Vanuatu NDC Forest Investment Strategy

(including Project Pipeline)

TECHNICAL OVERSIGHT AND GUIDANCE

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AUTHORS

Dr. Michael Köhl (International consultant), and Brian Philips (National coordinating consultant).

DISCLAIMER

This NDC Forest Investment Strategy is prepared for the Vanuatu Government based on best available information and stakeholder consultations results gained between July 2023 and August 2024, and it is noted that underlying information used to prepare the NDC Forest Investment Strategy and results presented are subject to change.

Information and conclusions presented in this NDC Investment Strategy may not necessarily represent those of the Regional Pacific NDC Hub and its implementing partners, including the implementing partners member states.

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ABBREVIATIONS AND ACRONYMS

AFOLU	Agriculture, Forestry and Other Land Use (AFOLU)
ARR	Afforestation, Reforestation and forest Restoration
CCA	Community Conservation Area
CFCA	Custom Forest Conservation Area
CIDCA	China International Development Cooperation Agency
COP	Conference of the Parties to the UNFCCC
DARD	Department of Agriculture and Rural Development
DCIR	Customs and Inland Revenue Department
DEPC	Department of Environmental Protection and Conservation
DNSH	Do-Not Significantly Harm
DoCC	Department of Climate Change
DoF	Department of Forests
DoFT	Department of Finance and Treasury
DOI	Department of Industry
EEAS	European External Action Service
EIA	Environmental Impact Assessment
ERPAs	Emissions Reductions Purchase Agreements
FAO	Food and Agriculture Organization of the United Nations
FCDO	United Kingdom's Foreign Commonwealth & Development Office
FCPF	Forest Carbon Partnership Facility of the World Bank
FFPO	Forest and Farm Producers Organizations
FRA	Forest Resource Assessment
FRL	Forest Reference Level
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GGGI	Global Green Growth Institute
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GoV	Government of Vanuatu
ha	hectares
HWP	Harvested Wood Product
IPCC	Intergovernmental Panel on Climate Change
IPLCs	Indigenous Peoples and Local Communities
KOICA	Korea International Cooperation Agency
LEAF	Lowering Emissions by Accelerating Forest Finance
LEDS	Low Emission Development Strategy
LFI	Local Financial Institution
LFLD	Low Forest cover and Low rates of Deforestation
LNDFund	Land Degradation Neutrality Fund
M&E	Monitoring and Evaluation

MALFFB	Ministry of Agriculture, Livestock, Fisheries, Forestry, and Biosecurity
MCCP	Ministry of Climate Change and Planning
MET	Ministry of Education and Training
MFED	Ministry of Finance and Economic Development
MIUP	Ministry of Infrastructure and Public Utilities
MoCCA	Ministry of Climate Change Adaptation, Meteorology, Geo-hazards, Energy, Environment and Disaster Management
MoET	Ministry of Education and Training
MoIA	Ministry of Internal Affairs
MoLNR	Ministry of Lands and Natural Resources
MOU	Memorandum of Understanding
MRV	Monitoring, Reporting and Verification
MTTCNVB	Ministry of Tourism, Trade, Trade, Commerce, and Ni-Vanuatu Business
NAB	National Advisory Board on Climate Change &Disaster Risk Reduction
NDC	Nationally Determined Contribution to the Paris Climate Agreement
NFI	National Forest Inventory
NFIS	National Forest Information System
NFMS	National Forest Monitoring System
NGO	Non-Governmental Organization
NSDP	Vanuatu National Sustainable Development Plan
NWFP	Non-Wood Forest Products
ODA	Official Development Assistance
OL	Other Land
OWL	Other Wooded Land
PA	Paris Agreement
PES	Payments for ecosystem services
PMU	Programme Management Unit
RBD	Result Based Payments
REDD+	Reducing Emissions from Deforestation and Forest Degradation, and conservation, sustainable management of forests and enhancement of forest carbon stock
RIL	Reduced Impact Logging
R-PIN	REDD+ Readiness Plan Idea Note
SIS	Social Impact Analysis
TNC	Vanuatu Third National Communication to the UNFCC
ToF	Trees Outside Forests
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USAID	United States Agency for International Development (USAID)
US$	US Dollar
VADB	Vanuatu Agriculture Development Bank
VCM	Voluntary Carbon Market
VRDB	Vanuatu Rural Development Bank

EXECUTIVE SUMMARY

Context

Vanuatu seeks to accelerate the implementation of its NDC to contribute to global climate action, and national mitigation and adaptation efforts. The Global Green Growth Institute (GGGI), as part of its role as an implementation partner of the Regional Pacific NDC Hub, has engaged Michael Köhl, international consultant, and Brian Philips, national coordinating consultant, to support the development of this NDC Forest Investment Strategy with Project Pipeline.

The NDC Forest Investment Strategy with Project Pipeline provides a plan for the Government of Vanuatu (GoV) to achieve its NDC targets through mitigation projects in the forestry sector and is also intended to help generate interest from potential implementation partners, including donors and private investors for implementing the pipeline of projects. Successful implementation of the projects included in the NDC Forest Investment Strategy will help Vanuatu to achieve a higher climate ambition beyond the current NDC.

Vanuatu's NDC

Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution (NDC) includes both, mitigation and adaptation activities. These mitigation and adaptation targets are conditional on financing, capacity building, and technology investment from external sources. The NDC lists 20 mitigation, 116 adaptation, and 12 Loss & Damage commitments. Most sectoral adaptation commitments are named for agriculture (19) and forestry (13). This NDC Forest Investment Strategy with Project Pipeline identifies mitigation and adaptation projects and lays out the steps needed to achieve the targets in Vanuatu's NDC.

Vanuatu's emissions profile

Due to its large forest sector carbon removals, Vanuatu absorbs more carbon dioxide than it produces and is already a carbon-negative country. The NDC commits Vanuatu to a rapid phase-out of fossil fuels, deep decarbonization and a full transition to a circular economy, going beyond net zero carbon emissions status. Although Vanuatu contributes only 0.0016% to the global greenhouse gas (GHG) emissions, it makes an important and financially uncompensated contribution to the global efforts to reduce GHG emissions. Vanuatu seeks to accelerate the

implementation of its NDC to contribute to global climate action, and national mitigation and adaptation efforts.

Constraints on NDC implementation and opportunities to strengthen the enabling environment

This NDC Forest Investment Strategy with Project Pipeline considers several key constraints to mitigation and adaptation projects across the forest sector. Constraints include budget limitations and shortfalls in public awareness, coordination, and data. Constraints and suggestions for strengthening the enabling environment, are discussed in section 2.

Mitigation and adaptation projects identified

The NDC Forest Investment Strategy identified seven mitigation and adaptation opportunities. These projects were identified in several steps. First, existing literature as well as national and international official documents were used as a basis to select replicable projects. Based on the stakeholder assessment, a combined comparative quantitative/qualitative assessment was conducted, which included the key and validation criteria. As a result, seven projects were identified for inclusion in the project pipeline.

The following table provides an overview of the seven projects that were included in the project pipeline. The cost of realizing the projects is US$ 112 million, of which around US$ 84 million is subject to conditional financing. The projects are estimated to reduce emissions by 313 million tCO_2 per year.

Aggregated information for forest sector opportunities

Opportunities	Indicative Cost 2025- 2035 (US$)	Requested Funding 2025-2035 (US$)	Cost of Mitigation (US/tCO_2$)	Average Annual Mitigation (tCO_2/Yr)	Total Mitigation 2025-2035 (tCO_2/Yr)
Afforestation/ reforestation	42,200,000	33,520,000	34	125,000	1,250,000
Restoration	8,200,000	6,170,000	17	37,500	375,000
Agroforestry	32,600,000	19,720,000	0,11	31,000,000	310,000,000
Improving Sustainable Forest Management	10,300,000	7,200,000	43 to 86	12,000 to 24,000	120,000 to 240,000
National forest information system	7,000,000	7,000,000	Not determined	Not determined	Not determined
Sustainable value chains	1,500,000	1,500,000	2,5 to 5	30,000 to 60,000	300,000 to 600,000
Research	10,750,000	8,500,000	Not determined	Not determined	Not determined
Total	**112,550,000**	**83,610,000**			**~312,000,000**

Implementation plan

No prioritization was made with regard to the timing of project implementation. The main reason is that available financing options will have a significant impact on the time sequence of implementation.

The process of financing the projects will take place in two phases. The first phase is dedicated to the project development and funding applications, the second phase relates to the implementation and operationalization of financial instruments (one or more) to finance the physical activities of the climate action.

Monitoring and evaluation framework

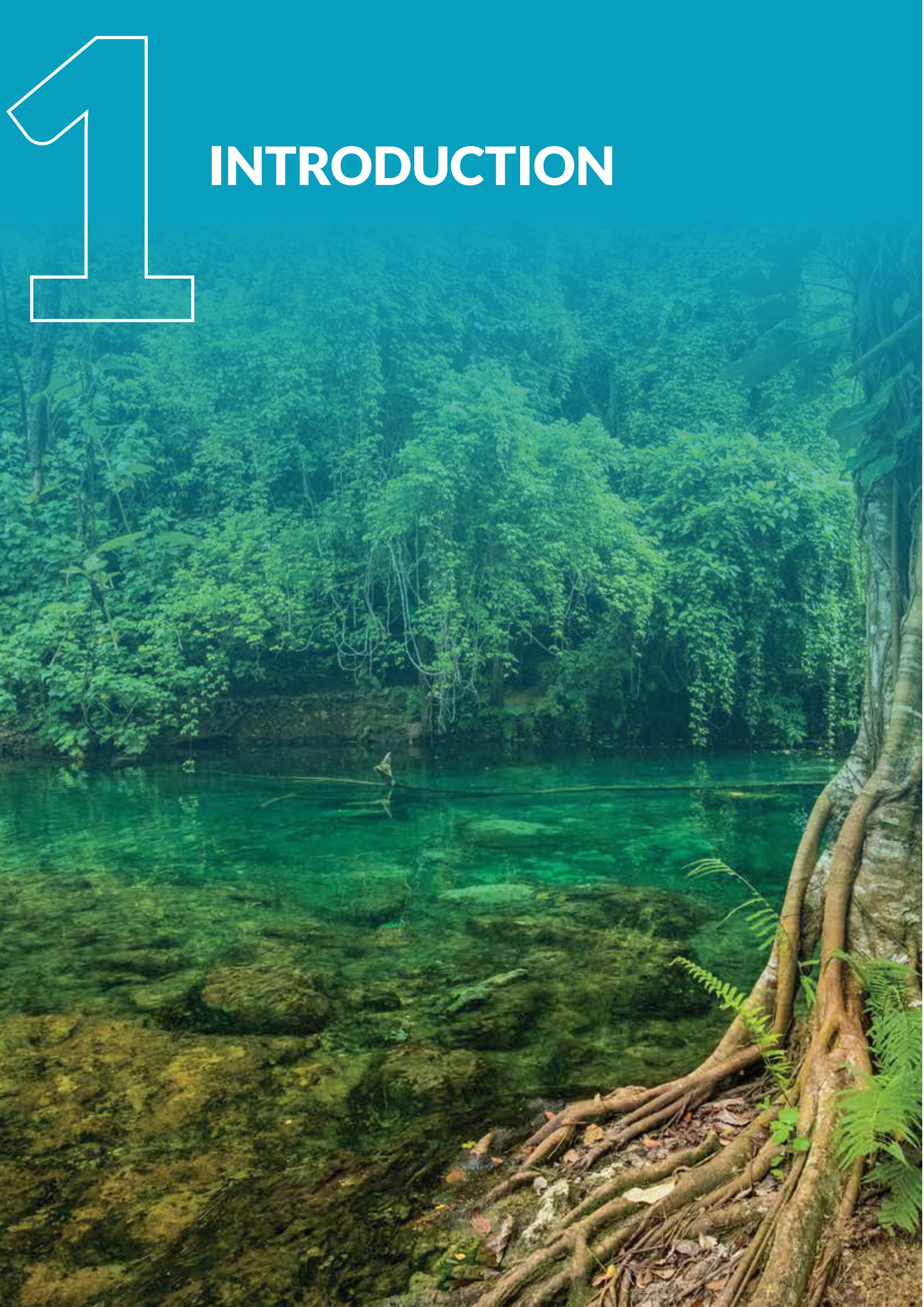
The monitoring and evaluation framework should include the following three components:

1. A reporting structure that assigns responsibility over actions to specific government employees,
2. A monitoring structure that tracks progress in a transparent manner, and
3. An evaluation structure that outlines the consequences for completing—or not completing—actions in time.

Within the M&E framework, government staff responsible for NDC implementation should assign responsibility for individual projects in stages:

- NDC M&E Officer who will ultimately be responsible for overseeing the implementation of Vanuatu's NDC.
- Forestry Sector Focal Point - responsible for implementing specific actions in the forestry sector reporting on progress to the NDC M&E Officer.
- Executors (implementing agencies) - Individuals responsible for carrying out the day-to-day tasks required to manage and implement the priority projects in each sector.

1 INTRODUCTION



1. INTRODUCTION

Vanuatu submitted its Revised and Enhanced 1st Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC) in December 2020. The NDC includes both, mitigation and adaptation activities. The mitigation contribution covers the priority areas energy, waste and the agriculture, forestry and other land use (AFOLU) sectors. The adaptation contributions extend to the priority areas agriculture, forestry, biosecurity, fisheries, livestock, environment, oceans, infrastructure, people with disabilities, gender and social inclusion, human rights and climate justice, indigenous people, youth, collaboration, decentralization, governance, climate policy and plans, meteorology and climate information services, tourism, and finance. The NDC lists 20 mitigation, 116 adaptation, and 12 Loss & Damage commitments. Most sectoral adaptation commitments are named for agriculture (19) and forestry (13).

Vanuatu has prioritized transformative adaptation action in its National Climate Change and Disaster Risk Reduction Policy, with a strategic goal of resilient development, including implementing activities that enable Vanuatu to absorb and quickly bounce back from climate shocks and stresses. 75 percent of Vanuatu's land area is forested (Governement of Vanuatu, 2022c). Due to its large forest sector carbon removals Vanuatu absorbs more carbon dioxide than it produces and is already a carbon-negative country. The NDC commits Vanuatu to a rapid phase-out of fossil fuels, deep decarbonization and a full transition to a circular economy, going beyond net zero carbon emissions status. Although Vanuatu contributes only 0.0016% to the global greenhouse gas (GHG) emissions, it makes an important and financially uncompensated contribution to the global efforts to reduce GHG emissions.

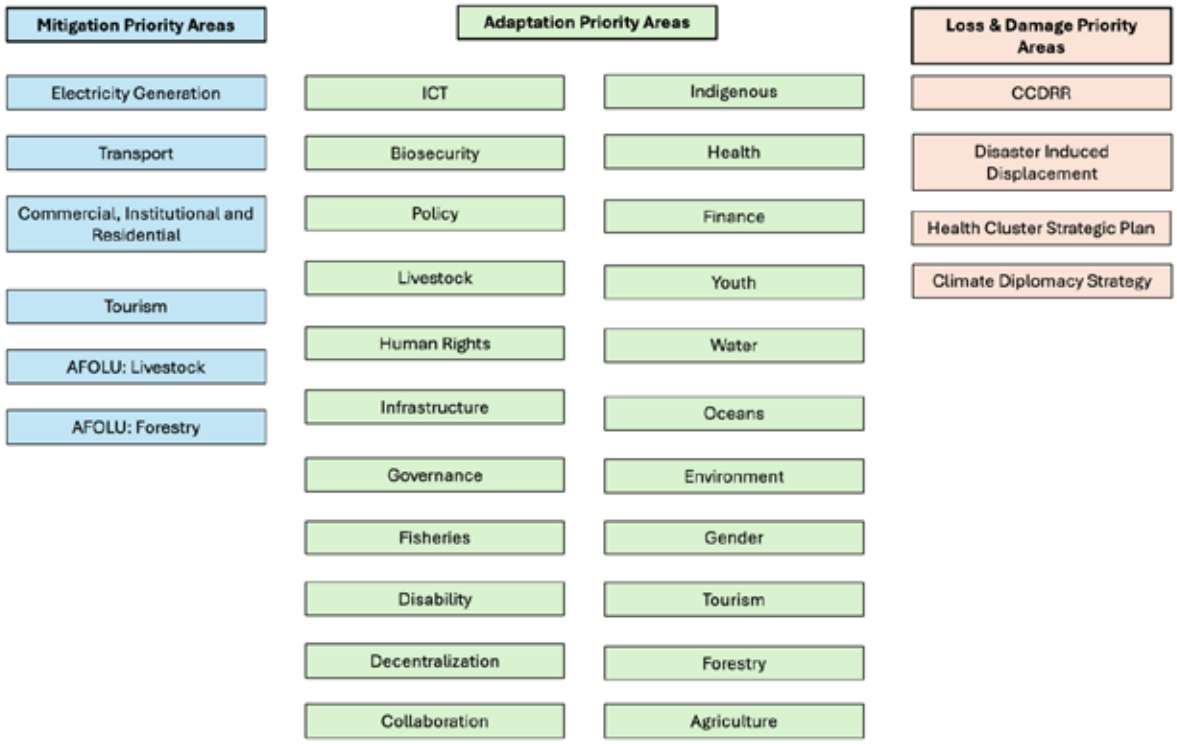


Figure 1. *Vanuatu's NDC Commitments*

Vanuatu seeks to accelerate the implementation of its NDC to contribute to global climate action, and national mitigation and adaptation efforts. As a member of the Regional Pacific NDC Hub (NDC Hub), Vanuatu requested technical assistance from the NDC Hub to support the Government of Vanuatu (GoV) to develop an NDC Forest Investment Strategy. This report presents the NDC Forest Investment Strategy with a Project Pipeline, which was facilitated by the Global Green Growth Institute (GGGI), as an implementation partner of the NDC Hub. The NDC Forest Investment Strategy with Project Pipeline will support Vanuatu in achieving its current and future NDC targets by setting out practical steps and tangible projects to mitigate GHG emissions in the AFOLU sector.

For the development of the NDC Forest Investment Strategy and Project Pipeline, related and relevant government policy documents were analyzed that contain central elements of Vanuatu's national policies. The major policy documents included Vanuatu Low Emission Development Strategy 2023 (LEDS), Vanuatu National Sustainable Development Plan 2016-2030 (NSDP), Vanuatu Forest Policy 2013-2023, Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution 2021 – 2030, Vanuatu Agriculture Sector Policy 2015 – 2030, and Vanuatu Climate Change and Disaster Risk Reduction Policy 2016-2030. Based on the document review, which comprises about 70 documents, replicable projects for the AFOLU sector have been identified and prioritized utilizing stakeholder consultation.

The NDC Forest Investment Strategy with Project Pipeline sets out practical steps for the GoV to successfully implement the projects in the pipeline and is also intended to help generate interest from potential implementation partners, including donors and private investors for implementing the pipeline of projects. Successful implementation of the projects included in the NDC Forest Investment Strategy will help Vanuatu to achieve a higher climate ambition beyond the current NDC.

1.1. Context of the NDC forest investment strategy

The Paris Agreement (PA) was adopted at the 21st session of the Conference of the Parties (COP) to the UNFCCC on 12th December 2015. The Republic of Vanuatu signed the PA on 22nd April 2016 and deposited its instrument of ratification on 21 September 2016. The agreement came into force on 4th November 2016. The Government of Republic of Vanuatu is fully committed to effective and transparent implementation of the PA.

In accordance with Articles 4.2 and 4.11 of the PA and Decision 1/CP.21 paragraph 23, the Republic of Vanuatu, is taking into account its national circumstances and capabilities. With great concern the Government of the Republic of Vanuatu notes that the objective of the PA can only be achieved by intensifying the level of action significantly and reflects in its NDCs the respective actions being complemented by international support to achieve conditional contributions. The Republic of Vanuatu calls on all Parties to increase their ambitions in line with the best available and most recent science and obligations under the PA.

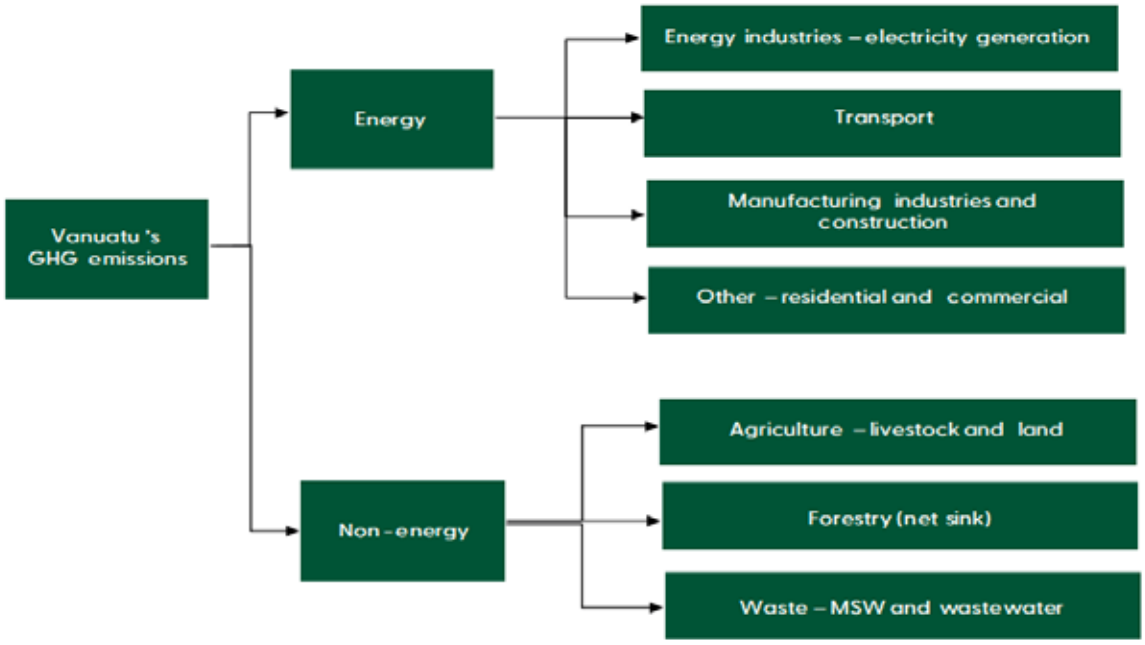


Figure 2. *Vanuatu's GHG emission sectors and subsectors (excluding removals) (Source; UNDP Enhancing and fast track implementation of Vanuatu's NDCs 2020, p. 33)*

Vanuatu submitted its first INDC to the UNFCCC on 21st September 2016. Although being a nation with a negligible carbon footprint, Vanuatu has committed to ambitious mitigation targets in its NDC, including the transition to close to 100% renewable energy in the electricity sector by 2030. The first NDC covered mainly the electricity generation subsector, but with ancillary mitigation possible in forestry, agriculture, waste, transport, manufacturing/ construction, and energy efficiency.

Vanuatu's revised and enhanced 1st NDC 2021-2030 presents the financial resources required for the highest-level ambitions on adaptation, mitigation and loss and damage. The approximate conditional cost of achieving Vanuatu's Revised and Enhanced NDC is US$ 1,214,350,000 (Government of Vanuatu, 2022b). According to the IMF, Vanuatu has a GDP of 1.26 billion US$ or a GDP purchasing power parity of 1.03 billion international dollars in 2023. The annual inflation rate is around 5.6 %. The general governmental gross dept amounts to 50.6% of the GDP, the net

lending/ borrowing (also referred as overall balance) is -7,6% of the GDP. An appraisal of Vanuatu's national budget and the financial requirements for implementing the NDCs shows that national financing of the necessary measures is not possible. As Vanuatu is one of the world's most vulnerable countries to climate change and disasters risks, commensurate international funding is essential for climate change adaptation and disaster risk reduction actions.

According to Vanuatu's revised and enhanced 1st NDC around US$ 54 Mio. is considered necessary to finance the respective measures in the forestry sector. This NDC Forest Investment Strategy and annexed Project Pipeline present the forestry sector mitigation opportunities in Vanuatu. The mitigation opportunities presented in this NDC Forest Investment Strategy both fall within the existing framework of the unconditional and conditional mitigation targets of Vanuatu's (intended) NDC and are largely included in Vanuatu's NDC Implementation Roadmap and the LEDS for the sector. In addition to the aforementioned documents, the NDC Forest Investment Strategy clarifies individual mitigation options in terms of technical, implementation and financing concepts. Together with the NDC Forest Investment Strategy, the NDC Implementation Roadmap and the LEDS can be used as tools to increase the transparency of the physical and financial ways in which Vanuatu can achieve its NDC targets with the support of implementation means (e.g. capacity building, technology transfer and financing).

Figure 3. *Alignment of the NDC Investment Strategy for Forestry & Project Pipeline with NDCs*

This NDC Forest Investment Strategy and the attached Program Pipeline are designed to ensure transparency of mitigation actions and support needs in line with the Paris Agreement guidelines. At the same time, they should support the NDC targets and outcomes with standard information on the mitigation actions to be taken and the national and international support needed to develop, finance and implement these actions. Seven projects are identified that should be prioritized in the implementation of forest-related NDCs. The selection was based on an intensive study of national policies, reports and respective publications, in-depth discussions with relevant stakeholders and a multi-criteria analysis.

1.2. Goals and objectives of the NDC forest investment strategy

This NDC Forest Investment Strategy including Project Pipeline has the overarching goal of making the Vanuatu Government's ability to implement mitigation actions in the forestry sector more transparent, thereby contributing to its overall NDC target/ commitment. At the same time, it aims to facilitate the procurement of funding to implement the necessary mitigation activities. The NDC Forest Investment Strategy pursues several objectives for the financing of mitigation measures, which are:

Objective 1 A brief general description of the status of the forestry sector for stakeholders, e.g. potential financial partners. This includes the current development of forests and forestry in Vanuatu and existing efforts, as well as a list of key players in the sector.

Objective 2 Description of Vanuatu's proposed and prioritized opportunities and corresponding investment needs that will contribute to achieving the NDC targets.

Objective 3 Overall need for financial contributions, potential partners for financial cooperation and pathways to implement mitigation/ adaptation opportunities that can support the financing of opportunities in the sector.

1.3. Summary information on primary mitigation options

1.3.1. Determination of GHG mitigation, investment and support needs

The GHG mitigation potentials (expressed as CO_2) reported in this document have been determined based on available information from stakeholders in Vanuatu, relevant international sources and the most appropriate conservative methodologies taking into account the 2006 Intergovernmental Panel on Climate Change (IPCC) Guidelines and its 2019 refinement. For several mitigation options, there is insufficient or no accurate data available or the potential level of activity is unknown. This includes, for example, the possible extent of future implementation. Where no applicable data was available, mitigation potentials were estimated based on various qualified assumptions. However, the mitigation potentials provide Vanuatu with sufficient information to make decisions for the prioritization of opportunities and to take further steps to improve data availability and accuracy. All mitigation potentials are rounded to the nearest thousand tCO_2 and the key assumptions for each mitigation opportunity can be found in the concept notes in Appendix A.

Costs for investment and support requirements are in US dollars (US$) and are based on costs estimated through stakeholder surveys, literature sources and references to comparable studies. These values are rounded to the nearest hundred thousand dollars or higher. Although the cost data has been collected with the utmost care, it may still contain a margin of error and the cost estimates should therefore be regarded as indicative only. More accurate costs will need to be determined during development and technical support for each mitigation option.

The starting point for the estimation of support needs was the current institutional and personnel capacity. Capacity development will play an important role and is considered essential for the successful implementation of the projects.

1.3.2. Alignment of the NDC forest investment strategy to national policies/ strategies

The Government of the Republic of Vanuatu has comprehensively integrated climate change into policies, strategies and plans at the national level. This NDC Forest Investment Strategy is aligned with the primary policies, strategies and plans, which are divided into the following three categories: Cross-Sectoral National Policies, Multi-Sector Climate Change Policies and Forestry Sector Policies.

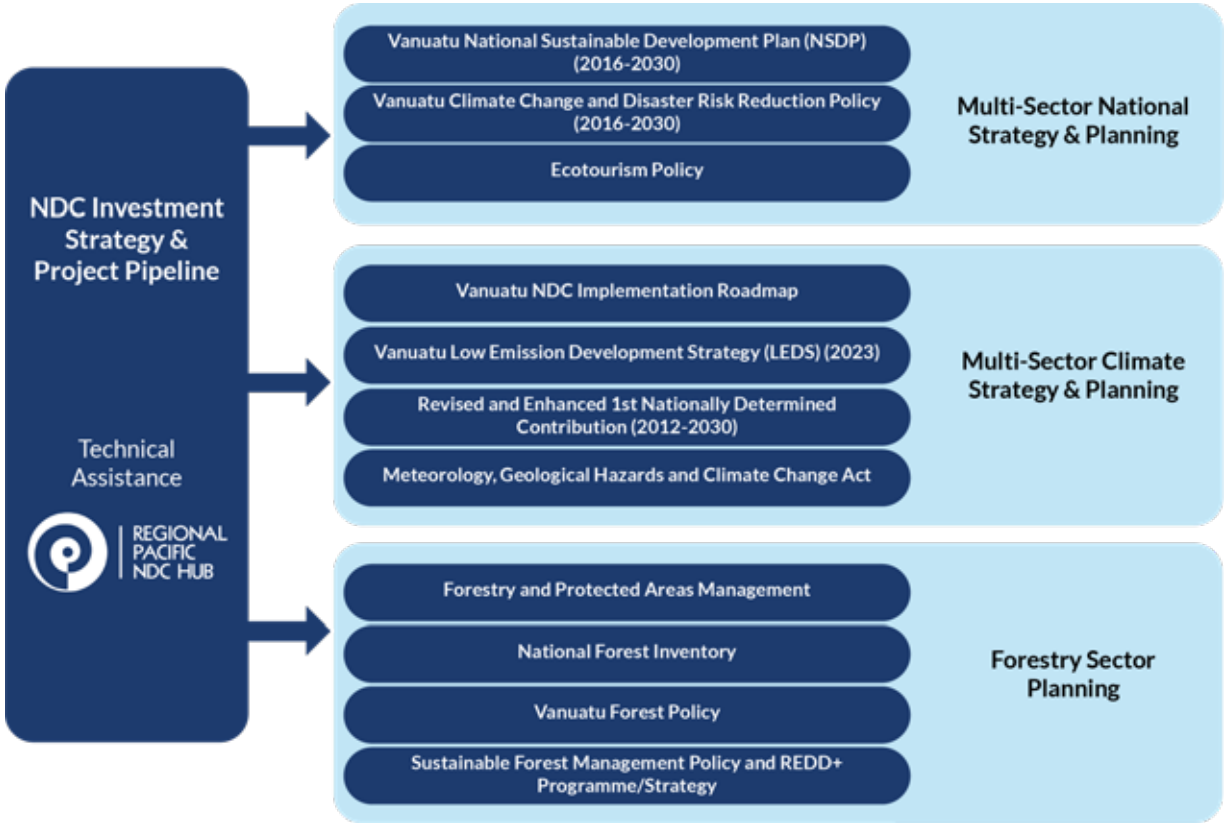


Figure 4. *Investment Strategy alignment with national strategy and planning*

1.4. Implications of the NDC forest investment strategy

This NDC Forest Investment Strategy and the project pipeline complement each other and provide stakeholders with specific information on Vanuatu's NDC in general and the forest sector in particular in relation to detailed information on individual mitigation opportunities. The NDC Forest Investment Strategy provides the mitigation context for the forest sector. The investment requirements are also presented. The Project Pipeline (including concept notes) is presented in the annexes. It contains further relevant information on each mitigation opportunity identified in the NDC Forest Investment Strategy, including financing, support and implementation needs. Figure 5 shows the information contained in the NDC Forest Investment Strategy and in the project pipeline.

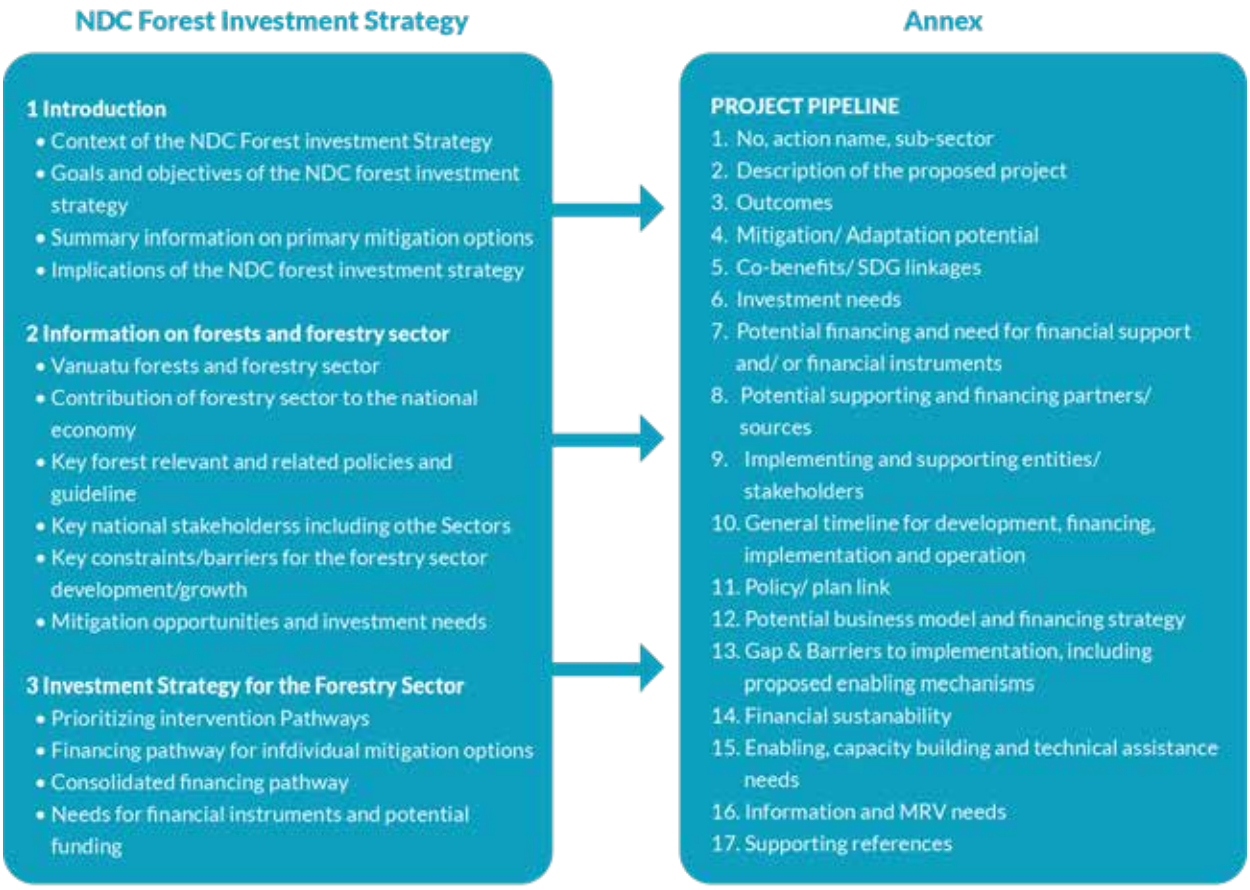


Figure 5. *Information found in the NDC forest investment strategy and programme pipeline*

2 INFORMATION OF FORESTS AND FORESTRY SECTOR

2. INFORMATION OF FORESTS AND FORESTRY SECTOR

2.1. Vanuatu's forests and forestry sector

Forests in Vanuatu play a crucial role in the environmental, cultural, and economic landscape of the country. The biodiversity-rich forests are home for a wide array of plant and animal species, some of which are endemic to the region. Additionally, Vanuatu's forests play a crucial role in regulating the climate, water cycles, and soil erosion in Vanuatu. They act as carbon sinks, absorbing GHGs and mitigating the impacts of climate change. Therefore, preserving these forests is essential for maintaining the ecological balance of the archipelago.

Moreover, forests hold significant cultural importance for the Ni-Vanuatu people. Traditional practices and beliefs are closely intertwined with the forests, with many indigenous communities relying on them for food, medicine, energy source, and building materials. Forests are considered sacred by some tribes, serving as spiritual sites and places of cultural heritage. The cultural identity of the Ni-Vanuatu people is deeply connected to the forests, with traditional knowledge and practices passed down through generations. Protecting and respecting the forests is essential for upholding the cultural heritage of Vanuatu.

Economically, forests contribute to the livelihoods of rural communities in Vanuatu. Timber harvesting, agriculture, harvesting of non-timber forest products for subsistence or commercial use, and eco-tourism are some of the ways in which forests support the local economy. Timber from the forests is used for construction and provides income for the people. Additionally, agroforestry practices are common in Vanuatu, with communities relying on forest resources for subsistence farming and cash crops. Furthermore, the diverse flora and fauna of the forests attract tourists interested in eco-tourism, generating revenue for the country.

To ensure the sustainability of the forests in Vanuatu and to maintain their mitigation potential, concerted efforts are needed, including indigenous communities, government agencies, private sectors, NGOs, and academia. By recognizing the importance of forests and taking proactive measures to ensure their long-term viability, Vanuatu can secure a sustainable future for generations to come.

2.1.1. Forest extent and changes

According to the Forest Reference Level Vanuatu had a total forest area 926,513 ha in 2017, which is about 3/4 of the total land area (Government of Vanuatu, 2022c). Vanuatu consists of 86 different islands, and the forests are not distributed equally among the islands. The majority of the forest cover is present on 13 islands (i.e., Santo, Malekula, Efate, Erromango, Tanna, Pentecost, Vanualava, Ambrym, Epi, Anietyum, Gaua, Ambae, and Maewo) which at the same time are the largest and most populated in the country (Government of Vanuatu, 2022a).

Vanuatu uses nine vegetation categories. Notable vegetation includes swamp forest on Efate, kauri pine stands on Erromango and scattered mangrove forests, most of which occur in the narrow corridor along the coasts of Efate and Malekula. There are different estimates on the extent of mangrove forests. Using Google Earth, Vanuatu's National Forest Reference (2008 – 2017) estimates an area of 1727 ha (Government of Vanuatu, 2022c). According to a report prepared by the Department of Forests in 2000 planation forestry is found on roughly 3000 ha (Table 1).

Table 1.Area of forestry plantations within Vanuatu (Source: Dept. of Forests, 2000)

Type of Plantation	Area (ha)
Local Supply Plantations	1,160
Aneityum Pine Plantation	890
Ipota Industrial Plantation	260
Santo IFP Research Plantations	350
Melcoffee Whitewood Plantation	250
Total	2,910

Table 2 presents the reclassification of the nine vegetation categories into FRA 2020 categories (Forests, Other Wooded Land, Other Land). The reference year for the FRA2020 country report Vanuatu is 1992. Although the figures are outdated, they are given here for comparison, as they provide an overview of the likely distribution of the forest area across the vegetation categories. Low forest has the largest proportion of the Vanuatu's forest (53 percent), followed by the Mid height forest (46.4 percent), which is regarded as primary forest. Mangrove communities are restricted to less than one percent of the total forest area.

Table 2. Reclassification of Vanuatu vegetation categories into FRA 2020 categories (FAO, 2020)

Vegetation Type	Area [ha] Reference year: 1992	Definition
Forests	442,301	
Mid height forest (20 -30 m)	205,307	Land with forest having tree canopy greater >10m in height. This includes Mid height forests and Low forests. The forests contain most of the commercial timber species for timber productions in Vanuatu.
Low forest (10 - 20 m)	234,089	
Woodlands (<10m)	386	Forest areas with separated crowns, generally <10m tall. A clearly visible ground layer of herbs and /or small grasses.
Mangroves	2,519	Forest areas also having a complex comprising low trees, shrubs and herbs subjected to tidal inundation.
Other Wooded Land (OWL)	478,959	
Thickets (3 - 8 mm)	433,941	Wooded land with dense canopy of poorly formed trees and/or or other arborescent life forms 3 to 8 m tall and no ground layer being visible.
Scrub (<3m)	45,018	Wooded land that are dense to open layer of shrubs and <3m tall.
Other Land (OL)	305,645	
Grassland	51,128	Land covers consisting of grasses, sedges, herbs and low woody shrubs. Few scattered trees may be present.
Swamp communities	2,261	Land having a complex comprising thicket, scrub and herbaceous vegetation. It is subjected to permanent or near permanent inundation.
Bare ground/ human made	252,256	Land areas where there are manmade activities going on. It could be agricultural subsistence farming or any other activities or development made by inhabitants within the area.
Total Land Area	1,226,905	

The 15 most abundant tree species found in forests are *Myristica fatua*, *Hibiscus tiliaceus*, *Macaranga dioica*, *Syzygium* sp., *Dendrocnide harvyii*, *Ficus* sp., *Dendrocnide latifolia*, *Pterocarpus indicus*, *Dysoxylum* sp., *Acacia spirorbis*, *Antiaris toxicaria*, *Dysoxyllum gaudichaudia-num*, *Calophyllum neo-ebudicum*, *Veitchia* sp., and *Dracontomelon vitiensis*.

2.1.2. Trends in deforestation and forest degradation

Much of the natural forest is located on steep inaccessible sites and contains few species for commercial use. Difficult terrain and low commercial utilization are contributing to the moderate forest area change of 23,841 ha for the period 2008 to 2017, as presented in Vanuatu's Forest Reference Level (Government of Vanuatu, 2022c). Of the total forest area conversion, Dense Forest and Open Forest conversions account 46 percent and 54 percent, respectively. The

average annual gross forest area loss for the period is estimated to be 2,384 ha or 0.26% of the total forest cover. In the same period, 235 ha of land annually was converted to open forest from other land use categories (i.e., cropland, grassland and other land), resulting in an average annual net forest area change of 2,149 ha.

Besides deforestation, there is a general trend of increasing forest degradation. Under forest degradation, forest land remains as forest land, but biomass and thus forest carbon stock is reduced. Between 2008 and 2017, a total of 21,638 ha of forest was degraded (Government of Vanuatu, 2022c), of which 60% is caused by anthropogenic and 40% by natural causes, such as cyclones (Government of Vanuatu, Document in preparation). The human-caused forest degradation ranged between 3,500 to almost 6,000 ha per year (Government of Vanuatu, Document in preparation). The occurrence and trends of deforestation and forest degradation varies with the islands.

The 86 islands of Vanuatu differ in size, vegetation, socio-economic development, and isolation in terms of access to markets and government services. This diversity has resulted in significant differences in the amount and causes of deforestation and degradation between the islands (Carodenuto et al., 2017b, Rep. of Vanuatu, 2020a).

Table 3. Forest conversion to other land use in seven islands of Vanuatu over the period of 2008 – 2017 (Source: Rep. of Vanuatu, 2020a)

Island	Deforestation (area, ha)				Degradation (area, ha)				
	F to CL	F to GL	F to S	F to OL	Agriculture	Grazing	Infrastructure	Logging	Big Lif
Efate	2582	1696	378	296	1532	969	645		
Epi	1693								
Erromango					537	54			
Santo	5376	1105	645	242	5828	457	1531	781	
Malekula	3685		108		3415		296	483	2523
Pentecost	1020				2523				
Tanna	3842	54	699		3950		457	54	

F = Forest, CL = Cropland, GL = Grassland, S = Shrubland, OL = Other land

2.1.3. Proximate drivers and underlying causes of forest decline

Several studies/reports discuss the drivers of deforestation and forest degradation in Vanuatu (Carodenuto et al., 2017a; Carodenuto et al., 2017b; Government of Vanuatu, Document in preparation). Forest decline can be explained by proximate drivers, agents and underlying driving forces (Figure 6).

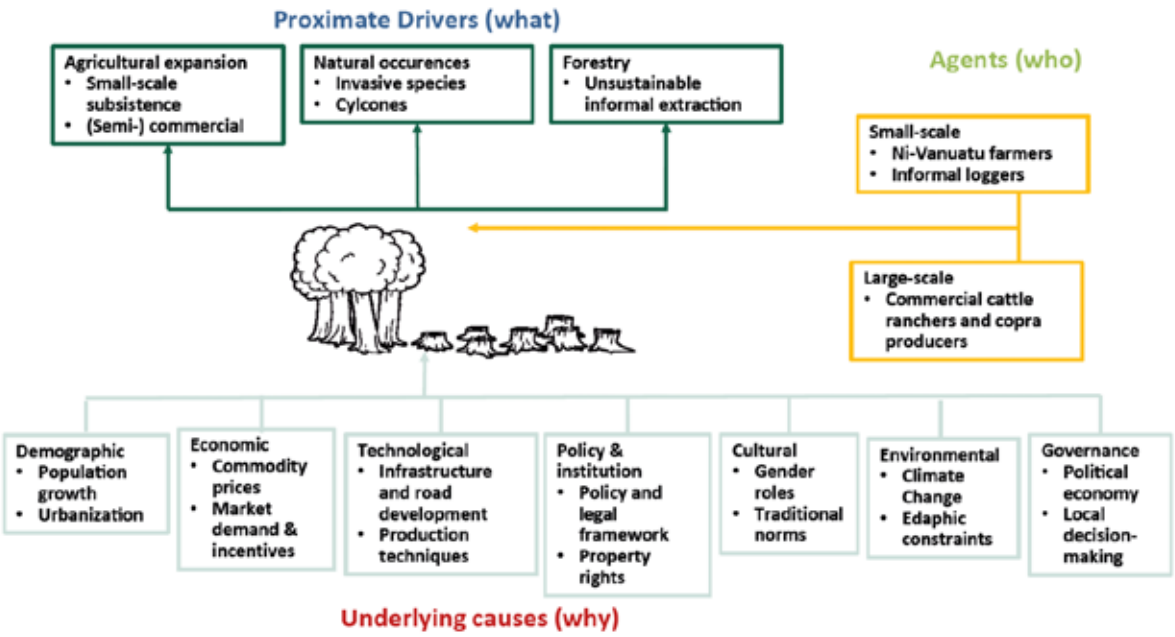


Figure 6. *Drivers, agents and underlying causes of deforestation in Vanuatu (Source: Carodenuto et al., 2017b).*

2.2. Contribution of the forest sector to the national economy

In Vanuatu forests play a significant role for both, the government and the rural population. Beside economic activities, forests provide multiple goods and services to sustain subsistence livelihoods of the Ni-Vanuatu people. One of the most important goods is fuelwood, which forms the major energy source for the rural households. Fuelwood collected from the forests is mainly used for household cooking. The demand for fuelwood is increasing. Besides timber and fuelwood, Vanuatu's forests provide a variety of protective and regulative services: forests protect watersheds, regulate the local climate, maintain water retention capacity of the landscape, and reduce soil erosion.

For Vanuatu, which is increasingly vulnerable to extreme weather events such as tropical cyclones, forests are an important component of national climate resilience efforts. According to the National Forest Policy 2013-2023, Vanuatu's forests play an important role for the national economy, economic empowerment and social justice. They make an important contribution to the national economy by supplying raw materials and a wide range of non-timber products such as tubers, fruits, nuts, fibers, grass and leaves for roof tiles and building materials. In Vanuatu's traditional societies, forests play an important spiritual role and provide material for ceremonies. Commercial forest practices are limited due to long distances, rugged terrain, limited high value tree sizes and varieties, and traditional land ownership.

Steep slopes, dissected landforms, low saw log volume and cultural reasons limit the forest area available for timber harvesting. An estimated 80% of the total forest area is not suitable for logging activities (Department of Forests, 2000). The benefits from commercial timber harvesting are shared between landowners, people working in the forests, timber companies and the government. In 2000, the commercial saw timber yield was estimated at around 10 to 15 m^3/ha.

Forests are an important sector for Vanuatu's national economy. In 2023 the per capita GDP of Vanuatu had an estimated US$ 3500. The per capita GDP is unevenly distributed. Around 75% of the population in rural areas live from subsistence economy and therefore have a significantly lower per capita income. In addition to agriculture, forestry plays a crucial role for these

population groups in maintaining and promoting living conditions, not least by providing fuelwood from the forest.

The share of the agriculture, forestry, and fisheries sectors in GDP is volatile. Between 1979 and 2018, the share varied between 15.2% and 26.1% (Figure 7) with a mean contribution of 20.6% (World Bank, 2024). Within the region, Vanuatu is one of the countries with the highest share of agriculture and forestry sector in GDP. Figure 8 shows the shares of various countries and income groups for 2018.

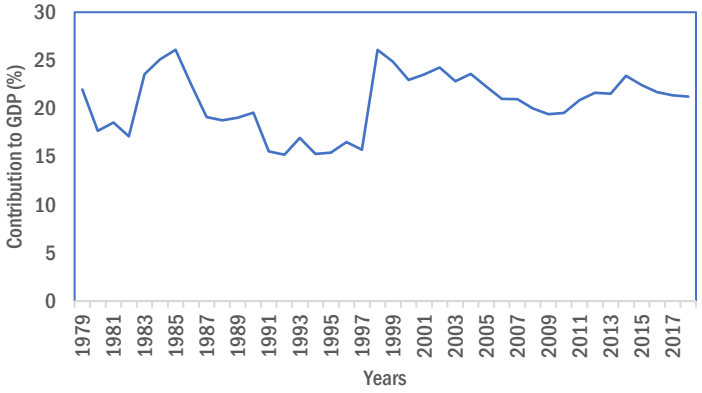


Figure 7. *Contribution of agriculture, forestry and fishery to Vanuatu's GDP (Source: World Bank, 2024)*

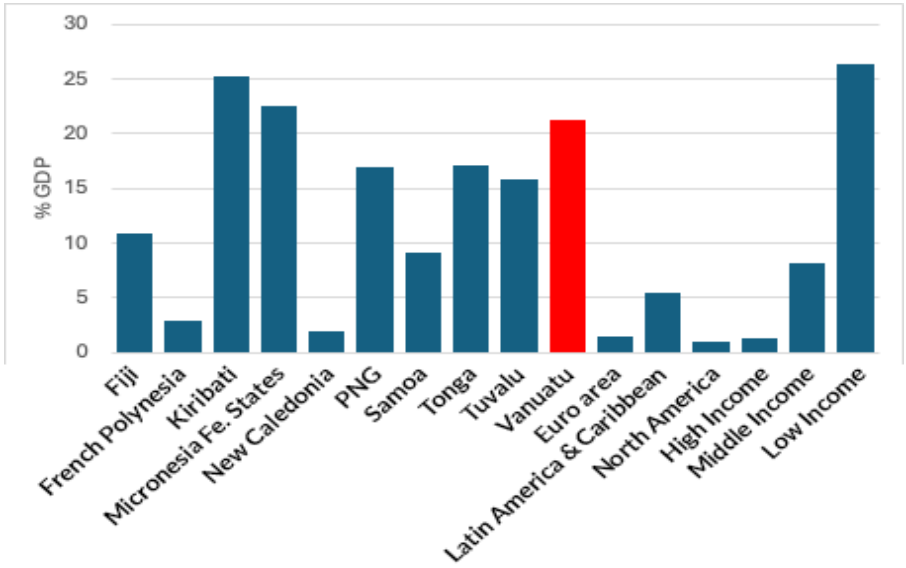


Figure 8. *Agriculture, forestry, and fishery value added (% of GDP), 2018 (Source: World Bank, 2024)*

The forest sector contributes significantly to the export earnings of the country, usually ranked behind the commodities copra and kava. In 2022, Vanuatu exported US$ 1.71 Mio. in rough wood. The main destinations of Vanuatu exports were China (US$ 1.7 Mio; 99,4% of total timber export) and United Kingdom (US$ 10,100). In the same year, Vanuatu imported US$ 31,400 in rough timber, mainly from New Zealand (US$ 22,900) and South Africa (US$ 8,500). The net trade was US$ 1.68 Mio. Other wood-based commodities exported were charcoal and wood stakes, but with a far smaller amount (Source: https://oec.world/en/profile/bilateral-product/rough-wood/reporter/vut).

The extraction of fuelwood is also significant, which is only insufficiently reflected in national statistics, but is a decisive factor for the Ni-Vanuatu people.

2.3. Key forest relevant and related policies and legislations

The central policy for the forestry sector is the Vanuatu National Forest Policy 2013-2023. There are also other policies in related sectors that have an impact on the forestry sector. These policies were mainly developed after the launching of Vanuatu's National Sustainable Development Plan in 2015. Most of them are implemented before 2030 by various Vanuatu government institutions such as the Ministry of Climate Change (MoCCA), Ministry of Agriculture, Livestock, Fisheries, Forestry, and Biosecurity (MALFFB), Ministry of Lands and Natural Resources (MoLNR), Ministry of Internal Affairs (MoIA), Ministry of Infrastructure and Public Utilities (MIUP), and their respective departments. The following list compiles the most important policies that are significant for and highly relevant to the forestry sector.

- Vanuatu National Forest Policy 2013-2023
- Vanuatu National Land Use Planning Policy
- Vanuatu National Land Subdivision Policy
- Vanuatu National Water Policy 2017-2030
- Vanuatu National Agriculture Sector Policy 2015-2030
- Vanuatu National Livestock Policy 2015-2030
- Vanuatu Climate Change and Disaster Risk Reduction Policy 2016-2030
- Vanuatu Sustainable Tourism Policy 2019-2024
- Vanuatu National Geospatial Data Policy 2020-2030
- Sustainable Forest Management Policy and REDD+ Programme

In addition to the policies listed, there are other initiatives and legal regulations that have an influence on policy in the forestry sector:

- Vanuatu Low Emission Development Strategy
- Vanuatu NDC Implementation Roadmap
- Meteorology, Geological Hazards and Climate Change Act No. 25 of 2016
- Department of Climate Change Strategic Plan
- National Parks Act No. 7 of 1993
- Vanuatu Code of Logging Practice
- Environment Protection and Conservation Cap. 283.
- Vanuatu REDD+ Readiness Plan Idea Note (R-PIN)
- Vanuatu Infrastructure Strategic Investment Plan 2015-2024
- Ministry of Climate Change Corporate Plan 2022-2026
- Bill for the Forestry Rights Registration and Timber Harvest Guarantee Act of 2000
- The Forest and Landscape Restoration Mechanism 2019-2030

2.4. Key national stakeholders including other sectors

Forestry is a complex sector that involves a wide range of demands and activities, and the same is true of the sector's stakeholders. Some stakeholders are linked to multiple sectors, for example, forestry, land use planning, agriculture, mining, land development, while others are more specifically concerned with a particular aspect of forestry, for example, timber, biodiversity and forest carbon. Forestry sector stakeholders can be grouped into several categories: public administration and legislatures, forestry professional and managers, indigenous peoples and

local communities (IPLCs) and their leaders, traditional leaders, environmental, social responsibility and governance (ESG) professionals, sustainability experts, project developers and land specialists etc. (Crowe, 2024). Table 4 presents the key stakeholders in Vanuatu's forestry sector.

Table 4. Key national stakeholder in the forestry sector

Key stakeholder	Role within the forestry sector
Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity (MALFFB), Department of Forests (DoF)	The MALFFB, DoF implements the National Forest Policy and the forestry legislation. It establishes mechanisms to provide sound advice to the government on forestry issues. It is responsible for the management of forestry sector activities in Vanuatu and the cooperation with other national government institutions. It promotes the sustainable management of forests for both timber and non-timber uses. It approves utilization contracts and ensures that the code of conduct for logging is implemented. It is responsible for collecting information on forest resources, carries out forestry research and supports the development of commercial plantations and agroforestry systems. It advises on the conservation of forests, protected areas and national parks.
Department of Agriculture and Rural Development (DARD)	Forest risk-commodities, including kava, cocoa, coconut and coffee have been contributing greatly to the GDP growth and sustaining rural livelihoods. The agriculture sector has grown at an annual rate of >3 percent since two decades. However, in recent years, the trend of the production of the major commodities has declined significantly over the years due to both internal and external factors. The challenge is to increase efficient and sustainable production, and improve market access. As agricultural expansion is identified as the major drivers of forest decline in Vanuatu, existing policies and interventions related and relevant to agriculture and rural development and forestry should complement each other sector. The silos between the sector should be reduced and synergy must be harnessed. In this context, the DARD play crucial role in the forestry sector development.

Key stakeholder (continued)	Role within the forestry sector
Department of Agriculture and Rural Development (DARD)	The DARD implements the government policies related to agriculture and rural development; creates a diverse partnership with relevant stakeholders; strengthens its agricultural extension services to the rural communities; and enforces the New Agriculture Legislation. Other work covers the conservation and improvement of plant genetic materials through research and establishment of a new Tissue Culture Lab, profiling of farmers group, development of production standards, and adoption of sustainable climate resilient innovative agricultural farming systems.
Ministry of Climate Change Adaptation, Meteorology, Geo-hazards, Energy, Environment and Disaster Management (MoCCA)	MoCCA strategically aligning departments responsible for the response to natural disasters and sustainable development of the environment; develop sound policies and legislative frameworks; provide timely, reliable scientific information for service delivery to enable resilient communities, a sustainable environment and economic development.
Ministry of Finance and Economic Management (MFEM), Department of Finance and Treasury (DoFT)	Departments of Finance and Treasury (DoFT) - is the advisor to the Government on economic, financial and regulatory policy. The DoFT plans and executes the national budget, and therefore, linked with forestry sector budget.
Customs and Inland Revenue Department (DCIR)	The DCIR collects legislated government revenue- a range of taxes, fees and duties.
Ministry of Lands and Natural Resources (MoLNR), Department of Lands (DoL)	The DoL facilitates and manages land related issues. DoL is comprised of three main Sections namely the Land Survey Section, Land Section and Land Records Section.
Department of Environmental Protection and Conservation (DEPC)	The DEPC covers a wide range of issue areas relevant to forestry. This includes administering a number of Vanuatu's environmental protection and conservation laws, biodiversity conservation, environmental impact assessment and environmental protection/ conservation. The DEPC collaborates with other partners to address local, regional and global priorities; assesses the environmental impact of proposed developments; works with communities to establish Community Conservation Areas; works with researchers to learn more about our unique environment; protects internationally endangered species; controls ozone depleting substances; and works with municipal and provincial governments to manage waste and pollution.

Key stakeholder (continued)	Role within the forestry sector
Ministry of Tourism, Trade, Industry, Commerce and Ni-Vanuatu Business, Department of Industry (DoI)	The DoI provides primary industries support services including developing primary processing and value addition development, promoting domestic industries and export, and supporting handicraft enterprise. Similarly, the DoI also provides manufacturing industries support service. The DoI is responsible for administration and compliance of the industrial permits and standards and compliance of manufacturing business categories. Therefore, the DoI is highly relevant in the area of deforestation-free supply chain and certified products.
National Advisory Board on Forestry	The board consists of directors of forestry, environment, and lands- advisory body for forest related issues.
National Advisory Board on Climate Change & Disaster Risk Reduction (NAB)	The NAB is the supreme policy-making and advisory body for all disaster risk reduction and climate change programs, projects, initiatives and activities.
Provincial governments	Provincial governments issue business licenses, assist in the development and implementation of land use plans at provincial level and facilitate the development of forest industries and plantations as well as the necessary infrastructure. They support the protection of protected areas designated by landowners and assist in resolving disputes between landowners. The provincial governments assist the DoF in advising communities and in monitoring forestry activities. The DoF consults with provincial governments on forestry activities within the province, including the issuance of timber licenses and annual logging plans.
Provincial Forest Authorities	Routine forestry activities at Provincial level; Forest assessment, forest monitoring
Customary chiefs	Customary chiefs play an important role in maintaining traditional social structures. Cooperation with the customary chiefs concerns, for example, the negotiation of logging plans, the identification of tabu sites and the settlement of disputes.

Key stakeholder (continued)	Role within the forestry sector
Landowners and communities	The landowners decide on the management of their forest resources. This concerns the definition of land boundaries, the support of the DoF in monitoring utilization measures, timber harvesting and the planting of trees. Communities support landowners in deciding on the management of forest resources and participate in the development of forestry.
Forest industry	The forest industry negotiates with landowners for areas for logging and plantation development. The industry prepares logging plans. Timber harvesting will be implemented in accordance with the Code of Logging Practice. The industry will support the development of rural infrastructure and train rural labor. It will promote markets for Vanuatu timber products through value-added wood processing facilities. It makes crucial financial contributions to reforestation and the development of plantations
Non-governmental institutions	NGOs are encouraged to work together to promote sustainable forest management, the development of forest and nature conservation enterprises by landowners and the conservation of forest resources.

2.5. Key constraints and opportunities to strengthen the enabling environment

Between 2007 and 2015 natural forests in Vanuatu removed 7 billion tons of CO_2 per year from the atmosphere (Government of Vanuatu, 2020). Vanuatu's forests continue to offer opportunities to mitigate climate change through carbon sequestration (afforestation and reforestation), carbon conservation (sustainable forest management, protected areas, reducing deforestation and forest degradation), and carbon substitution (replacing carbon-intensive products and fuels with wood products).

Forests are increasingly vulnerable not only to climate change, but also to inundation of forested land in low-lying areas, increased incidence of pests and diseases, prolonged periods of drought and flood conditions, increased frequency and intensity of extreme weather events, salinisation of forested land close to the coasts and the penetration of saltwater into the subterranean freshwater resources, adversely affecting forests and trees.

Table 5 presents the constraints identified and briefly summarizes the needs for strengthening the enabling environment for forestry in Vanuatu. More information on these can be found in the Concept Notes for each project opportunity (see ANNEX I).

Table 5. Key Constraints and enabling environment opportunities for the forestry sector

Constraint/ barrier	Enabling environment strengthening opportunities
Market Structures and Financing	Develop targeted fiscal instruments (e.g. different tax incentives) to support mitigation actions in the forest and timber sector and Payments for Ecosystem Services (PES). Prepare and fund financial instruments Prepare market background for deforestation-free value chains
Policy and regulatory tools	Develop low impact logging systems Develop regulations for lease of land for forest activities Establish participatory approaches for afforestation, reforestation, restoration and agroforestry activities
Knowhow and training	Prepare practical guidelines for activities such as logging, planting, and plant protection
Data/ information	Make NFI a permanent activity Establish a national forest information system
Technical assistance	Establishment of tree nurseries Establishment of permanent observation plots for growth and yield research and development of a programme for tree improvement Establishment of pilot workshops for the production of veneer, plywood or finger-jointing

2.6. Mitigation opportunities and investment needs

The forestry sector has been a high priority of the climate change policy discussion at national and international levels in recent years. Vanuatu has recognized the important role of forests in climate change adaptation in its national climate action plan (Government of Vanuatu, 2022b), and to SDGs in its national sustainable development goals (Government of Vanuatu, 2016).

Vanuatu has already achieved climate neutrality due to the carbon sink effect of its forests and emits less CO_2 than is removed from the atmosphere by its forests. Nevertheless, forests are seen as an important means of further improving the national CO_2 balance. A large number of documents contain proposals for climate change mitigation through forestry activities. The proposals for activities were reviewed and the potential replicable projects identified. The resulting replicable projects have been combined in seven projects that form the project pipeline of the NDC Forest investment strategy (Table 6).

Table 6. Aggregated information for forest sector opportunities

Opportunities	Indicative Cost 2025- 2035 (US$)	Requested Funding 2025-2035 (US$)	Cost of Mitigation (US$/$tCO_2$)	Average Annual Mitigation (tCO_2/Yr)	Total Mitigation 2025-2035 (tCO_2/Yr)
Afforestation/ reforestation	42,200,000	33,520,000	34	125,000	1,250,000
Restoration	8,200,000	6,170,000	17	37,500	375,000
Agroforestry	32,600,000	19,720,000	0,11	31,000,000	310,000,000
Improving Sustainable Forest Management	10,300,000	7,200,000	43 to 86	12,000 to 24,000	120,000 to 240,000
National forest information system	7,000,000	7,000,000	Not determined	Not determined	Not determined
Sustainable value chains	1,500,000	1,500,000	2,5 to 5	30,000 to 60,000	300,000 to 600,000
Research	10,750,000	8,500,000	Not determined	Not determined	Not determined
Total	**112,550,000**	**83,610,000**			**~312,000,000**

The seven projects focus on forestry, agroforestry and timber processing. Together, these have the potential to reduce more than 310 Mio. tCO_2 emissions by the end of 2035, with an average annual mitigation potential of at least 31 Mio. tCO_2/yr. The estimated capital investment needed to reach the mitigation potential is US$ 112 Mio. between 2025 and 2035.

The information in Table 6 is mainly based on figures taken from available documents, such as the UNEP (2020), Vanuatu Forest and Landscape Restoration Strategy 2020-2030, or the Revised an Enhanced 1st NDC. Some of these figures should be regarded as rough estimates with unknown reliability and representativeness. Nevertheless, they give an impression of the reduction potential and the necessary investments.

Compared to the other six projects, the reduction effect of agroforestry projects is very pronounced. However, this should not lead to the other, less effective projects being neglected. By initiating mitigation and adaptation projects in the forestry sector, cascading effects are created that lead to a multifaceted improvement in environmental and living conditions. Project diversity can also help to generate funding, as the diversity of different financial instruments can be better utilized. Last but not least, the low social costs of nature-based solutions can also be a decisive factor.

The costs of the mitigation measures presented here must also be compared with mitigation measures in other sectors. Gillingham and Stack (2018) have described the reduction costs for selected policy measures. For example, they list costs for dedicated-battery electric-vehicle subsidies in the range of 350-640 US$/$tCO_2$, for national clean energy standards in the range of 51-110 US$/$tCO_2$, or for agricultural emission reduction policies in the range of 50-65 US$/$tCO_2$. All the projects presented in the project pipeline have the usual low reduction costs for nature-based solutions and are therefore competitive with many reduction policy measures in other sectors.

3 INVESTMENT STRATEGY FOR THE FORESTRY SECTOR

3. INVESTMENT STRATEGY FOR THE FORESTRY SECTOR

3.1. Prioritizing the mitigation opportunities

Vanuatu has committed to remain net carbon negative in the future. To achieve this, it is essential that Vanuatu conserves its forest cover. To reduce deforestation and forest degradation, and to improve sustainable forest management practices, the REDD+ program is being implemented in Vanuatu. As the measures to reduce deforestation, promote good land stewardship and accepted mitigation practices under the REDD+ initiative are still under development, no specific NDC mitigation measures have been identified for the forestry sub-sector in Vanuatu's Revised and Enhanced 1st NDC. Potential mitigation measures will be included in future NDC updates based on the results of the REDD+ initiative.

In its National Policy on Climate Change and Disaster Risk Reduction, Vanuatu has prioritized transformative adaptation measures. This goes hand in hand with the strategic goal of resilient development, which includes the implementation of activities that enable Vanuatu to absorb and quickly recover from climate shocks and stresses.

Climate change will have a variety of impacts on Vanuatu's forests, which are cross-sectoral and will also affect the provision of goods and services for the (local) population. These impacts include the increasing frequency and intensity of extreme weather events such as prolonged droughts and floods, flooding of forest areas in low-lying areas, increased incidence of pests and diseases, salinization of coastal forest areas and saltwater intrusion into underground freshwater resources, which negatively impacts the health and vitality of forests and trees. Changing

temperature and precipitation patterns affect the productivity of forest areas and require the adaptation of silvicultural production systems or introduction of climate resistant tree species.

Along with the impacts of climate change, Vanuatu's forests will be under increasing and cumulative pressure from population growth and declining soil fertility, which will manifest itself particularly in the conversion of forests to agricultural land. This is in contrast to the opportunities that Vanuatu's forests offer to mitigate climate change. These opportunities, which include, (i) carbon conservation through sustainable forest management, protected areas, reducing deforestation and forest degradation, (ii) carbon sequestration through afforestation and reforestation, and (iii) carbon substitution through the replacement of carbon-intensive products and fuels with wood products, need to be maintained and enhanced.

For the development of the NDC Forest Investment Strategy a multi-stage approach was chosen to determine the priority for financing and implementing mitigation and adaptation options in the forestry sector. In a first step, a literature and document review was conducted, which, in addition to scientific literature, primarily referred to official documents from Vanuatu and international institutions. Through this review, replicable projects were identified, particularly those found in national official documents. This list of replicable projects was presented to stakeholders from the government, private sector, NGOs and landowners, who assessed the listed projects in terms of their suitability as adaptation and mitigation measures. In a stakeholder workshop the replicable projects were combined into seven project ideas. Based on the stakeholder assessment, a combined comparative quantitative/qualitative assessment was conducted, which included the key and validation criteria listed in Box 1. The criteria were not weighted in order to avoid any bias. This assessment was carried out by the consultants together with representatives of the Departmens of Forestry, Climate Change and Agriculture and lead to the final selection of seven projects, which are indicated in the table below and described in more detail in the Project Pipeline.

Box 1: Evaluation criteria

Key criteria

1. Approximate investment level required for implementation
2. Mitigation potential
3. Implementation potential

Validation criteria

A. Level of private sector financial participation
B. Potential for positive social-economic impact on the population
C. Level of estimated incremental financial needs
D. Level of national or regional technology inclusion
E. Potential for negative environmental impact

3.2. Financing pathway for individual mitigation opportunities

To support the mobilization of finance and ensure that efforts result in bankable projects (i.e. those that meet the conditions required by banks and investors to finance a project), an iterative, multi-stage process for developing mitigation investment process is proposed (Figure 9). The process develops the financial aspects of a climate resilience strategy from the identification of mitigation needs and financing barriers to the implementation and monitoring of an effective mitigation project.

Figure 9. *Mitigation investment process*

The mitigation investment process has two phases:

Phase 1: development and application phase, which is dedicated to the project development and funding applications, and

Phase 2: implementation and operationalization phase, which relates to the implementation and operationalization of financial instruments (one or more) to finance the physical activities of the climate action

In both phases, funds are needed for capacity building and technical assistance, comprehensive free and prior informed consent processes, knowledge transfer, negotiations for agreements, or trade deals. In the project life cycle, the two phases must be differentiated in terms of their financing. The effort involved in project development and applying for funding usually exceeds existing capacities. Sufficient funds must therefore be made available or applied for as early as this first project phase.

Vanuatu's Enhanced and Revised 1st NDC indicates an additional requested funding of US$ 54 million to realize the listed (adaptation) activities. This cost framework must be revised on the basis of new findings and priorities. According to the latest plans, the total requirement for financing NDC activities in the forestry sector, adjusted for inflation, is around US$ 112 million. The requested funding amounts to around US$ 84 million. At the same time, the activities listed in the NDC were regrouped. This was necessary to align the NDC activities with recently published national documents such as Vanuatu's Forest and Landscape Restoration Strategy. A summary of the regrouped activities together with the financial requirements, conditionality and additional financial requirements can be found in Table 7.

Table 7. Financial requirements, conditionality and requested funding

Activity	Total cost [US$]	Conditionality [%]	Requested Funding [US$]
Afforestation, reforestation	42,200,000	80	33,520,000
Restoration	8,200,000	94	6,170,000
Agroforestry	32,600,000	60	19,720,000
Improved SFM	10,300,000	70	7,200,000
NFIS	7,000,000	100	7,000,000
Sustainable value chains	1,500,000	100	1,500,000
Research	10,750,000	80	8,500,000
Total	**112,550,000**	**75**	**83,610,000**

3.3. Consolidated financing pathway

3.3.1. Establishing the enabling frameworks and financing mechanisms

Establishing enabling frameworks for NDC implementation is a multifaceted challenge that requires an integrated approach encompassing policy coherence, stakeholder engagement, adequate financing, and capacity building. One of the foundational elements of an enabling framework for NDC implementation is policy coherence; it must be ensured that climate policies align with broader social, economic, and environmental objectives and are part of a collaborative governance model that incorporates input from relevant ministries and stakeholders. Effective inter-ministerial coordination is critical.

Another key component of enabling frameworks is the active engagement of a diverse array of stakeholders, including civil society, the private sector, local governments, and indigenous communities. Stakeholder engagement fosters transparency, accountability, and public support for climate policies. Involving various actors in the implementation of NDCs can leverage local knowledge, expertise, and resources, ultimately leading to more effective and equitable climate action. Participatory approaches empower communities to play a significant in decision-making processes, thus fostering social acceptance and ownership of climate initiatives in the forestry sector.

Capacity building is crucial for enhancing the skills, knowledge, and institutional frameworks necessary for effective NDC implementation. Investing in education and training programs is vital to empower local actors. Knowledge sharing among within Vanuatu and with other countries must be promoted.

A critical factor in enabling NDC implementation is effective financing. Adequate resources to support the forest investment strategy involve significant investments in new technologies, research, information provision, and infrastructures. Public funding can allocate resources through budgetary provisions specifically earmarked for climate-related initiatives in the forestry

sector. Tax incentives, subsidies, and grants to encourage investments in forest sustainability facilitate the mitigation potential of forests and stimulate job creation. National banks can leverage government funds and fill financing gaps. Engaging businesses in the finance landscape is essential for scaling up investments needed for the implementation of the NDC forest investment strategy. Tapping into this potential involves establishing clear and stable regulatory frameworks that outline the rules and expectations for investments. Policies that encourage public-private partnerships (PPPs) can stimulate private capital inflows, combining public funds with private expertise and innovation. Furthermore, emphasizing the potential for returns on sustainable investments can attract private capital. With growing interest in Environmental, Social, and Governance (ESG) factors, companies are increasingly recognizing the importance of sustainability. Promoting climate-related investment opportunities in forestry as profitable ventures can incentivize businesses to align their investments with NDC objectives. Establishing robust financing mechanisms involves fiscal measures, de-risking facilities, or financial default guarantees.

International climate finance is a vital source of funding the implementation of forestry-related NDCs. This renders robust project proposals necessary that demonstrate how funding will support NDC implementation, as well as capacity-building efforts to enhance local expertise in project design, financial management, and monitoring and evaluation. Fostering partnerships between governments and NGOs can increase the likelihood of securing funding for climate initiatives.

Innovative financing strategies represent an emerging avenue for supporting NDC implementation by leveraging diverse funding sources. Blended finance, which combines public and private funding, is gaining traction as a means to attract investment into climate projects. By using public funds to absorb some of the risks associated with private financing, blended finance can incentivize private sector participation in climate initiatives.

Furthermore, results-based financing approaches link funding to the achievement of specific climate outcomes. This mechanism aligns financial incentives with performance, encouraging stakeholders to prioritize effective implementation. For example, funding could be tied to measurable carbon sequestration or carbon offsets.

Crowdfunding platforms also hold potential for facilitating grassroots investments in climate-related forestry actions. By enabling individuals to contribute to projects through small investments, crowdfunding democratizes access to financing while fostering community engagement in forest-based climate solutions.

3.3.2. Timing and cost of implementation

Table 8 shows the timing and duration of the individual mitigation projects included in the Vanuatu project pipeline. Due to institutional capacity constraints, it will not be possible to implement all mitigation projects at the same time. The chronological order in which the projects are implemented will depend on the available financing options and feasibility. Shifts in the project chronology shown in Table 8 are therefore likely. At the present time, the need for funds cannot be broken down into individual years.

Table 8. Timing of implementation

Project	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Afforestation/ reforestaton											
Restoration											
Agroforestry											
Improved SFM											
NFIS											
Sust. alue chains											
Research											

Key: Phase 1 Phase 2

3.3.3. Monitoring and evaluation framework

An overarching monitoring and evaluation (M&E) framework is recommended to track progress in project implementation. The M&E framework should emphasize results-based management that uses specific, measurable, achievable, realistic and time-bound (SMART) indicators. This framework will create a transparent system for measuring progress. At the same time, it increases accountability and ownership by government staff for their actions. The monitoring and evaluation framework should include the following three components:

1. A reporting structure that assigns responsibility over actions to specific government employees,
2. A monitoring structure that tracks progress in a transparent manner, and
3. An evaluation structure that outlines the consequences for completing—or not completing—actions in time.

Within the M&E framework, government staff responsible for NDC implementation should assign responsibility for individual projects in stages:

- **NDC M&E Officer** who will ultimately be responsible for overseeing the implementation of Vanuatu's NDC.
- **Forestry Sector Focal Point** - responsible for implementing specific actions in the forestry sector reporting on progress to the NDC M&E Officer.
- **Executors** (implementing agencies) - Individuals responsible for carrying out the day-to-day tasks required to manage and implement the priority projects in each sector.

Table 9 shows the implementing agencies hosting the proposed executors responsible for implementing each of the priority projects in Vanuatu's forest NDC project pipeline, as well as the supporting agencies for each project.

In many cases, it will be necessary to invest in education, training and awareness-raising within the implementing and support agencies carrying out forest sector mitigation projects. It is important that these activities are included in the budget.

Formal responsibility-sharing agreements required when responsibilities for implementing a forest sector mitigation project are shared significantly between implementing and supporting agencies. This can take the form of a Memorandum of Understanding (MOU) between the two groups of agencies concerned.

Communication is an essential part of the monitoring framework. Therefore, the NDC M&E Officer, Sector Focal Points, and Executors should meet regularly to share the progress of the projects they are overseeing. The Forestry Sector Focal Point should meet weekly with its Executors to follow up on daily tasks and liaise with any external consultants involved in the projects.

Table 9. Proposed executors (implementing agencies) and supporting agencies for projects

Primary adaptation opportunities	Executors (implementing agencies)	Supporting agency(ies)
Afforestation	MALFFB	MCCP; MoLNR; MTTCNVB; MFED
Restoration	MALFFB	MCCP; MoLNR; MTTCNVB; MFED
Inventory /National forest information system (monitoring)	MALFFB	MCCP; MoFE
Value chain Harvested Wood Product (HWP)	MALFFB	MCCP; MET[1]; MTTCNVB; MFED; DoI
Enhancing SFM in natural forests, incl. Silviculture and RIL, invasive species	MALFFB	MCCP; MFED
Agroforestry	MALFFB	MCCP; MoLNR; MFED
Research on climate adapted tree species	MALFFB	MCCP; MFED

MALFFB = Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity; MCCP = Ministry of Climate Change and Planning; MET = Ministry of Education and Training, MoLNR = Ministry of Lands and Natural Resources; MTTCNVB = Ministry of Tourism, Trade, Commerce, and Ni-Vanuatu Business: MFED = Ministry of Finance and Economic Development; MoET= Ministry of Education and Training; DoI=Department of Industry

The Forest Sector Focal Point, like the other Sector Focal Points, should be responsible for reporting progress on the implementation of the Forest Sector NDC on a regular basis (e.g. quarterly). Updates on the implementation status of individual pipeline projects should include the following information:

[1] Vocational training

- Project status (planning/implementation/completion)
- Funding status (not funded/partially funded/fully funded)
- Target source(s) of funding (if not fully funded)
- Estimated GHG emissions reduction, including assumptions and calculations used to estimate the GHG emissions reduction
- Estimated mitigation benefits achieved
- Comments (e.g. description of new barriers or new technological developments)
- Support to marginalized groups and vulnerable people
- Gender equity

3.3.4. Promoting gender equality and social inclusion

To avoid negative impacts, ensure the achievement of project objectives and improve overall development outcomes, the integration of gender and social inclusion and Environmental and Social Safeguards (ESS) aspects into project design and implementation planning is crucial. Furthermore, this will enable Vanuatu citizens to gain additional knowledge in the areas of gender and social inclusion and ESS. Measures that could contribute to gender and social inclusion include, but are not restricted to:

- Equal pay for equal work
- Monitoring pay rates for men and women to determine whether a gap exists
- Career development programs
- Creating and supporting women's groups/networks
- Mentoring/coaching for women
- Implementing effective measures to create attractive working conditions for women
- Providing social protection that addresses the specific needs of women
- Including disadvantaged groups
- Promoting a healthy work-life balance
- Providing social protection that addresses the specific needs of women
- Promotion of a healthy work-life balance
- Vocational training
- Facilitation of childcare arrangements
- Training and awareness-raising of human resource managers to eliminate gender bias
- Ensuring (and monitoring) appropriate safety and working conditions
- Collection and publication of gender-disaggregated employment data

Social Impact Assessment (SIA) is a vital tool for ensuring that social considerations are integrated into decision-making processes related to the development of projects. SIA is a systematic process used to evaluate the potential social effects, both positive and negative, associated with a proposed project. The primary goal of SIA is to predict and understand the social consequences of proposed actions. This includes assessing how projects might affect people's lives, livelihoods, and well-being, as well as their cultural and community structures. Effective SIA involves engaging with various stakeholders, including local communities, government agencies, NGOs, and other relevant parties. This participation helps to gather diverse perspectives and ensures that the views of those most affected by the project are included. SIS is a crucial component of the broader impact assessment framework, which often includes environmental and economic considerations as well.

3.3.5. Safeguarding the environment

Recognizing environmental aspects in projects is crucial due to the significant impact that human activities can have on the natural world and is not just a moral imperative but also a strategic necessity in today's world. Integrating environmental considerations into project planning promotes sustainability, minimizes risks, complies with regulations, and engages stakeholders effectively.

As projects listed in the project pipeline move from the concept phase to the implementation phase, it is important that they are preceded by a rigorous environmental impact assessment (EIA). These assessments will help to develop a complete picture of the project's environmental impact and will help implementing agencies to minimize negative impacts where possible. The principle of do-not significantly harm (DNSH) should be taken into account in the environmental impact assessment. The DNSH principle is part of a broader framework aimed at promoting sustainable investment and guiding businesses and financial institutions towards environmentally sustainable practices. Under this principle, economic activities are assessed not only for their positive contributions to sustainability (such as reducing carbon emissions, protecting biodiversity, etc.) but also for their potential negative impacts on other environmental and social objectives.

3.3.6. Consideration of economic effects

In addition to environmental and social issues, projects can also have economic effects that have positive and negative impacts beyond the actual project framework. In the sense of a broader impact assessment, the economic effects of projects should therefore also be taken into account in the planning phase.

Economic Impact Assessment is a systematic approach used to evaluate the potential economic effects of a project on a specific area, such as a community, region, or the entire country. The goal of an Economic Impact Assessment is to provide a comprehensive understanding of how the proposed activity may influence economic conditions, including changes in employment, income, business revenues, and overall economic growth. This includes the immediate economic effects that result directly from the project (e.g. job created), secondary effects that occur as a result of direct impacts (e.g. increased demand for local services and goods caused by new employees in the area), and induced effects (e.g. value adding by manufacturing timber products or reduction of export earnings by lower timber export volumes).

3.4. Needs for financial instruments and potential funding sources

As outlined up to US$ 112 million is required to implement the projects in the forestry sector. These funds exceed the financial capacity of Vanuatu. Additional funding is therefore required to implement the measures. In addition to public funds, the possibility of sustainable financing from private sources should also be considered.

Vanuatu is one of the SIDS, so is eligible to receive a wide range of global dedicated funds, international grants and international finance. The state has a long experience working with different governments and development organizations. Table 10Table 10 presents the potential sources of funding and financing forestry mitigation projects.

Table 10. Sources of funding/financing available in Vanuatu

Name of the donor/institution	Type of support	Type of institution
International Public (Climate) Finance		
Green Climate Fund (GCF)	Grants, technical assistance, capacity building	Dedicated fund, Organization with global outreach, Result-based climate finance fund
Global Environmental Facility (GEF)	Grants, technical assistance, capacity building	Dedicated fund, Organization with global outreach
REDD+	Result based payment	Financing mechanism under UNFCCC
International Fund for Agricultural Development	Grants, technical assistance, capacity building	Fund (un specialized agency)
United Nations Development Programme	Grants, technical assistance, capacity building	Multilateral agency (UN Specialized agency)
World Bank	Grants, technical assistance, capacity building	Multilateral bank, multilateral financial institution, manages GFC-approved projects
Asian Development Bank	Grants, technical assistance, capacity building	Multilateral bank/ financial institution, manages GFC-approved projects
European Bank for Reconstruction	Grants, technical assistance, capacity building	Multilateral bank, multilateral financial institution, manages GFC-approved projects
Agence Française	Grants, technical assistance, capacity building	Multilateral bank, multilateral financial institution, manages GFC-approved projects
Deutsche Gesellschaft für	Bilateral ODA grants, technical assistance	Bilateral agency

Name of the donor/institution	Type of support	Type of institution
Internationale Zusammenarbeit (GIZ)		
Global Green Growth Institute	Technical assistance, capacity building	Intergovernmental organization
New Zealand Ministry of Foreign Affairs and Trade	Bilateral ODA grants	Bilateral agency
Australian Department of Foreign Affairs and Trade	Bilateral ODA grants	Bilateral agency
Japanese International Cooperation Agency	Bilateral ODA grants	Bilateral agency
European Union	Multilateral ODA grants	Bilateral agency
Private Sector Financing Through Innovative Financing Tools		
Dept for Climate Swaps	Swap part of the national depth for a commitment on concrete climate change mitigation or adaptation projects	Bilateral
Green Bonds	A fixed-income security used to raise capital for activities to reduce or prevent environmental or climate damage	Reserve Bank of Vanuatu
National Financing Vehicles	Grants, debt and equity financing, and risk reducing instruments	Public or public-private funds and facilities that have the function and the fiduciary management capacity to receive and hold international and national finance resources,
Blended finance	Combines official development assistance with other private or public resources	Use of concessional and / or philanthropic finance to adjust the risk/ return profile of projects in order to crowd-in private sector investments

Name of the donor/institution	Type of support	Type of institution
Green Credit Instruments, Green Loans	Raises capital for green eligible projects; based on a loan that is typically smaller than a green bond and done in a private operation	Local financial institutions
Impact Investment Fund with Private Capital	Investment with the intention of generating a positive development impact (e.g. climate change mitigation), along with a financial return	Private sector investors
Green Guarantees	Act as a strong de-risking mechanism, which can catalyse the influx of private capital into developing country markets for climate change mitigation and adaptation projects	Green Guarantee Company, receiving capital from e.g. FCDO, GCF, USAID
Domestic Public (Government funding)		
Ministry of Agriculture, Livestock, Forestry, Fisheries and Biosecurity (MALFFB)		
Ministry of Climate Change (MoCC)		
Ministry of Finance and Economic Development (MFED)		
Ministry of Lands and Natural Resources (MoLNR)		
Provincial Governments		
Domestic Private finance		
National Bank of Vanuatu, Vanuatu Agricultural Development Bank and Rural Development Bank, Reserve Bank of Vanuatu	Finance	Banking
Industries, business and corporate sectors	investment	Private sector

Name of the donor/institution	Type of support	Type of institution
Others		
Paris Agreement Crediting Mechanism (PA, Article 6)	Voluntary cooperation of countries	Financing mechanism under UNFCCC
Voluntary Carbon Market	RBP	Market tool
Carbon tax	Tax levied on the carbon emissions from producing goods and services	Government
Carbon offsets	For tourists to “offset” their vacation carbon emissions	Hotels, airlines etc. participating in the voluntary carbon Market
LEAF Coalition	Emissions Reductions Purchase Agreements (ERPAs) to sell forest carbon credits to buyers from the public and private sector	Public-Private Partnership
Land Degradation Neutrality (LDN) Fund	Long-term non-grant financing	Blended finance fund promoted by UNCCD
Green Gigaton Challenge (GGC)	Result-based funding	Global fund
Payment for Environmental Services	Result-based funding, market based instrument	Government funding, international organizations, NGOs, private sector, local communities and beneficiaries, philanthropic contributions, environmental credits

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5. ANNEXES

Project Pipeline

F1

No.	F1
Action Name	**Afforestation and Reforestation (A/R)**
Sub-Sector	**Forestry**
Description	Afforestation is the planting or adding of trees in an area where there was never a forest or plantation. This is a method to create a new forest. Reforestation is the replanting of trees in areas where there was once a forest which was destroyed or damaged. According to FAO, the term forest plantation includes all forests established by planting or seeding indigenous and introduced species in the process of afforestation and reforestation. The new forest communities continuously sequester atmospheric carbon through biomass production and thus make a significant contribution to climate change mitigation. According to Crafton et al. (2021) Vanuatu is no. 12 on the global list of countries where forest carbon sequestration by afforestation is most cost-efficient. Afforestation/ reforestation requires essential preliminary considerations: 1. Selection of site 2. Choice of species and method of artificial regeneration (seeding, planting of naked rooter or container plants, spacing of plants etc.) 3. Choice of soil preparation, fertilization 4. Choice of tending methods (weeding, individual plant protection, fencing) 5. Arrangement of staff The rationale for the use of afforestation/ reforestation is 1. To assist or supplement natural regeneration by establishing site adapted native tree species 2. To change the composition of tree crop 3. To develop plantations for domestics and industrial utility 4. To increase forest cover 5. To introduce non-invasive exotics with high C-sequestration potential The project relies heavily on cooperation with landowners. The communities should therefore be involved at an early stage. The project could also benefit from the involvement of schools and young people, which would improve the reach of the project and community buy-in. This project would promote the increased use of valuable timber species in plantations in Vanuatu through awareness-raising measures and targeted support. Planting forests is often a financial challenge, as long-term investments are required with only a small payoff until the plantations are harvested. Agroforestry plantations is treated under the activity F2 “Forest and Landscape Restoration”.

	An up-to-date and accurate inventory of the lands and forests is an important basis for this project and requires the expansion of GIS data and analysis capacities. In addition, training and awareness-raising measures are required for the staff of the implementing agency. The activity is related to the activities "deforestation free value chains".
Outcomes	Key primary outcomes • Carbon sequestration through biomass growth • Strengthened enabling environment for afforestation/ reforestation • Increased forest area through tree planting and sustainable forest management • Improved standard of living for rural communities and maximize socio-economic benefits • Secured human and financial resources for scaling up plantation forestry in Vanuatu • Measured and shared plantation forestry results and lessons • Production of timber for energetic and material use Key secondary outcomes • Promotion of biodiversity • Promotion of multiple sustainable forest functions • Increasing the quality of life of the local population • Provision of CO_2-neutral raw material for sustainable supply chains
Mitigation / Adaptation Potential	• An average 125,000 tCO_2/yr and a total of 1,250,000 tCO_2 (2025-2035) • The mitigation potential is taken from the LEDS Fiji (20 $tCO_2ha^{-1}\,yr^{-1}$). • The Vanuatu Forest and Landscape Restoration Strategy 2020-2030 suggests a plantation area of 12,500 ha. • 40,000 rural people will directly benefit from this activity
Co-benefits / SDG Linkages	Potential co-benefits of afforestation and reforestation in Vanuatu include: • Reduced flood and storm risk will contribute to SDG 3 (good health and well -being), SDG 11 (sustainable cities and communities), SDG 13 (climate action), and SDG 15 (life on land) • The expansion of habitat for native plants and wildlife would contribute to SDG 15 (life on land) • Soil management and improvement would contribute to SDG 15 (life on land) • Increased production of commercial timber, and contribution to downstream timber processing industries will contribute to SDG 8 (decent work and economic growth)
Investment Needs (US$)	Estimated capital investment needed: US$ 42,200,000

	Estimates of the cost of the support programme are based on personal communication and literature surveys, and include the following components: Managing the program, promoting A/R on community lands and strengthening enabling conditions: US$ 700,000 Enhance and manage 6 provincial nurseries and 6 seedbanks (cyclone prove), transportation of seedlings to planting sites: US$ 1,100,000 Site preparation and planting (12,500 ha * 2000 US$/ha): US$ 25,000,000 Management incl. tending, replacement planting, thinning (12,500 ha * 1200 US$/ha): US$ 15,000,000 • MRV including development: US$ 400.000
Potential Financing and Need for Financial Support and/or Financial Instruments	Conditionality: 80% Requested finance: US$ 33.520.000
Potential Supporting and Financing Partners / Sources	Management partners (assisting with access to finance):* • Project Planning, Development & Design: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN • Project Implementation & Management: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN, CIDCA Potential financing partners/sources:* • Credit Guarantee: GCF, ADB, Supplier EXIM Banks, EIB, WB/IFC • Debt and Loans: VADB, VRDB, ADB, EIB, WB/IFC, Agricultural development Fund (ADF) • Equity: Private sector companies • Non-Government Grants for investment: GEF, GCF, ADB, AU-DFAT, NZ-MFAT, WB/IFC, EIB, CIDCA, KOICA, EEAS • Grants for Technical Assistance & Capacity Building: GEF, GCF, AU-DFAT, NZ-MFAT, GIZ, CTCN, ADB, KOICA, UNDP, UNIDO, EEAS, WB/IFC **This is not a comprehensive list, as other entities are possible as well.*
Implementing and Supporting Entities / Stakeholders	Implementing Entity / Stakeholders: - Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity (MALFFB), Department of Forests; Coordination of planting, incl. procurement of seedlings, and coordination of tending of planted areas Supporting Entity / Stakeholders: - Ministry of Lands and Natural Resources (MoLNR), Lands Department; facilitate and manage lands related issues - Ministry of Climate Change, Department of Environment, advise in GHG-budgeting, environmental impact assessments, MRV)

	- Ministry of Finance and Economic Management; advise on economic and financial policy, provide advice and management of financial affairs - Ministry of Tourism, Trade, Commerce and Ni-Vanuatu Business (MTTCNVB); support with all issues affecting the local population - Department of Agriculture - Department of Biosecurity - Department of Environment - Department of Climate Change - Provincial Governments - National Advisory Board on Climate Change - Vanuatu Agricultural College - Vanuatu Agriculture Research & Training Center - Private sector Local communities
General timeline for Development, Financing, Implementation, and Operation	Time needed for development: 1 year Time needed for securing finance: 1 year - When will the project/investment start and end: 2026 to 2035
Policy / Plan Link	Key policies/Plans • Forest Policy 2013-2023 [C. Management of Planted Forest (C10), G. K. Climate Change Mitigation (K22), F. Land Use Planing (F16), G. Small-holder farmer and Community-Based Forestry (G17, G18), Q. Forest Development Financing (Q41)] • Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution 2021 – 2030 [AFOLU (M13), Forestry (A32)] • Vision 2030: National Sustainable Development Plan 2016 - 2030 [ENV4, NRM (4.6)] • National Biodiversity Strategy and Actin Plan 2018 - 2030 • National REDD+ Programme • Vanuatu Forest and Landscape Restoration Strategy 2020 – 2030 Relevant Policies/International Reporting • National Communications to the UNFCCC • Global Forest Resource Assessment: Country Report Vanuatu • National Forest Reference Level (REDD+, NFMS, NFIS)
Potential Business Model and Financing Strategy	Given the current strain on the MALFFB budget and the severely limited financial resources of the communities, this project would be dependent on external funding. However, the long-term investments in the forest

plantations and infrastructure could be financed through the sale of timber products for domestic consumption and export.

Due to the long period of time until pay-offs and the risks of biological production, A/R projects are only of limited interest to private investors. An alternative is AR projects related to the generation of CO_2 certificates, primarily for the voluntary market. There may well be private interest in financing here, but the special conditions of the private market must be taken into account.

Gaps & Barriers to Implementation, Including Proposed enabling mechanisms

Key gaps and barriers

- Land ownership with local communities
- Lack of up-front support payment for A/R and high initial costs of A/R
- Long-term investment, long fixation of the invested capital, long amortization periods
- Risks of biological production and investment failure
- Return on investment depends on growth rates of the location, the quality of timber produced, future timber prices and sales markets/export markets, and the development of the timber processing industry in Vanuatu, which are difficult to predict
- Lack of suitable financial model: when loans are granted to smallholders (farmers), short payback times and high interest rates usually make long-term investments less profitable
- Available capacities are limited (local knowledge, necessary infrastructure such as nurseries)

Enabling mechanism

- Capacity building
- Technical assistance
- Soft loans from banks and cooperatives (Forest Management Certificates, sawmill guarantee/Group guarantee as a collateral) to forest owners (farmers)
- Micro finance
- Establish link between small-forest holders, i.e. Communities/farmers and private sector (Bank, Forest Industry)- potential for blended finance
- Cross-sectoral coordination with larger national development strategies and land use plans
- One Map Policy: Land Use Planning including forestry activities in consultation with chiefs, landowners and communities.
- Free Prior Informed Consent of all rural stakeholders for and involved in (new) forestry projects/activities
- Defining carbon rights within the existing legal framework

	Identify what financial and non-financial incentives, disincentives can be used
Financial Sustainability	• The technical assistance and capacity building provided will help to implement A/R activities in a targeted manner. It will also help to increase the volume and attractiveness of financing products available for A/R by reducing the real and perceived risks associated with financing such long-term measures.
Enabling, Capacity Building and Technical Assistance Needs	Capacity building and technical assistance for project management, inventory, training, equipment Strengthening Vanuatu Agricultural College for providing national training =250,000 US$
Information and MRV Needs	• GIS/ remote sensing/ in-situ based assessment of potential A/R sites • Investment and implementation plan for each site • Community related information • Quality assurance measures after planting and during the rotation period Assessment (monitoring) of growing stock volume and wood quality before harvest
Supporting References	Vanuatu Low Emission Development Strategy (LEDS) 2023 Vanuatu's Revised and Enhanced 1st NDC Vanuatu Forest Policy 2013- 2023 Vanuatu National Sustainable Development Plan (NSDP) 2016-2030 Vanuatu Climate Change and Disaster Risk reduction Policy 2016-2030 Vanuatu NDC Implementation Roadmap Sustainable Forest Management Policy and REDD+ Programme/ strategy Grafton, R.Q., H.L. Chu, H. Nelson, G. Bonnis, 2021. A global analysis of forest carbon sequestration, OECD Environment Working Paper No. 185, Paris, France Haase, D.J., R. K. Dumroese, K. M. Wilkinson, T. D. Landis, 2016. Tropical Nursery Concepts and Practices, in: L. Pancel, M. Köhl (eds.), Tropical Forestry Handbook, Vol. 2, Springer, Heidelberg • Pancel, L., 2016. Basic Outline of Tree Plantations in the Tropics, in: L. Pancel, M. Köhl (eds.), Tropical Forestry Handbook, Vol. 2, Springer, Heidelberg

F2

No.	F2
Action Name	**Forest and Landscape Restoration**
Sub-Sector	**Forestry**
Description	Forest and Landscape Restoration (FLR)) aims to restore ecological processes at the landscape level. Biodiversity, ecosystem functions and resilience to environmental change are to be restored and improved. Human well-being is improved through the restoration of ecosystem services. The implementation of FLR takes place at the landscape level, so site-level decisions need to be made in a landscape context. FLR is a flexible process based on adaptive management that responds to social, economic and environmental changes. To be successful, FLR requires the commitments of all stakeholders, which is ensured through participatory processes. Last but not least, FLR requires an appropriate monitoring program as well as a suitable learning process. FLR restores the ecological functionality of a landscape. This concerns, for example, the richness as a habitat, the ability to contain erosion and flooding, or the resilience to climate change and various natural and human disturbances. The objectives of FLR can vary. One possible goal is to restore a state or "original" vegetation that was present before the (human) disturbance. However, other strategies can also be applied. Unstoppable developments such as climate change or rising sea levels can mean that an "original" state no longer fits the changed site conditions. FLR must therefore be geared towards future developments and conditions and must not unilaterally adhere to a historical state. FLR requires a high level of knowledge of ecological processes. Where this knowledge is lacking, it must be built up. This requires permanent observation networks and a high scientific level of specialist staff. Gaps that still exist must be closed. In Vanuatu's enhanced and revised 1st NDC, various activities in the forestry sector were mentioned that can be attributed to FLR. Soil and coastal erosion is to be prevented by restoring forest cover, (climate) sensitive ecosystems are to be surrounded by strips of forest to protect them, and the unique ecosystems of mangroves, wetlands and shoreline trees are to be protected and, where necessary, restored to as natural and resilient a state as possible. One of the first steps is to draw up an overview of the areas that need to be restored and select the areas where action is most urgent. The choice of restoration objectives on individual locations is to be determined in a participatory process involving experts and the local population, among others. Measures must be planned and initiated in line with the restorative objectives. Implementation usually requires personnel with different levels of expertise. The FLR areas must be monitored using a permanent monitoring system in order to be able to counter any unexpected developments. The

	involvement of local stakeholders must be ensured throughout the restoration process, which will take years.
Outcomes	Key primary outcomes • Strengthened enabling environment for FLR • Restored degraded land and forests through tree planting and sustainable forest management • Restored and increased protected areas in forested landscapes (including in water catchment reserves and riparian buffer zones) to protect soil and water values • Improved standard of living for rural communities and maximize socio-economic benefits from FLR • Secured human and financial resources for scaling up FLR in Vanuatu • Measured and shared FLR results and lessons Key secondary outcomes • Enhancement of biodiversity • Promotion of multiple sustainable forest functions • Increasing the quality of life of the local population
Mitigation / Adaptation Potential	An average 37,500 tCO_2/yr and a total of 375,000 tCO_2 (2025-2035) 240,000 rural people will directly benefit from this activity The mitigation potential is taken from the Vanuatu Forest and Landscape Restoration Strategy 2020-2030. It assumes restoration of 7,500 ha, which comprises of 2,000 ha assisted natural restoration outside protected areas, 5,000 ha assisted natural restoration inside protected areas, and 500 ha of mangrove restoration. A mitigation potential lower than that for afforestation/ reforestation is assumed to account for lower nutrient levels in degraded sites (10 $tCO_2ha^{-1}yr^{-1}$).
Co-benefits / SDG Linkages	Potential co-benefits of FLR in Vanuatu include: The expansion of habitat for native plants and wildlife would contribute to SDG 15 (life on land) Reduced flood and storm risk will contribute to SDG 3 (good health and well -being), SDG 11 (sustainable cities and communities), SDG 13 (climate action), and SDG 15 (life on land) Soil management and improvement would contribute to SDG 15 (life on land) Increased production of commercial timber, and contribution to downstream timber processing industries will contribute to SDG 8 (decent work and economic growth).

F2

Investment Needs (US$)	The cost framework was adopted from the Vanuatu Forest and Landscape Restoration Strategy 2020-2030 and the Enhanced and Revised 1st NDC. Prevent soil and costal erosion: US$ 4,200,000 Establish and manage buffer zones around climate sensitive ecosystems and enrichment planting: US$ 2,700,000 Restoration of mangrove forests, wetlands and shoreline trees: US$ 1,300,000
Potential Financing and Need for Financial Support and/or Financial Instruments	Total requested finance: US$ 6,170,000 Prevent soil and costal erosion: conditionality 60%, finance required US$ 2,500,000 Establish and manage buffer zones around climate sensitive ecosystems and enrichment planting: conditionality 90%, finance required US$ 2,500,000 Restoration of mangrove forests, wetlands and shoreline trees: conditionality 90%, finance required US$ 1,170,000
Potential Supporting and Financing Partners / Sources	Management partners (assisting with access to finance):* • Project Planning, Development & Design: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN • Project Implementation & Management: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN, CIDCA Potential financing partners/sources:* • Credit Guarantee: GCF, ADB, Supplier EXIM Banks, EIB, WB/IFC • Debt and Loans: VADB, VRDB, ADB, EIB, WB/IFC • Equity: Private sector companies • Non-Government Grants for investment: GEF, GCF, ADB, AU-DFAT, NZ-MFAT, WB/IFC, EIB, CIDCA, KOICA, EEAS • Grants for Technical Assistance & Capacity Building: GEF, GCF, AU-DFAT, NZ-MFAT, GIZ, *CTCN*, *ADB*, *KOICA*, *UNDP*, *UNIDO*, *EEAS*, *WB/IFC* **This is not a comprehensive list, as other entities are possible as well.*
Implementing and Supporting Entities / Stakeholders	Implementing Entity / Stakeholders: - Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity (MALFFB), Department of Forests; Coordination of planting, incl. procurement of seedlings, and coordination of tending of planted areas Supporting Entity / Stakeholders: - Ministry of Lands and Natural Resources (MoLNR), Lands Department; facilitate and manage lands related issues - Ministry of Climate Change, Department of Environment, advise in GHG-budgeting, environmental impact assessments, MRV) - Ministry of Finance and Economic Management; advise on economic and financial policy, provide advice and management of financial affairs - Ministry of Tourism, Trade, Commerce and Ni-Vanuatu Business (MTTCNVB); support with all issues affecting the local population

	- Department of Agriculture - Department of Biosecurity - Department of Environment - Provincial Governments - National Advisory Board on Climate Change - Vanuatu Agricultural College - Vanuatu Agriculture Research & Training Center - Private sector - Local communities
General timeline for Development, Financing, Implementation, and Operation	Time needed for development: 1 year Time needed for securing finance: 1 year When will the project/investment start and end: 2026 to 2035
Policy / Plan Link	Key policies/Plans [linkages] • Vanuatu Forest and Landscape Restoration Strategy 2020 – 2030 • Forest Policy 2013-2023 [J. Climate Adaptation (J21), F. Land Use Planning (F16), G. Small-holder farmer and Community-Based Forestry (G17, G18)] • Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution 2021 – 2030 [Forestry (A34, A35)] • Vision 2030: National Sustainable Development Plan 2016 to 2030 [ENV4, NRM (4.6)] • National Biodiversity Strategy and Actin Plan 2018 - 2030 [6.2 (FIW1), 6.2 (FIW3)] • National REDD+ Programme • National Communication to the UNFCCC • Global Forest Resource Assessment: Country Report Vanuatu • National Forest Reference Level
Potential Business Model and Financing Strategy	Given the current strain on the MALFFB budget and the severely limited financial resources of the communities, this project would be dependent on external subsidies. However, the long-term investments in the forest plantations and infrastructure could be financed through the sale of timber products for domestic consumption and export. Due to the long period of time until pay-offs and the risks of biological production, AR projects are only of limited interest to private investors. An alternative is AR projects related to the generation of CO_2 certificates, primarily for the voluntary market. There may well be private interest in financing here, but the special conditions of the private market must be taken into account.

Gaps & Barriers to Implementation, Including Proposed enabling mechanisms

Key gaps and barriers

- Ongoing disputes and a lack of certainty and security over ownership, boundaries and use of the land
- Coordination and collaboration between different land use and stakeholders (Forestry, Agriculture)
- Capacity development of stakeholders (planning, implementing, M&E): government (human resources at national and provincial levels), local communities, NGOs and CVOs, private sectors, faith-based organizations, and major groups (youth, women, farmers)
- Legal framework: Payment for Ecosystem Services, Involvement of Private Sector, Benefit Sharing System
- Quality planting materials (seed and seedlings) of priority tree species, i.e., sandalwood (*Santalum austrocaledonicum*), whitewood (*Endospermum medullosum*), Nangai (*Canarium indicum*), natopa (*Terminalia catappa*) and mahogany (*Swietenia macrophylla*) and other preferred timber species

Enabling mechanism

- Cross-sectoral coordination with larger national development strategies and land use plans
- One Map Policy: Land Use Planning including forestry activities in consultation with chiefs, landowners and communities
- Regulations on Payment for Ecosystem Services; Benefit Sharing System
- Free Prior Informed Consent (FPIC) of all rural stakeholders for and involved in (new) forestry projects/activities
- Well defined benefit sharing mechanism (mitigation and adaptation benefits, water, biodiversity, tourism)
- Stakeholder Consultation Guideline
- Rehabilitation of leased and degraded customary land:
  - Land acquisition (acquire existing expired and/or degraded agricultural leases)
  - Redistribute the lands to small-holders
- FLR Monitoring and Evaluation Framework
- Introduce and promote climate change resilient tree species and varieties (see Project below)

Financial Sustainability

Forest Landscape Restoration activities are less attractive to investors than afforestation/ reforestation or agroforestry. This is because the costs per hectare are generally higher and the profit prospects are poorer. In addition, the risks and expected returns are difficult for investors to assess. Sustainable financing must therefore limit the higher risks and costs. This can be achieved through mixed financing models, government default guarantees or subsidies. Another option is to pool income from other activities such as REDD+, PES or tourism.

F2

Enabling, Capacity Building and Technical Assistance Needs	Capacity building & technical assistance for planning and implementing restoration measures, tree selection, technics to remove invasive species on restoration sites
Information and MRV Needs	• GIS/ remote sensing/ in-situ based assessment of potential AR sites • Investment and implementation plan for each restoration activity • Community related information • Quality assurance measures after planting and during the restoration period
Supporting References	Vanuatu Low Emission Development Strategy (LEDS) 2023 Vanuatu's Revised and Enhanced 1st NDC Vanuatu Forest Policy 2013- 2023 Vanuatu National Sustainable Development Plan (NSDP) 2016-2030 Vanuatu Climate Change and Disaster Risk reduction Policy 2016-2030 Vanuatu NDC Implementation Roadmap Sustainable Forest Management Policy and REDD+ Programme/ strategy

F3

No.	F3
Action Name	**Agroforestry**
Sub-Sector	**Forestry**
Description	Agroforestry combines agriculture and forestry and describes land use systems in which perennial woody plants (trees, shrubs, palms, bamboo, etc.) and agricultural crops and/or animals are cultivated on the same land management units. This can be done in a spatial arrangement or temporal sequence. By integrating trees into the agricultural landscape, agroforestry diversifies and increases the social, economic and environmental benefits for land users. The trees covered by agroforestry include cocoa, coffee, rubber and oil palms. Agroforestry tries to balance various needs: 1) to produce trees for timber and other commercial purposes 2) to produce a supply of nutritious foods 3) to ensure the protection of the natural environment 4) to sequester carbon from the atmosphere by tree growth 5) build soil organic matter and thus soil carbon Agroforestry can be implemented in several ways: ***Agrosylvicultural systems*** refer to the use of land for the production of agricultural and forestry crops, either simultaneously or alternately by e.g. intercropping. ***Silvopastoral systems*** combine forestry activities with livestock grazing. When converting grassland to silvopastoral systems, additional carbon is sequestered in trees. The dual use of land increases overall revenue per hectare and may improve livestock productivity. ***Agrosilvopastoral system***s are the combination of agrosilvicultural and silvopastoral systems. ***Windbreaks*** are linear plantings of trees and shrubs designed to provide economic, environmental and community benefits. The primary purpose is to slow the wind which creates a more beneficial condition for soils, crops, livestock, wildlife and people. Planning agroforestry systems involves deciding what to produce, selecting the components of the system, determining their arrangement, and deciding when and how the system components will be established and managed. Scientific and technical expertise must be brought together with local knowledge and needs. To find the optimal agroforestry system for a community, participatory processes should be used to ensure that those involved in agriculture, decision-makers and other community members (e.g. youth) are involved. The aim of this process is to identify suitable agroforestry options and select appropriate, compatible species, taking into

account aspects such as soil type, microclimate, multifunctionality and harvesting. The products produced should have a high market potential or other important uses for the farmer.

The assessment of the costs, benefits and market potential of agroforestry systems must be made against the background of the availability of resources such as land, labor, technology and capital. The needs and priorities of landowners (e.g. whether the products are intended for own consumption or for sale on the market) and the provision of environmental services also play a decisive role.

The establishment of agroforestry systems initially involves preparation of the agroforestry site (e.g. preparation of planting holes for the seedlings, weeding, clearing, terracing, fencing, irrigation and fertilization) and the procurement of planting material. After planting, the newly established sites need to be cared for, which includes work such as replacement planting, weed control and protection of the newly planted trees. Management and monitoring includes the implementation of all management activities (e.g. seedling protection, weed and pest control, animal browsing, fertilization, irrigation, thinning, pruning, coppicing, harvesting, post-harvest), monitoring of the system (performance of agroforestry systems in terms of productivity, environmental and social outcomes, and the impact of external factors such as markets) and adjustments to the system over time. Planning the marketing of the products produced is another key element of agroforestry, where the products generated by the system are converted into income.

Vanuatu has an estimated 11,500 hectares of grasslands. Switching to a silvopastoral system could sequester 2.7 tCO_2e/ha. The mitigation effect of windbreaks cannot be clearly quantified. However, they contribute significantly to the success of agroforestry systems by preventing damage to crops, e.g. storm damage or drying out due to wind. They also bind atmospheric carbon through their biomass production. It is recommended to carry out accompanying studies on windbreaks, which can contribute to the improvement of tree species and the management of windbreaks.

Outcomes	• Improvement of food production • Diversify income sources for farmers • Provide environmental benefits by enhancing biodiversity, reduce erosion and improve air, water, and soil quality • Integrate indigenous knowledge • Sequester atmospheric carbon by tree growth and building up soil carbon
Mitigation / Adaptation Potential	According to UNDP (2020) an average of 31 mio. tCO_2/yr and a total of 310 mio. tCO_2 (2025-2035) can be expected from implementing agroforestry in Vanuatu.
Co-benefits / SDG Linkages	Potential co-benefits of agroforestry in Vanuatu include:

	Improved agricultural production will contribute to SDG1 (no poverty), SDG 2 (no hunger), SDG 3 (good health and well -being), SDG 11 (sustainable cities and communities), SDG 13 (climate action), and SDG 15 (life on land) The expansion of habitat for native plants and wildlife would contribute to SDG 15 (life on land) Soil management and improvement would contribute to SDG 15 (life on land) Increased production of commercial timber, and contribution to downstream timber processing industries will contribute to SDG 8 (decent work and economic growth).
Investment Needs (US$)	Estimated capital investment needed amounts to US$ 32,600,000 and is divided between the activities as follows Agroforestry: US$31,000,000 Windbreaks: US$ 1,600,000 The investment needs have been assessed in consulting Vanuatu's Enhanced and Revised 1st NDC, as verified by respective reports and literature sources.
Potential Financing and Need for Financial Support and/or Financial Instruments	Total requested finance: US$ 19,720,000 Agroforestry: conditionality 60%, finance required US$ 18,600,000 Windbreaks: conditionality 70%, finance required US$ 1,120,000
Potential Supporting and Financing Partners / Sources	**Management partners (assisting with access to finance):*** • Project Planning, Development & Design: CIFOR-ICRAF, CGAIR, UNDP, UNIDO, GIZ, GGGI, NDC-Hub • Project Implementation & Management: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN, CIDCA **Potential financing partners/sources:*** • Credit Guarantee: GCF, ADB, Supplier EXIM Banks, EIB, WB/IFC • Debt and Loans: VADB, VRDB, ADB, EIB, WB/IFC • Equity: private sector companies • Non-Government Grants for investment: GEF, GCF, ADB, AU-DFAT, NZ-MFAT, WB/IFC, EIB, CIDCA, KOICA, EEAS • Grants for Technical Assistance & Capacity Building: GEF, GCF, AU-DFAT, NZ-MFAT, GIZ, *CTCN*, *ADB*, *KOICA*, *UNDP*, *UNIDO*, *EEAS*, *WB/IFC* **This is not a comprehensive list, as other entities are possible as well.*
Implementing and Supporting Entities / Stakeholders	Implementing Entity / Stakeholders: • Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity (MALFFB), Department of Forests; Coordination of planting, incl. procurement of seedlings, and coordination of tending of planted areas

Supporting Entity/ Stakeholders

- Ministry of Lands and Natural Resources (MoLNR), Lands Department; facilitate and manage lands related issues
- Ministry of Climate Change, Department of Environment, advise in GHG-budgeting, environmental impact assessments, MRV)
- Ministry of Finance and Economic Management; advise on economic and financial policy, provide advice and management of financial affairs
- Ministry of Tourism, Trade, Commerce and Ni-Vanuatu Business (MTTCNVB); support with all issues affecting the local population
- Department of Agriculture
- Department of Livestock
- Department of Biosecurity
- Department of Environment
- Vanuatu Primary Producers' Authority
- Provincial Governments
- National Advisory Board on Climate Change
- Vanuatu Agricultural College
- VANAUTA Agriculture Research & Training Center
- Farmers
- Private sector
- Communities

General timeline for Development, Financing, Implementation, and Operation

Time needed for development: 1 year

Time needed for securing finance: 1,5 years

When will the project/investment start and end: 2026 to 2035

Policy / Plan Link

Key policies/Plans [linkages]

- Forest Policy 2013-2023 [J. Climate Adaptation (J21), G. Small-holder farmer and Community-Based Forestry (G18), Q. Forest Development Financing (Q41), S. Forestry as a Source of Income (S45)]
- Agriculture Sector Policy 2015-2030 (2.2.3)
- Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution 2021 – 2030 [Forestry (A25)]
- Vision 2030: National Sustainable Development Plan 2016 to 2030
- Vanuatu Forest and Landscape Restoration Strategy 2020 – 2030
- National Livestock Policy 2015-2030

Relevant Policies/International Reporting

- National Biodiversity Strategy and Action Plan 2018 - 2030
- National Communications to the UNFCCC
- Vanuatu Climate Change and Disaster Risk Reduction Policy 2016 - 2030
- Vanuatu Infrastructure Strategic Investment Plan 2015-2024

- National Sustainable Development Plan 2016 to 2030
- Meteorology, Geological Hazards and Climate Change Act 2016

Potential Business Model and Financing Strategy

Given the current strain on the MALFFB budget and the severely limited financial resources of the communities, this project would be dependent on external subsidies.

Improving revenue from livestock farming could attract private investments. However, low margins and increased GHG emissions by intensifying livestock farming need to be considered.

Gaps & Barriers to Implementation, Including Proposed enabling mechanisms

Key gaps and barriers

- Lack of up-front support payment for Agroforestry
- Lack of suitable financial model: when loans are granted to farmers, they usually have a short payback time and high interest rates making long-term investments less profitable
- Except for a few products, e.g. kava, kapra, cocoa, value chains for non-timber agroforestry products are poorly developed (for example, products from indigenous trees)
- Limited engagement of larger commercial actors who requires larger amount of products
- Inadequate extension programs to promote agroforestry
- Insufficient extension services for Agroforestry models
- Limited research – Productivity (including economic viability) and land use suitability for different agroforestry practices/models
- Dearth of research in the scale-up process

Enabling mechanism

- Improving access to credit by e.g. pooled resources from agriculture sector (e.g., NDC-A7, Subsidies for small scale producers- agriculture, forestry), payment for Ecosystem Services, resources from REDD+ payments
- Priority domestication of indigenous trees
- Develop and clarify the roles and responsibilities of different institutions/actors for agroforestry
- Strengthen the agroforestry capacity of national extension services, combined with the use of new technologies such as drones and mobile phones
- Farmer-to-farmer extension service (horizontal extension)
- Improve and secure tenure rights on land and trees
- Defining carbon rights within the existing legal framework
- Establish forest farmer associations, agricultural cooperatives
- Improve farmer access to markets: market information system, promoting value chains for agroforestry products and services

Financial Sustainability	Financing for agroforestry projects can involve the creation and development of entirely new financing mechanisms and instruments (e.g. debt-for-nature swaps) or the adaptation and application of established financial instruments (e.g. bonds, investment funds). The advantage of adapting existing financial instruments is that the perceived risks of investing in this area are reduced, as private sector investors (as well as public and multilateral donors) are already familiar with these market-tested instruments and know how to use them. Blended finance instruments offer public financing institutions the opportunity to leverage and multiply capital flowing into sustainable forestry. Well-known approaches practiced in the past include the use of public funds to support forest conservation programs or to build the regulatory capacity of forestry ministries. In the future, public funds should increasingly be used to channel private sector investment into sustainable agroforestry operations. Agroforestry has the advantage over pure forestry projects that the agricultural products lead to a return on investment after a short period of time. This buffers the long-term nature of investment activity in forestry projects and makes the sector attractive to investors and competitive with other asset classes.
Enabling, Capacity Building and Technical Assistance Needs	Capacity building & technical assistance for • Project management, inventory, training, equipment • Stakeholder consultation process • Management and monitoring • Marketing of the products (selecting target markets, adding value to products, getting products to prospective buyers, setting the price, and promoting the products) • Policy review on development • Legislative review on development • Access to farmlands • Access to bank credits • Accompanying studies on windbreaks, including tree species, structure of windbreaks (height, width, length, spatial composition), management, efficiency • Provide seedlings of high value timber species and sandalwood plantations.
Information and MRV Needs	• GIS/ remote sensing/ in-situ based assessment of potential agroforestry sites • Investment and implementation plan for each site • Community related information

F3

Supporting References	Vanuatu Low Emission Development Strategy (LEDS) 2023 Vanuatu's Revised and Enhanced 1st NDC Vanuatu Forest Policy 2013- 2023 Vanuatu Agriculture Sector Policy 2015 – 2030 National Livestock Policy 2015-2013 Vanuatu National Sustainable Development Plan (NSDP) 2016-2030 Vanuatu Climate Change and Disaster Risk reduction Policy 2016-2030 Vanuatu NDC Implementation Roadmap UNDP Enhancing and Fast-tracking Implementation of Vanuatu's Nationally Determined Contribution (NDC) 2020 MacFarlane, D., Shelton, M. 1986. Pastures in Vanuatu, Dept. of Agriculture, Univ. of Queensland, Australia, ACIAR Technical Report Series No. 2, 32 p. https://www.worldagroforestry.org/about/agroforestry

F4

No.	F4
Action Name	**Improved sustainable forest management in plantation forests**
Sub-Sector	**Forestry**
Description	Improved sustainable forest management (ISFM) includes measures such as extending the rotation period, specify the minimum size of trees to be harvested, improving the productivity of the forest or soil, leaving some of the increment (trees in the growth phase) that could be harvested under normal forest management, or reducing the impact of timber harvesting by reduced impact logging (RIL). SFM involves recording the condition of the forest (forest inventory) and monitoring the measures implemented in the previous forest management period. Furthermore, the cutting rate is determined for the following years and the operational and silvicultural objectives are planned. In addition to monitoring and controlling the sustainability of timber use, the multifunctionality of forestry services such as forest nature conservation, water, soil, and climate protection and the recreational function of the forest are also analyzed and taken into account in the planning. In the course of the forest inventory, the ownership structure, boundaries and area sizes, tree species composition, tree heights and diameters, timber stock, soil condition, water balance and forest functions are recorded and used to determine, among other things, the increment and the amount of timber that can be used sustainably. The proportion of dead wood, tree diseases, the presence of regeneration and damages (by e.g. game, cyclones, invasive species) are also assessed. The forest inventory is the fundament of a forest management plan, which forms the basis for practical work in forestry operations. Sustainable forest management in Vanuatu will be improved by incorporating forest planning principles into the management of artificially established stands. This is of particular importance in view of the planned future efforts for reforestation, afforestation and forest restoration. Improved forestry planning serves to increase timber production and thus also the sequestration of atmospheric carbon through forest growth. This can significantly increase the contribution of SFM as a mitigating activity. At the same time, the other non-timber functions of forests are strengthened. The production of marketable raw wood qualities promotes the use of wood in wood products and thus an increase in the HWP C pool as a further mitigation activity. As part of this NDC activity, a comprehensive survey of the managed forest stands is to be carried out. These surveys also include tree-ring analyses for the retrospective determination of increment data. Based on the information collected, management plans will be drawn up to enable sustainable management in line with operational objectives. This includes planning for replacing *Cordia alliodora* which was intensively planted in the past by other

	tree species. A key component of this NDC activity is training and capacity development as well as participation of local communities.
Outcomes	• Integrity of forest ecosystems is maintained • Negotiation processes, platforms and mechanisms for conflict solving are effective, efficient and legitimate • Land and resource right of local communities are respected • Workers are aware of sustainable management needs and goals • A fair distribution of benefits derived from forest management is discussed and accepted among concerned parties • The code of logging practice is consistently applied and adhered to • Forest managers seek to improve operational efficiency, protect the environment, and maintain biodiversity • Effective control of access and proper uses of allowed resources by corresponding institutions exist • A pool of trained personnel for RIL is established
Mitigation / Adaptation Potential	Mitigation potential of *existing and newly established tree plantations*: 120,000 tCO_2 to 240,000 tCO_2 annually or a total of 1,200,000 tCO_2 to 2,400,000 tCO_2 over 10 years Additional mitigation potential by *improved SFM*: 12,000 tCO_2 to 24,000 tCO_2 annually and a total of 120,000 tCO_2 to 240,000 tCO_2 over 10 years Vanuatu has a plantation area of 2910 ha and the National Forest Policy aim is to establish 20,000ha of plantations in Vanuatu over the next 20 years (Dept. of Forests, 2020). In addition, small-scale farmers also established plantations but the area cannot be accurately measured due to the small scale and scattered nature of the plantations. Depending on the annual timber growth per ha this would lead to an average annual timber volume growth over a 20 year period between 130,000 m^3 (anticipated growth 10 m^3/ha yr) and 260,000 m^3 (anticipated growth 20 m^3/ha yr). Assuming a wood density of 500kg/m^3 this results in an estimated annual mitigation potential of 120,000 tCO_2 to 240,000 tCO_2 annually. Increasing timber production by a conservative rate of 10% would result in additional C-removals of 12,000 tCO_2 to 24,000 tCO_2 annually.
Co-benefits / SDG Linkages	Consideration of the interests of the local population contributes to SDG 11 (sustainable cities and communities) The alignment of timber harvesting volumes with local site conditions promotes SDG 13 (climate action) and SDG 15 (life on land) Increased production of commercial timber will contribute to SDG 8 (decent work and economic growth).
Investment Needs (US$)	Estimated capital investment needed: US$ 1,500,000
Potential Financing and Need for Financial Support and/or Financial Instruments	Required funding: Conditionality 100%, 1,500,000 US$

Potential Supporting and Financing Partners / Sources	**Management partners (assisting with access to finance):*** • Project Planning, Development & Design: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN • Project Implementation & Management: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN, CIDCA **Potential financing partners/sources:*** Non-Government Grants for investment: GEF, GCF, ADB, AU-DFAT, NZ-MFAT, WB/IFC, EIB, CIDCA, KOICA, EEAS Grants for Technical Assistance & Capacity Building: GEF, GCF, AU-DFAT, NZ-MFAT, GIZ, *CTCN, ADB, KOICA, UNDP, UNIDO, EEAS, WB/IFC* **This is not a comprehensive list, as other entities are possible as well.*
Implementing and Supporting Entities / Stakeholders	Implementing Entity / Stakeholders: • Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity (MALFFB), Department of Forests; Coordination of planting, incl. procurement of seedlings, and coordination of tending of planted areas Supporting Entity / Stakeholders: • Ministry of Lands and Natural Resources (MoLNR), Lands Department; facilitate and manage lands related issues • Ministry of Climate Change, Department of Environment, advise in GHG-budgeting, environmental impact assessments, MRV) • Ministry of Finance and Economic Management; advise on economic and financial policy, provide advice and management of financial affairs • Ministry of Tourism, Trade, Commerce and Ni-Vanuatu Business (MTTCNVB); support with all issues affecting the local population • Department of Agriculture • Department of Biosecurity • Department of Environment • Department of Climate Change • Provincial Governments • National Advisory Board on Climate Change • Vanuatu Agricultural College • Vanuatu Agriculture Research & Training Center • Private sector • Local communities
General timeline for Development, Financing, Implementation, and Operation	Time needed for development: 1 year Time needed for securing finance: 1 year When will the project/investment start and end: 2026 to 2035
Policy / Plan Link	Key policies/Plans [linkages] • Forest Policy 2013-2023 [A. Forest Assessment (A1), B. Management of Natural Forest (B2, B3, B5, B6), K. Climate Change Mitigation (K22), E. Wetlands, Coastal Areas and Mangrove Forests (E15), F. Land Use

	Planning (F16), G. Small-holder farmer and Community-Based Forestry (G17)] • Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution 2021 – 2030 [AFOLU (M13, M14), Forestry pp11, (A29, A30, A31)] • Vision 2030: National Sustainable Development Plan 2016 to 2030 [ENV4, NRM (4.2, 4.6, 4.7)] • Code of Logging Practice 1998 • National REDD+ Programme • National Biodiversity Strategy and Actin Plan 2018 - 2030 [6.2 (FIW1)] • Vanuatu Forest and Landscape Restoration Strategy 2020 – 2030 Relevant Policies/International Reporting • National Communication to the UNFCCC • Global Forest Resource Assessment: Country Report Vanuatu • National Forest Reference Level (REDD+, NFMS, NFIS) • Low Emission Development Strategies and Plans
Potential Business Model and Financing Strategy	The development of improved SFM must take place in parallel with traditional plantation management. As the additional monetary profits cannot be directly allocated to the activity, the activity is not suitable for financing by private investors. Rather, private initiatives should be attracted for afforestation, reforestation and forest restoration activities. The activity is to be promoted primarily with public funds.
Gaps & Barriers to Implementation, Including Proposed enabling mechanisms	• Limited/ Inadequate forest management capacity (financial, institutional, human, technical, logistics) • Data: growing stock, growth and yield; timber harvesting, AAH; tree species diversity) • Lack of forest management plans • Forest mapping (Designated functions- Production, Conservation, Special Use) • Threats/ damages due to invasive species, grazing and cyclones • High opportunity costs: Customary landowners are converting their logged forest areas for other activities, like commercial cattle ranching, or in coastland lowland areas for real estate development (Efate and east Santo) • Timber extraction is more difficult due to lack of transport infrastructure and equipment • Increased and concentrated fuelwood need

	• Uncertainty in forest recovery after eliminating invasive species
Financial Sustainability	The technical assistance and capacity building provided will help to increase the volume and attractiveness of financing products produced by plantation forestry and reduce the real and perceived risks associated with financing such long-term measures. Investments in projects that aim to intensify SFM require financing instruments that reduce the investment risks for private (institutional) investors. These could be mixed financing models or funds that spread the risks between different investment objects.
Enabling, Capacity Building and Technical Assistance Needs	• Policy coherence across land use sector (Forestry, Agriculture/Livestock, Settlement) • One Map Policy: Land Use Planning • Moratorium on natural forest conversion • Enhanced NFIS (see next project) • Develop Timber Legality Assurance System/Log Tracking System • Defining Carbon rights within the existing legal framework • Dedicated Forestry Research and Training Center under the Department of Forest
Information and MRV Needs	• In-situ based assessment of plantation sites • Tree-ring analysis and growth assessment • Community related information and participation process • Preparation of a management plan with recommendations for thinning, harvesting measures and regeneration • In-situ assessments after end of planning period for control and further planning
Supporting References	Vanuatu Code of Logging Practice Vanuatu's National Forest Reference [2008 – 2017] Vanuatu National Forest Policy Department of Forests, 2000. Vanuatu country report, Heads of Forestry Meeting, Nadi, Fiji, 8-12 May 2000, Vanuatu, p. 21. https://malffb.gov.vu/index.php/department/forestry.html Pancel, L., M. Köhl (eds.) 2016. Forest Resources Planning in: Tropical Forestry Handbook, Vol. 3, Springer, Heidelberg

F5

No.	F5
Action Name	**National Forest Information System**
Sub-Sector	**Forestry**
Description	National forest information systems (NFIS) are comprehensive databases that contain valuable information about the country's forests, including data related to forest cover, species composition, ownership, management practices, and ecological conditions. These systems provide a wealth of information that can help forest managers and policymakers in making informed decisions regarding forest conservation, ecosystem restoration, and sustainable use of forest resources. Forest inventory is a major data source for NFISs. They systematic collect data on the forestry resources within a the national forest area. When forest inventories are carried out on successive occasions they provide information on both, current states and forest change. This is particularly necessary if information on the development of the growing stock and past wood utilization is to be provided for estimating sustainable wood production and changes in the C-storage of the forests. In Vanuatu national forest inventories were carried out in 1989 and 2019 to 2022. On their basis, a follow-up inventory system is developed that meets current requirements. In particular, the following methodological adjustments must be implemented for this purpose: • Survey of current information requirements and further development of the inventory system to address them • Statistical concept for linking earth observation data and field surveys for cost-efficient recording of condition and changes. This also includes update approaches that enable annual reporting without annual field surveys • Revision of the field instructions to take account of new information requirements • Development of an information system to integrate various data sources and provide user-friendly, online-based information • Education and training of staff, in particular with regard to the satellite image analysis, GIS, databases, inventory statistics, reporting, quality control, field surveys • Data collection (field surveys, satellite data analysis, quality control, training) • Data evaluation and reporting The overarching goal of this activity is to provide a national forest information system that provides targeted information for various application areas and user groups.

F5

Outcomes	• An information system that integrates various forest and forestry data sources and provide user-friendly, online-based information • The current information requirements for the forest inventory are known • The inventory concept allows the combination of satellite and in-situ data to estimate the current state and changes • The equipment and infrastructure for carrying out the inventory has been procured and is operational • The staff is trained and has the skills to carry out the various tasks independently • The satellite and in-situ data has been obtained and is ready for evaluation • The data has been evaluated, a report presenting the condition of and changes in the forest in accordance with the required information requirements has been prepared, *quality assurance has been completed and documented*
Mitigation / Adaptation Potential	The mitigation and adaptation potential of this activity cannot be directly assessed. However, the activity is an essential prerequisite for controlling emissions and the storage function of Vanuatu's natural and managed forests and thus a cornerstone of national climate policy and greenhouse gas reporting.
Co-benefits / SDG Linkages	This activity generates additional benefits in the form of providing information to assess the progress towards sustainable forest management in Vanuatu and enabling international reporting. By monitoring Vanuatu's forests the maintenance and enhancement of C-sinks, biodiversity, health, vitality, and provision of multiple forest functions is reviewed. The activity will have SDG-linkages with respect to SDG 13 Climate action and SDG 15 Life on land
Investment Needs (US$)	7,000,000 US$ Estimated capital investment needed: US$ 500,000 Estimated development costs: US$ 1,000,000 Enabling, Capacity Building and Technical Assistance: US$ 750,000 US$ Assessments: US$ 4,750,000
Potential Financing and Need for Financial Support and/or Financial Instruments	Requested Funding: Conditionality 100%, 7,000,000 US$
Potential Supporting and Financing Partners / Sources	Scientific partners:* • International Union of Forest Research Organizations, Vienna, Austria • European Space Agency

- NASA, US Geological Service
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- New Zealand Forest Research Institute (Scion)

Management partners (assisting with access to finance):*

- Project Planning, Development & Design: UNFAO, GIZ, GGGI, NDC-Hub
- Project Implementation & Management: UNFAO, GIZ, GGGI, NDC-Hub, CIDCA

Potential financing partners/sources:*

- Credit Guarantee: GCF, EIB, WB/IFC
- Debt and Loans: VADB, VRDB, ADB, EIB, WB/IFC
- Equity: private sector companies
- Non-Government Grants for investment: GEF, GCF, ADB, AU-DFAT, NZ-MFAT, WB/IFC, EIB, CIDCA, KOICA, EEAS
- Grants for Technical Assistance & Capacity Building: GEF, GCF, AU-DFAT, NZ-MFAT, GIZ, CTCN, ADB, KOICA, UNDP, UNIDO, EEAS, WB/IFC

**This is not a comprehensive list, as other entities are possible as well.*

Implementing and Supporting Entities / Stakeholders	Implementing Entity / Stakeholders: • Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity (MALFFB), Department of Forests; Coordination of planting, incl. procurement of seedlings, and coordination of tending of planted areas Supporting Entity/ Stakeholders • Ministry of Lands and Natural Resources (MoLNR), Lands Department; facilitate and manage lands related issues • Ministry of Climate Change, Department of Environment, advise in GHG-budgeting, environmental impact assessments, MRV) • Ministry of Finance and Economic Management; advise on economic and financial policy, provide advice and management of financial affairs • Ministry of Tourism, Trade, Commerce and Ni-Vanuatu Business (MTTCNVB); support with all issues affecting the local population • Department of Agriculture • Department of Biosecurity • Department of Environment • Provincial Governments • National Advisory Board on Climate Change • Vanuatu Agricultural College • Vanuatu Agriculture Research & Training Center
General timeline for Development, Financing, Implementation, and Operation	*Time needed for development: 3 years* *Time needed for securing finance: 0.5 year* *When will the project/investment start and end: 2025-2035*
Policy / Plan Link	Key policies/Plans

- Forest Policy 2013-2023 [A. Forest Assessment (A1), B. Management of Natural Forest (B2) B5), K. Climate Change Mitigation (K22)]
- National REDD+ Programme
- Global Forest Resource Assessment: Country Report Vanuatu
- National Forest Reference Level
- Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution 2021 – 2030 [Forestry (A27)]
- National Communications to the UNFCCC
- Vanuatu Forest and Landscape Restoration Strategy 2020 – 2030
- Code of Logging Practice 1998
- National Biodiversity Strategy and Actin Plan 2018 - 2030

Relevant Policies/International Reporting

- FAO Global Forest Resources Assessment
- IPCC secretariat

Potential Business Model and Financing Strategy

Forest inventories do not represent a business case per se. However, the information that is entered into forest information systems can have a market value. For example, information on future timber volumes can represent important planning parameters for capacity planning and thus investments. However, this value should not be capitalized on the market, as the timber market in Vanuatu is still developing and information should therefore be freely available to all market participants.

Gaps & Barriers to Implementation, Including Proposed enabling mechanisms

Key gaps and barriers

- Harmonization and calibration of existing data/sources (National Communications, REDD+ Forest Reference Level, FAO-FRA Country Report)
- Data on growing stock, forest growth and yield
- Quantification of removals from natural forest (Forest Land remaining Forest Land)
- Data on forest degradation and associated forest carbon emissions
- Data on emission factors/carbon pools, e.g., SOC stock, changes in SOC, and other Land Use (Crop Land, Grass Land)
- Scattered islands- distance between northern- and southernmost islands is about 1300 km, 86 different islands, logistical challenges for wall-to-wall survey/monitoring
- Cyclone-prone areas
- Laboratory facilities (GIS/RS lab for activity data; soil, wood, litter samples- testing and analysis)
- Trained and permanent available workforce
- Availability of capacities, equipment and tools

	• A system for institutional and technical memory of entire NFIS processes development and implementation Enabling mechanism • NFIS beyond REDD+ NFMS and inclusion of Timber Tracking System, Community Based Forest Monitoring, and other existing monitoring systems • Information on afforestation and reforestation (location, area, year, tree species) established by industry and farmers • Provide industry and public with updated resource data for planning and development purposes
Financial Sustainability	Since no marketable demand can arise from the inventory, no sustainable financing is possible from the inventory. Similarly, the information system should not be used to generate profits, as the information should be accessible free of financial claims. In addition, forest monitoring should be seen as a task for the common good that is financed through taxes. This activity is therefore dependent on cross-financing. At a later stage, when a functioning timber market has been established, a levy could be collected for the forest inventory, for example from the sale of timber. Similarly, there is a high potential for the acquisition of resources from REDD+, CBD and other sources.
Enabling, Capacity Building and Technical Assistance Needs	Listing of Enabling, Capacity Building and Technical Assistance needs: • Training, incl. training abroad (US$ 750,000) • Consultation on inventory methods (US$ 500,000) • Consultation on data analysis, reporting and information management (US$ 500,000)
Information and MRV Needs	The financial sustainability of a forest information system must be ensured by the public sector in order to guarantee its independence and its focus on promoting the common good.
Supporting References	Baldwin, P.J, A.J. Mathias, D.J. Wood, J.A. Bellamy, J.K. Vanclay, 1992. Vanuatu National Forest Inventory, in G. Wood, B. Turner (eds.): Integrating forest information over space and time, IUFRO Conference 1992, Canberra, Australia Nationally Determined Contributions (NDC) Implementation Roadmap 2019 Pancel, L., Köhl, M., 2016: Tropical Forestry Handbook, Vol. 1 – Vol. IV, Springer, Heidelberg, 3633 p Köhl, M., S. Magnussen, M. Marchetti, 2006: Sampling Methods, Remote Sensing and GIS Multiresource Forest Inventory, Springer Verlag, Heidelberg, 403 p.

F6

No.	F6
Action Name	**Piloting sustainable timber value chains**
Sub-Sector	**Forestry**
Description	The timber value chain is a network of processes and players that bring wood products from forest to consumer. It involves everything from wood production and logging in forests to transportation, manufacturing and distribution to customers. Value chains place the use of the renewable raw material wood in an environmentally and climate-friendly context: atmospheric carbon is stored in wood through forest growth and shifted from the forest into wood products through wood harvesting and manufacturing. The production of wood-based materials consumes less energy and therefore generates fewer CO_2 emissions than needed for comparable non-wood products such as steel, cement or plastic. At at the end of their lifetime wood products can be converted into other products (cascade use) or used to generate fossil-free energy. The aim of this project is to initiate a pilot study to demonstrate the advantages and feasibility of timber supply chains. This is to be done with various modules: Module 1: timer scaling and grading. A classification system for harvested timber will be designed that allows sorting into commercial classes based on timber characteristics (e.g. dimension, curvature, taper, defects). This facilitates price calculation and timber trading, increases resource efficiency and ensures that timber is put to the highest possible use. Module 2: A logistics chain is set up to transport the logs for processing, which is particularly important for transportation between islands. Modul 3: Pilot workshops for wood processing are being set up. The focus here is not on the production of sawn timber but on higher-quality end products. At the same time, the investments and the necessary technical requirements should remain manageable. Pilot plants for the following products are conceivable: • Glued beams: short wooden beams are fitted with wedge-shaped tines that interlock and are then glued together. This process allows lengths of up to 15 m to be produced • Plywood panels: logs are veneered, the veneers are dried, laid crosswise (biaxially) on top of each other, glued and pressed under the influence of heat. Special presses enable the production of any shape. • Timber pallets are made from boards and squared timber that are nailed or screwed together, and are manufactured using simple woodworking machines such as log band saws, cross-cut saws and planing machines. Sandalwood oil: Vanuatu has the best sandalwood qualities in the world after India, but only small capacities for sandalwood oil. The formation of a cooperative for the production of sandalwood oil should be promoted. The

	production process essentially consists of processing the raw wood into fine wood chips and distillation. A pilot plant is to be set up. A vocational training system must be set up to develop manual skills.
Outcomes	A logistics chain for timber transportation is developed and implemented A timber assortment (grading and scaling) instruction has been drawn up and is used in the timber trade Pilot workshops for glued beams, plywood panels, timber pallets and sandalwood oil are set up and operational Development and implementation of an education plan for vocational training for the requested skilled in timber manufacturing is designed and the training at vocational training centers takes place
Mitigation / Adaptation Potential	The emission savings resulting from this activity cannot be directly quantified. However, it enables the transition to a net-zero society (e.g. by wood-based construction in the residential and tourism sectors), as emissions from fossil fuels are effectively reduced. For every cubic meter of wood used, an average emission saving of 1 to 2 tons of CO_2 can be expected. Assuming an annual harvest of 30,000 m^3 this would result in 30,000 to 60,000 tCO_2. Around 1000 people will directly benefit from this activity by bringing them into employment
Co-benefits / SDG Linkages	Potential co-benefits of sustainable timber value chains in Vanuatu include: SDG 11 (sustainable cities and communities), SDG 13 (climate action), and SDG 15 (life on land) Increased timber manufacturing and contribution to downstream timber processing industries will contribute to SDG 8 (decent work and economic growth).
Investment Needs (US$)	Estimated capital investment needed: 1,500,000 US$ US$: US$ 50,000: Guidelines for timber assortments US$ 250,000: Transportation logistic chain US$ 900,000: Construction and equipment of pilot operations, incl. buildings, machines, storage areas, infrastructure (water, electricity, road access etc.), costs for repair and maintenance US$ 300,000: Development and running of a vocational training infrastructure)

Potential Financing and Need for Financial Support and/or Financial Instruments	Requested financing: 1,500,000 US$ The funding is too ambitious for the MALFFB's budget. It is therefore necessary to finance the entire investment requirement from external sources. After the model phase, when the pilot workshops have proven their success, this activity is an excellent precondition for private investments. The return on investment will be relatively quick, and favorable conditions can be created for the high initial investments through low-interest loans, tax reductions or joint ventures.
Potential Supporting and Financing Partners / Sources	Management partners (assisting with access to finance):* • Project Planning, Development & Design: GIZ, GGGI, NDC-Hub • Project Implementation & Management: GIZ, GGGI, NDC-Hub Potential financing partners/sources:* • Private sector, e.g. venture capital, revenue loss insurance • Credit Guarantee: GCF, ADB, Supplier EXIM Banks, EIB, WB/IFC • Debt and Loans: VADB, VRDB, ADB, EIB, WB/IFC • Equity: private sector companies • Non-Government Grants for investment: GEF, GCF, ADB, AU-DFAT, NZ-MFAT, WB/IFC, EIB, CIDCA, KOICA, EEAS • Grants for Technical Assistance & Capacity Building: GEF, GCF, AU-DFAT, NZ-MFAT, GIZ, CTCN, ADB, KOICA, UNDP, UNIDO, EEAS, WB/IFC • Manufacturers of woodworking machinery can offer discounts if they have successful pilot projects for their product marketing. **This is not a comprehensive list, as other entities are possible as well.*
Implementing and Supporting Entities / Stakeholders	Implementing Entity / Stakeholders: • Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity (MALFFB), Department of Forests; Coordination of planting, incl. procurement of seedlings, and coordination of tending of planted areas Supporting Entity / Stakeholders: - Ministry of Lands and Natural Resources (MoLNR), Lands Department; facilitate and manage lands related issues - Ministry of Climate Change, Department of Environment, advise in GHG-budgeting, environmental impact assessments, MRV) - Ministry of Finance and Economic Management; advise on economic and financial policy, provide advice and management of financial affairs - Ministry of Tourism, Trade, Commerce and Ni-Vanuatu Business (MTTCNVB); support with all issues affecting the local population - Ministry of Education and Training (MET)

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General timeline for Development, Financing, Implementation, and Operation	Time needed for development: 1 year Time needed for securing finance: 1 year When will the project/investment start and end: 2026 to 2035
Policy / Plan Link	Key policies/Plans • Forest Policy 2013-2023 [L. Forest Industries- Sector Modernization (L24, L25, L26), M. Production (M27, M28), N. Marketing and Trade (N30, N31, N32)] • National Biodiversity Strategy and Actin Plan 2018 -2030 • National REDD+ Programme • Low Emission Development Strategies and Plans • Vision 2030: National Sustainable Development Plan 2016 to 2030 • National Industrial Development Strategy: Shaping the Future of Value Addition in Vanuatu 2018-2022 Relevant Policies/International Reporting • Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution 2021 – 2030 • National Communication to the UNFCCC • Global Forest Resource Assessment: Country Report Vanuatu
Potential Business Model and Financing Strategy	Value chains promise a rapid return on invested capital and are therefore particularly suitable for private investors. The risks associated with previously unknown business activities can be mitigated through loss of earnings insurance. High profit expectations can also attract venture capital. Private investment could also be promoted through favourable loans. The limited financial resources render external subsidies necessary to establish the favourable framework for investments, e.g. vocational training or infrastructure development.
Gaps & Barriers to Implementation, Including Proposed enabling mechanisms	Key gaps and barriers • Skills gap • Knowledge and capacity of forest managers and timber product processors • Lack of adequate, and existing rudimentary domestic processing facilities • Lack of market intelligence (economic and financial opportunities and business management) • Limited and costly access to finance largely related to perceived commercial risk • Due to its remoteness and small population Vanuatu faces challenges in training and retaining talent/ educated staff • Poor linkages between companies and with foreign investors

	• Disjoint, fragmented supply chains • Insufficient economies of scale and pooling of resources • High regulatory and logistical costs of trade • High regulatory burden Enabling mechanism • Establishing domestic processing facilities capable of processing the full range of commercial species • Timber/Log Grading Standards/Manuals aligning with internationally accepted practices and standards • Expand vertically integrated cooperative models • Management extension services to forestry producers • Guidelines to establish novel joint-ventures among community-based enterprises and industry/investors • Environment/Forest friendly green building codes • identify what financial and non-financial incentives, disincentives can be used
Financial Sustainability	The technical assistance and capacity building provided will help to make timber processing an important contribution to Vanuatu's national economy. Perceived risks associated with financing can be mitigated by offering low-interest loans or reduced tax rates.
Enabling, Capacity Building and Technical Assistance Needs	• Introduce Green Procurement Policies • Promoting domestic timber use more widely in construction • Provisions which require relevant companies/enterprises to disclose forest/climate effects throughout their value chain (climate related financial disclosures) • Developing handbooks/manuals to develop and ensure high quality forest products • Evaluate and reform the existing training offerings to medium and small enterprises
Information and MRV Needs	• Legality and Sustainability Assurance Systems • Effective NFIS (including functioning REDD+ NFMS, MRV) • Functioning forestry database system at provincial level forest authorities
Supporting References	Vanuatu Low Emission Development Strategy (LEDS) 2023 Vanuatu's Revised and Enhanced 1st NDC Vanuatu Forest Policy 2013- 2023 Vanuatu National Sustainable Development Plan (NSDP) 2016-2030 Vanuatu Climate Change and Disaster Risk reduction Policy 2016-2030 National Industrial Development Strategy: Shaping the Future of Value Addition in Vanuatu 2018-2022 Vanuatu NDC Implementation Roadmap Sustainable Forest Management Policy and REDD+ Programme/ strategy

F7

No.	F7
Action Name	**Research on climate adapted tree species**
Sub-Sector	Forestry
Description	The future management of forests must address a variety of challenges that require a wide range of new knowledge. This can only be achieved by intensifying research. The current research unit of the Department of Forestry is not in a position to do this with its current personnel and technical equipment. The aim of this activity is to expand forest research in Vanuatu in order to obtain urgently needed and reliable data. Priority should be given to applied research. The following research priorities are to be pursued: • Studies on climate-change and site adapted native and exotic species, including genetic appraisal and tree improvement, with special attention to invasive species risks • Better understanding of native species of Vanuatu, both in terms of natural regeneration processes and growth rates as well as establishment and growth under plantation conditions • Growth and yield studies for plantation forests by setting up permanent, long-term observation plots, including Soil improvement • Restoration options for degraded sites, including mangroves, wetlands and sites overgrown by invasive species • Regeneration studies, recovery studies and monitoring post logging areas, as well as carrying out studies of logging operations for achieving timber sustainability • Silvicultural management in natural forests with special attention to the CBD ecosystem approach • Traditional and non-traditional management practices to identify appropriate methodologies for sustainable utilisation of mangroves in order to achieve greater ecological, social and economic benefits • Economic studies to assess the way in which plants and trees serve societal needs and possibly enhance the earning capacity of the rural population In addition to appropriate infrastructural measures, laboratory, IT equipment and other equipment is required to carry out the necessary research activities. Experimental areas in the field must also be set up and continuously maintained.
Outcomes	• Research infrastructure established • Permanent and temporary staff recruited • Permanent observation plots established • Research trials in mangrove and natural forest ecosystems established • Scientific Advisory Board established • International cooperation established

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Mitigation / Adaptation Potential	The activity has no direct mitigation effects. However, the research activities will lay the foundations for reduction activities, e.g. in the management of plantations, the restoration of mangroves and degraded areas and the sustainable silvicultural management of natural forests, which could be in the order of 100,000 tons of CO_2/yr in the long term.
Co-benefits / SDG Linkages	Co-benefits of the action are increasing the research capacities within Vanuatu, facilitating scientific exchange with the international research community The activity will have SDG-linkages with respect to SDG 4 Quality education, SDG 13 Climate action, and SDG 15 Life on land.
Investment Needs (US$)	The total estimated capital investment needed amount to 10,750,000 US$, of which Estimated development costs: 750,000 US$ Enabling, Capacity Building and Technical Assistance: 10,000,000 US$
Potential Financing and Need for Financial Support and/or Financial Instruments	Vanuatu can contribute US$2,250,000 of its own funds in the form of salaries, land, buildings and other infrastructure. The remaining financial support needed amounts to 8,500,000 US$.
Potential Supporting and Financing Partners / Sources	Scientific partners:* • International Union of Forest Research Organizations, Vienna, Austria • Center for International Forest Research (CIFOR), Bangor, Indonesia Management partners (assisting with access to finance):* • Project Planning, Development & Design: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN • Project Implementation & Management: UNDP, UNIDO, GIZ, GGGI, NDC-Hub, ADB, IUCN, CIDCA Potential financing partners/sources:* • Credit Guarantee: GCF, ADB, Supplier EXIM Banks, EIB, WB/IFC • Debt and Loans: VADB, VRDB, ADB, EIB, WB/IFC • Equity: private sector companies • Non-Government Grants for investment: GEF, GCF, ADB, AU-DFAT, NZ-MFAT, WB/IFC, EIB, CIDCA, KOICA, EEAS • Grants for Technical Assistance & Capacity Building: GEF, GCF, AU-DFAT, NZ-MFAT, GIZ, *CTCN, ADB, KOICA, UNDP, UNIDO, EEAS, WB/IFC* **This is not a comprehensive list, as other entities are possible as well.*

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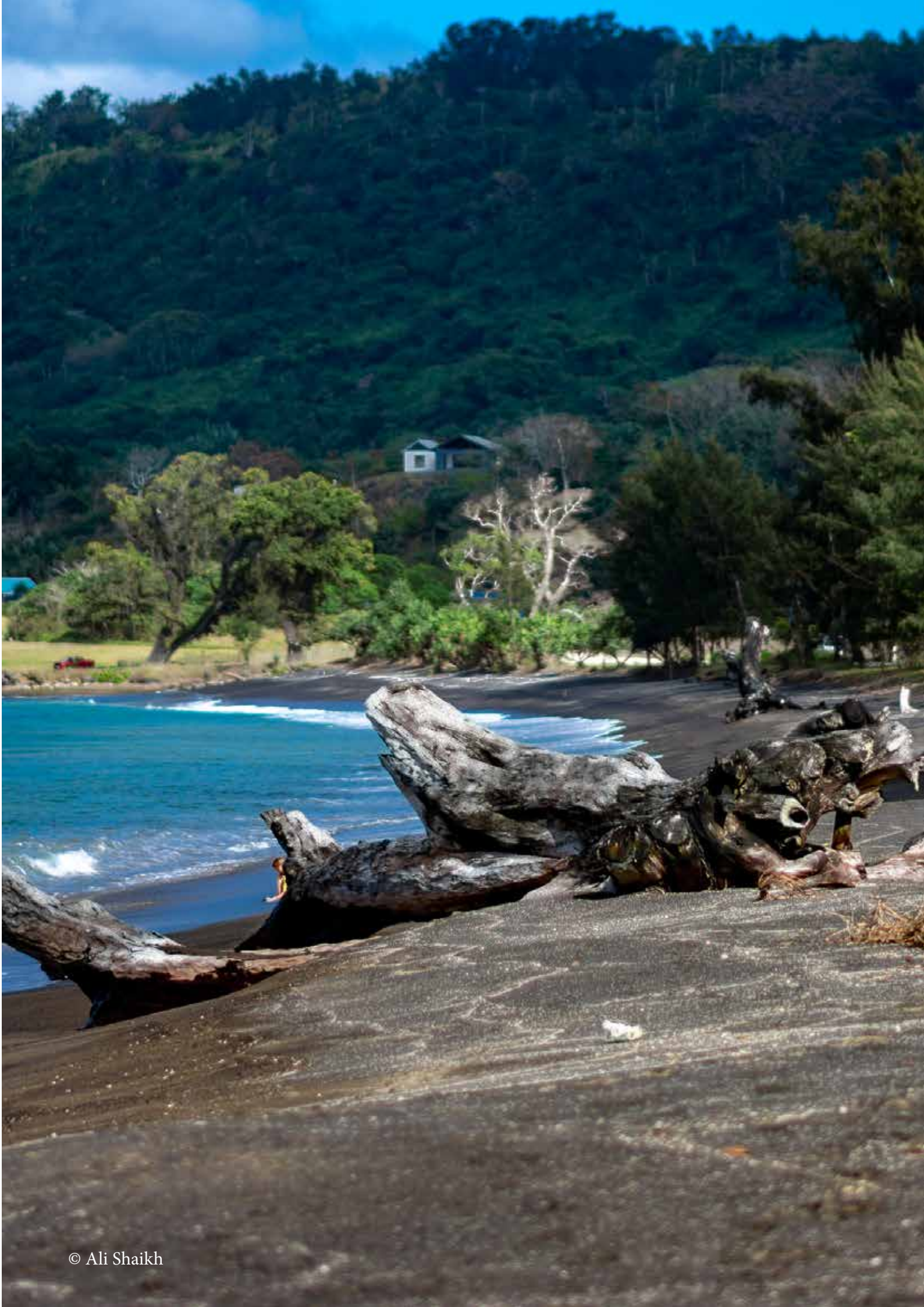
Implementing and Supporting Entities / Stakeholders	Implementing Entity / Stakeholders: • Ministry of Agriculture, Livestock, Fisheries, Forestry and Biosecurity (MALFFB), Department of Forests; Coordination of planting, incl. procurement of seedlings, and coordination of tending of planted areas Supporting Entity/ Stakeholders • Ministry of Lands and Natural Resources (MoLNR), Lands Department; facilitate and manage lands related issues • Ministry of Climate Change, Department of Environment, advise in GHG-budgeting, environmental impact assessments, MRV) • Ministry of Finance and Economic Management; advise on economic and financial policy, provide advice and management of financial affairs • Ministry of Tourism, Trade, Commerce and Ni-Vanuatu Business (MTTCNVB); support with all issues affecting the local population • Ministry of Education and Training (MET) • Department of Agriculture • Department of Biosecurity • Department of Environment • Provincial Governments • National Advisory Board on Climate Change • Vanuatu Agricultural College • Vanuatu Agriculture Research & Training Center
General timeline for Development, Financing, Implementation, and Operation	Time needed for development: 0,5 year Time needed for securing finance: 1 year When will the project/investment start and end: 2025 to 2035
Policy / Plan Link	Key policies/Plans • Forest Policy 2013-2023 [J. Climate Adaptation (J21), C. Management of Planted Forest (C10)] • Vanuatu's Revised and Enhanced 1st Nationally Determined Contribution 2021 – 2030 • Vanuatu Forest and Landscape Restoration Strategy 2020 – 2030 Relevant Policies/International Reporting • Agriculture Sector Policy 2015-2030 • National Biodiversity Strategy and Actin Plan 2018 - 2030 • Vision 2030: National Sustainable Development Plan 2016 to 2030
Potential Business Model and Financing Strategy	Carrying out forest research is a public commitment and a public task to strengthen the forest sector and safeguard the environment. No comparative advantage for companies should arise from research activities in the current state of the forestry sector in Vanuatu. Research is value-free, should be freely accessible and should therefore be sustainably funded by the public sector.

Gaps & Barriers to Implementation, Including Proposed enabling mechanisms	Key gaps and barriers • Human resources (Researchers, Lab and Nursery technicians) • Research infrastructure (Nurseries, permanent observation plots, laboratory facilities and equipment • Seed and planting materials Enabling mechanism • Dedicated Forest Research and Training Center under DoF • A core group of Research officers should be given long-term employment perspectives to avoid inconsistent approaches and discontinuities in research programs • Attractive employment and career potential should be opened up for young scientists, for example through stays abroad, qualification opportunities and self-directed work • Provide means for attending international conferences to stimulate research exchange • Research projects, especially species trials, have to be adequately recorded • Long-term funding has to be secured, as growth and ecological processes in forests are long-term in nature. • Installing an international advisory board for forest research
Financial Sustainability	The financial sustainability of research must be ensured by the public sector in order to guarantee its independence and its focus on promoting the common good.
Enabling, Capacity Building and Technical Assistance Needs	The following enabling, capacity building and technical assistance needs are to be addressed: • Infrastructure (e.g. buildings, laboratories, IT, measurement instruments) • Training and capacity building • Setting up research exchange • Strengthen the Research Council • Exchange of international plant material • Material transfer agreements with international research institutions and development partners • Solar driven irrigation for agroforestry systems and nurseries
Information and MRV Needs	Most important information needed to track progress of implementation relate to human resource capacities, research facilities, management systems, network and outreach, and knowledge system development. Most important data needed to track performance relate to research grants, recognition and credibility, scientific output, human capital output, and services output

Supporting References	Pretzsch, H., 2009, Forest dynamics, Growth and yield, Springer, Heidelberg Köhl, M., et al., 2021. Sustainable management of logged tropical forests in the Caribbean to ensure long-term productivity, FAO, Forestry Working Paper no. 27, Rome Hayes, D.C., et al., 2014. USDA Forest Service Experimental Forests and Ranges Research for the Long Term, Springer, Heidelberg Glass, D.J., 2014, Experimental Design for Biologists, Cold Spring Harbor Laboratory Press,U.S



Ministry of Climate Change Adaptation, Meteorology, Geohazards, Environment, Energy and National Disaster Management

Private Mail Bag 9074,
Port Vila, Vanuatu

Phone: (678) 22068
Website: https://mocca.gov.vu

Ministry of Agriculture, Livestock, Fisheries, Forestry & Bio Security

Private Mail Bag 9064,
Port Vila, Vanuatu

Phone: (678) 33220
Website: https://malffb.gov.vu/