the operations include site preparation involving road construction, construction of camps and land clearing. Forestry operations comprising mainly harvesting system and log transportation are integral to these activities. For road construction, use and maintenance the proponent will embark on opening up new access

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Chapter 1: Background

1.0 Introduction

This Public Environment Report (PER) identifies the Vula Timber Enterprises Limited, logging operation in **Vula customary land**, in Nggatokae ward (23), located in Vangunu island, Western Province (see figure 1). The Vula Timber Enterprises Limited is a locally registered business entity and has incorporated in the Solomon Islands, whose interest, among others, involved Forestry development in their customary land. Its felling license number A19918 to operate industrial logging in the named customary land has been granted to them on 17/08/2018, and the license is valid till 17/08/2021.

A technical Agreement (TA) has entered with **C & W Forestry Limited** to extract and market the logs for the licensee, the land owners and the contractor. The C&W has also locally in cooperated with its business number **20170807**. Its area of specialisation is forestry. Under the TA the contractor will responsible for providing of equipment, machinery operators and other services such as round logs export for the operations. The logging operation should set in motion once the development consent is secured from the Ministry of Environment, Climate Change, Disaster Management and Meteorology **and other requirements that are deemed relevant under the national laws and the Western Provincial Government Orders.**

1.1 Project proponent

For the proponent's business addresses in Solomon Islands, their details are as follow:

Conduct person	Mr Dekon Trevor KUONG
Phone	+677 7445970
Email	kuongz25@yahoo.com
Registered Office Address	Kakabona, North West Guadalcanal, Guadalcanal, Solomon Islands
Postal Address	P. O. Box 2197, Honiara, Honiara, Solomon Islands
Directors	Mr Leeroy JOSHUA, Mr Derol JOSHUA and Dekon Trevor KUONG

TABLE 1: VULA TIMBER ENTERPRISES LIMITED CONTACT DETAILS

For C & W Forestry Limited, their address is as follow:

Conduct person	Mr William LEPPING
Phone	+677 7483223
Email	willie.williewonky@gmail.com
Registered Office Address	Rove, Honiara, Solomon Islands
Postal Address	P.O Box 1431, Honiara, Solomon Islands
Directors	Mr William LEPPING

TABLE 2: C & W FORESTRY LIMITED CONTACT DETAILS

1.2 Nature and location of the project

The proposed project involved mostly logging of the forest resource in **Vula** customary land in Nggatokae (ward 23) and is located in Vangunu Island, Western Province. It is best described as re-entry. Most of the infrastructures used for the past operation have already been destroyed or have been decommissioned. Hence this logging operation will involves activities such as, **road construction and skidding road construction, forestry operation that** consists of harvesting and log transportation. Other activities that the operations entail such as the creation of **log landings, log pond and wharf**, among others, are part and parcel of the major project components.

TOPOGRAPHIC MAP - AREAS 400m ABOVE MEAN SEA LEVEL

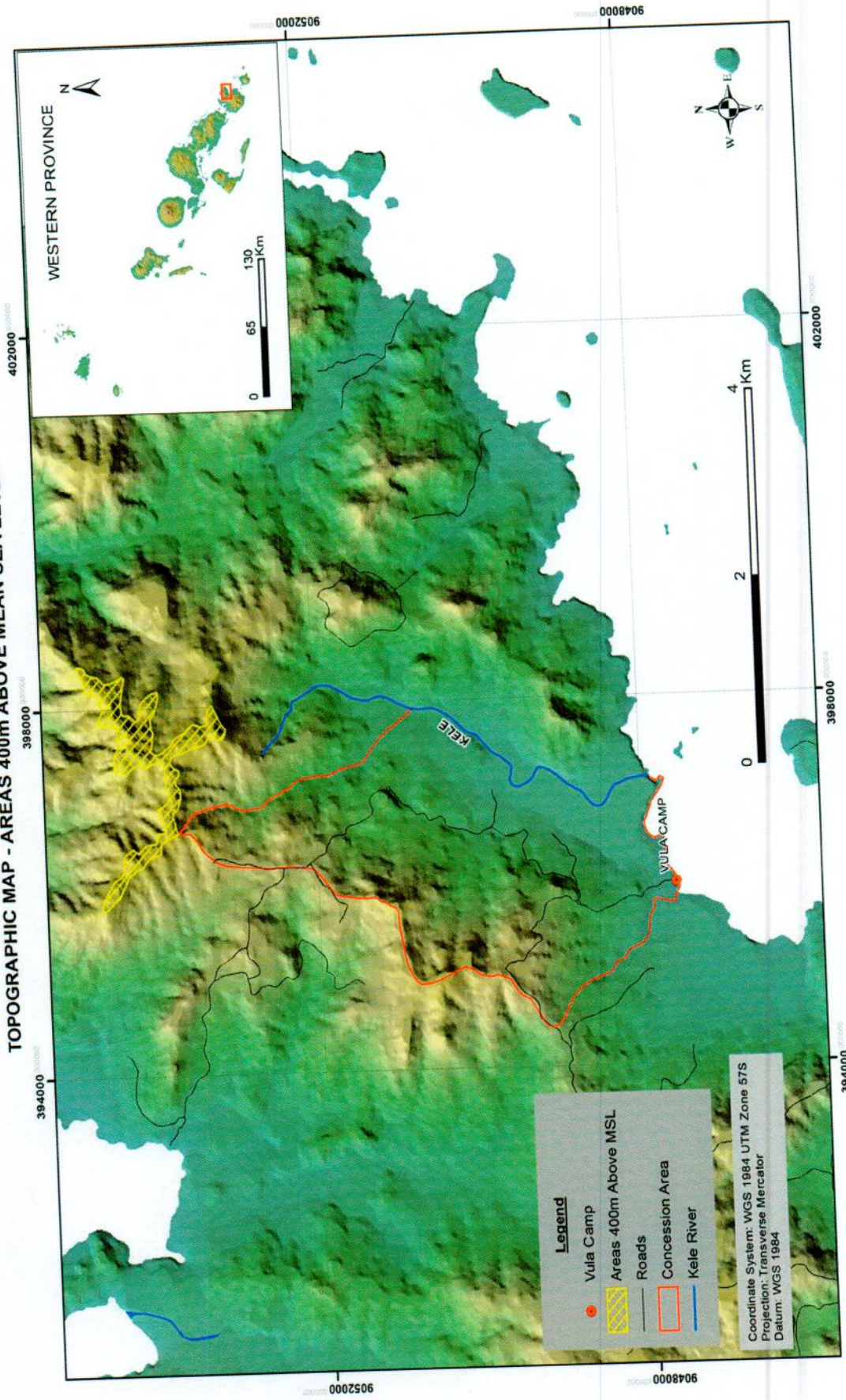


FIGURE 1: TOPOGRAPHICAL MAP OF THE CONCESSION AND SURROUNDING AREAS, MECDM, 2019.

1.3 Purpose of the report

1.3.1 Scope of Report

The main purpose of this Public Environment Report (PER) is to describe and assess the impacts and the potential environmental impacts associated with the proposed forestry operation and including the assemblages of infrastructures. To be specific the PER is making effort to describe and assess the potential environmental impacts associated with the forest harvesting, the log pond construction and uses, the road construction and uses and including constructing of access roads and log landing. It also makes effort to assess the compounding impacts from these major components.

Additionally, the report helps to identify relevant mitigations measures to deal with the potential adverse environmental impacts that will be resulting from the operations. This report therefore addresses the requirement under the Environment Act 1998, particularly Part III on Development Control, Environmental Impact Assessment, Review and Monitoring. Since logging operations is among the list of developments classified as prescribed development in the Second Schedule of the Environment Act, production of this report also fulfils that provision. As provided in the Environment Act the report concentrates on the following objectives;

- i. Describe the prescribed development in summary form, including its objectives and any **reasonable alternatives** to it;
- ii. Describe any aspects of the prescribed development having or likely to have a substantial or important impact on the environment;
- iii. Describe the environment likely to be affected by the prescribed development and any reasonable alternatives to it;
- iv. Indicate the potential or actual impact of the prescribed development on the environment and of any reasonable **alternatives** to the prescribed development, including any enhancement of the environment;
- v. Outline the reasons for choice of the prescribed development; and
- vi. Describe and assess the effectiveness of any safeguards or standards intended to be adopted or applied for the protection of the environment;

In line with the scope outlined above, there has been more emphasis placed on specific areas during the baseline studies and impact assessment contained in this report. A lot of effort was concentrated on understanding the characteristics of the physical and social environment at the project site; the potential adverse effects of the proposed development including their characteristics and; the means of mitigating the environmental effects or the mitigation strategies. It is particularly important to ensure crucial information to expedite decision-making is readily provided in the report.

1.4 Justification and Need for the project

Solomon Islands is a country dominated by rural population, with approximately 86 per cent of the country's total population living in rural areas and, largely dependent on the subsistence sector. With very limited economic opportunity and, with meager and unreliable cash income from sale of agricultural products and marine resources it can be a major challenge to get basic household necessities and afford school fees for children. The increase in cost of living with rising price of basic food items has led resource owners to explore other alternative sources of income from their resources.

For Western Province, it has been described that they are more independent in contrast to other provinces. This is because a significant number of their population (10%) are living in urban areas (Gizo and the Noro–Munda catchments). Together with industries like tourism, fishing, logging and relative isolation from the main Honiara market has produced a significant and relatively independent local cash economy in Western Province (). However, the people of Vangunu in general have been denied some of these economic activities due to unreliable markets (distances from urban centres). Large scale agriculture development in rural areas is rare also except for a few foreign owned businesses operating in the country. This is mainly because of the lack of capital investments and technical experts in rural area to operate and sustain these types of business. The Solomon Islands government has changed its subsidy initiatives that was once supporting farmers in the past and has now replaced it with the Rural Development Constituency Fund.

The Vula customary land owners has denied receiving any of the government fund initiatives hence, are adopting a self-reliance approach by allowing their land to be logged and part of royalties invested into future proposed income generating project development.

As logging is rampant in the country the land holder and the community elders see this as the only viable alternative to log their trees and generate income to kick start their long term goal of agriculture project. The primary need for the proposed logging operations is therefore stems from the resource owners' aspiration to improve their wellbeing and put their land into productive uses by harvesting their forest resource.

At the national level harvesting of natural forest for log exports contributes significantly to the foreign earnings and revenue base of the government of Solomon Islands. In recent years, the logging and timber industries have been the major source of income for the government and the country, in contrast to other sectors such as fisheries and agriculture. The government at present heavily depends on the logging and timber industries to sustain the economy. All these major primary industries are subject to international market conditions which are largely unstable.

1.5.0 APPROACH AND METHODOLOGY

Information contained in this document is mainly obtained from secondary data, of which this secondary data was collected from field assessments undertaken within the forest concession or nearby areas in the immediate recent past. Information are also collected from key ministries for verifying information pertaining legal requirements surrounding the operation.

The PER study consider potential environmental impacts within a 10 km radius to the centre of the concession. Legal documents and agreements between various parties amongst others who have vested interest over the operation also formed major component of the study. Continuous public consultations with key people and the resource owners have yielded useful information for the compilation of the document. Finally, experiences from other logging operation in the country have been utilized for developing the Environment Management Plan (EMP) and the monitoring framework. This study was conducted based

on a preconceived project alternative project layout, and the table below provide general project alternatives.

Without logging	With logging
Underutilisation of the Vula u customary land.	Utilisation of the Vula u customary land and improvement of wellbeing particularly those villages within the vicinity of the operations
Biodiversity health intact	Likely to affect the biodiversity health
No contribution to national GDP	Contributes to national GDP
No employment	Additional employments for land owners and other specialist
Ecosystem services intact	Deterioration of ecosystem services (e.g. water, soil, forest and Non-timber forest product, loss of fisheries etc.

TABLE 3: ALTERNATIVES

1.6.0 Structure of report

This report is structured as much as possible to show resemblance with the format prescribed by the Environmental Regulations 2008 (*Form 3 – PER or EIS Forms*). It follows the guidelines prescribed in Form 1 as specified in the Environmental Regulations (*Guidelines to Assist in Preparation of Public Environment Report or Environmental Impact Statement*).

Based on the above guidelines, the information gathered as part of the baseline studies and subsequent impact assessments are organised and presented as shown, beginning with a section on non-technical summary and followed by the chapters. An overview of the chapters is as follow;

Non-Technical Summary- A non-technical summary is provided as the executive summary

Chapter 1: Introduction - Provides a background to the project, the project proponent, and the process of the Public Environmental Report. It also provides the relevant legal and policy instrument relevant for the operation.

Chapter 2: Description of Major Project components and activities -covers the description of the project components and activities.

Chapter 3: Description of Environmental Setting- describes the background environmental characteristics and potential impact under the project.

Chapter 4: Description of Socio-economic Environment –provides the socio-economic character and the potential impacts anticipated during project implementation.

Chapter 5: Environmental Management Plans (EMP) - The impacts and potential impacts are further evaluated including compounded impacts, with key impacted brought forward with relevant mitigation measures. A Stage Wise Management Plan and a monitoring framework formed the key component of the mitigation measures adapted for managing negative impacts.

References: provides list of literature consulted for the PER development.

1.7.0 Institutional and Legal Framework

1.7.1 Environment Act 1998

All logging operations pursuant to the Second Schedule of the Environment Act are prescribed development. For any such operations to commence, a public environment report (PER) or an environmental impact statement (EIS) is a prerequisite. Development consent is required by the developer from the Environment and Conservation Division in order for logging operations to commence. Established mechanisms are in place for this.

The environmental report identifies all potential adverse consequences associated with the operations and defines appropriate mitigation measures to ameliorate the impacts. The Act requires a set of criteria to be used in the environmental impact assessment (EIA) process in

assessing the impacts of logging on the environment. It is the responsibility of development proponent to prepare the environmental report, at its own expense.

The Solomon Islands Environmental Impact Assessment guidelines, provides checklists for undertaking preliminary environmental assessment of certain sectoral activities to realize the objectives of Environment Act. The Environment and Conservation Division administers this set of guidelines. The checklists and the environmental appraisal summary form, clearly indicate the types of information that are required to accompany the development application, the initial stage in the process of acquiring the development consent. Different sectors covered under the checklists include coastal zone and marine, forest, construction, infrastructure, agriculture and mining projects due to their potentials to cause environmental degradation. In addition, the Environment Act alongside a waste management strategy provide a regulatory guideline for managing of waste including those waste associated with logging operation. The provision for noise pollution control is also provided in the Act.

1.7.2 National Environmental Management Strategy

The National Environmental Management Strategy (NEMS) provides the strategic approach and blueprint for sustainable environmental and natural resource management and conservation in Solomon Islands. A wide range of strategies and programme has been identified in the NEMS to address the problem of environmental degradation in the country. Integration of environmental considerations with policies and economic development projects was among the top priority areas identified to control and manage environmental issues faced by the country. The requirement to submit an environmental report as part of the logging operations to address the environmental and social dimensions of the project is consistent with this priority.

1.7.3 National Biodiversity Strategic Action Plan (2016-2020)

The revised and updated NBSAP (2016-2020) was developed with the provisions of the Convention of the Biological Diversity particularly the Conference of party's decision X/2. The document constitutes the national policy instrument on biodiversity as well as a

continuation of the initial NBSAP endorsed in 2009. It is also one of the few national policies that has adopted the principles enshrined in the Constitution (1978), among which include the principle to recognize customary rules and norms as an integral part of the modern law system. As such, the authority of customary leaders is implicit and the legitimacy of community decisions taken on natural resource management ensured. Moreover, the Constitution provides the guiding principles for interpreting all other Acts, including the Environment Act (1998). The NBSAP is complementary to other policies, particularly the National Development Strategy (2011-2020), and can be viewed as the sum of all strategies developed by environment-related organizations.

The National Development Strategy will serve as the resource mobilization plan for the NBSAP, and as an instrument for mainstreaming issues on gender and poverty eradication and addressing challenges associated with environmental development. Fourteen priority areas are identified in the current NBSAP (each of which supported by a policy statement). While all other priority area deemed relevant to the need for conducting EIA, the priority on governance, compliances and enforcements is explicit and provided for the provisions for improving EIA and its enforcements. Certain areas in the Solomon Islands has year marked for protection under the priority of protected area. Climate change mitigation is a key concern for defining development such as logging that also takes the vulnerability of the community – once the natural system has been altered.

1.7.4 Forest and Timber Utilisation Act 1990 (CAP 40, as amended)

Section 5 of the Act on licensing, which deals with issues involving felling and removing of trees sets out the rights and conditions the company needs to adhere to in undertaking its harvesting operations. The standard logging agreement (Forest and Timber (Prescribed forms) (Amendment) the Regulations has provisions and procedures relevant to environmental protection.

According to 1984 amendment, it is binding on the developer, for example, to ensure river catchment areas are conserved and soil erosion prevented, among other environmentally sound provisions. The 1990 amendment further emphasized the need for environmental protection, for example, by requiring developers to carry out such investigations to identify

and describe any areas which should be excluded from the application on grounds of environment or social values.

1.7.5 Solomon Islands Code of Logging Practice

The code of logging practice complements and simplifies the complicated requirements in Schedule C and Form 4 of the Forest and Timber Utilisation Act. It provides guidelines for planning and monitoring of logging operations to improve logging practices in Solomon Islands thereby minimizing potential adverse environmental consequences associated with logging. The guidelines identify several key standards for purposes of environmental protection, among which, are Key Standard 1 on Protected and Exclusion Areas, Key Standard 2 for Location of Roads and Landings and Key Standard 7 on Temporary Crossings. Other important key standards are also available in these guidelines.

1.7.6 National Forest Policy

Four implementation strategies have been identified in this policy document, as crucial for sustainable utilization and management of the country's forest resource. Of these strategies, the two that have direct relevance to logging are the promotion of increased local level participation in forest management and provision of support for the protection of the environment and ecological sustainability.

The ecological services provided by forest as non-consumptive forest uses are given due attention in the policy document. Protecting the forest as recognized in the policy document plays a greatly significant role in protecting the rivers, soil and other organisms whose livelihood depend on the forest ecosystem. The conditions specified in the license have sufficiently outlined the regulatory measures and compliances standard for the operation.

1.7.7 Other related laws and policies

Supporting policy and regulatory framework	Objective	Relevant themes of the Act and the compliance measures for the project
Protected Areas Act (2010) and Protected	Provided for the establishment of a protected area system and to	Home ranges of key endangered species of nearby PA are overlapping

Area Regulation (2012)	conserve biological diversity.	with the project site.
Wildlife Protection and Management Act (1998) & Wildlife Protection and Management Regulations (2008)	Provides for the regulating of endangered species of wild fauna and flora in compliances to the Solomon Island's obligations under the Convention on International Trade in Endangered Species of Wild Fauna and Flora.	Regulated species under the Act could be identified in the project site and hence effort will be made to enhance their protection and promoting of public awareness on the species.
Constitution of Solomon Islands 1978	The supreme law of Solomon Islands has recognises customary laws as part of the modern law system. It implies all natural resources vested in the interest of Solomon Islands and its people.	To ensure adequate recognition of those people living within the vicinity of the project and to ensure people are directly receiving maximum benefit from the project e.g. employment.
Land and Titles Act	The Land and Titles Act contains provisions about the tenure, acquisition and registration of land.	The project is situated on customary lands.
Environmental Health Act	Ensuring the maintaining of environmental health. Its regulation prohibits people from causing nuisances including the prohibiting of discharging of noxious matter or waste from premises...	Provide the supporting legal framework for the proponent to develop a waste management strategy.
The Fisheries Management Act (2015)	Ensuring the long-term management, conservation and sustainable use of fisheries and marine ecosystems for the benefit	The project design will ensure the minimum negative impact of the freshwater biodiversity and including

	of the people of Solomon Islands.	marine resources and fisheries.
Biosecurity Act (2013)	Ensuring the regulating of the entry of plant and animal pest including diseases.	The project will ensure potential invasive species such as African snail are not entering the island.
Provincial Government Act (1997)	This Act alongside the Devolution Orders provides the legislative power for provincial authority to develop relevant ordinances over its resources.	Ensure payment of fees owed to provincial government, is up-to-date and other relevant laws observed and those devolved elements such as preservation of culture and environment is maintained.
River Waters Act 1996	The River Waters Act provides for the control of river waters and for its equitable and beneficial use and other matters connected to it.	The social economic dynamic of the project has provided in the PER.
Stockholm Convention on Persistent Organic Pollutants (POP Convention)	Ensuring the protecting of human health and the environment from persistent organic pollutants.	A waste management strategy to ensure elemental composition of POP is adequately managed and mitigated in the project.
United Nations Framework Convention on Climate Change UNCCC	Ensuring the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.	Ensure that those machines used are efficient and emits low carbon dioxide. Encourage green belt and natural infrastructure as mitigation measures against climate change related events.
Waigani Convention	Ensuring ban imposed on importation of hazardous and	Ensuring that hazardous and radioactive wastes are properly

	radioactive wastes and to control the trans-boundary movement and management of hazardous wastes within the South Pacific region.	managed and to be checked by relevant authorities.
National Solid Waste Management Strategy and Action Plan 2009-2014 -	Solid waste management	Ensures Solid waste management plan is developed, adopted and implemented in the operation.
National Development Strategy 2016-2035	With the overall vision of 'Improving the Social and Economic Livelihoods of all Solomon Islanders, this logging and future plan for agriculture development formed an element of the productive sector envisioned to promote the achievement of inclusive economic growth of the country.	

TABLE 4: SUPPORTING REGULATORY MECHANISMS

Chapter 2: Project Descriptions

2.1.0 Project Component and activity

The proposed operation is classified as **re-entry**. However, most of the infrastructure used in the past operation has already been deteriorated, hence the operation will involve activities such as the construction of a transit log pond, road, timber harvesting and transportation. For the purpose of this PER and relevant decision making this report has portrait and categorized the logging operation into four major components (1) **Administrative component**; (2) **Construction component** (3); **Operational component**; and (4) **Rehabilitation component**. The construction component constituted of (1) Earthwork that comprises of the preparation of (1) log pond; (2) campsite and wharf; (3) hauling and skidding road and (4) log landing. Operational component constitutes of felling. The rehabilitation component constitutes of the post harvesting.

2.2.0 Administrative component

Here the administrative component comprises mainly of **enabling activities** particularly administration work of the company in ensuring the companies compliances to national laws, enhancement of public relationship and undertaken researches required for proper articulating of the specific operational design during the course of the logging.

The activities covered under the component are;

- Incorporation of business
- Application for Logging Timber Felling License
- Pre-Harvest survey
- Environment Consent Application (This Public Environment Report)
- Annual Harvesting Plan and Coup Plan preparation
- Public Relationship

Items/Activity	Implementing Agency	Responsible Ministry/Department	Status/checklist
Incorporation of Company	Vula Timber Enterprise Ltd	Ministry of Commerce, Industries, Labour &	Valid (201516264)

		Immigration (Company House)	
Incorporation of Company	C&W Forestry Limited (Contractor)	Ministry of Commerce, Industries, Labour & Immigration (Company House)	Valid (20170807)
Forestry Hearing (Form one, Form two, Form three, Form four)	Vula Timber Enterprise Ltd and C&W Forestry Limited	Ministry of Forestry and Research	Renewed license hence no hearing for this operation.
Application for Felling License	Vula Timber Enterprise Ltd and C&W Forestry Limited	Ministry of Forestry and Research	Renewed license (A19918).
Pre-Harvest survey	Vula Timber Enterprise Ltd and C&W Forestry Limited	Ministry of Forestry and Research	NA
Environment Consent Application (This Public environment Report)	Vula Timber Enterprise Ltd and C&W Forestry Limited	Ministry of Environment, Climate Change, Disaster Management & Meteorology	in progress
Annual Harvesting Plan and Coup Plan preparation	Vula Timber Enterprise Ltd and C&W Forestry Limited	Western Provincial Government and Ministry of Forestry and Research	NA
Public Relationship	Vula Timber Enterprise Ltd and C&W Forestry Limited	Relevant government agencies and NGOs	In progress (continuous)

TABLE 5: SUMMARY OF ACTIVITIES UNDER THE ADMINISTRATION COMPONENT

2.3.0 Construction: Log pond/camp and wharf

The log pond area is proposed to be located within the coastline of the Vula customary land at a point known as Vula (see figure 1). For this operation, the log pond area will be cleared for log pond space, taking into consideration the need to have sufficient log storage capacity. These strips of lands are covered predominantly with coastal plants and coastal shrubs. Direct drainage will be provided to prevent inflow of surface water from the log pond during rainfall events to the coast, to reduce runoffs and sedimentation of the coastal

ecosystem. Wharf and log pond is selected based on its sheltered location, with the aim for the company barge to easily come into berth for loading of processed logs. The wharf is only temporary and meant to load processed logs during the period of operations. The wharf will be constructed from wood decking and then filled with boulders and earth as a causeway. Appropriate measures have been introduced to reduce disturbance to coastal species dominating the shoreline. When clearing for the log-pond, those cleared plantation species will be valued and compensated according to the Solomon Island's laws or as may agree with the land owners.

The logging camp is proposed to be located within a close distance to the log pond area. Separate accommodations will be provided at the camp for local employees and several expatriate employees. To minimize further interference with the environment, the logging camp is most likely to be constructed at an elevation of 40 meters that overlook the log pond site. The accommodations will be of decent standard with adequate lighting system and water supply.

Water supplies at the camps will be relying on both rainwater catchments in tanks and piped water from nearby streams. The main source of water to supply and for sanitation for the camp will be collected from the nearby rivers. Ventilated improved pit toilet is expected to be constructed at the camp for all employees. Availability of water source is one important factor for selecting potential campsites. Household wastes such as kitchen remains are disposed of in pits as a means to manage wastes generated at the camp. The pits will be buried when they are no longer needed.

A workshop will be constructed onsite at the logging camp for defective machineries to be serviced. To be constructed of a mixture of locally extracted materials and roofing irons, the outside part of this temporary structure will have no walling. The outer part of the workshops will not be enclosed to allow easy passage of machinery for maintenance. Adequate open space for garaging of machinery should be available adjacent to the workshop. The workshop will be clear from any river, wet land or streams.

2.3.1 Log pond and wharf

Coastal shrubs clearance will be restricted to small area (space) and bolder will be laid as a sea break and hence reduces coastal erosion. There are trees that will left and enclosed the log pond and camp serving as a green belt. Hence sedimentation is likely to be localized and the clarity of sea water to serve as indicator for level of sedimentation discharging into the coastal area. The impact on fisheries production due to sedimentation is also likely to be minimal. Due to the distance from coastline to campsite and fuel storage, spillage of oil into waterways is also unlikely. Waste management in the camp area will not be an issue as cabbage bags will be installed in specific sites within the camp vicinity. However, awareness for workers to properly disposes their waste especially solid waste remains important. It follows that at the camp, toilet pit will be installed and served by water, piped from nearby well. Since the campsite is located few KM away from the village noise pollution is not an issue.

With respect to invasive species, the Vangunu wilds have a tendency to outcompete foreign species. There is no African snail or beetle sighted in the log pond and any other place in Vangunu. Since the site has already hosting past log pond and camp, it is highly likely that there is no culturally important site close or within the campsites.

2.4.0 Constructing of Road system

Several roads are anticipated to be constructed during the operation. The main road will be constructed -running from the log pond up to the concession area. Extension logging road will be constructed for use as part of the operations by conducting necessary earthworks and land clearing to improve the drainage. They will be compacted to maintain proper drainage of the pavement. New primary access roads will be built by the proponent as operable areas become available for harvesting. Minor, temporary access roads likewise will be required as part of the harvesting operations.

Access roads will be constructed to enable machinery and operators to gain easy access to the coupes demarcated within the concessions. The proposed secondary or spur roads are important for the company's operations to enable activities to proceed unhindered. Several feeder roads (**skidding tracks**) will be constructed to service areas where skidding tracts are

required and distance exceed five hundred meters. Skid tracks are a network of tracks along which skidding equipment travels by pulling of logs from point of felling to the log landing. Main skid tracks will be established within the concession on ridges. The number of skid tracks to be established largely depends on the size of the coupe, its expected yield and environmental conditions. On average, two skid tracks will be required for each log landing. Quarries are planned to be established as close as possible to the road networks to reduce cost of haulage. Gravels borrow areas have been identified in various areas within the concession but close proximity to roads is an important consideration in their establishment.

Major log landings will be established at convenient locations along designated sections of the primary roads with varying sizes. The number of landings per coupe in many cases is dependent on the productivity of the coupe but as well as on topographic features. An important consideration in designing log landings is availability of enough space for loaders and operators to maneuver.

Wooden bridges will be constructed in the concessions across the surface water systems. Culverts will be also constructed when and if required. These are necessary because of major catchments and headwaters are found inland. With log decking and earth filling the structures should be strong enough to accommodate the passing of hauling trucks and heavy machinery during forest operations.

Where bridges are necessary, the crossing structures will be so designed to meet specifications taking into consideration hydrological conditions and other environmental factors such as the river ecology. The location and design of bridges are important factors in selecting sites for the bridges to be erected. Generally, bridges are built at river sections with higher river banks to ensure they are not washed away during floods caused by prolonged wet weather events. Temporary crossing structures are also planned for certain streams, which are expected to be removed after operations cease.

2.4.1 Impacts

During road system construction and earthwork, the most significant negative impact that would be resulting from road system construction and uses would be the increase of sedimentation into water ways and onto the coastal environment. Road construction will change the exposure of top soils that can easily eroded into the river system and onto the coastal environment, making the aquatic environment unfavourable for human uses and aquatic life. In addition, developing of roads will likely to destroy and impact on sensitive environment that are home to endemic birds and animal.

To minimize these, the company has adopted specific mitigation measures for each operational activity that could overall ensure proper management of the sedimentations (see Environment Management Plan). Some of the identified impacts for the road system construction include;

Environment

1. Gravel barrow pits -Increase vector borne disease
2. Forest fragmentation
3. Loss of important species/protected area
4. Increase of sedimentation load into streams and coastal environment
5. Oil spillages into stream and coastal environment
6. Poor sanitation
7. Increase of waste from imported goods
8. Noise pollution

Social Economic

9. Road through gardens
10. Road system through cultural significant areas

2.5.0 Timber harvesting

Harvesting is planned and undertaken using the compartment or coupe as the basic operating unit and conventional tractor logging. Compartments vary in size but the percentage of a compartment that is harvested depends on the forest types, stand conditions, slope conditions and access. All harvesting activities are to be undertaken in accordance with the harvesting plan for the compartment. The company employs selective

harvesting system for its operations through use of specific machinery during harvesting. Activities such as harvesting roads and access to log dumps are clearly identified in the plan. In general, topographic features, easy and quick access to coupes heavily influence site selection for new log dumps. Harvesting plan consists of information on area (location, size of coupe, area of different forest types, condition of the forest, physical features and predicted volumes of the products to be harvested; harvesting details (type of operation, product specification, tree marking procedures and tree retention requirements (e.g. habitat trees); and operational procedures (order of working, location of log dumps, snig tracks, creek crossings, critical boundaries (flora reserves), exclusion areas and wet weather controls.

The company recognizes the important functions of forests and as such always strives to practice internationally recognized Reduced Impact Logging (RIL) techniques in its harvesting operations. Reduced Impact Logging (RIL) techniques, unlike conventional logging, consist of:

- ✓ Selective harvesting system.
- ✓ Directional tree felling to inflict the smallest impact on surrounding forest
- ✓ Cutting climbers and lianas well before felling
- ✓ Establishing stream buffer zones and watershed protection areas
- ✓ Using improved technologies to reduce damage to the soil caused by log extraction
- ✓ Careful planning to prevent excess roads which give access transient settlers

These practices reduce the effects of the company's activities on the environment, which ensures continued benefit for our future generations as it leaves the environment in good condition. RIL in practice brings with it environmental and economic benefits. Activities such as harvesting roads and access to log dumps are clearly identified in the plan. The harvesting system employed recognizes the need to maintain ecological sustainability and log production in the longer term.

2.5.1 Timber harvesting's Impacts

The concession is a log-over area and therefore, the removal of timber trees will continue to left gap in the forest ecosystem including their role in sequestrating of carbon. The entire ecosystem will therefore been affected including impacts on river and their tributaries through runoffs and increasing of sedimentations. Moreover, the concession can be best described as low-lying and does not include protected area and excluded areas as specified under code of forest practices (see figure 1).

Been typical and as part of the New Georgia group of Islands the lowland forest composition of Vangunu Island is predominate by mix composition (approximately 90%) of the forest type as defined by *Ministry of Forestry, vegetation type level II data*. Hansell and Wall, 1976 also noted that the higher altitude may have also composes of *Calophyllum vitiense*, *Eugenia spp*, *Homalium tatambense* and *Ascarina maheshwarii*. Likewise, the excluded zones or fresh water swamp forest is also said to be dominated by mixed forest composition.

Besides the residual impacts caused by the operation which includes, forest fragmentation, loss of crown cover, displacement of plants animal species, increasing of surface runoffs, oil spillages into stream and coastal environment, noise pollution especially for wild animals, road through cultural significant areas, it has becoming an obvious concern, for labors **health and safety concern**. The company is aware of the need to avoid undertaking any work during rainy days.

2.6.0 Machineries

The machineries that will be used for the operation will include those for road system construction, the timber harvesting process, and houses and shipment. This also includes machineries for milling.

2.7.0 Post Logging and preparation for agriculture development.

As noted, the clearance is a first stage of proposed agriculture project development, hence the post logging harvesting will include **set up (block) inspection**, ensuring all felled tree have been skidded and ensuring all operational plans has been followed (including the felling of all marked trees- that are d.b.h 60 cm+). **Decommissioning forest roads**, where it

has been agreed for decommission of road, all log culverts and temporary bridges has adequately removed and to ensure local topography is returned to its original stage to avoid water erosion and avoidance of stream damming. **Construction of water bars**, to channel water into the vegetation and avoid sedimentation of river.

2.8.0 Employments

An operational readiness training programme will be prepared during the period of the operation-especially for semi-specialised skills in machinery operation. It has been anticipated that several expatriate and locals will be hired for the operation. On job training will be performed by professional trainers. Special privilege is given to landowners and villagers close to the concession to ensure that they are employed and take ownership of the project.

Chapter 3: Description of Environmental Setting

3.1 Physical Environment

3.1.1 Geology

The New Georgia group of islands is believed to be formed in the late Miocene to Holocene, and as such, rock compositions are emanating the characters of a calc-alkaline volcanic rocks and coeval epiclastic deposits. The composition of the volcanic rocks, comprises of olivine basalt, basaltic andesite, and andesite flows. These volcanic rocks in some places display a lateral facies changes from massive flows to volcanoclastic strata. Regionally, sedimentary rocks are restrictive to small areas, and are mainly of late Pliocene and younger in age. Sedimentary rocks are mainly consists of reef platform deposits. Such the lower area of the concession could be best described as an area comprising of mainly of sedimentary rocks of Notch/Reef Flat. This is obvious within the flat areas between 0 to 100 Meter altitudes.

Due to geological processes during the Pleistocene period these fringing reefs and lagoons had lost their characteristics that subsequently led to the formation of the flat landform. The **tectonic** behaviour of the island group is characterizes by the 'accelerating late Quaternary uplift of the New Georgia Island Group, in response to subduction of the recently active Woodlark spreading center and Coleman seamount' (*Mann et al. 1998*) and hence the area has been calculated to be uplifting by 1.4 mm/year. The accumulative events that subsequently forms the reef platform of the islands has been hypothesized to portray the profile as display in the following diagram.

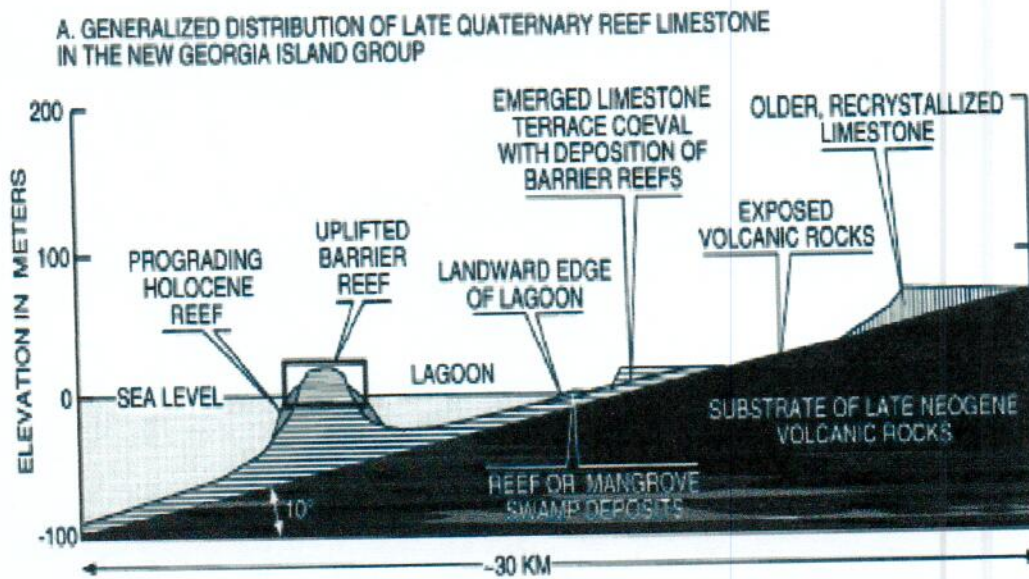


FIGURE 2: Generalized distribution of late Quaternary reef limestone in the New Georgia Island Group after Mann et al. (1998)

3.1.2 Topography, landform and soil

Vangunu Island is part of the New Georgia group of islands and an extinct volcanic island. The land form of concession and including the project area consist of narrow ridge tops, rolling hills and terraced surfaces and wide ridges with gentle slopes. The Vangunu Island extensively dissected and consist mainly of marine terraces caused by a combination of erosional and depositional activities commonly associated with fluvial processes and denudation. The altitude range for these landforms is from sea level to less than 100 meters, however, most areas have 10 meters relief though highly irregular between sites.

Above the project site, the topography is generally flat and low lying, before rising to 200-400 Meters. Soils in this land system are closely associated with existing landform where, narrow ridge tops and terraced surfaces and wide ridges with gentle slopes are typical across its landscape. Tropaquent is common on the lower concession while Eutropepts and haplorthox are the common textures on the top ridges.

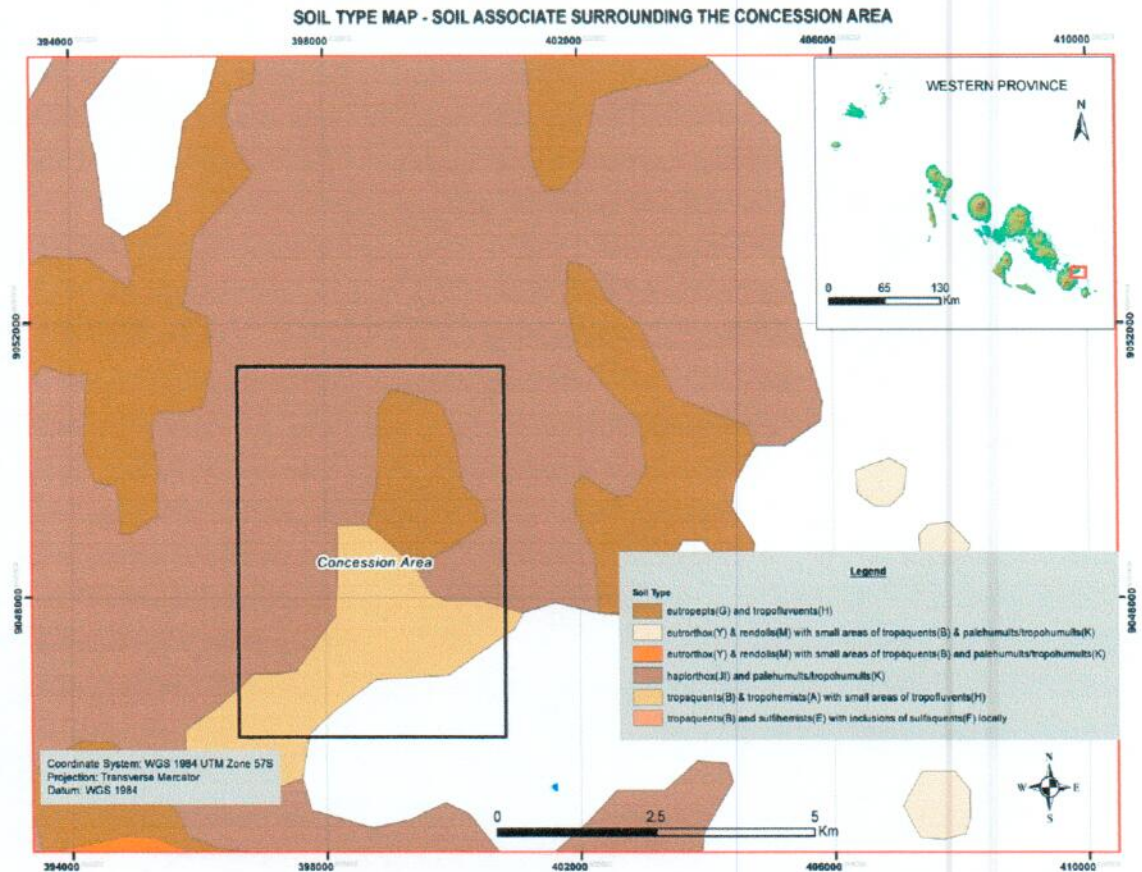


FIGURE 3: SOIL TYPE OF THE CONCESSION AND SURROUNDING AREAS, MECDM, 2019.

In the upper and middle sections of the slopes clay dominates providing shallow cover for mostly limestones and fragments of limestone removed during erosion. With terrace surfaces and wide ridges, stones are a common occurrence throughout the system as limestones provide the parent material. These limestones are overlain by a well-structured clay. Poorly drained clays were also observed but their presence is restricted only to valley floors.

Along the coastline of project site, the landform can be easily identified as terrace surfaces and wide ridges because of the predominant coralline limestones and stony character of the landform. Remnants of reef structures and coralline limestones either side of the project site show that this is the outer edge of these marine terraces. There is strong soil association with landform the area.

3.1.3 Surface water, ground water and coastal water

With respect to the surface water, the Vanguu Island is incised with water ways, playing

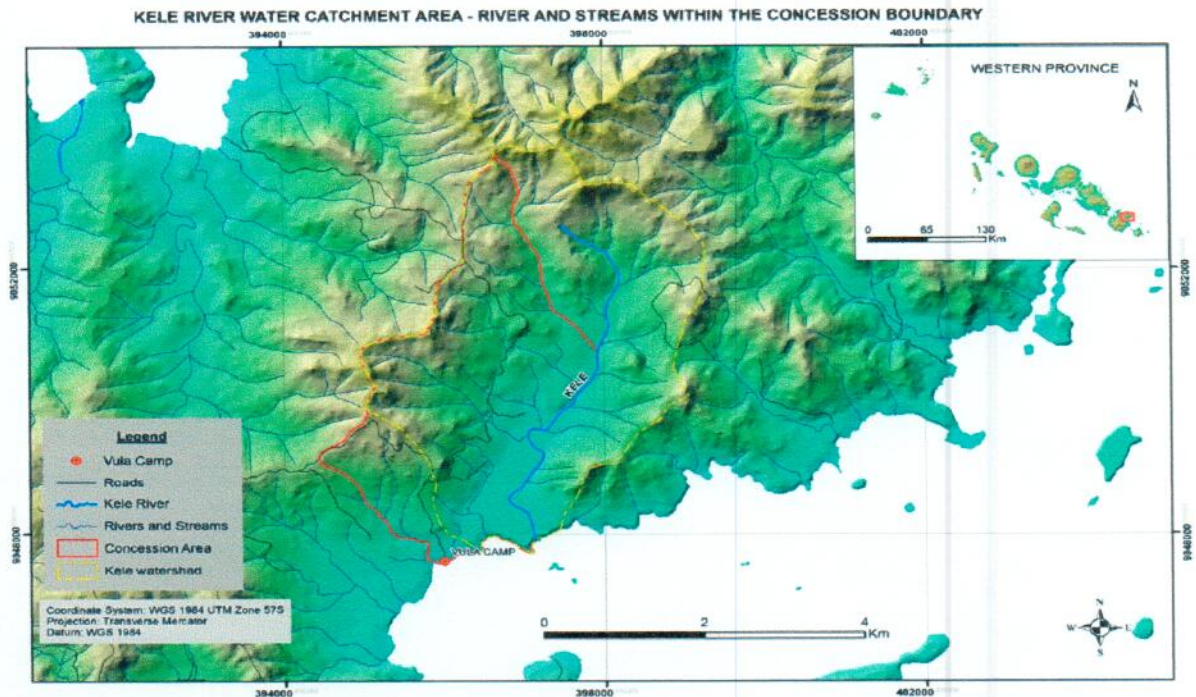


FIGURE 4: KELE RIVER IN THE CONCESSION, MECDM 2019.

and important ecosystem services for the island ecosystem and people's livelihood. The concession has few Rivers and streams. These streams are a major source for household uses and the operation would likely to impact on the water sheath. The main river identified in the concession is Kele River and is the main source of river to supply camp. Bmile River is the main drinking and is used for household, and its water sheath is siting within or close to the concession. Nggevala is just sitting on the southern end border of the concession.

In general, during dry spells with little rain these streams are mostly fed by either subsurface flow or interflow or both, which considerably affects the streams' flow regime. Surface runoffs due to surplus water associated with high intensity rainfall likewise increase their water level. Stream emerging from this concession is a major source of concern, as sedimentation has already been carried through the streams and discharges into the main River.

With respect to tidal current, the data collected from global website on tidal current shows that the Marovo lagoon, have its highest tide reaching up to 0.8 meters. This has formed a considerable factor in choosing the log pond area.

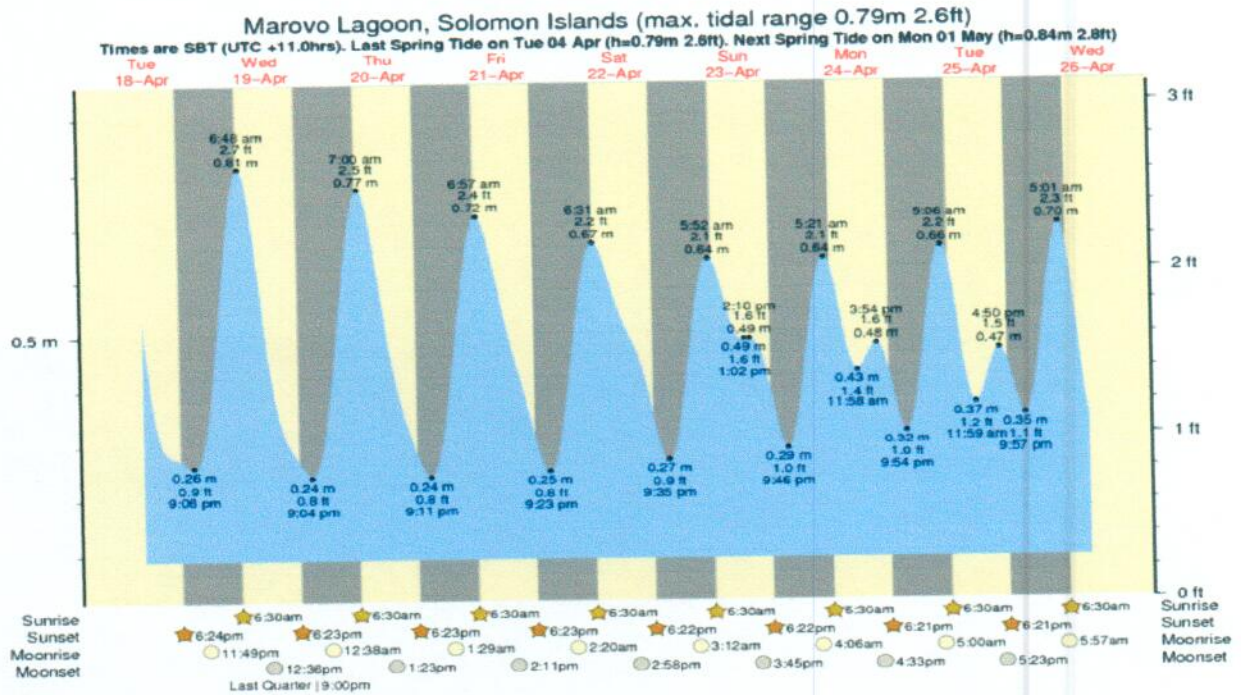


Figure 5: Tidal Range of Marovo Lagoon; after <https://www.tide-forecast.com/locations/Marovo-Lagoon-Solomon-Islands/tides/latest>

3.1.4 Climate, natural disaster and air

Rainfall for Solomon Islands varies year round from January to December. From December to April there is always a lot of rainfall whereas from May through October the rainfall tends to be lower, with more sunshine. There are also some variations in the number of rainy days per month for the entire country. However, most rain falls in the wet season rather than the dry spell. For western province, the average annual rainfall ranges from 3500 mm in low areas to more than 6000 mm on the mountain peaks, with most areas receiving around 4000 mm (Wall and Hansell 1974). Rainfall is said to be highest during the northwest monsoon which is prevalent towards the end and start of the year, in the wet season. Cyclone activities are mainly associated with this period due to the warming of lower atmosphere from evaporation.

Unlike rainfall, the air temperature for the entire country is almost consistent all year round. Mean daily temperature throughout the year ranges from a minimum of 23 degree celsius

and a daily maximum of 30 degree celsius. For the most part, the temperature averages at 30 degree celcius throughout the year. Humidity level is higher with south easterlies while air is also drier around this period. Conversely, air tends to be moist with the onset of monsoonal season.

Natural disaster as inferred above, is a frequent occurrence, ranging from cyclone, tsunami, earth quakes and others. There is an increasing level of frequency. The coastline of the project site appears to be vulnerable to natural disaster especially Tsunami. The table below shows the disaster events in the Solomon Islands since 1950.

Disaster	Periods 1950-1960	Periods 1961-1971	Periods 1972-1982	Periods 1983-1993	Periods 1994-1910	Total
Cyclone	0	4	1	0	0	5
Earth Quakes	3	21	43	N/A	67	134
Tsunami	3	0	1	0	2	6
Landslide	0	0	0	0	2	2
Flood	0	0	0	0	6	6
Drought	0	0	0	0	2	2
Volcanic eruption	0	0	0	0	0	0
Total	6	25	45	0	79	155

Table 6: Records of Natural disasters since 1960, After Bennett *et al*, 2014.

In 2007 Tsunami most part of Vangunu and in particular the project site shows no change (see Taylor,et al, 2007).

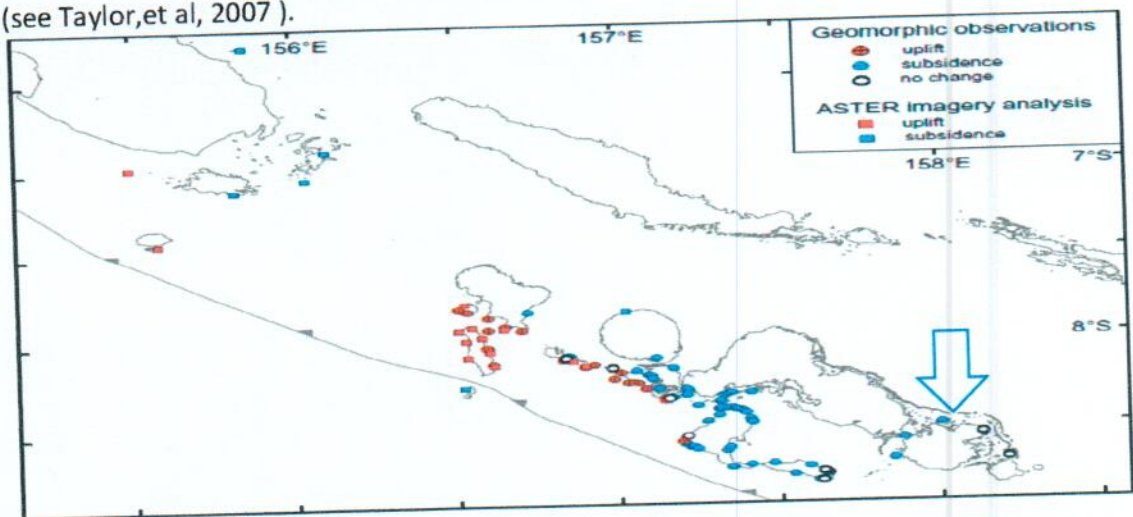


Figure 6: Qualitative observations of uplift and subsidence and bounds on uplift from satellite imagery analysis for the 1 April 2007 Solomons rupture, after Taylor et al, 2017

The chances for the project to be impacted by natural events such as Tsunami and cyclone remain high. According to the respondents the evacuation to high hills is possible as the operation will make road accessible to higher hills. Usually, villagers only escape to accessible higher ground (but not far above the village) during high waves.

3.2.0 Biological or Ecological Environment

3.2.1 Forests, vegetation and terrestrial fauna

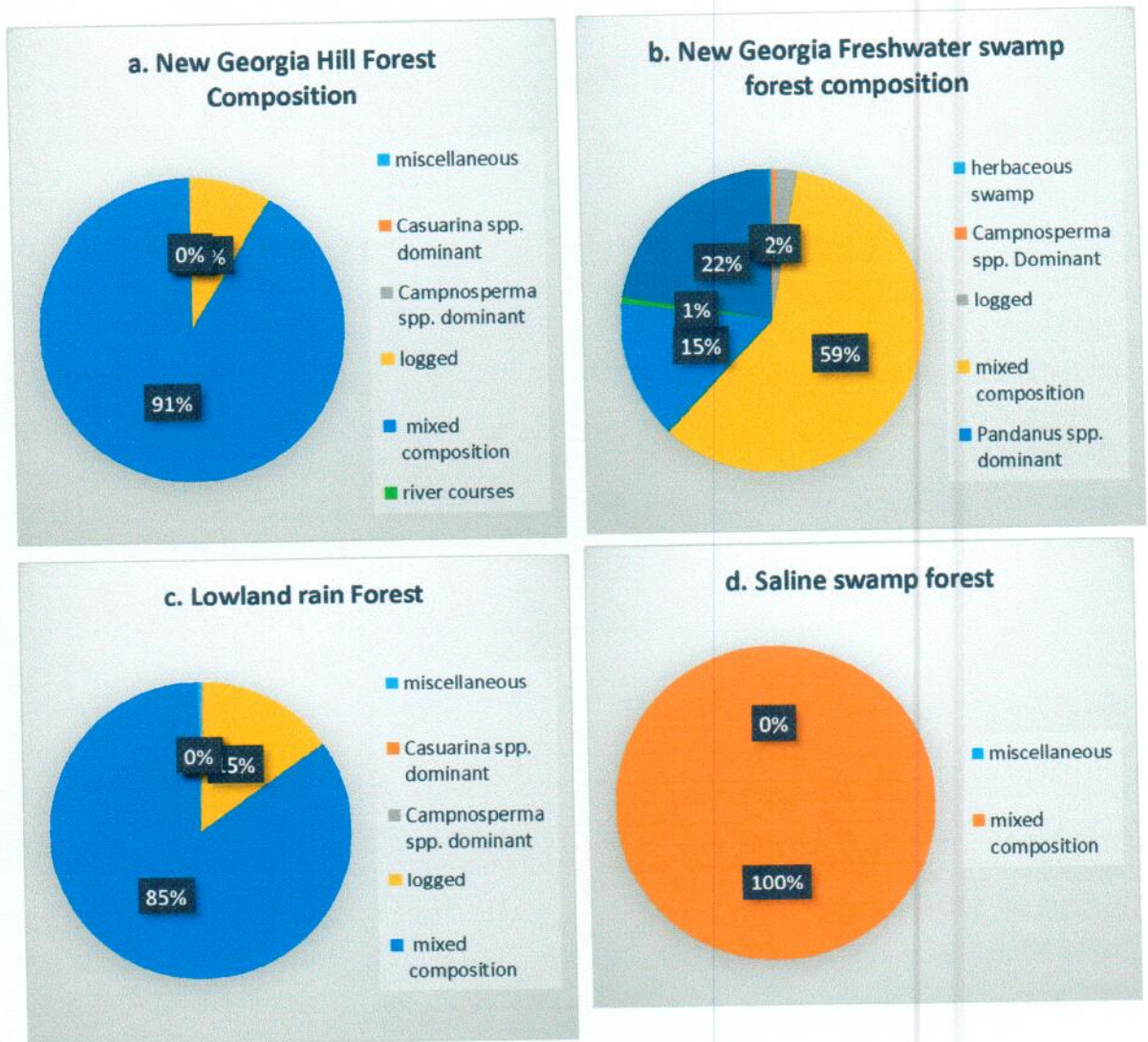


FIGURE 7: FOREST COMPOSITION BY VEGETATION TYPES, AFTER MoFR INVENTORY

Solomon Islands vegetation are classified into five vegetation type, and these are all found on the New Georgia group of islands. The project site, is predominant lowland forest and is

said to dominantly [comprises/comprise](#) of mixed composition. This arrangement and pattern (high composition of mixed forest), is a typical arrangement across all type of forest nomenclature in New Georgia.

Remnant of mangrove forest is still observed within the imitate area of the project with healthy standing stock within the coastline. As noted in the Solomon Islands Ridge to reef plan, it has been noted that there are 26 species of mangroves, representing 43% of global mangrove diversity. Seven additional species have recently identified in the Western Province (Pillai and Sirikolo, 2001). The report continued to estimate the mangroves coverage of 64,200 ha where New Georgia has recorded as amongst the highest coverage of area.

For Vangunu low land 12 principal species of forest (*Calophyllum kajewskii*, *C. vitiense*, *Eleocarpus sphaericus*, *Endospermum medullosum*, *Gmelina molucca*, *Maranthes corymsalmononesis*, *Schizomeria serrata*, *Terminalia calamansanai*, *Camponosperma brevipetiolatum*). As noted in Lee (1991), the higher altitude composes of *Calophyllum vitiense*, *Eugenia spp*, *Homalium tatambense* and *Ascarina maheshwarii* (Hansell and Wall, 1976). High ridge forest are enveloped with moss and lichens beginning to enshroud shrub and trees. *Cyrtandra sp.*, ferns, and *Pandanus sp.* grow along the high valleys, whilst the high ridgelines are characteristic of montane forests with *Rhododendron sp*, *Syzygium sp*, and *Nastus sp*. Ridge forest extended up higher into montane and cloud forests. Ridgeline forests, particularly on the upper slopes of island are often exposed to high winds and rainfall. There is an interchange of mixed lowland and montane or submontane characteristics. High canopy reaching trees are dominated by *Syzygium spp*, *Metrosideros spp*, *Camponosperma brevipetiolata*, *Vitex cofassus*, *Pometia pinnata* and *Calophyllum spp*. Whilst the undergrowth is dominated by ferns and palms and shrubs.

Most of the Lowland forests has been logged and also converted to plantation by the landowners. Small landowner plantations are found near garden areas and village outskirts. In some areas, secondary forests have regrown to occupy the canopy space of primary forests, dominated by *Pometia pinnata* and *Calophyllum sp*. Plantation trees on Kolombangara include, Kamarere (*Eucalyptus deglupta*), Mahogany (*Swietenia macrophylla*),

Teak (*Tectona grandis*), White teak (*Gmelina arborea*), providing a monotonous landscape of timber trees.

With respect to **terrestrial fauna**, the New Georgia group of islands is said to homed approximately 85 species of breeding land birds, including 31 Restricted Range (RR) species and 10 endemic species. Eight lowland forest birds are endemic to the New Georgia group, with close relatives on other Solomon Islands (*Gallirallus roviae*, *Monarcha richardsii* and *M. browni*, *Myzomela eichhorni*, *Zosterops vellalavellae*, *Z. splendidus*, *Z. luteirostris*, and *Z. rendovae*). Three of these species (*Monarcha browni*, *Zosterops rendovae*, and *Myzomela eichhorni*), as well as two forest passerines widespread across the Solomon archipelago (*Pachycephala pectoralis*, *Rhipidura cockerelli*) vary geographically within the New Georgia group.

Thus the small water gaps between New Georgian islands form dispersive barriers for some bird species, mimicking on a smaller scale patterns of avian diversity across the Solomon archipelago as a whole (also see Lees (1990) and Chaterine et al, 2007. Taxonomic study continues to reveal new species on New Georgian islands, with a recent discovery of *Collocalia orientalis*, *Aplonis brunneicapilla*, *Falco peregrinus*, *Columba pallidiceps*, and *Gymnophaps solomonensis*. (Filardi 2004a, Birdlife 2007) in their expedition to remote areas of this group turns up either range expansions or records of poorly known taxa (e.g. *Collocalia orientalis* has only been collected on one other island in the world. Several of these endemic birds are listed under the Solomon Islands Wild life managements Acts.

The table below provides an overview of the important species that may require closer attention during project operations, particularly in the areas of public awareness.

Category	Ecosystem Zone/home range	Common Name	scientific Name	Conservation importance: Endemic, IUCN list of threatened species	Protection schedule under Wildlife Management Act i- prohibited export ii- Regulated and Controlled Species
Bird	Montane-high elevated forest-lowland	mountain pigeons	<i>Gymnophaps solomonensis</i>	LC	

	forest				
	"	mountain pigeons	<i>Columba pallidiceps</i>	EN	I
	"	small lorikeets	<i>Charmosyna meeki</i>	NT	
	"	small lorikeets	<i>Charmosyna margarthae</i>	NT	
			<i>Collocalia orientalis</i>	Data deficient	
			<i>Falco peregrinus</i>	LC	
			<i>Cacomantis variolosus</i>	LC	
		Grey-breasted ground dove	<i>Gallicolumba beccarri</i>	LC	I
		Thick-billed ground dove	<i>Gymnophaps solomonensis</i>	LC	I
	Lowland forest Bird (82)		<i>Gallirallus roviae</i>	LC	
			<i>Esacus magnirostris</i>	Endemic, LC	
			<i>Numenius tahitiensis</i>	Endemic, VUL	
			<i>Puffinus heinrothi</i>	Endemic, VUL	
			<i>Pseudobulweria becki</i>	Endemic, CE	
		Solomon sea eagle	<i>Haliastur sanfordi</i>	Endemic, VUL	I
Bats			<i>Emballonura raffrayana</i>	Endemic	II
			<i>Hipposideres dinops</i>	Endemic	II
			<i>Melonycteris fardoulis</i>	Endemic	II
Frog (5)			<i>Discodeles malukuna</i>	Endemic	I
Skink			<i>Tribolonotus ponceleti</i>	Endemic	I

TABLE 7: BIRDS OF CONSERVATION IMPORTANCE INCLUDES ENDEMISM, WITH KNOWN SPECIES EITHER LISTED IN THE WILDLIFE MANAGEMENT ACT AND/OR WITH IUCN.

For the purpose of this PER, the company is willing to provide relevant public awareness by displaying of the above important species on notice board for the company's worker and

visitors. The fact is that conserving of these species is likely to add some value to the proponent and the opportunity can be utilized for contribution to national efforts toward conservation.

3.2.2 Fisheries, Marine, coastal and fresh water biological diversity

Solomon Islands is said to be very rich in marine fauna, owing to its diverse coastal environmental setting. This has been confirmed by a study conducted by TNC in 2004 that has revealed 485 coral species from 76 genera, found on 66 sites in the Solomon Islands. Coral reefs are classified into; narrow fringing, lagoon, patch reef and atolls. Of particular interest to the project site are those coral reef in Western Province.

With respect to fisheries, nineteen species of sea cucumber, four main species of crayfish, six giant clam species, and three species of pearl oyster, trochus, and green snails are found in the coastal water of the country. Solomon Islands is also home to an estimated 1019 coral reef fish species, several species of marine reptiles (including turtles, marine snakes and a

Family/Species
<i>Microphis leiaspis</i>
<i>Kuhlia marginata</i>
<i>Kuhlia rupestris</i>
<i>Mesopristes argenteus</i>
<i>Belobranchus belobranchus</i>
<i>Ophieleotris hoedti</i>
<i>Awaous</i> sp.
<i>Glossogobius</i> sp. 1
<i>Lentipes</i> sp.
<i>Redigobius leptochilus</i>
<i>Sicyopterus lagocephalus</i>
<i>Sicyopterus longifilis?</i>
<i>Sicyopus discordipinnis</i>
<i>Sicyopus mystax</i>
<i>Sicyopus zosterophorum</i>
<i>Stenogobius hoesei</i>
<i>Stiphodon atratus</i>
<i>Stiphodon birdsong</i>
<i>Stiphodon rutilaureus</i>
<i>Stiphodon semoni</i>

single species of crocodile). Marine mammals stood at 9 species of dolphins, 8 species of whales and a single dugong species.

From a conservation point of view, marine species endemism is very low in the country, hence biological importance with respect to conserving of gene pool is minimal. As inferred endangered species or fish of conservation significance is low in the entire country and hence given the insignificance of the localized ecosystem on the project site left the project proposal with minimum risk imposed on the coastal ecosystem. The same conclusion can be made for macro-invertebrates where their presence was very limited and lacking any fisheries importance and commercial value.

With respect to **freshwater biodiversity**, Polhemus et al (2008) have encountered and recorded several

organisms in the Western province that may also relevant to Vangunu Islands.

Gobioid fishes (Rhyacichthidae, Eleotridae, and Gobiidae as dominant species in most water system in the Solomon Islands and this was reaffirmed by a baseline result above. As already noted, there is no major river in the tenement hence the threat imposed to freshwater biodiversity is also less.

3.2.4 Protected Areas and Community Based Marine Managed Area

Solomon Islands is said to be very rich in marine fauna, owing to its diverse coastal environmental setting. This has been confirmed by a study conducted by TNC in 2004 that has revealed 485 coral species from 76 genera, found on 66 sites in the Solomon Islands. Coral reefs are classified into; narrow fringing, lagoon, patch reef and atolls. Of particular interest to the project site are those coral reef in Western Province.

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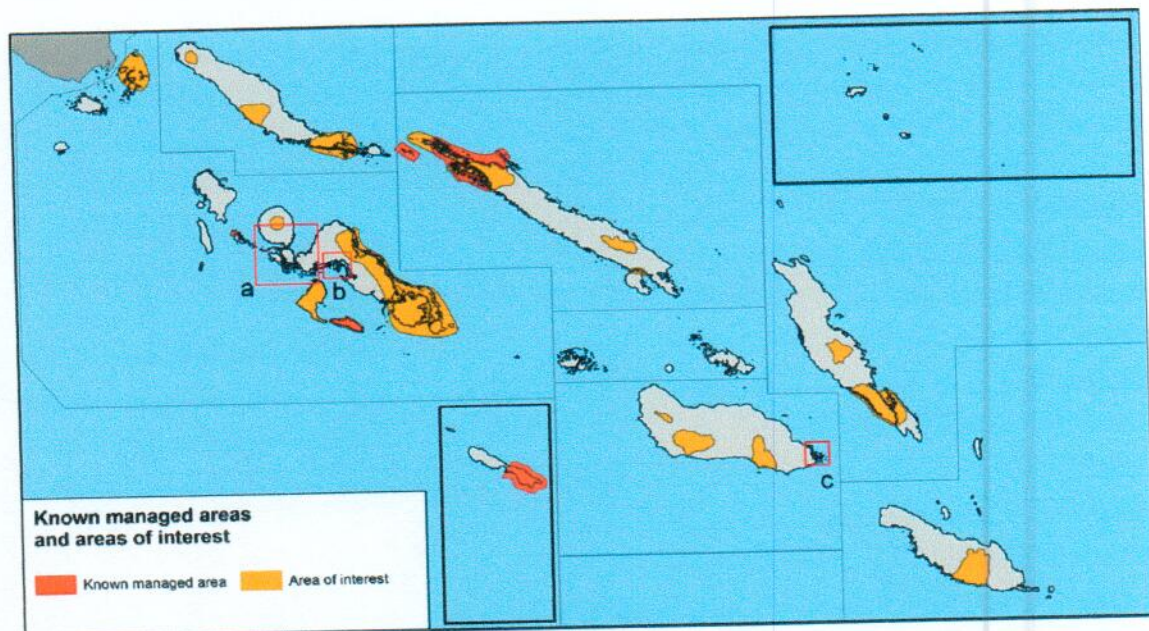


FIGURE 8: AREA OF INTEREST FOR PROTECTED AREA, AFTER KOOL ET AL, 2010.

From a conservation point of view, marine species endemism is very low in the country, hence biological importance with respect to conserving of gene pool is minimal. The site is believed to be part of home range that host a cross section of Solomon Islands biodiversity. As inferred endangered species or fish of conservation significance is low in the entire country and hence given the insignificance of the localized ecosystem on the project site left the project proposal with minimum risk imposed on the onsite ecosystem. With respect to protected area interest, the Vangunu Island in itself, has been identified as an area of interest for protection which falls under the Marovo-tetepare complex which has been proposed for world heritage. The Marovo-Tetepare complex, includes the Marovo Lagoon, is the largest, and best-defined double barrier enclosed lagoon system in the World. Marovo Lagoon enclosed an area of 700 km² within which there are hundreds of small islands of varied geomorphology: sand cays, mangrove islets, raised reef islands, and small islands of volcanic origin extending southward to include the Ngatokae.

Although the marine ecology of the project site is classified as a significant marine area there is no proposed community based managed area within or close to the concession area. Zaira forest is marked is the closed informal protected area and is lying northeast of the concession.



FIGURE 9: ZAIRA MPA , AFTER ZAIRA COMMUNITY MANAGEMENT PLAN, 2012.

Other conservation important species in the complex includes; monkey-faced bat, the critically endangered leatherback turtles nest throughout the beaches, hawksbill, green turtle and dugon are also observed in the complex. The endemic Solomon Islands prehensile-tailed skink (*Corucia zebrata*) is also present throughout the complex. Other protected area in the western province is listed in table 9.

Name	Established Date	Local ownership	Size (hector) terrestrial	IUCN Management Category	Governance type	Possible PAR (2012) category
Zaira	2010	community	Forest (2850), Marine (2300)	VI Protected areas with sustainable use of natural resources	Governance by indigenous peoples and local communities.	Resource managed area
Tetepare	2000	TDA	12,568	VI Protected areas with sustainable use of natural resources	Governance by indigenous peoples and local communities.	Resource managed area
Vila Nature Reserve	Colonial time	Crown land	1615	IV: Habitat/species management area	Government	Resources managed area
Kolombangara Upland Forest	New	community	30000	III Natural monument or feature	community	National park

TABLE 9: CURRENT NEW GEORGIA TERRESTRIAL PROTECTED AREA

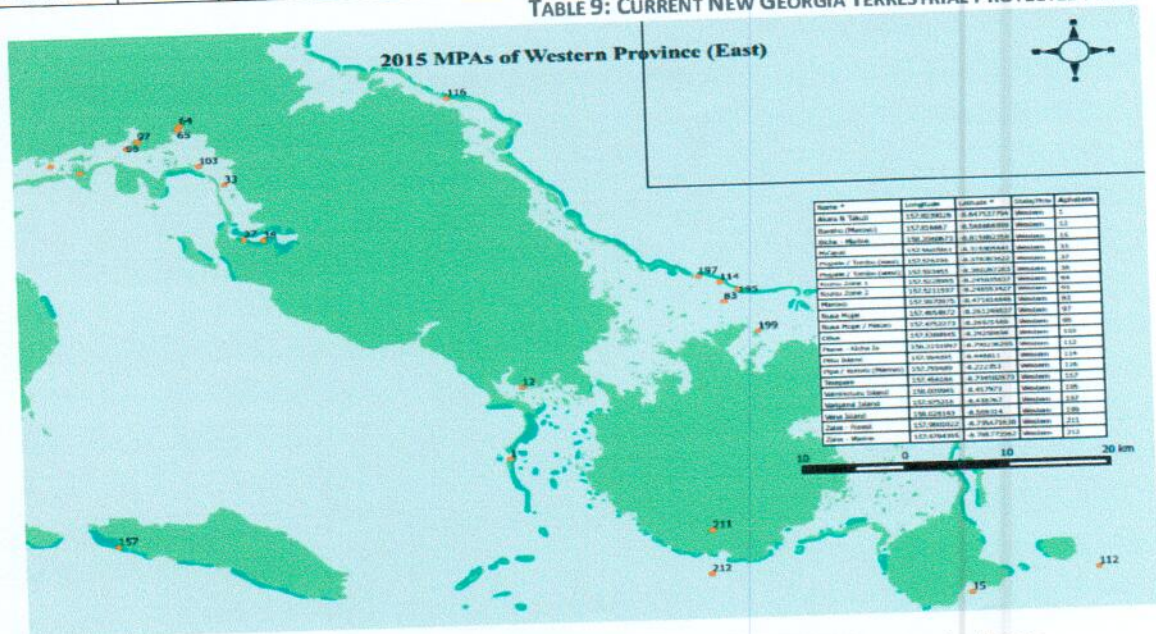


Figure 10: MPA, MFMR web derived from <http://www.fisheries.gov.sb> on 26/01/2019.

CHAPTER 4: SOCIAL-ECONOMIC ENVIRONMENT

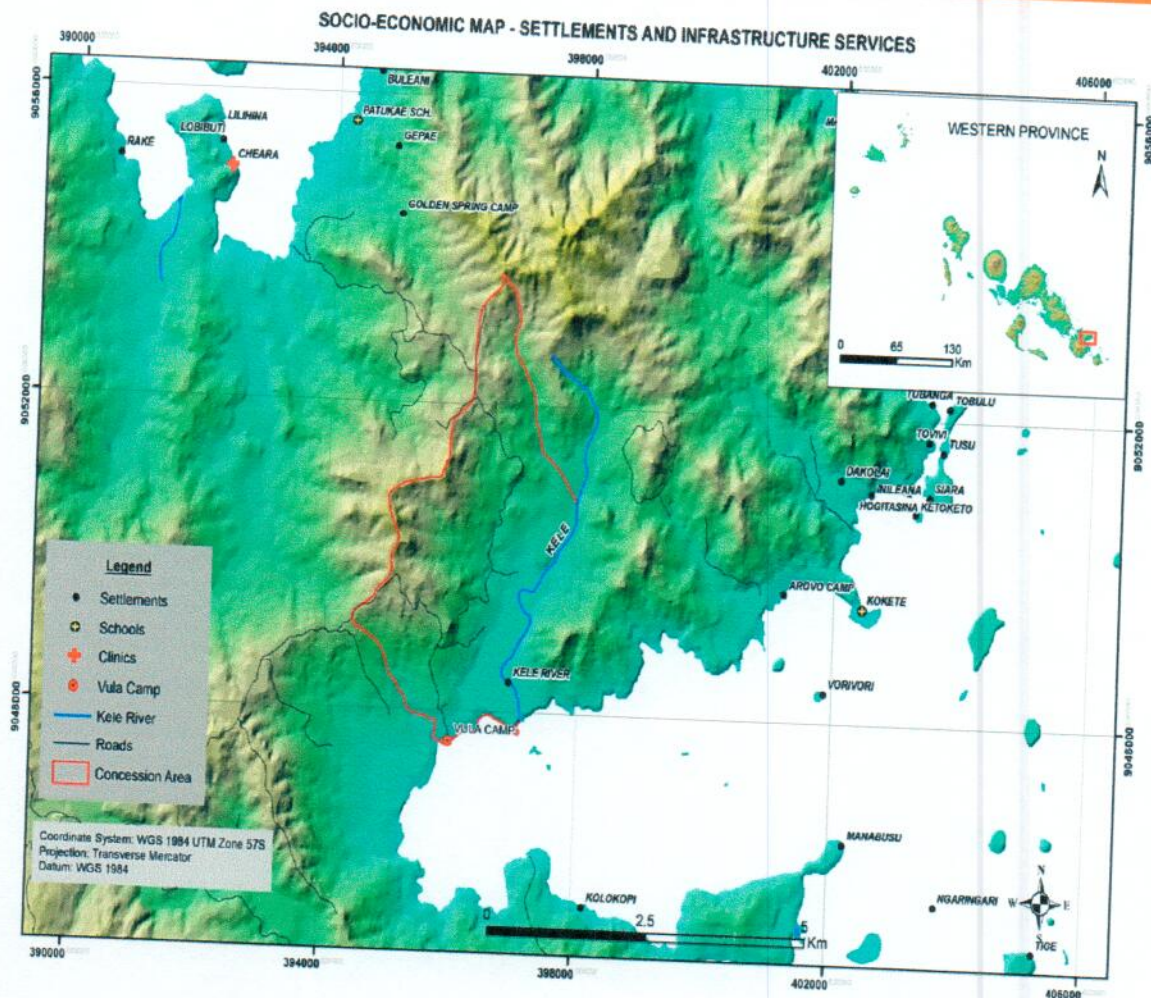


FIGURE 11: SOCIAL-ECONOMIC MAP, AFTER MECDM 2019.

4.1 EMPLOYMENT SECTORS

Solomon Islands' economy depends heavily on productive sector, most specifically the forestry sector, agriculture and fisheries. And it is in these sectors that most employment opportunities in the country have been provided followed with public sector organizations. This means high number of employment in the country is dependent on global market conditions, as their performances are quite often subject to the fluctuating global commodity prices.

The good news however is, even if most of the employment generating activities in the country is subject to international situation, more and more high labour intensive industries

are establishing in the country. Such high labour demand services industries include, construction services, transportation services, communication and many other smaller services sectors that helps absorb the labour market in the country.

In 2015, the labour market showed an increase of 4%, this can be attributed to activities in the services sectors including public sector, wholesale and retail trade, transport and storage, construction, real estate as well as renting and manufacturing. Although there is high mobility of employment across all sectors including temporary employment mode by service providers, it is expected that any sustained growth to be experienced in 2016 and beyond can only come from the productive sectors, agriculture, forestry and mineral developments with support from services industries.

In 2015 the labour market showed an increase of 4%, attributable to activities in the service sectors including public sector, wholesale and retail trade, transport and storage, construction, real estate and renting and manufacturing. However, employment movements were mixed across all sectors. It is projected for a sustained growth to be experienced in 2016 in spite of expected declines in agriculture, forestry and mineral sectors. Wholesale and retail, manufacturing, construction, hotel and restaurants and planned public investments are considered as the major drivers behind the expected growth in 2016.

Nevertheless, with respect to Western province, it has been estimated that 10 % of the population are living in urban area (Gizo and Munda-Noro catchment). It follows that the combination of urban development, tourism, logging and fishing appeared to create the province much more independence. This has been bolstered by subsistence life and reliable local markets such as those in the urban centre. The contribution of this proposed logging and the future agriculture project toward employment in Vangunu is viewed as a very beneficial that will continue to contribute to the reducing of unemployment in the rural area within the vicinity of the project.

4.2 Infrastructure facilities

Infrastructure development in the Vangunu is quiet typical to any other rural settings in the country. With respect to telecommunication sector, the project site has a reliable telecom

and B-mobile coverage including G3 uses. Nationally, the **telecommunication sector** maintained its growth momentum in 2015 reflecting continued improved operations and customer service delivery by the two telecommunication operators in the country. Solomon Telekom Limited and Bemobile/Vodafone have shown strong commitments to improve communication services throughout the country, for both mobile and internet applications. As a result, the village of Vangunu are enjoying some of these modern technologies. With respect to **electricity**, the majority of the villages are using solar system and with respect to **water**, most people within the project vicinity are using either piped water or rainwater tank.

With respect to **transportation**, the main form of transport in Western Province is the outboard motorised canoe. It is believed that the province has the highest number of canoes and outboard motors in the country (Solomon Islands Ministry of Provincial Government 2001). With the rising level of fuel price, the impact on transport and economic activities have also severely affected. There are also regular ship route connecting the province to Honiara. Ships currently ferry passengers between Gizo and Honiara, via Seke, for \$500 per person one-way. Most of the passenger ships also operate as cargo boats. The Seke airport is also serving the Vangunu people as they can access these services easily- via outboard motor. It only takes approximately 1 to 2 hours to reach Seke from the Manambu village.

4.3 Informal economy

The majority of the Solomon islanders are self-employed - either engaging in subsistence agriculture or harvesting of wildlife for consumption. Surplus is usually exchanged for cash to meet basic need for household uses, school fees, and others. A few people have dedicated their time in trading such as operating trade shops, cooking, betel nut selling and others. Income from these sells became the main sources of food for the family. Others who are fortunate enough could found themselves on full time jobs for the government, NGOs and private sector.

The small holder agriculture study has revealed that households in Western Province are heavily reliant on fish and marine products for both food and cash. Production of seafood

for consumption and selling are undertaken at a proportion of 87% and 44%, respectively. Shellfish and lobsters are particularly important sources of income for households in Western Province because of its rich lagoons and religious prohibitions on shellfish and lobster consumption.

As such the livelihood strategies of Western Province are predominantly premised on subsistence farming and fishing, combined with significant and relatively high cash income generation from local marketing of food and marine products. This is supplemented by sporadic income from the sale of copra, small-scale timber production, and royalties from logging and bait fishing, if and when they are available. The most important staple foods, in order of importance, are (purchased) rice, cassava, sweet potato, yams and pana (seasonally), and taro. Traditionally, taro (*Colocasia esculenta*) was the main staple, but it was replaced by sweet potato following a prolonged decline in taro yields caused by pest and disease problems.

As noted, selling of produces is also a significant part of the rural economy, and these produces are usually exchanged at Gizo, Noro and Munda urban centers. As noted in the Small holder agriculture study 2006, the most common items for sale at markets are seasonal root crops, vegetables and fruits, plus betel nut, marine products and fish all year round. The larger (urban-based area) such as the Noro market also have cooked items, such as cakes, for sale and some firewood. The Noro market facilities is now said to be inadequate and showed a drastic reduction in market activities since the closing of the Solomon Taiyo.

With respect to commercial crops such as copra and cocoa, they are only produced in very small quantity, hence cocoa and coconut plantation are quite small in size. Although betel-nut selling is high, the betel-nut plantation is said to cover a few hectare and most trees are planted as artisanal crops close to village houses. Other cash crop plantation like chilli are also present that supplied chilli tuna at the cannery in Noro. Likewise, small livestock are an important component of rural livelihoods in Western Province and it could estimate that 'other livestock' most like chickens. Given the project site is located in a small sized customary land, the project poses no risk to these rural economy.

4.4 Tourism

There are several models and rest houses in Vangunu and Gatokgae that can accommodate various tourist type. The natural scenery of the islands and cultural diversity of the people are often promoted as tourist attraction. It has been noted that most of the tourist coming into the Solomon Islands ended up in the Western province. The Vangunu Island has been branded as an increasing tourist hotspot area, mainly for bush hiking. Eco-tourism is also becoming popular in the western province, and there are several eco-tourist and homestays in the islands. On the provincial town (Gizo) it is hosting the centre of the diving tourist industry in SI, creating demand for hotel and guesthouse rooms. The service is made available that could be utilised by those working in the project and the ship clients. Hosting as one of the provincial port alongside the operation of the canary, allows a high demand for guest rooms in Noro town.

In general, tourism sector development in Solomon Island is weak in contrast to other key sectors driving the country's economy. However, the industry has great potential to develop as shown in 2015, with strengthened activity in the sector. The increasing number of visitors to the country was attributed to the combined strong marketing effort by the Solomon Islands Visitors Bureau (SIVB), government and the national airline.

With respect to trade shops, there are a few household trade shops, who mostly sell goods bought from Honiara. In general, the village trade shops operate in forms of small and medium enterprise and hence the operation will increase the cash flow in the villages.

4.5 Public health

The nearest health facility to the concession is Cheara clinic. The other health facilities are the Merusu Area Health Center and Batuna Area Health Center. The Health facilities are serving most people within and close to the concession as they could only travel less than an hour to reach the HF. It is assumable that people in the inner ridges are also using the HF and would take them to travel more hours to reach the HF. Malaria Ari and skin diseases are common problem in the village. It follows that the perceived cause of these common health problem (Malaria) are rubbish particularly water holding materials that allowed for breeding

of mosquitoes, unhygienic practices and etc. In respect to health, the access roads will allow villages to commute conveniently to these HF.

4.6 Education

According to the Solomon Islands census 2009, the enrolment rates in primary school in the Western province stood at 55 %. For secondary school the rate was recorded at 18% and pre-school was recorded at and 21%. Only less than 1% of all students attended a tertiary institution or a vocational institution. There are several schools in Vangunu and within the close vicinity of the concession. The closest are Koketa and Patukae which are hosting primary classes and community high. The other education facility is the Merusu.

The reason for poor enrolment has not been deduced, but it could be because of poor class rooms and facilities as it is typical in most remote area. There is also a potential for young people to engage in economic activities such as this logging project. The company will discourages under age employment as this may cause student to leave school and seek early employment instead.

4.7 LAND USE PATTERN

The land use pattern is also defined by village settlements and its associated subsistence agriculture development. Commercial crops such as cocoa and coconut plantations are also present. Village settlement and sweeten subsistence agricultural development also underpins the main land use practices of the Island. Besides soil fertility and land form, village settlements are also constrained by customary land ownership. Most villages and hamlets are in average size of one hectare to five hectares or more. It has been estimated that the garden size for each household is 0.01 hectare and could be rotated two times each year. Although the area is sparsely populated with hamlets more the dominant settlement pattern and gardening areas appear restrictive in size, these could potentially change due to pressures from the growing population.

Like any other rural landscape, Vangunu islands is largely shaped by large scale logging that has able to removed forest resources of the islands (see figure). A significant area of the lower land is also converted to plantation forest particularly by the landowners. Hence, the

logging operation continues to play key dimension of the land use pattern of Vangunu today and the years to come. However, despite of these industrial operations, the rugged landscapes unsuitable for human habitation and undesirable for logging, has often insulated the interior landscapes untouched and largely remains intact. And this also forms a significant land pattern of Vangunu Island.

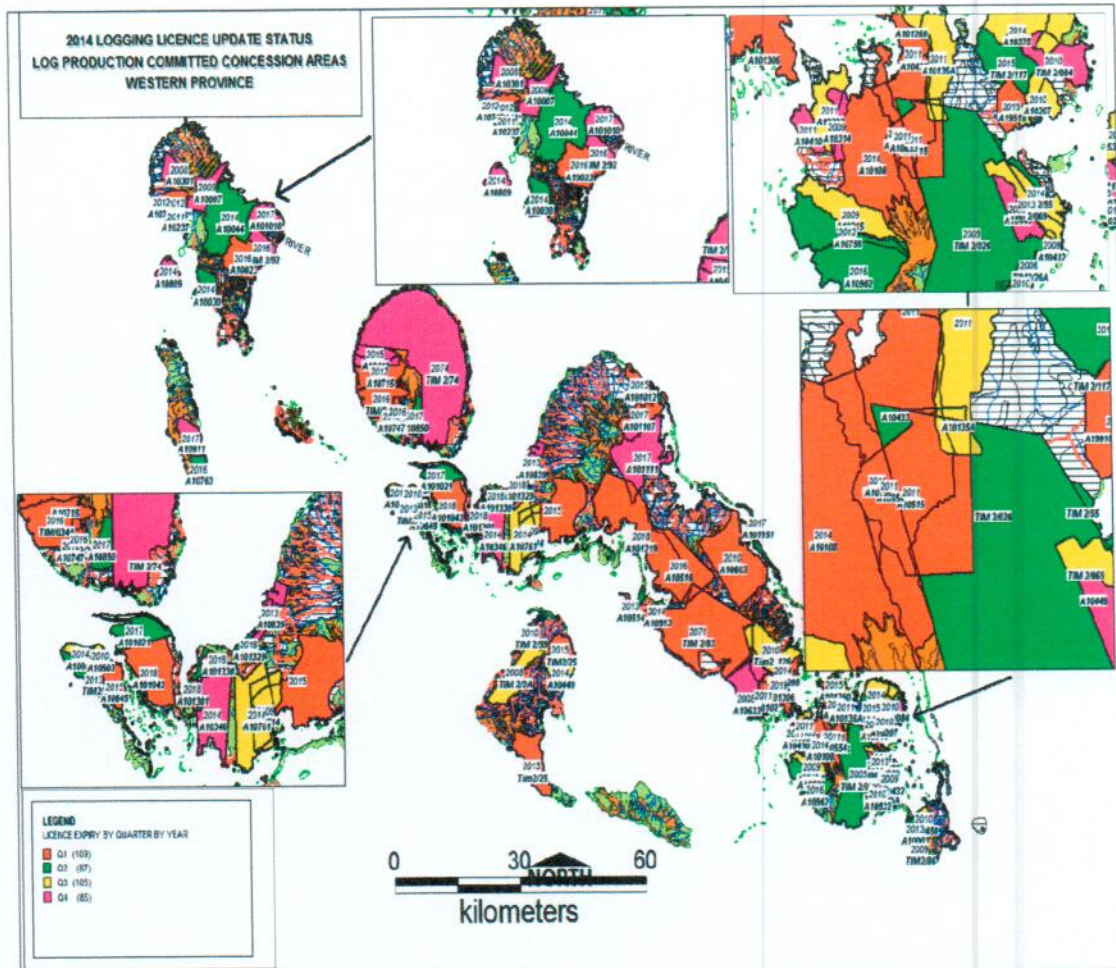


FIGURE 12: CONCESSION AREA IN WESTERN PROVINCE IN 2014, AFTER MOFR 2014.

The proposed logging continued to significantly alter the land use within the immediate area. As also noted it will provide opportunity for villagers to access the inland resources as most of the food garden is restricted to the coastal ridges.

4.8 Population and communities

The population of Western province was recorded at around 63 000 people in 2009. The Ngatokae population was recorded at 3,050 with a population growth rate of 2.5. This leave

an estimate of 3223 population for 2019. The village population character is summarized in table 10 bellow.

VILLAGE NAMES	TOTAL HH	MALES	FEMALES	TOTAL POPULATION	ESTIMATED POLLUTION FOR 2019
SANGEONA	17	35	42	77	96
BICHE	23	61	59	120	150
PEAVA	34	90	90	180	225
KAVOLAVATA	43	124	108	232	290
MBEU	1	1	1	2	3
TOLOBONGI	2	6	5	11	14
KIO	5	10	11	21	26
ILEZAE	2	11	6	17	21
BEKABEKA SCH.	3	9	5	14	18
NAMANULA	7	20	15	35	44
SOBIRO	54	147	127	274	343
BUNIKALO	13	34	28	62	78
BILLY	27	66	89	155	194
KETOKETO	21	52	36	88	110
KOKETE	20	50	56	106	133
HOGITASINA	15	30	34	64	80
INILEANA	14	40	29	69	86
SIARA	8	18	14	32	40
TIGE	1	1	1	2	3
TEGOMO	4	7	8	15	19
GEHALA	3	3	5	8	10
LALAUURU	3	6	5	11	14
MANABUSU	19	36	45	81	101
VORIVORI	1	4	4	8	10
TUSU	3	8	8	16	20
TUBANGA	7	14	26	40	50
KOLUNGANA	10	21	21	42	53
TATABIRI	16	48	46	94	118
RAKATA	10	27	29	56	70
AROVO CAMP	1	1	1	2	3
KOLOKOPI	18	44	38	82	103
SERA IRIRI	6	14	20	34	43
TUMUKU	9	22	25	47	59
TUMUKU	5	9	12	21	26

LUSINA	3	4	9	13	16
TOBULU	5	8	13	21	26
VEROVERO	18	111	96	207	259
KELE	9	24	28	52	65
TUGUPAGA	5	18	13	31	39
LUMANAMBOLO	12	29	27	56	70
MOKUANA	5	14	8	22	28
TIBARENE	5	17	20	37	46
RAPARAPA	2	6	6	12	15
BINGA	2	4	5	9	11
TOTAL	491	1304	1274	2578	3223

Table 10: GATOKAE VILLAGE POPULATION SIZE BY WARDS, AFTER 2009 CENSUS

According to a survey conducted by the Rural Development Programme, it has been estimated that the current total number of people living in villages close to the concession e.g. Manambusu village has a village population of 139 with a total household of 34. This means that the population has doubled since 2010 since the last census has been carried out. Two individuals are identified as people with special need. As demonstrated in the figure higher proportion of population are working people (see figure 13).

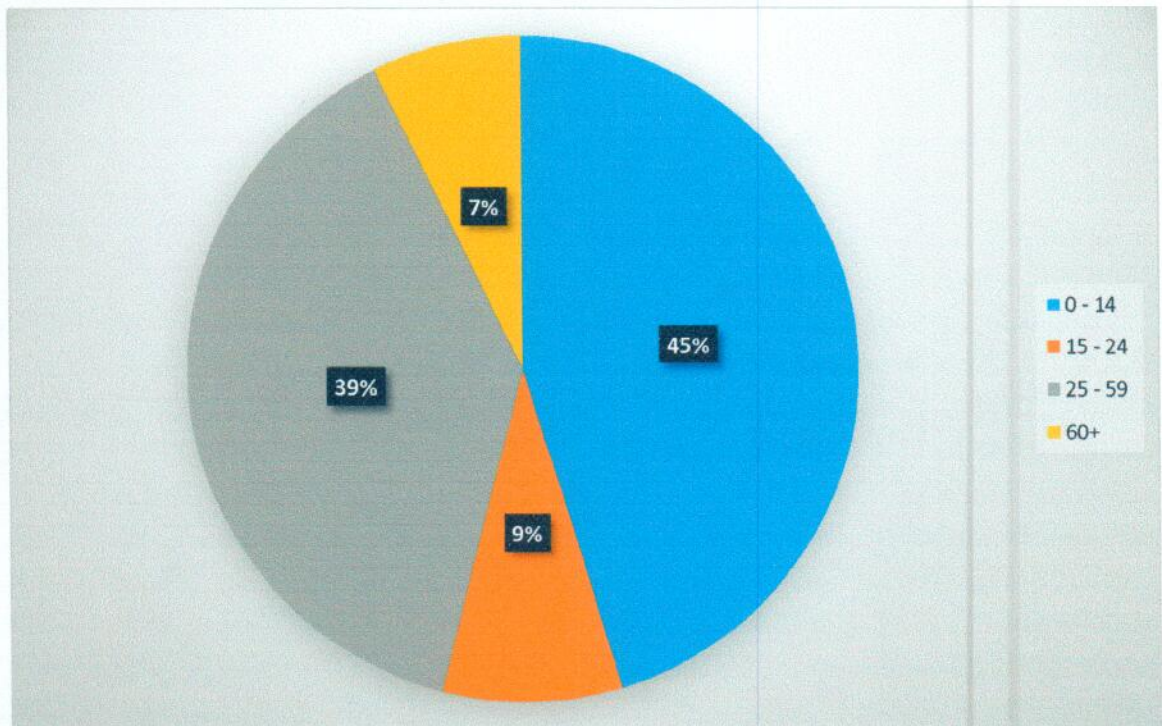


FIGURE 13: VILLAGE POPULATION DEMOGRAPHY, AFTER RDP, 2016

This means employment opportunity in this forestry sector will not only provide additional employment opportunities to the people, but will also continue to support other infrastructure development in wards.

4.9 CULTURAL/ARCHAEOLOGICAL SITES

The cultural and archaeological site in the concessions has been clearly marked and has form the large part of the mitigation measure. Thus tabu site also help identify true customary owner of the customary land of the concession. The developer is the customary land owners and hence they are fully aware of all important tabu sites within their own customary land.

With respect to land ownership, in the western province, rights to land and coastal areas are passed through matrilineal decent systems (in other areas of Solomon Islands there are patrilineal decent systems). In practice however, women may have limited inclusion in decisions about the use of areas of land and sea, and the resources they hold (e.g. Hviding and Baines 1994; Kile et al, 2000).

At the village level there is a traditional hierarchy of leadership; each tier has a defined responsibility in governing a community or a particular clan. In any one village or community there may be several clans or tribes, each with its own leadership structure and chief. The operation ensures inclusiveness has well reflected in the operation.

Chapter 5: Environmental Management Plan (EMP).

5.1 Introduction

This chapter continues to build on the impact assessments carried out under each subsectors, and clearly identify key significant impacts. A matrix was used to evaluate the impacts as, direct or indirect, minor or major, reversible or irreversible and evaluate potential spatial and temporal effects. The identified **significant impacts** have brought forward for further evaluation, and mitigation measures provided. Climate change issues can exacerbate these impacts and the extent to which the issues can affect the impacts arising from the project will be also be examined in this chapter.

TABLE 11: MATRIX OF INTERACTIONS BETWEEN PROJECT ACTIVITIES AND ENVIRONMENT

Project Activities	Log pond/Camp/workshops constructions	Quarry and gravel extraction/Road Constructions	Land /Transport	Sea Transport	Machinery	Forest Harvesting	milling	Post forestry	Solid waste	Storm water
i. General climate	--	--	--	--	--	---	--	++	--	---
ii Landform and topography	-	---	--	--	NA	---	--	++	--	---
Flora										
Terrestrial habitats	--	--	--	NA	--	---	--	++	---	---
Forest/vegetation	--	--	--	--	--	---	--	++	--	---
Rare/threatened plants	--	--	--	NA	NA	---	--	++	--	---
Fauna										
Mammals	--	--	--	--	--	---	--	++	--	---
Amphibians	--	--	--	--	--	---	--	++	--	---
Reptiles	--	--	--	--	--	---	--	++	--	---
Birds	--	--	--	--	--	---	--	++	--	---
Rare/threatened fauna	--	--	--	--	--	---	--	++	--	---
Aquatic										
Stream habitats	--	--	--	--	--	---	--	++	--	---
Swamp habitats	--	--	--	--	--	---	--	++	--	---
Coastal wetlands	--	--	--	--	--	---	--	++	--	---
Fish	--	--	--	--	--	---	--	++	--	---
Aquatic flora	--	--	--	--	--	---	--	++	--	---
Threatened aquatic wildlife	--	--	--	--	--	---	--	++	--	---

Physical environment										
Water										
Water yield	--	--	--	--	--	---	--	++	--	---
Stream flow	--	--	--	--	--	---	--	++	--	---
Sediment load (suspended)	--	--	--	--	--	---	--	++	--	---
Water quality	--	--	--	--	--	---	--	++	--	---
Ground water	--	--	--	--	--	---	--	++	--	---
Land										
Slope stability	--	--	--	--	--	---	--	++	--	---
Sediment runoffs	--	--	--	--	--	---	--	++	--	---
Soil nutrients	--	--	--	--	--	---	--	++	--	---
Social/economic										
Employment	+++	+++	+++	+++	+++	++	+++	++	+++	++
Income	+++	+++	+++	+++	+++	++	+++	++	+++	++
Tourism & recreation	--	NA	NA	++	NA	++	--	++	--	--
Community services	NA	NA	NA	NA	NA	NA	++	++	++	++
National economy	+++	+++	+++	+++	+++	++	+++	++	+++	++
Archaeology/historical sites	--	--	--	--	--	--	--	++	--	---
Protected areas	---	---	---	---	---	---	---	++	---	---

Legend: ++ Potential minor positive impact; +++ Potential major positive impact

-- Potential minor negative impact; --- Potential major negative impact

Study conducted elsewhere has confirmed that disturbances of natural forest composition particularly by logging have altered the natural build infrastructures that subsequently negatively impacted on water systems. The concession has surface water that requires special attention and with current poor data the need for resorting to the precautionary principle becomes critical. Hence the company is mindful of undertaken the operation with special measures to ensure the resiliency of the economic and social dynamic of the island is maintained. In particular, the provisions provided under the Logging Code of Practice (2002) provide the first means for mitigation. The company is aware of its mandatory requirements to perform under the statutory regulations or otherwise those consequences for none compliances. Alongside the mitigation measures in places and in particular relevance to water it has also been envisioned to supply rainwater catchment tanks to the villages to compliment and compensate for any short term impacts caused by the operation.

Key Standard Number 1 – Protected and Exclusion areas

There are two types of areas where logging may not occur. They are:

- 1) Protected areas Areas that must be identified at the planning phase and removed from the area licenced under a logging licence. They are areas:-
 - Declared as Conservation Areas under legislation.
 - That have ecological or scientific importance including outer reef and lagoon islands, swamps, wetlands and mangroves which are vital to the protection of important marine resources.
 - That exceed 400m above sea level unless approved for logging by the Commissioner of Forests.
 - That landowners do not wish to log for any reason.
- 2) Excluded areas Areas within a concession that are excluded from logging. They must be marked prior to logging commencing. There are 5 types of excluded area. These are shown in the table below.

Types of excluded areas and minimum buffers

Type of Excluded Area	Minimum Buffer	Comments
Cultural areas	Tambu areas – 30m Garden areas – 30m Villages – 200m or as decided by the community	The local community must be given the chance to decide on these buffer widths. If different from the minimum identified then the FD must be notified in writing and may check that the decision is agreed to by all parties.
Ocean/Lakes/Lagoons	100m except for a log pond which may be 50m	Buffer starts from high water mark
Landslip areas	The area of the slip and the area where the soil ends up	
Streams (Flows for more than 6 months of the year)	Class 1 (Bed more than 10m wide) - 50m each side Class 2 (Bed less than 10m wide) – 25m each side	Use the flowchart below to determine the class of stream or gully. Buffer starts from edge of vegetation.
Gully (Flows for less than 6 months of the year)	10m each side	Use the flowchart below to determine the class of stream or gully. Buffer starts from edge of vegetation.

Note – Any exception to the described buffers must be approved in writing by the Provincial FD Officer in Charge

Watercourse flowchart – Ask these questions

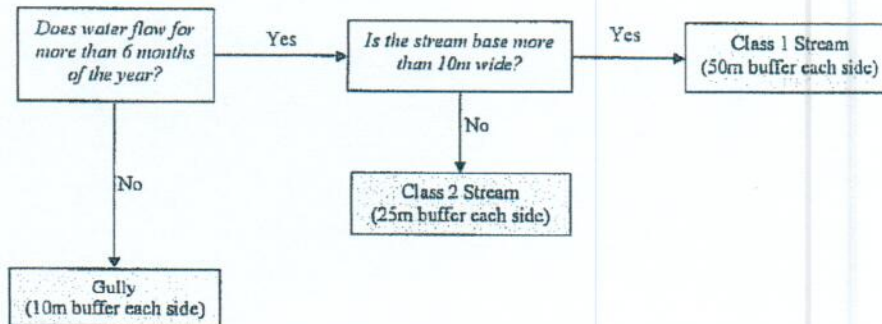


FIGURE 14: LOGGING CODE OF PRACTICE, KEY STANDARD NUMBER 1

5.2 Environment Management Plan (EMP)

Building on the mitigation measures provided above, this Environmental Management Plan (EMP), elucidated and depicts relevant actions for the mitigation measures provided above. This EMP seeks to address threats imposed by the logging operation and in particular

managing the point sources to avoid accumulative impacts contribution towards the identified negative impacts. Its implementation and relevant oversight mechanism such as the responsible agencies for the proposed environmental actions is also provided. In general the outcome objective for the EMP is outline bellow:

- ✓ To ensure activities are undertaken as specified in the public environment report and in accordance with applicable laws;
- ✓ To ensure proposed mitigation measures are appropriate and applicable to the identified potential adverse significant impacts, to avoid, minimize or compensate for the impacts;
- ✓ To ensure human health, safety and wellbeing are protected;
- ✓ To ensure areas of high conservation values for biodiversity are protected or managed;
- ✓ To ensure areas of natural scenic values or cultural importance are protected or managed;
- ✓ To ensure impacts associated with climate change or natural disasters are minimized, mitigated or relevant adaptation measures are in place.

5.2.1 Stage-wise Environmental Management Plan

The stage-wise environment management plan ensures the operation is safeguarded by environmental standards within and in the imitate project surroundings. This stage wise management plan is also supported by, disaster management plan and community and public awareness plan. These supporting management plans seeks to address long term impact (spatial and longitudinal) including external pressures such as climate changes and disaster. These management plans are supported with monitoring framework to complete a feedback loop for the adaptive management.

Potential Impacts	significance of impacts (High, Medium or low)	Long (L) or short (S) term impacts	Mitigation measures (operational or long (L))	Monitoring parameters	Responsibility	Recommended time for monitoring
Log pond, campsite and wharf development						
Environment						
1. Loss of riverine forest and shrubs and increasing of erosion and runoff to both site of the concession	High	L	#Limit, control and avoid felling of trees at least 20 meters from the river edges following the River Act(operational)	# Percentage of riverine forest removed by logging #Evidence of erosion and sedimentations in rivers	Camp Manager and ECD staff	Before operation during operation and after operation
2. Loss of freshwater fisheries production due to sedimentation and pollution	High	L	#Adhere to mitigation measures (operational) #Support offset closed area management (L)	# Catch/unit	Camp Manager ECD staff, MFMR and other stakeholders	Before operation during operation and after operation
3. Increase of sedimentation load river and tributaries and subsequently coastal environment	High	L	#Limit, control and avoid felling of trees at least 20 meters from the river edges following the River Act(operational)#Direct drainage	# Level of suspended sediments in river and coastal environment	Camp Manager ECD staff and stakeholders	Before operation during operation and after operation
4. Oil spillages into		L	#Use of bunding for	# Concentration	Camp Manager	During operation

river and tributaries and coastal environment	High		refilling platform (operational)	of oils in soil, river system and marine environment	ECD staff and relevant stakeholder	and after operation
5. Sanitation	High	S	#Construct proper toilets and water system at campsite #Adhere to waste management plan and promote 3R method of waste management ¹ .	#Proper sanitation in place # Proper waste management system in place # Amount of waste within the operation area	Camp manager Camp Manager and ECD staff and relevant stakeholder	During operation
6. Increase of waste from imported goods	High	L to S				During operation
7. Noise pollution	High	L-S	#Site located some distance from villages #Use of efficient machines that minimize noises	#Distance from village and #Efficiency of machines used	Camp Manager ECD staff and relevant stakeholder	During operation
8. introduction of invasive species	High	L-S	#Quarantine check on incoming machinerie	#Presence of introduced invasive specie	Camp Manager ECD staff and relevant stakeholder	During operation
Social-Economic						
9. Loss of culturally important site	low	L-S	#Avoid entry into tabu site	# Tabu area properly demarcated	Camp Manager, ECD and other stakeholder	Before and during operation
10. Loss of garden	Low	S	#Avoid road on garden	#Garden area	Camp Manager	Before and

¹ Limited burning of paper or plastic materials, Use of composting for biodegradable items, collection of metal wastes for reuse, burying of certain metal wastes at designated sites

area			area	properly demarcated		during operation
Road system construction						
Environment						
11. Gravel barrow pits -Increase vector borne disease	High	L-S	# Back filling of pits	# Pits filled or utilizes for other uses	Camp Manager and ECD staff	During and after operation
12. Forest fragmentation	Low	L-S	#Avoid road going through ecological sensitive area	# Ecological sensitive area demarcated and free from operation	Camp Manager and ECD staff	During and after operation
13. Loss of important species/protected area	low	L-S	#Identified and avoid road going through ecologically sensitive areas	# Ecological sensitive area demarcated and free from operation	Camp Manager and ECD staff	During and after operation
[3]	High	L-S	# Avoid site cutting of hills # Sediment traps #Remove vegetation only in designated areas	# Level of suspended sentiments in river and coastal environment	Camp Manager and ECD staff	Before operation during operation and after operation
[4]	High	L-S	#See mitigation corresponding to impact 4	#Concentration of oils in soil, river system and marine environment	Camp Manager, ECD staff and relevant stakeholder	During operation and after operation
[7]	High	L-S	#Use of efficient machines that	#Distance from village and	Camp Manager, ECD staff and	During operation

				minimize noises	#Efficiency of machines	relevant stakeholder	
Social Economic							
[9]	High	L-S		# Avoid entry into tabu sites	# Tabu area properly demarcated	Camp Manager	Before and during operation
[10]	High	S		# Avoid road on garden area	#Garden area properly demarcated	Camp Manager	Before and during operation
Timber harvesting/felling							
Environment							
14. Harvesting of undersized logs	High	L-S		#Ensure the enforcement and compliances to Solomon Islands Code of Logging Practice	#Sizes of logs	Camp Manager and MoFR	During operation
15. Harvesting of none exportable logs and protected species	High	L-S		#Ensure the enforcement and compliances to regulated species in the Wildlife management Act	#Harvested species	Camp Manager, MoFR and ECD	During operation
[12]Forest fragmentation	High	L-S		#Selective felling #Directional felling #Offset protected area	#Fragmented forest #Off set protected area	Camp Manager, MoFR, ECD and other stakeholder	During and after operation
16. Loss of crown cover	High	L-S		#Remove vegetation only in designated areas identified during planning phase	#Percentage loss of vegetation	Camp Manager, MoFR, ECD and other stakeholder	During and after operation

	17. Displacement of certain plants or animals species	High	L-S	#Setting aside and reserving representative areas or habitats within the forest including #Avoiding harvesting in identified protected area #Support conservation initiative within the close vicinities	#Percentage loss of vegetation # If possible translocate species	Camp Manager and other stakeholder	During and after operation
	[3]. Increase of sedimentation load into streams and coastal environment on the eastern end	High	L-S	# Buffer zones along river system # Operation to locate few kilometers from the coastline and villages	#Level of suspended sediments in river and coastal environment	Camp Manager and ECD staff	Before operation during operation and after operation
	[4]. Oil spillages into stream and coastal environment on the eastern end	High	L	#Use of bunding for refilling platform	#Concentration of oils in soil, river system and marine environment	Camp Manager, ECD staff and relevant stakeholder	During operation and after operation
	[7] Noise pollution	High	L-S	#Site located some distance from villages #Use of efficient machines that minimize noises	#Distance from village and #Efficiency of machines	Camp Manager, ECD staff and relevant stakeholder	During operation
social Economic							
18. Conflict due to	High	S	#Support land holder	#Level of conflict	Camp manager	During operation	

	uneven sharing of royalty						
	19. Unequal employment opportunity	High	S	#Equal job opportunity for all including consideration of gender balance	between landholders #Number of employees and sex ratio	Camp manager	During operation
	20. Social disorder associated with alcohol consumption and other activities	High	S	#support landholder and community #report serious cases to police	#Stability of community	Camp manager and landholder	During operation
	21. Health and safety	High	S	#Follow health and safety regulation	#Compliances to Health and safety rules	Camp Manager	During operation
[8]		High	L-S	# Avoid entry into tabu sites	# Tabu area properly demarcated	Camp Manager	Before and during operation
[9]		High	S	# Avoid road on garden area	# Garden area properly demarcated	Camp Manager	Before and during operation

Table 12: Stage wise Environment Management Plan

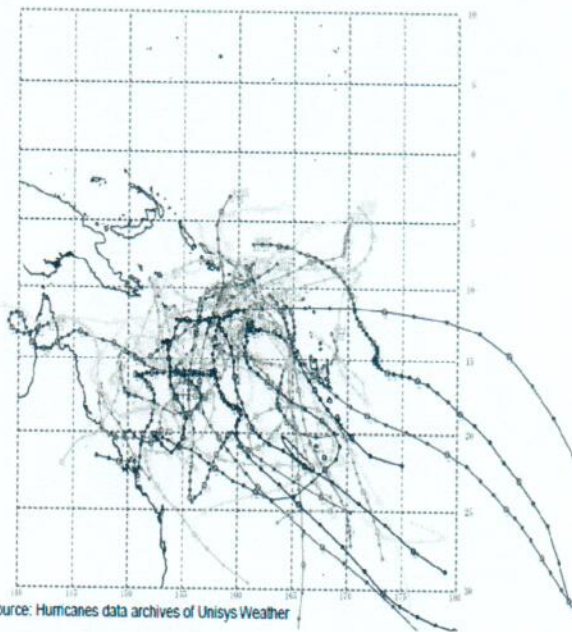
5.3 Disaster Management

Solomon Islands is highly vulnerable to natural disasters such as tropical cyclones, earthquakes and climate change including coastal erosion and sea level rise. The country also faces threats posed by tsunamis following tectonic plate movements. As already mentioned, the site is characteristically flat and, as such, can be easily exposed to effects due to natural disasters and anomalous climatic conditions. The risks posed by and associated with unfavorable events in the form of adverse impacts of climate change and earthquakes can be calamitous to the entire coastal areas of Henderson. Solomon Islands has experienced 11 earthquakes with a magnitude of above 6 on the Richter scale in 2015 alone. While this shows how vulnerable the country is, it is the coastal areas that are most at risk as experienced in the past, when tsunamis hit certain parts of the country and destroyed properties in their wake.

Being a small island developing state (SIDS) and a low lying coastal country, Solomon Islands vulnerability makes it an easy target to suffer the adverse consequences of climate change. This is recognized in the United Nations Framework Convention on Climate Change (UNFCCC). Besides its physical vulnerability, the country is also economically vulnerable as it relies more on very limited commodities export which are subject to unstable global market

conditions. According to the NAPA, climate change is the most important environmental and development issue for the country because of its potential to impede economic and social development.

It has been estimated for the Melanesian region that the rate of change of sea level rise over ten years was three times (8-10mm/year) higher than the



Source: Hurricanes data archives of Unisys Weather

FIGURE 14: CYCLONE ROUTE

global average. For Solomon Islands, the sea level rise was approximately 7.6 millimetres per year for the period 1994 to 2008. Similarly, the country's temperature shows a warming trend while rainfall records show a declining pattern in its occurrence. These conditions are proving to be conducive to the increased frequency of severe tropical cyclones affecting the country during the summer from December to February.

As noted Natural disaster, especially cyclone is becoming frequent to date mainly due to the global phenomenon of climate change. These global and regional phenomenons, is likely to be impacted on the local wind and waves imposing risk to the proposed project including the entire Honiara. According to the JICA (2013) report, storm wave could rise up to 3.66 M in height. Along site heavy rain and strong wind, this could bring in major disaster to the project. The route map of cyclone passing Solomon Islands from 1945 to 2011 is shown in figure 25.

The company stand by to assist relevant Ministries, Western Province, and local community representatives to set up or to assist with coordinating the preparation of a flood management plan for the site if the responsible Ministries has initiated such as programme. This may include assistance with the development of simple hand-out or presentation to educate villagers on the consequences of living in hazardous areas and the ways of reducing the hazard.

5.4 Community Relations Work and Public Relations

Since the project became conceived, the Vulu Timber Enterprise Ltd continue to create cooperation with key agencies such as the Ministry of Forestry and Research, Ministry of Environment Climate Change Disaster Management and Meteorology, Western Provincial government and others. The obtaining of license is a clear demonstration of effort to meet compliances to the key government agencies' regulations.

5.5 Monitoring Framework

The environmental management plan and monitoring framework provides the checking-point for the stipulated mitigation measures and the identified negative impacts that are denoted as high significant. It elaborated on the legal documents provided in the technology

agreement and provide the technical management needs and indicators for the purposes of monitoring and evaluation. It also allows for improving of management options (coupe plans) when the operation proceeds. In general, the proper executing of the management plan is the sole responsibility of the company. Monitoring will be the sole responsibility of the Solomon Island government particularly the ECD division of the MECDM and the Ministry of Forest and Research as provided by the Acts and any other schedules provided under their mandated duties.

The mitigation measures developed by the proponent for the logging operations are complementary to the key standards identified in the Solomon Islands Code of Logging Practice. This guidance document has been developed with the view to ensuring logging in the country heeds the important ecological and cultural functions of the forest and its wider implications for associated ecosystem services or the environment. The Code emphasizes the importance of reduced impact logging (RIL).

It follows that the environmental management plan is developed to fall into the operational intend of the development and hence those provision such as protected area is viewed as social and environmental responsibility of the company where if and when needed, necessary support can be provided upon request. Such initiatives have to come from other interested stakeholder.

Selected project component	Monitoring activity	Responsibility
Land clearing and preparation	Check clearance of existing land; Check equipment types used for specific tasks; Check designated exclusion areas; Check waste management practices; Check noise emissions to sensitive receptors; Check vehicles and equipment for leaks.	Site supervisor
Quarry and gravel extraction	Check for slope failure; Check designated exclusion areas; Check sediment control structures;	Site supervisor

	<p>Check haul trucks are covered when loaded with gravel;</p> <p>Check that engineering measures such as batter slopes are implemented;</p>	
Earthworks	<p>Check sediment control structures; Check for hydrocarbon spills;</p> <p>Check noise emissions to sensitive receptors;</p> <p>Check sediment runoffs and turbidity;</p> <p>Check vehicles and equipment for leaks.</p>	Site supervisor
Pollution	<p>Check noise emissions to sensitive receptors;</p> <p>Check for hydrocarbon spills;</p> <p>Check turbidity due to disturbance of sea floor;</p>	Site supervisor
Storm water drainage	<p>Check the design for correct specifications;</p> <p>Check the stability of the landfill;</p> <p>Check that grievance is addressed;</p>	Site supervisor

TABLE 8813: QUICK QUALITY ASSURANCES OF MONITORING BY OBSERVATION METHOD AND RESPONSIBILITY

For the impacts of the project, specific variables to be monitored and the frequency of monitoring are identified in table 13. This is mainly important for the monitoring of pollutants in water and sediments and others as clearly demonstrated as the most significant negative impacts of the operation.

6.0 References

- Amillah S. Rodil., Maria Adelaida Antonette Mias-Cea., Bernhard. B., Sarah M., Valentine. T., Maria T. 2014. Honiara, Solomon Islands – Climate Change Vulnerability Assessment, *United Nations Human Settlements Programme*. P.O. Box 30030, Nairobi 00100, Kenya.
- Allen MG, RM Bourke, BR Evans, E Iramu, RK Maemouri, BF Mullen, AA Pollard, M Wairiu, C Watoto and S Zotalis.2006. Solomon Islands Smallholder Agriculture Study (Provincial Reports); AusAID Public Affairs Group; AusAID GPO Box 887: Volume (4): Series: 1 920861467
- Catherine E. F., Boseto, D., Filardi, C, E. 2007. A preliminary desk study identifying important Bird areas (IBAs) in the Solomon Islands, BirdLife International Catalogue of rivers for pacific islands pp 122-138
- Central Bank of Solomon Islands (2015). Annual report 2015. Honiara
- Coleman, P.J. and Kroenke, L.W., 1981: Subduction without volcanism in the Solomon Islands arc. *Geo-Marine Letters*, 1: 129-134.
- Japan International Cooperation Agency.2016. Basic Design Study Report On The Project For The Reconstruction Of Bridges In East Guadalcanal In The Solomon Islands. *Japan International Cooperation Agency*.
- Kool, J., Brewer, T., Mills, M. and Pressey, R. 2010. Ridges to Reefs Conservation for the Solomon Islands, ARC Centre of Excellence for Coral Reef Studies, James Cook University
- Kroenke, L.W., 1984, Solomon Islands: San Cristobal to Bougainville and Buka, Ch. 4, in Kroenke, L.W., (ed.), *Cenozoic tectonic development of the southwest Pacific*: UN ESCAP, CCOP/SOPAC Technical Bulletin 6 47-61
- Lees, A., 1990. A Representative Protected Forest System for the Solomon Islands, Marui Society, PO Box 756, Nelson, New Zealand.
- Mann. P., Frederick, W., Martin, B., Andrew, Q., Burr, G. 1998. Accelerating late Quaternary uplift of the New Georgia Island Group (Solomon island arc) in response to subduction of the recently active Woodlark spreading center and Coleman seamount, *Tectonophysics*, 295: 259–306.

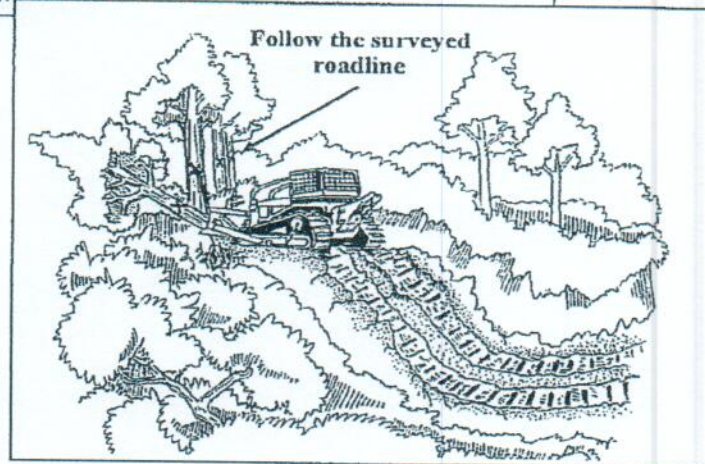
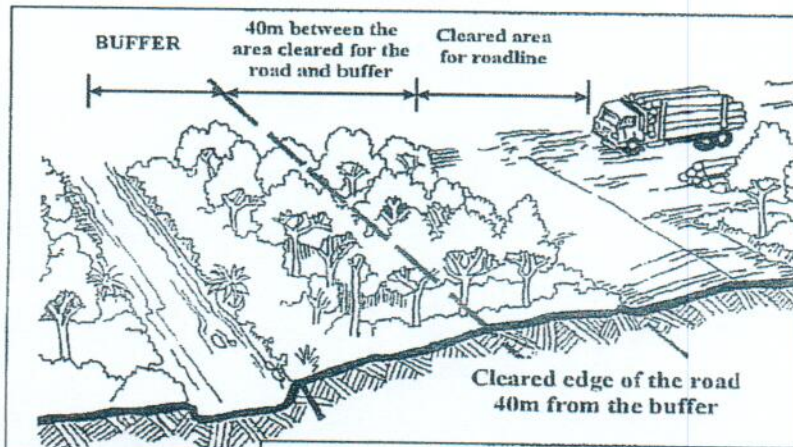
- MECDM. 2013. Solomon Islands Fifth National Report on the implementation of the Convention of Biological Diversity, can be derived from <http://www.cbd.int/doc/world/sb/sb-nr-05-en.pdf>
- Paine, J. R. 1989. Solomon Islands: An Overview of its Protected Areas System Draft Report. World Conservation Monitoring Centre, Cambridge.
- Solomon Islands Government (2008). National Adaptation Program of Action. Ministry of Environment, Climate Change, Disaster Management and Meteorology. Honiara.
- Solomon Islands Government (2008). Environment Act 1998. Honiara.
- Solomon Islands Government (2010). Protected Areas Act 2010. Ministry of Environment, Climate Change, Disaster Management and Meteorology. Honiara.
- Solomon Islands Government (1979). Town and Country Planning Act 1979. Ministry of Lands. Honiara.
- Solomon Islands Government (2011). Solomon Islands Population and Housing Census. Solomon Islands National Statistics Office. Honiara.
- Solomon Islands Government (2011). Solomon Islands National Development Strategy 2011-2020: Objective 5. Ministry of Development Planning and Aid Coordination. Honiara.
- Solomon Islands Government (2015). National Tourism Development Strategy 2015 – 2019. Ministry of Culture and Tourism. Honiara.
- SIG, (2002). The Revised Solomon Islands Code of Logging Practice. Ministry of Forests, Environment and Conservation, Honiara, Solomon Islands.
- SIG, (2003). National Forest Policy Statement. Department of Forests, Environment and Conservation. Honiara.
- Taylor, F., Richard, W., Cliff Frohlich, A., Matt Hornbach, A., Papabatu, A., Meltzner, D. 2007. Rupture Across Arc Segment and Plate Boundaries in the 1 April 2007 Solomons Earthquake,
- USP. 2012. Ecosystem Profile, East Melanesian Biodiversity Hotspot can be available at http://www.cepf.net/SiteCollectionDocuments/east_melanesian_islands/EMI_ecosystem_profile.pdf(PDF 3.9MB).
- Wall JRD and Hansell JRF (1976a). *Land Resources of the Solomon Islands. Volume 4: New Georgia Group and the Russell Islands*. Land Resources Study 18.

Annex 1: Solomon Islands code of logging practices

Key Standard Number 2 – Location of Roads and Landings

Roads must be constructed by following the pre-determined survey line. The survey line will be marked using the following guidelines:-

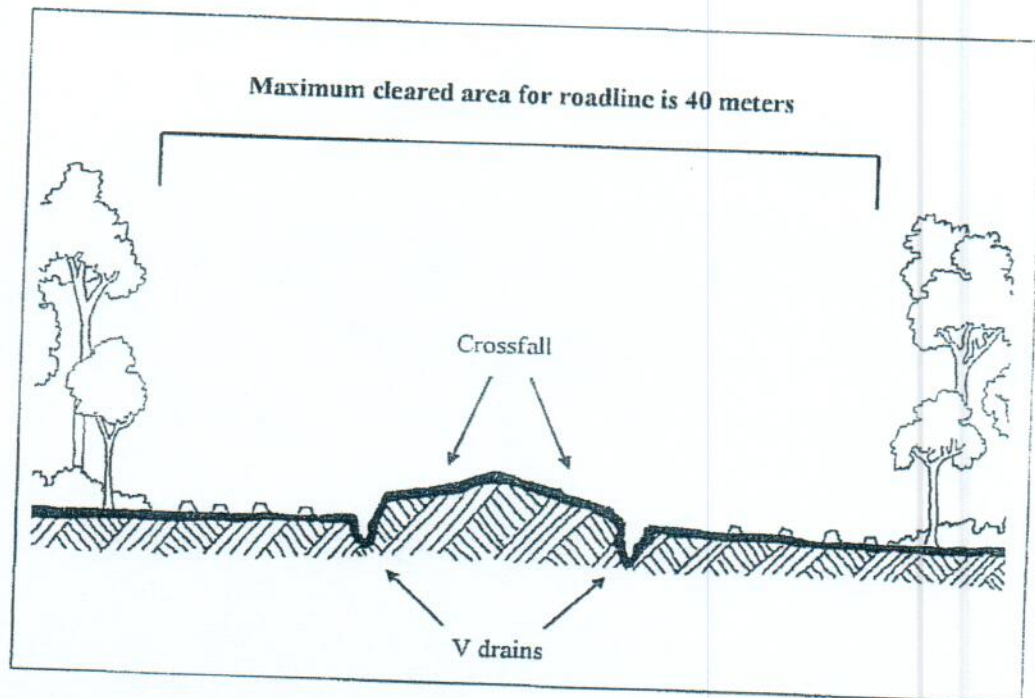
- The cleared edge of the road or landing must be located at least 40m from the edge of a buffer. Buffered and protected areas must be avoided. A FD Officer must approve any variation to this guideline in writing to the camp manager, FD headquarters and the company headquarters.
- Minimise watercourse crossings.
- Locate survey line on high ground.
- Try to always follow ridgelines.
- Avoid side slope that needs side cutting or benching.
- Balance cut and fill.



Key Standard Number 3 – Maximum Width of Roadline Clearing 40 Meters

The maximum area that can be cleared for a roadline is 40m. This includes the road and all cleared forest alongside the road i.e. from forest edge to forest edge. The only exception to this standard is when a roadside landing is constructed and total width may be 80m for a length of 30m.

If landowners request additional clearing for gardening or other uses, this must be approved by the Provincial FD Officer in Charge before clearing commences. If the area is over 5 hectares it must be approved by the Chief Forest Officer Operations, Honiara.



Key Standard Number 4 – The Three Rules of Roading (Drainage, Drainage + Drainage)

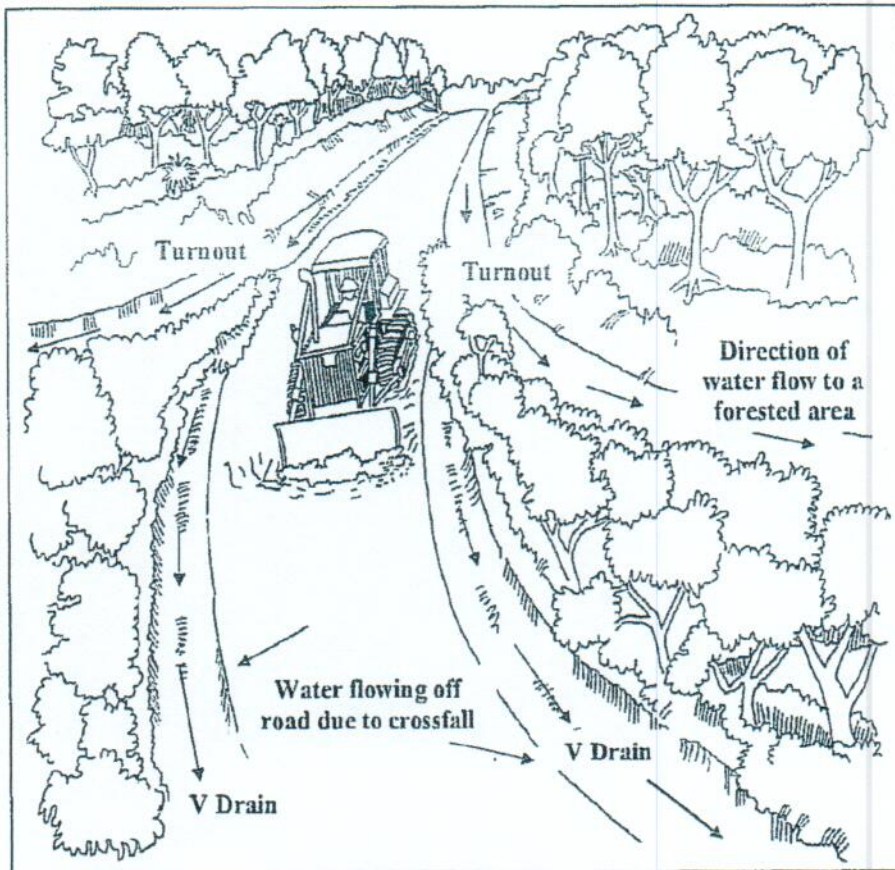
Poor roading design and construction can lead to significant levels of erosion. To prevent this road construction must pay adequate attention to drainage. Drainage must include:

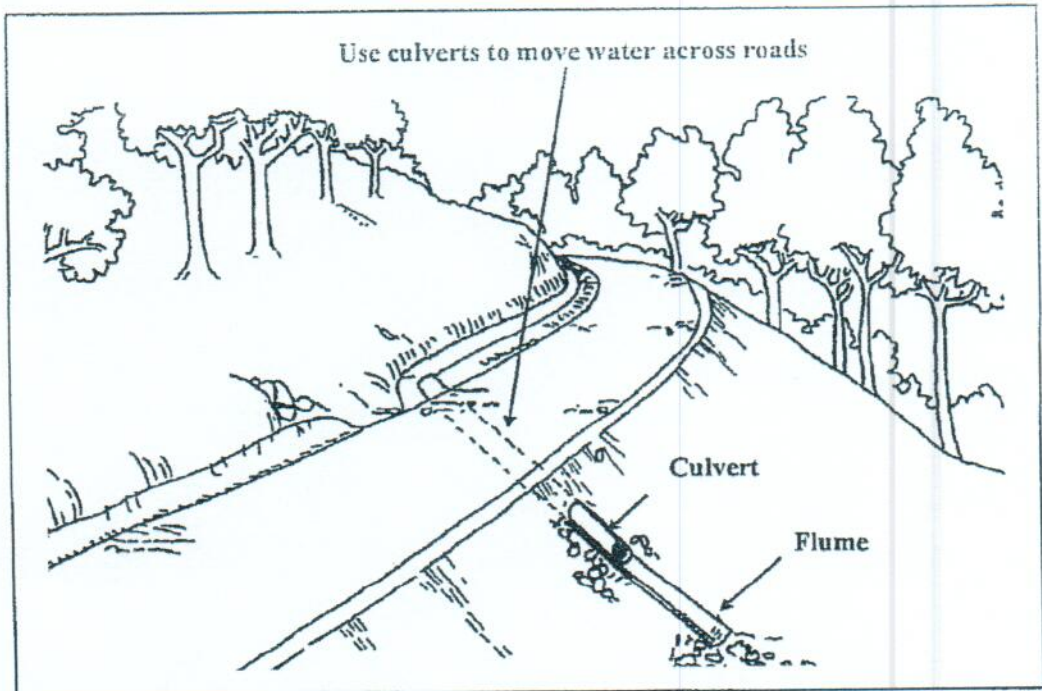
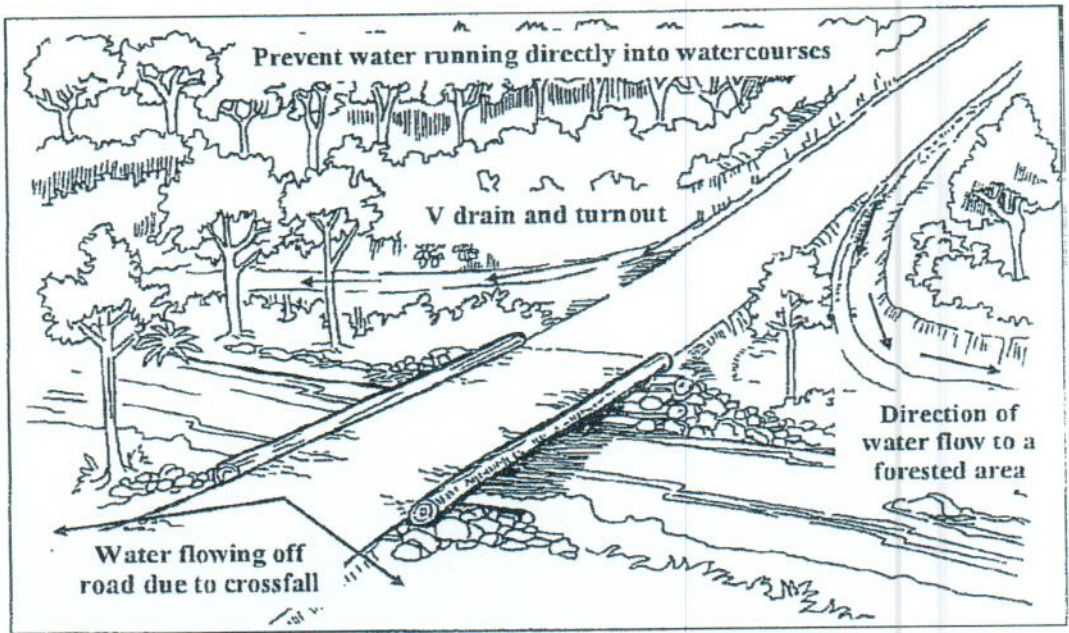
1. Table or V drains to prevent water running onto the road and drain water off the road.
2. Drain turnouts to remove the water from the roadside to the bush.
3. Culverts where water needs to be moved across a road
4. Cross fall from the centre of the road to the edge to prevent water sitting on the road surface

Drains must:

1. Not run directly into watercourses or onto landings
2. Run onto forested areas
3. Where possible run onto flat areas

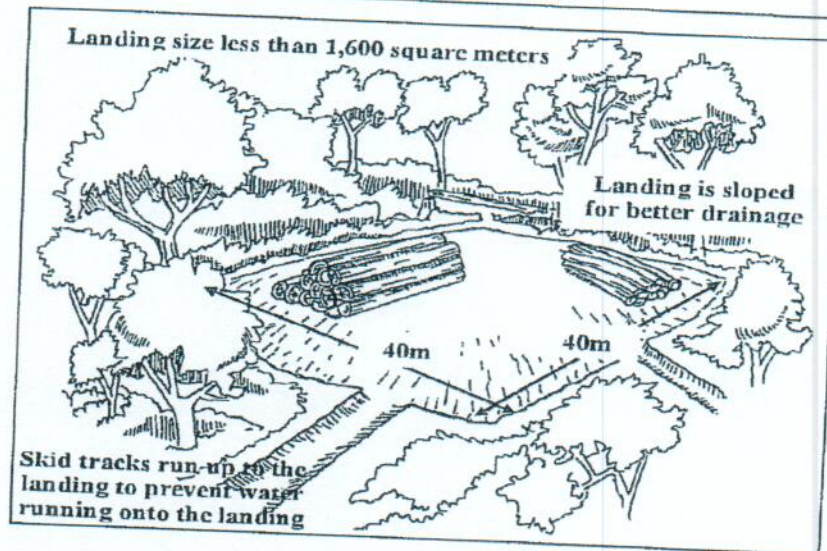
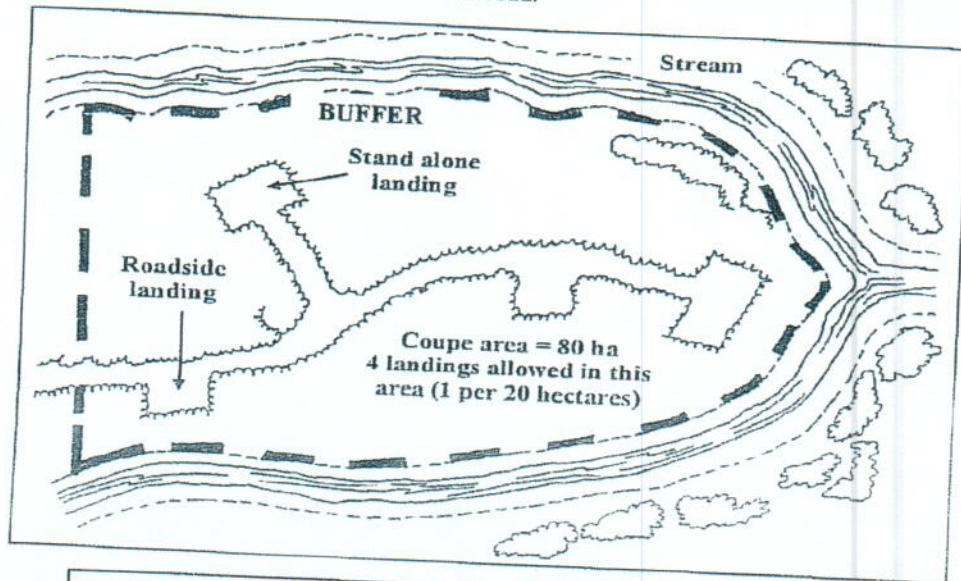
Compaction of the road surface with rollers, trucks and other heavy equipment will further assist road drainage and extend the time that the road is useable for.





Key Standard Number 5 – Landing Size and Number

Maximum landing size is 1,600 square meters eg. 40m x 40m. Within an area of 100 hectares there should be no more than 5 landings. Each landing will therefore on average serve no less than 20 hectares of area. Roadside landings will be measured from the road edge and should be no more than 1,600 square meters in addition to the road.

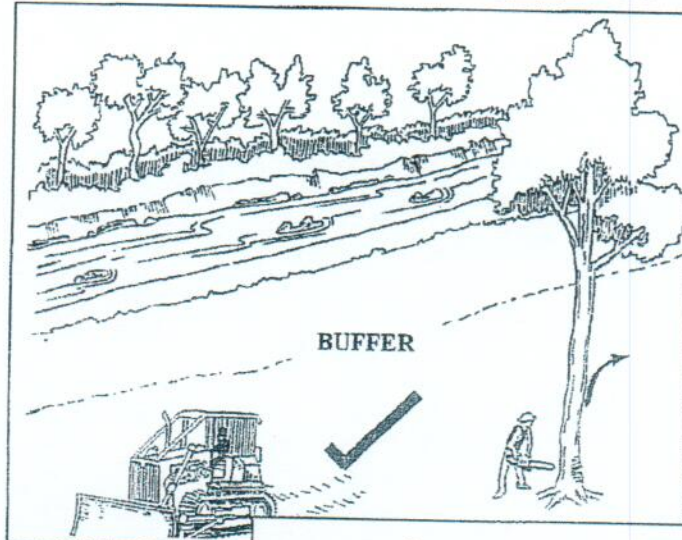


Key Standard Number 6 – No Felling or Skidding Within Buffers

No felling is allowed within buffers or into buffers. If a tree cannot be felled without it entering a buffer then it must be left.

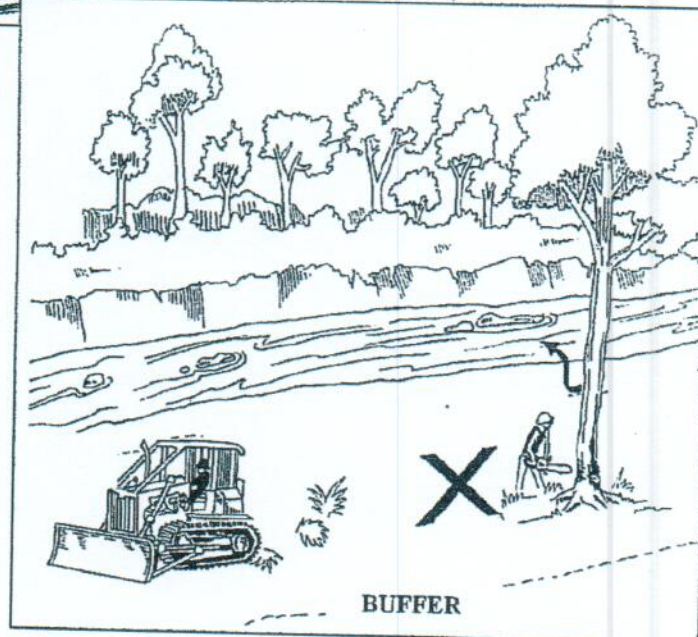
No skidding is allowed within buffers except where water crossing points have been identified and agreed on the coupe plan and marked on the ground.

If landowners request a company to operate within a buffer, this must be approved in writing by the Provincial FD Officer in Charge before the company proceeds.



CORRECT
Fall outside and away from buffers. Skidding machinery must stay outside buffers.

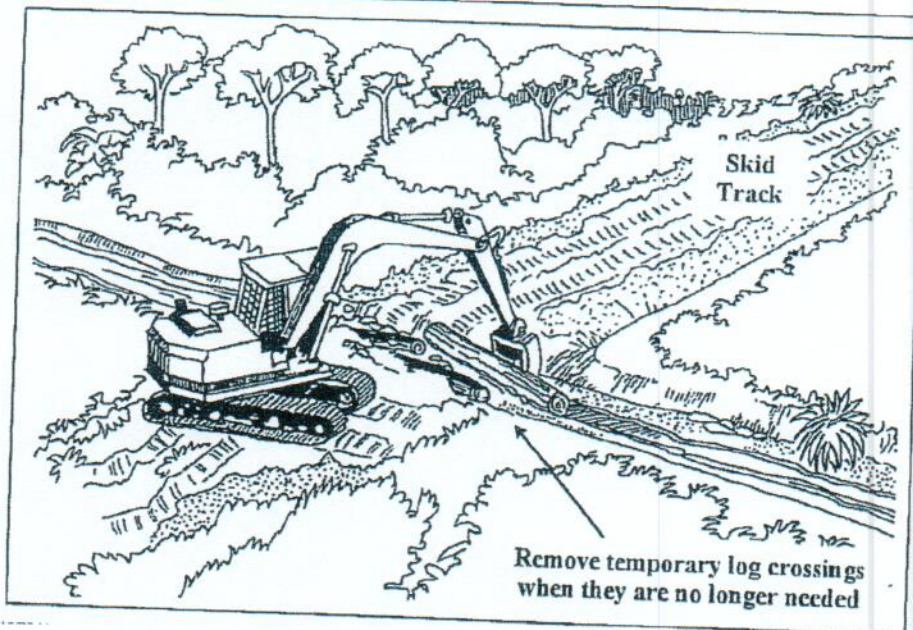
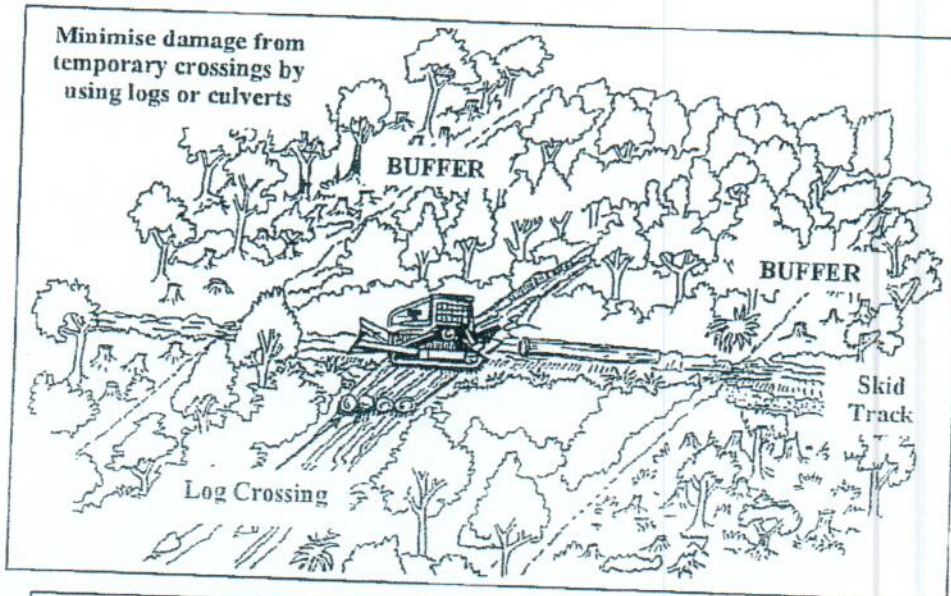
INCORRECT
Do not fall inside buffers or operate machinery inside buffers.



Key Standard Number 7 – Temporary Crossings

Temporary crossings for skidding must be identified on the coupe harvesting plan that is signed by the Provincial FD Officer in Charge prior to operations commencing. The crossing must then be marked on the ground during coupe setup.

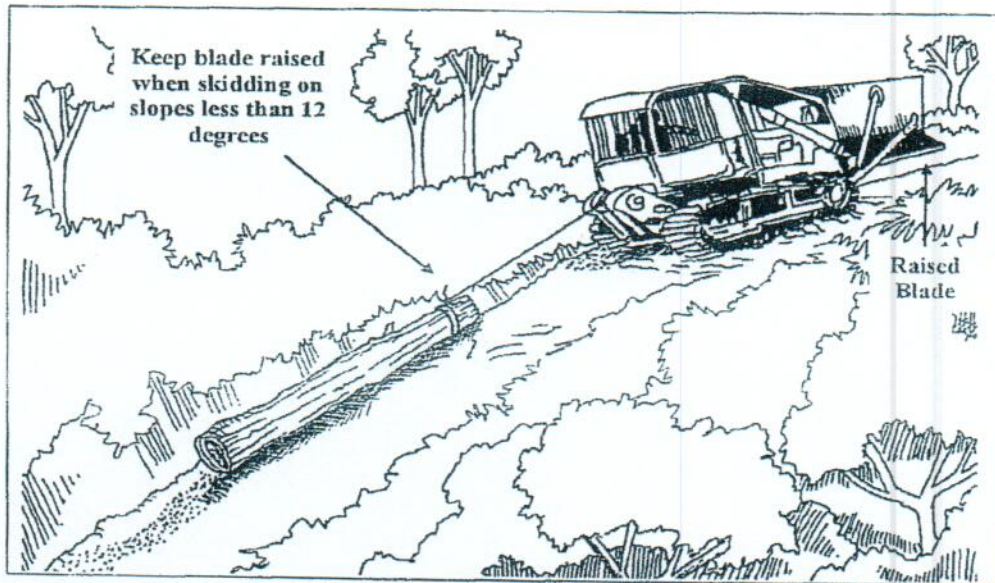
Crossings should be located in the flattest location possible. It is preferred if culverts are used for the crossing, but they may be constructed with logs or piped logs. Log crossings must not be covered with soil. On completion the logs must be removed.



Key Standard Number 8 – Blade Raised when Skidding

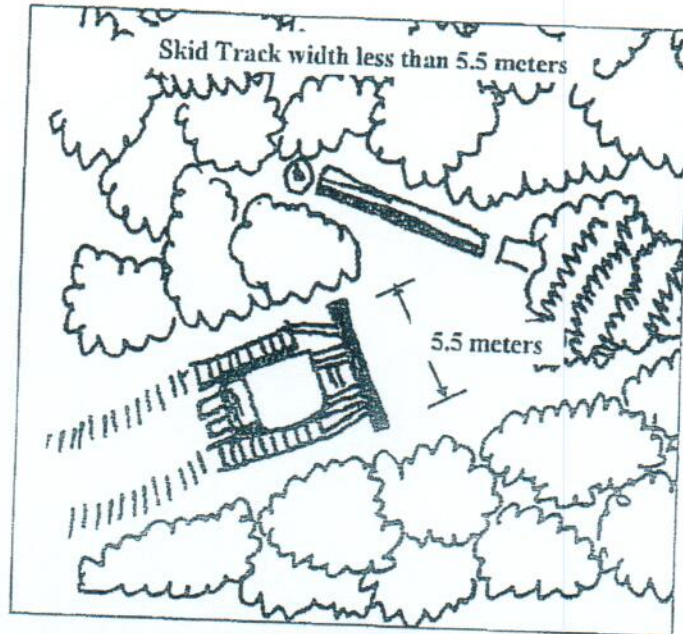
If slope is less than 12 degrees then all skidding must be done with the blade raised. Vegetation will be pushed down onto the skid track by the raised blade and not destroyed by scraping. This will protect soil and reduce erosion. On slopes over 12 degrees some blading may be required. This should be minimised.

Dozer drivers can estimate slope by the ease of operation. At 12 degrees some slipping will be felt in the machine. It is suggested companies give dozer drivers some basic training in recognizing the angle of slopes.



Key Standard Number 9 – Skid Track Width Less than 5.5 Meters

The skidder must run on the same track each time it travels back and forth. This will minimise the area of forest disturbed. The width of the skidder blade should be no more than 4.5 meters. Roding blades are not permitted in the bush. The area disturbed by the skidder passing, will therefore be no greater than 5.5 meters wide (approximate width of the blade). In areas where side cutting is required the area of disturbance should be no more than 7 meters.



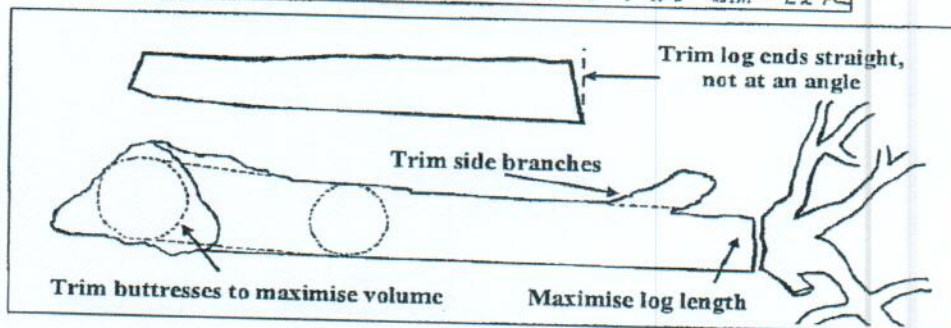
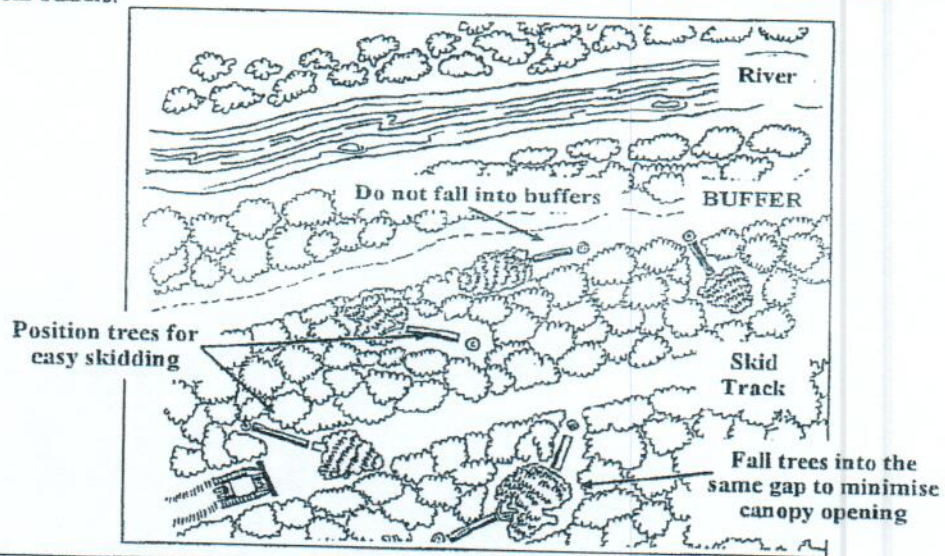
Key Standard Number 10 – Maximise Log Value and Avoid Wastage of Timber

Always maximise log value and avoid wastage of timber. This can be done by:-

1. Directionally felling trees to minimise crown and trunk breakage.
2. Directionally felling trees so they are in position for easy skidding.
3. Directionally fell trees into the same gap to minimise canopy opening.
4. Keeping snumps as low as possible.
5. Ensuring log ends are cut straight, not at an angle.
6. Trimming side branches and buttresses.
7. Maximising the highest value log length before the tree is cross cut.

FD Officers make routine inspections of logged over areas and will charge companies for wasted timber left on site according to the guidelines of the Forests Act.

Note - Safety is always the first priority. A faller should not attempt to directionally fall trees in an unsafe direction. It may be necessary to leave some trees as they cannot be safely felled away from buffers.

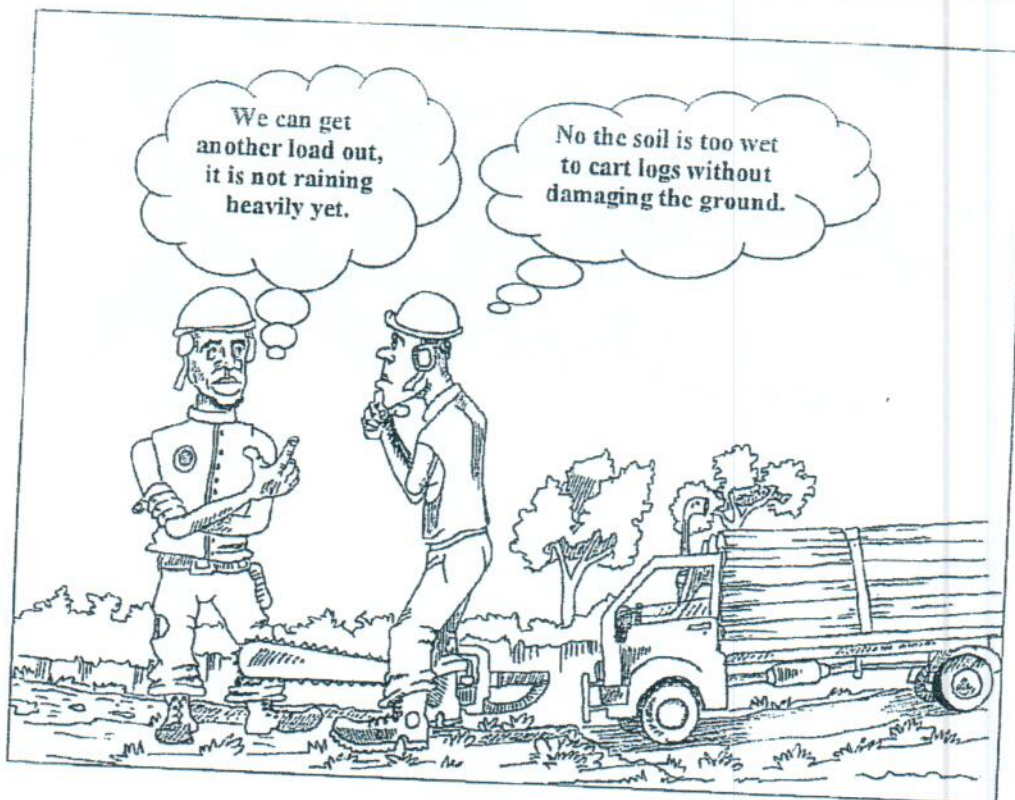


Key Standard Number 11 – Weather Restrictions to Logging

When conditions are inappropriate for logging, the risk of personnel injury increases and the level of environmental damage increases. The following table gives guidelines for when operations should start and stop. It is the logging managers role to decide when conditions warrant stopping or restarting logging. Penalties apply for operating in inappropriate conditions. Use your commonsense. The intent of the Code is to minimise damage to the soil, water and forest resources. If this starts to happen due to wet weather, stop.

Guidelines for stopping and starting operations according to weather

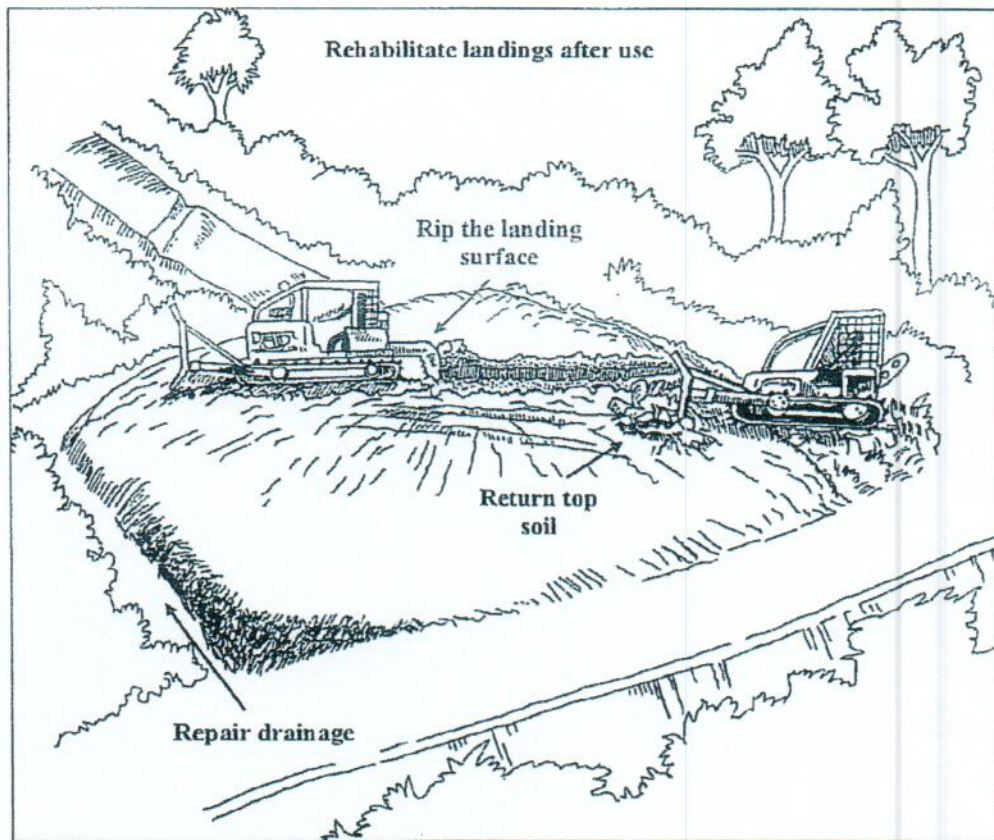
Operation	Stop when	Start when
Felling	Wind prevents accurate directional falling The ground inside the forest becomes too slippery for chainsaw operators to move easily and quickly	Wind drops and accurate falling can proceed The ground inside the forest dries allowing chainsaw operators to move without slipping
Skidding or road construction	Water is seen flowing on any length of skid trail or road	When soil is no longer saturated. This can be seen, as the soil surface becomes solid again to walk on and water is no longer sitting on the surface.
Landing construction	Water starts to sit on the surface of the landing	When soil is no longer saturated. This can be seen, as the soil surface becomes solid again to walk on and water is no longer sitting on the surface.
Trucking of logs	When a truck can no longer move along a road unassisted. Note - it is unacceptable to use other machines to move the truck.	When the surface dries enough to allow the truck too freely move along the road.



Key Standard Number 13 – Decommissioning Landings and Log Ponds

When operations on a landing or log pond are completed the following activities must be undertaken:-

1. Remove any excess bark or waste, spreading into the forest adjacent to the log pond or landing.
2. Rip the surface to at least 60cm depth.
3. Return topsoil removed and stockpiled during construction by spreading evenly across the landing after ripping is completed.
4. Ensure that the area is drained effectively.
5. The inspecting FD officer may require some areas to be replanted.



FORM B

Forest Resources and Timber Utilisation Act (Cap.40)

Forest Resources and Timber Utilisation (Felling Licences) Regulations 2005

Section 44, regulation 4)

FELLING LICENCE

Licence No: A19918

Licensee (name and address): Vula Timber Enterprises, Vanguu Island, Marovo,
Western Province.....

Date Licence takes effect: 17/08/2018

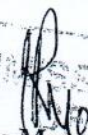
Date Licence expires: 17/08/2021

Description of land licence applies to: (including province and locality where land is
located) on... Vula customary land, Vanguu Island, Marovo, Western Province
.....

Time after issue of licence within which licensee to commence operations:

Conditions of Licence:

- (1) The term of the licence is 3 years.
- (2) The licensee shall pay the prescribed annual fee (if any) on being granted the felling licence and then on the date in each year that is the anniversary of the date the licence was granted.
- (3) The licensee shall carry out his operations under the licence only within the area of land to which the licence applies, the boundaries of which are marked in red on the map issued by the Department of Lands and Survey, or the good quality certified copy of such a map, of the scale 1:50,000 or larger attached to the licence.


COMMISSIONER
Reeves Moveni
Commissioner of Forest Resources

Date: _____

20/8/18



Company Extract

VULA TIMBER ENTERPRISES LIMITED

201516264

General Details

Company Number: 201516264
Company Name: VULA TIMBER ENTERPRISES LIMITED
Previous Names: VULA TIMBER ENTERPRISES LIMITED from 23-Jun-2015 to 04-Jul-2018
Company Type: Local Private Company
Company Status: Registered
Previous Statuses: Removed from 28-Feb-2017 to 04-Jul-2018
Registered from 23-Jun-2015 to 28-Feb-2017
Incorporation Date: 23-Jun-2015
Annual Return Filing Month: May
Main Business Sector: Forestry
Company Rules: Company will use Model Rules

Contact Details

Name: Mr Dekon Trevor KUONG
Telephone: +677 7445970
Email: kuongz25@yahoo.com

Addresses

Registered Office Address: Kakabona, North West Guadalcanal, Guadalcanal, Solomon Islands
Postal Address: P. O. Box 2197, Honiara, Honiara, Solomon Islands



Company Extract

VULA TIMBER ENTERPRISES LIMITED

201516264

Directors

Name:	Mr Leeroy JOSHUA
Nationality:	Solomon Islands
Residential Address:	Kukum Campus, Honiara, Solomon Islands
Appointed Date:	18-Jun-2018
Name:	Mr Derol JOSHUA
Nationality:	Solomon Islands
Residential Address:	Lio Creek, Honiara, Solomon Islands
Appointed Date:	18-Jun-2018
Name:	Dekon Trevor KUONG
Nationality:	Solomon Islands
Postal Address:	P. O. Box 2197, Honiara, Solomon Islands
Appointed Date:	23-Jun-2015

Shares & Shareholders

Total Shares: 100

Individual Shareholder

Number of shares:	30
Name:	Dekon Trevor KUONG
Appointed Date:	23-Jun-2015



Company Extract

VULA TIMBER ENTERPRISES LIMITED

201516264

Individual Shareholder

Number of shares:	70
Name:	Leeroy JOSHUA
Appointed Date:	04-Jul-2018



Company Extract

C & W FORESTRY LIMITED

20170807

General Details

Company Number:	20170807
Company Name:	C & W FORESTRY LIMITED
Company Type:	Local Private Company
Company Status:	Registered
Incorporation Date:	22-Mar-2017
Annual Return Filing Month:	March
Main Business Sector:	Forestry
Company Rules:	Company will use Model Rules

Contact Details

Name:	Mr William LEPPING
Telephone:	+677 7483223
Email:	willie.williewonky@gmail.com

Addresses

Registered Office Address:	Rove, Honiara, Solomon Islands
Postal Address:	P.O Box 1431, Honiara, Solomon Islands

Directors

Name:	Mr William LEPPING
Nationality:	Solomon Islands
Postal Address:	P.O Box 1431, Honiara, Solomon Islands
Appointed Date:	22-Mar-2017



Company Extract

C & W FORESTRY LIMITED

20170807

Shares & Shareholders

Total Shares:	100
Company Shareholder	
Number of shares:	100
Company Number:	20180517
Company Name:	LEVERAGE CONSULTING LIMITED
Appointed Date:	06-Jul-2018