National Landscape Restoration Strategy for Belize

2022-2030

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Forest Department, Ministry of Sustainable Development, Climate Change & Disaster Risk Management (MSDCCRM)

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Acronyms and Abbreviations

BAHA	Belize Agricultural Health Authority
BAU	Business as usual
BIOFIN	Biodiversity Finance Initiative
BLPA	Belize Livestock Producers Association
BNN	Belize Network of NGOs
CAP	Chapter
CBD	Convention on Biological Diversity
CCJ	Caribbean Court of Justice
CFO	Chief Forest Officer
CIAT	International Center for Tropical Agriculture
CMCC	Chiquibul-Mountain Pine Ridge-Caracol Complex
CSFI	Corozal Sustainable Future Initiative
CZMAI	Coastal Zone Management Authority and Institute
DOE	Department of Environment
DTGR	Debt to GDP ratio
EIA	Environmental Impact Assessment
EMF	Environmental Management Fund
FAO	Food and Agriculture Organization
FCD	Friends for Conservation and Development
FFI	Flora and Fauna International
FLR	Forest landscape restoration
FPIC	Free and prior informed consent
FSC	Forest Stewardship Council
GDP	Gross Domestic Product

GEF	Global Environment Facility
GHG	Greenhouse gas
GOB	Government of Belize
GSDS	Growth and Sustainable Development Strategy
GSW	Golden Stream Watershed
GWC	Global Wildlife Conservation
GWP	Global Wildlife Program
ha	Hectare
IFAD	International Fund for Agricultural Development
INDC	Intended National Determined Contribution
IUCN	International Union for Conservation of Nature
KRA	Key Result Area
LAC	Latin America and the Caribbean
LDN	Land Degradation Neutrality
LiDAR	Light Detection and Ranging
LPA	Livestock producer association
LPG	Liquefied petroleum gas
MFC	Maya Forest Corridor
MSDCCDRM	Ministry of Sustainable Development, Climate Change and Disaster Risk Management
NAFP	National Accreditation Focal Point
NAP	National Adaptation Plan
NBSAP	National Biodiversity Strategy and Action Plan
NCCPSAP	National Climate Change Policy, Strategy and Action Plan
NEPS	National Environmental Policy and Strategy
NGO	Non-governmental organization
NLRS	National Landscape Restoration Strategy
NPAS	National Protected Areas System
NPV	Net Present Value
NSTMP	National Sustainable Tourism Master Plan
NTFP	Non-timber forest products
PCB	Pesticides Control Board
PESTEL	Political, economic, socio-cultural, technological, environmental, legal
REDD+	Reducing emissions from deforestation and forest degradation

ROAM	Restoration Opportunities Assessment Methodology
RWA	Rapid watershed assessments
SIB	Statistical Institute of Belize
SIMIS	Sugar Industry Management Information System
SWOT	Strengths, weaknesses, opportunities, threats
TBD	To be determined
TOR	Terms of Reference
UB-ERI	University of Belize's Environmental Research Institute
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WRI	World Resources Institute

Foreword

The formulation of a National Landscape Restoration Strategy for Belize is one step forward towards the fulfilment of international commitments we have made as a country. It supports the implementation of restoration actions within the National Determined Contributions, by implementing actions to limit the global temperature increase and meeting Sustainable Development Goals #2 Zero Hunger, #13 Climate Action, #14 Life Below Water, and #15 Life on Land.

This strategy is guiding restoration actions in this UN Decade of Ecosystem Restoration through an integrated approach, encompassing the agro-productive sector, coastal and riparian areas, and the variety of our forest types in country. It is also streamlined with this Governments' 2020-2025 manifesto, where we have pledged to promote an aggressive reforestation programme, to facilitate sustainable rural logging by communities, to create jobs and reduce poverty with environmental sustainability, and to establish and support community-based organizations to promote value-adding to our exotic forestry products. We also give recognition to the need for reducing uncontrolled land-clearing and enforce sustainable land use policies, to build resilience to climate change disasters and risks through education, preparation, diversification, and innovative climate-smart systems of land use, in particular for the small producers and farmers in high-risk areas.

Belize's national effort adds to the regional actions of its counterpart countries in CCAD, who have been the primary promoters in the declaration of the United Nations Decade of Restoration. Through the national-regional process, Belize has promoted restoration with a ridge-to-reef approach, considering national circumstances to obtain optimum benefits from restoration, and simultaneously providing an opportunistic window for the Caribbean to stimulate investment and financing.

It is with this that I endorse the National Landscape Restoration Strategy 2022-2030 through a forest landscape restoration approach, to ensure that ecological functionality is restored, and all the services provided by nature are enjoyed by the citizens of Belize.

Hon. Orlando Habet
Minister of Sustainable Development,
Climate Change and Disaster Risk Management

The Need for a National Landscape Restoration Strategy

Landscape restoration is a strategy to recover and preserve the ecological integrity of the mosaic of ecosystems while also generating economic and social benefits in both rural and urban areas, by ensuring food and water security, energy, pollination, control of erosion and sedimentation, and disaster risk reduction, given the increasing impacts of climate change and on the provision of goods and of the ecosystem.

A growing movement at local, national, regional, and global level recognizes the need for investing in the restoration of ecosystems – including agroecosystems – using a landscape approach. In 2011, the Government of Germany and the International Union for Conservation of Nature (IUCN) launched the Bonn Challenge, with the aim to restore 250 million hectares of degraded and deforested landscapes by 2030. To date, 61 countries, 8 states and 5 associations have made 74 pledges totalling more than 210 million hectares. The Bonn Challenge also contributes to the United Nation Decade on Ecosystem Restoration (2021-2030), which has been strongly promoted by Latin America.

The recent launching of the IUCN Nature-Based – Recovery Initiative stated, "the time to invest in nature, is now," considering the pandemic, the climate, the economic and the social crises. Restoration is one of the nature-based solutions that countries in our region are prioritising to address critical societal challenges.

For more than six years, the IUCN Regional Office for Mexico, Central America and the Caribbean has supported the region’s countries, working hand in hand with national authorities, civil society and particularly our Membership, to design restoration strategies and options, by providing scientific and technical information so that nations can make informed decisions about their investments in landscape restoration.

IUCN in cooperation with GIZ and the Central American Commission on Environment and Development supported the Government of Belize through the Ministry of Sustainable Development, Climate Change and Disaster Risk Management and its Forest Department, and national actors. Today, Belize is a pioneer in defining its restoration ambition based on information, criteria, and financial and economic analyses to uphold the nation's official pledge of 130,000 ha to the Bonn Challenge in July 2021.

The National Landscape Restoration Strategy of Belize calls for intersectoral and comprehensive actions toward a green and blue economy, with a roadmap to guide productive conservation practices for different land uses, investments and enabling frameworks adhering to national priorities.

We are confident that this analysis will strengthen the important restoration efforts and decision-making Belize is implementing to improve the quality of life of its population, and the health of its ecosystems and landscapes, while simultaneously addressing the urgent need for economic and social recovery with equity.

Ursula Parrilla
Regional Director
IUCN Regional Office for Mexico, Central America, and the Caribbean

Executive Summary

The Bonn Challenge was launched by the Government of Germany and the International Union for Conservation of Nature (IUCN) in 2011 with a goal to restore 150 million hectares of degraded and deforested landscapes by 2020. During the 2014 United Nations (UN) Climate Summit, the New York Declaration of Forests endorsed and extended the challenge to restoring 350 million hectares by 2030. The Bonn Challenge seeks to restore ecological functionality of degraded and deforested landscapes while enhancing the well-being of people that co-exist with these environments. It was designed as a strategy to contribute to the implementation of national priorities such as food and water security, rural development, climate change resilience, and other social and economic challenges. The Bonn Challenge also seeks to facilitate the fulfilment of international commitments, particularly the pursuit of the objectives enshrined in the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC), and Aichi Target 15 of the Convention on Biological Diversity, along with other instruments to combat land degradation. Furthermore, the Challenge contributes to the Sustainable Development Goals (SDGs).

Belize utilized the Restoration Opportunities Assessment Methodology (ROAM), which was developed by IUCN and the World Resources Institute (WRI), to identify and analyse degraded and deforested areas that are suitable for Functional Landscape Restoration (FLR). The ROAM process also aided in identifying the priority areas that will be committed for restoration under the Bonn Challenge pledge. Subsequently, in 2019, Belize prioritized 130,000 hectares to be restored between 2020 and 2030. This target includes 50,000 hectares dedicated for forest restoration and 80,000 hectares for agro landscape regeneration. It is expected that this target will become the Bonn Challenge pledge amount to be restored by 2030.

This National Landscape Restoration Strategy (NLRS) sets out the Vision, Mission, Key Result Areas, Strategic Objectives and Actions that are necessary to ensure that Belize meets or surpasses its Bonn Challenge pledge to restore 130,000 hectares of prioritized forest and agricultural landscapes by 2030. The NLRS is based on the results of a series of studies,

and participatory assessment based on criteria defined by national stakeholders, as well as planning workshops that were held between March and April 2021. Workshop participants included selected members of the National Restoration Round Table, Restoration Gender Working Group, and IUCN, who facilitated the process.

The Vision for the National Landscape Restoration Strategy (NLRS) is as follows:

> **"Human well-being, local livelihoods, biodiversity and ecosystem services are improved via the regeneration and restoration of at least 130,000 hectares of Belize's degraded soils, forests, and agricultural landscapes."**

This following Mission is the focus of the NLRS over the medium-term (that is, between now and 2030):

> **"Conduct forest and agricultural landscape restoration initiatives within priority areas, via the creation of the enabling environment (policies/laws), local collaboration and broad partnerships, sharing lessons learnt and experiences, and mobilizing resources, for the benefit of all Belizeans, but with a particular focus on building the capacity of farmers, rural and indigenous people, and relevant institutions."**

Five Key Result Areas (KRAs) were identified: 1) Enabling Environment, 2) Human Well-Being and Local Livelihoods, 3) Forest and Agro Landscape Restoration, 4) Biodiversity and Ecosystem Services, and 5) Resource Mobilization and Capacity Building. These KRAs are critical success factors where strong positive results must be realized for the NLRS Mission to be achieved, and therefore, move toward realizing the NLRS Vision.

Nine strategic objectives were defined spelling out a set of feasible strategy alternatives to positively impact the Key Result Areas. These objectives are as follows:

1. By 2030, conduct a comprehensive review of pertinent laws related to landscape restoration with a view to strengthening legislation and regulations and synergies among laws.
2. Communities, Indigenous People, and organized producers improve local livelihoods and their well-being within prioritized agro landscapes by 2030.
3. Sustainable Forest Management in prioritized broadleaved forests is strengthened via reforestation and assisted regeneration by 2030.
4. Sustainable regenerative agricultural practices/systems are implemented in prioritized agro landscapes (excluding pastures) by 2030.

5. Silvopastoral systems are being implemented in prioritized pastures and livestock areas (land used for livestock only) by 2030.
6. By 2030, develop and implement watershed management plans in order to restore and protect Belize's watersheds and riparian forests within priority areas.
7. By 2030, develop and implement a national public awareness and education strategy that focuses on promoting healthy, productive, and restored forests and agro landscapes, and educating Belizeans on the pertinent laws and incentives related to landscape restoration.
8. By 2030, national landscape restoration funding mechanisms are in place to support forest and agro landscape (including silvopastures) restoration through public, private and public–private partnership initiatives.
9. By 2030, sustainable regenerative agricultural practices have become the norm in each district thereby strengthening food sovereignty.

The National Landscape Restoration Strategy is set out in seven sections and seven annexes.

Section 1 presents a Background/Introduction that includes information about Belize's Bonn Challenge pledge; as well as a summary of policies, programs and projects, laws and regulations pertaining to landscape restoration in Belize.

Section 2 discusses the planning context, including information about the external factors that can influence landscape restoration.

Section 3 presents a summary of the ROAM process and results for Belize.

Section 4 summarizes the results of a SWOT analysis that was conducted to assess the current status of landscape restoration in Belize.

Section 5 lists the NLRS Vision, Mission and Key Result Areas, while Section 6 lists the NLRS Strategic Objectives and associated strategies/actions. These strategic objectives and their associated strategies were incorporated into the NLRS with appropriate responsibilities and time frames assigned – the NLRS Implementation Schedule (2021-2030) in Section 7.

The eight annexes provide: 1) the list of cited documents throughout the NLRS, 2) Persons Interviewed to carry out the Political, economic, socio-cultural, technological, environmental, legal analysis(PESTEL); 3) Participants of the process; 4) Restoration Actions for Agro- and Forest Landscapes; 5) The Planning Process; 6) the SWOT Analysis Results; 7) the NLRS Results Framework; and 8) List of Stakeholders Consulted for Development of the NLRS.

1. Background

1.1. Belize's Bonn Challenge Commitment

The Bonn Challenge was launched by the Government of Germany and the International Union for Conservation of Nature (IUCN) in 2011 with a goal to restore 150 million hectares of degraded and deforested landscapes by 2020. During the 2014 United Nations (UN) Climate Summit, the New York Declaration of Forests endorsed and extended the challenge to restoring 350 million hectares by 2030. The 2020 goal of restoring 150 million hectares was expanded in 2017, with the 2030 goal on its way to being accomplished. The Bonn Challenge seeks to restore degraded landscapes adapting the forest landscape restoration (FLR) concept in order to restore ecological functionality of degraded and deforested landscapes while enhancing the well-being of people, that depend on the services provided by the ecosystems. The Bonn Challenge is a strategy that the countries are using to achieve national green and blue development according to their specific priorities, such as water and food security, rural development, combatting desertification and climate change effects, to tackle on disaster risk reduction, and protecting ecosystem services and biodiversity among others (IUCN, n.d.).

By 2020, 74 governments, private associations, and companies, all within 61 countries, had pledged over 210 million hectares of degraded and deforested landscapes as part of the Bonn Challenge. Belize announced its national restoration commitment at the Bonn Challenge meeting in June 2019 in Cuba, but it was not until the 'event for Latin America and the Caribbean' in July 2021, that Belize announced its formal pledge to the Bonn Challenge. The formal pledge was based on results from the Restoration Opportunities Assessment Methodology (ROAM) which began in 2019. The ROAM tool developed by the IUCN and the World Resources Institute (WRI), provides an affordable framework that rapidly identifies and analyses areas suitable for FLR at the national or sub-national level (IUCN and WRI, 2014).

Through the ROAM and other studies conducted by IUCN and the Belize Forest Department of the Ministry of Sustainable Development, Climate Change and Disaster Risk Management

of Belize (see Section 2.2), opportunity areas for restoration were identified within forest landscapes and agro landscapes, from areas that have been degraded or deforested. A total of 382,592.58 hectares of opportunity areas were then prioritized and identified based on criteria that improve livelihoods and ecological services. As a result of this exercise, Belize has prioritized 130,000 hectares of the national landscape to be restored between 2020-2030, and announced its pledge to the Bonn Challenge during the BC Event for Latin America and the Caribbean in July 2021 (see Annex 1). This target includes 50,000 hectares dedicated for forest restoration (44,000 hectares in forest areas inside and outside protected areas, as well as the restoration of 6,000 hectares of degraded and deforested riparian forests) and 80,000 hectares for agro landscape regeneration.

1.2. Mapping of policies, programmes, and projects, laws, and regulations

Belize has several laws and regulations, national policies and strategies, projects, and international agreements that may have an effect, on landscape restoration. The information in this Section was compiled, analysed and summarized to highlight the available information that pertains to or may guide landscape restoration actions. This compilation has facilitated and informed the development of this National Landscape Restoration Strategy (NLRS). The information helped to inform the development of strategies and opportunities for landscape restoration.

1.2.1. Laws & Regulations

Most of the laws and regulations listed in this Section are related to the Ministries or the authorities responsible for various licenses and activities related to natural resources use. Although most of these laws are designed for the protection of natural resources, few sections within the substantive laws address landscape restoration concerns. The most important laws and regulations that inform landscape restoration are:

a) Private Forests (Conservation) Act, CAP 217

During the clearance of land for agriculture, a tree felling permit is not required unless the tree girth is over two feet measured at one foot above the buttress.

b) Forest Act [including Forest Rules and Forest (Protection of Mangroves) Regulations, 2018], CAP 213

A license must be obtained to cut, burn, girdle or injure any tree and collect or use any forest product within a forest reserve, national or private land. Different timber harvest licenses are

issued depending on the extensity and value of the product. Additionally, a license cannot be issued for livestock grazing on areas larger than 500 acres and for cultivation on areas larger than 100 acres within forest reserves. Within mangroves forests, a permit is required before alteration by removal or cutting of mangroves. Altered mangroves should be offset by the restoration or planting of new mangroves within adjacent areas, two times the amount of mangrove that was cleared; and a bond sufficient to ensure the successful completion of the restoration activities with eighty percent survival rate after a minimum one year since planting.

c) Land Tax Act, CAP 58

Every year, land tax on declared unimproved value of land is to be raised, collected, and paid. Such land taxes can be amended by the Minister. In the case of speculation tax, 5% of the unimproved value of the land is calculated as the tax rate. If agricultural land exceeds 300 acres, speculation tax is to be raised, collected, and paid annually. The speculation tax does not apply if at least 30% of the land is used for agriculture or production; if the land is being used for eco-tourism; or if national lands are being leased. The Minister has the authority to cancel or exempt land tax for a period of time.

d) National Lands Act, CAP 191

National lands may be leased. Any person who applies to lease 500 acres (202.34 hectares) or more of land is required to conduct an environmental impact assessment. However, the Government of Belize has the right to extract any natural resources from leased land for public purposes. Leased national land on steep or uneven terrain should not be utilized due to the risk of erosion. A 66 feet buffer should also be left intact and in its natural state along running or open water within leased national land.

e) Land Utilization Act, CAP 188

The Minister has the authority to make regulations to demarcate watersheds and water catchment areas for the prohibition of vegetation clearing; to develop measures that will prevent soil erosion; and to guide the clearing of forests or felling of trees.

f) Registered Land Act, CAP 194

Leased agricultural land should be managed in accordance with good husbandry practices (related to crop and livestock). Such land should be relinquished at the end of the lease term.

g) Environmental Protection Act, CAP 328

The environment should be protected from any activity that exploits the natural resources and that would cause harm or pollution. For agricultural activities, the chemicals and biologicals introduced into the soil should not disturb the natural equilibrium that would harm the soil, water, or the flora and fauna. Activities with a larger degree of impact to the environment such as conversion of land greater than 300 acres (121.41 hectares), mangroves clearing greater than 10 acres (4.05 hectares), and commercial scale aquaculture within wetlands and floodplains require an Environmental Impact Assessment (EIA). "Lower impact" activities may require an EIA or a limited level environmental study. Such activities include land conversion on hill forest; land conversion between 100 (40.47 hectares) and 300 acres (121.41 hectares); mangrove conversion for agriculture; cultivation of citrus, bananas, sugar cane and vegetables on land greater than 200 acres (80.94 hectares); and cultivation of high agrochemical demanding agricultural products if the plot is greater than 50 acres (20.23 hectares) or near sensitive water resources.

h) Water Industry Act/ National Integrated Water Resource Act, CAP 222(:01)

Watersheds and water catchment areas should be retained as forest reserves or national parks or declared a control area. Deforestation or livestock presence should not threaten the storage capacity or sanitation of the catchment area; otherwise, "appropriate action"[1] must be taken by the Ministry responsible for forestry or the Ministry of Health under the Forests Act (CAP 213) and National Protected Areas System Act 215 (No. 17 of 2015); and the Public Health Act (CAP 40), respectively. Water supply must be potable or satisfactory for agricultural purposes. If the discharge of waste from agricultural industries is in accordance with "good practices"[2] determined by the Minister of Agriculture, a permit is not required for waste disposal. If effluent discharge from the good agricultural practices is polluting and causing harm, a notice will be given to prevent and stop the activities causing the pollution. A license is not required to abstract and use water if it is to be used for agricultural purposes, but this does not include flood irrigation activities. The National Integrated Water Resource Authority prescribes parameters for agricultural use of water.

1.2.2. National Policies & Strategies

Several national policies and strategies have been developed for Belize, especially pertaining to the environment, conservation and the sustainable development of communities and livelihoods. Few policies and strategies directly correspond to landscape restoration, but most

1 "Appropriate action" is not defined in the laws mentioned.

2 "Good practices" is not defined in the laws mentioned.

create a path for its incorporation. The following are key policies and strategies that relate or inform landscape restoration in Belize:

a) Horizon 2030 - National Development Framework of Belize, 2010

Horizon 2030 embodies the core values that are to guide citizen behaviour and inform the strategies to achieve the common vision for the future: "By the year 2030, Belize is a country of peace and tranquillity, where citizens live in harmony with the natural environment and enjoy a high quality of life. Belizeans are an energetic, resourceful and independent people looking after their own development in a sustainable way".

One of the strategies to achieve Environment and Sustainable Development Goals, is to incorporate environmental sustainability into development planning and strengthen Protected Areas Management. Restoration before, during and after a disaster is one of the actions to implement the National Disaster Management Strategy that ensures family protection.

b) National Climate Resilience Investment Plan [NCRIP], 2013

The NCRIP embodies a transformational process, one that seeks to fully integrate climate change adaptation, climate variability and comprehensive disaster management into national development planning processes and actions. The component related to the Non-Physical Infrastructure, aims to increase resilience in agricultural & forestry practices and trials by:

- Increasing the capacity of the forest rehabilitation program of degraded slopes through restoration efforts.

  and

- Promoting agriculture best practices to women and men in rural Belize.

c) National Environmental Policy and Strategy (NEPS), 2014

The NEPS (2014-2020) to be used as a tool for resource mobilization, development and guidance in improving the Department of Environment’s (DOE) mandate. The strategy highlights the development an integrated policy framework for Belize that would aid in combatting the decline of forest cover. A new forest policy was recommended to address and incorporate actions that involve sustainably managing ecosystems through preservation, maintenance, sustainable use, and restoration programmes. The NEPS also sets a target for the reduction of deforestation rate of mangroves, seagrass, and littoral forests, by at least 30% by 2024.

d) National Climate Change Policy, Strategy and Action Plan, 2014

This policy, strategy and action plan ensures the adaptation and mitigation of climate change in relation to the national sustainable development of Belize from 2015-2020. One of the main strategic goals is the development of climate resilient cropping/livestock agricultural systems. The Strategy includes actions such as implementing soil fertility and soil-water management, as well as promoting drought resistant crop techniques or climate smart agriculture. A main strategic goal is the conservation, utilization, and sustainable use of the forest resources to combat climate change and limit Green House Gas emissions resulting from deforestation and forest degradation. Actions to develop this goal include the establishment of the REDD+ strategy, and the development of the National Forest Reference Emission Level and/or Forest Reference Level. The last strategic goal related to landscape restoration is the protection and restoration of forest ecosystems and building the resiliency of water catchment areas. The actions related to this goal include the development of water conservation management systems that protect and restore ecosystems, and the adoption of forest management plans that prevent and control soil erosion.

e) National Agriculture and Food Policy of Belize, 2015

The National Agriculture and Food Policy was developed to encourage production, productivity, and investment between 2015 and 2030. One of the five pillars that aid in the policy's goals, and is the most pertinent to landscape restoration, is the Sustainable Agriculture and Risk Management pillar. This focuses on climate change adaptation by conserving natural resources via agrobiodiversity and sustainable land management. The strategic objective of the goal includes the development of agro-ecological conditions in crops; improving agricultural resilience to climate change; improving land and water governance; and supporting women and the youth in the agriculture sector. The Agriculture and Food Sector have limited policies and enforcement regulations that prevent land speculation, and there is not enough zoned land suitable for agriculture. Additionally, there are poor drainage and irrigation systems, which is an issue addressed as a target to implement better systems in the Sustainable Production, Productivity and Competitiveness pillar.

f) National Forest Policy, 2015

The National Forest Policy addresses sustainable management, biodiversity conservation and wildlife protection. The policy promotes the reduction of watershed and land degradation and improvement of its management, to establish biological corridors, and to regulate sustainable forest management, especially for local and indigenous communities. The policy also promotes forest connectivity, biodiversity, and timber extraction on abandoned and degraded lands (including agricultural land), as well as agroforestry, reforestation and restoration on degraded lands (including mangrove areas), especially on watersheds, bare hills and buffering communities. According to the policy, the current land tax regime has created incentives for deforestation on private land.

g) National Biodiversity Strategy and Action Plan (NBSAP), 2016

The NBSAP was written to develop the national development goals for Belize within 2016-2020 by integrating environment, biodiversity, and ecosystem health. The NBSAP goal of reducing pressures/ sustainable use, seeks to reduce direct and indirect pressures on Belize's marine, freshwater and terrestrial ecosystems, to sustain and enhance national biodiversity and ecosystem services. To achieve this goal, actions for improving the sustainable management of agriculture and forestry industry, reducing pollution, protecting critical ecosystems by restoring ecosystems (or by limiting land degradation), strengthening ecosystem services, and maintaining Belize's biodiversity, are necessary for the implementation of the NBSAP through a public participatory approach.

h) NBSAP: Target Prioritization, 2016

A target prioritization for the NBSAP was conducted to identify the key targets and actions that will be integrated into the Biodiversity Finance Initiative's (BIOFIN's) resource mobilization strategy for prioritized implementation. The target strategy of highest priority, is that by 2025, key ecosystems services are to be sustainably managed and resilient to threats. The second highest target is to restore 30% of degraded ecosystems to improve and develop resilience to climate change impacts by 2020. Another target within the top 11 priorities, is to legislate and implement environmental standards that promote environmental responsibility and sustainability, so that between 2016 and 2020 the deforestation rate is no more than 0.6% per year.

i) Belize Integrated Coastal Zone Management Plan, 2016

The management plan supports the planned development and sustainable use of Belize's coastal resources through several actions that include the protection of mangroves through advocating for the revised mangrove regulations (2018), implementing restoration projects and conserving mangrove areas, the protection of coastal habitat by establishing restoration projects and replanting mangroves areas prone to erosion and inundation, and the protection of riparian forests and water quality by implementing best agricultural practices.

In 2020 the Government of Belize creates the Ministry of Blue Economy and Civil Aviation, some of its priorities are[3]:

- Sustainable management and use of the Belize Reef System, coastal and marine resources for the socioeconomic development of Belize.
- Protecting Belize's Coastal Ecosystems through the NDC Process given their role in climate regulation, mitigation and adaptation.

3 Minister of Blue Economy and Civil Aviation: https://www.pressoffice.gov.bz/wp-content/uploads/2019/12/100-day-plan.pdf

j) Forest Regulations, 2018

Established a permitting system that aims to safeguard mangroves and their many ecosystem services from deforestation and degradation (mangrove forest conservation), into the framework of blue carbon[4], …(Belize recognizes that the health and integrity of coastal ecosystems are vital for the health of people and the planet. “Blue carbon”, e.g. mangrove and seagrass ecosystems, play many important roles as a nature-based solution to climate change with mitigation, adaptation, and resilience co-benefits)… page 9[5]. Conserving mangrove forests and coral reefs as blue carbon storage areas is important for climate change mitigation and adaptation.

k) National Land Use Policy and Planning Framework, 2019

This policy and planning framework is meant to guide the management, use, distribution and conservation of Belize’s land-based resources for the growing population in a sustainable manner. The policy actions are subdivided into various categories; the most relevant categories for landscape restoration are 'Productive and Sustainable Use of Land', 'Rural Land Uses/ Agricultural Development and Production', 'Land Use and Land Cover', 'Land Degradation', and 'Climate Change'. The actions for the aforementioned categories include promoting best land use practices and conservation of land-based resources; allocating agriculture on arable lands and ensuring proper water resource management; protecting and improving vegetation cover; incentivizing forest cover in private and national lands, and restoring or rehabilitating degraded watersheds and forests; increasing climate resilience and incorporating climate change analysis into agricultural strategies to reduce deforestation, and protect biodiversity and water resources; and reforesting in appropriate areas, such as hillsides and areas prone to erosion.

l) Belize National Agroforestry Policy (DRAFT up to December 2020)

Agroforestry supports ecosystem resilience and improves forest governance, as well as increasing carbon storage and mitigating climate change. The Ministry of Agriculture has been promoting sustainable forms of farming such as mixed farming systems, silvopastoral systems, and agro-silvopastoral systems. Currently, the Forest Department is working with Ya’axche Conservation Trust, Friends of Vaca Forest Reserve, and Friends for Conservation and Development to promote integrated farming systems. Ya’axche Conservation Trust, for example, has partnered with the Trio Farmers Cacao Growers Association to implement

4 Crooks, et al.; 2020 estimated to currently hold total ecosystem carbon stocks of approximately 92,962,893 (92,963 Kt) tCO2e, and annually sequester around 431,644 (432 Kt) tCO2e/year

5 Belize´s Updated Nationally Determined Contribution, 2021. https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Belize%20First/Belize%20Updated%20NDC.pdf

agroforestry methods. Agroforestry systems that have high potential in Belize include home gardens, riparian reforestation, improved fallows and living fences.

m) Sustainable Development Plan for the Chiquibul-Mountain Pine Ridge-Caracol Complex, 2020

The CMCC Sustainable Development Plan (2020) seeks to improve the management of the CMCC's ecosystems that will aid in water resource protection, biodiversity conservation and land use planning within 2020-2035. Proposed activities that promote conservation development include halting further incursions into protected areas; promoting sustainable agricultural practices such as agroforestry in buffer communities; restoring stream setbacks, vegetation buffers, and bark beetle impacted areas; and improving watershed conservation, fire management and sustainable timber management.

n) Land Degradation Neutrality (LDN) Target Setting Programme, 2020

The LDN target setting programme highlights the Belize River Watershed and the Corozal and Orange Walk Districts, which include the New River Watershed, as the main degradation hotspots in Belize. The LDN target setting programme was launched in 2019, but Belize began implementing activities to combat desertification since 2000, complying with one of the Sustainable Development Goals targets that aims to combat desertification and restore degraded land and soil. The LDN target setting programme aids in identifying factors affecting land use and land cover changes, and the overall target is to achieve no net loss in land cover by 2030. Strategies to achieve LDN can be found in Horizon 2030, Growth and Sustainable Development Strategy 2016-2019, and the Land Use Policy and Framework (Draft).

o) Updated Nationally Determined Contribution (Belize), 2021

In the updated document, Belize commits to increase its climate commitments in the following areas:

- Improvements in the data availability and analysis of projections underpinning commitments, especially in the FOLU sector.
- Realistic and achievable commitments.
- Increased ambition through expanded sectoral targets.
- Expanded coverage of gases covered in targets to include N2O and Methane in AFOLU interventions.

- Further specification of targets including addition of time frames, quantified emissions reductions, and other outcomes.
- Increased transparency in the development of targets.
- Detail on the financing, monitoring and implementation of actions included in the NDC[6].

1.2.3. International Agreements

Belize has signed on to several conventions that pertain to climate, the environment and biodiversity. Belize has always been involved in global efforts to mitigate or prevent climate change, despite its minimal greenhouse gas contributions. The following are key conventions that address sustainable land use and restoration efforts:

a) Convention on Biological Diversity (CBD)

In 1994, Belize joined the Convention on Biological Diversity. Belize has developed the National Biodiversity Strategy & Action Plan in order to address the convention's objectives of conserving biodiversity, implementing sustainable use of biodiversity, and the sharing of the benefits arising from the utilization of genetic resources. Some of the Aichi Biodiversity Targets are also being achieved via the conservation of biodiversity through the National Protected Areas System and the long-term sustainable forest licenses implemented by the Forest Department. Additionally, several logging companies in Belize have also started getting their lumber certified by the Forest Stewardship Council (FSC). Other projects, such as the Southern Development Project, address the CBC's concerns by investing in rural enterprises and sustainable farming techniques. Other relevant legislation, such as the Forest Act, National Protected Areas System Act, and the National Lands Act, address the CBC's objectives.

b) United Nations Framework Convention on Climate Change (UNFCCC)

Belize joined the UNFCCC in 1994 and has since been committed to stabilizing the GHG concentrations. The UNFCCC requires record keeping of a national inventory of greenhouse gas sources and sinks, and a National Communication detailing measures to address climate change. Belize currently has in place a Climate Change Office, and relevant policies that address GHG concentrations. Under the UNFCCC, the Global Environmental Facility, which is a system of grants and loans to fund actions on climate change, was developed. Belize has benefited from GEF funding over the years.

6 Available in https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Belize%20First/Belize%20Updated%20NDC.pdf

c) United Nations Convention to Combat Desertification (UNCCD)

Belize joined the UNCCD in 1998 and has committed to UNCCD's goal of restoring and maintaining land and soil productivity, as well as mitigating the effects of drought and improving livelihoods within drylands. The UNCCD encourages a Land Degradation Neutrality (LDN) Strategy for its members. Since Belize has developed other policies, strategies and plans that also address the impacts of land degradation and drought, a LDN strategy has not been formulated. Some of the policies and plans that address land degradation and drought are the National Land Use Policy and Framework, National Environmental Policy and Strategy, National Environmental Action Plan, and the National Agriculture and Food Policy.

d) Paris Agreement

The Paris Agreement commits signatories to keep global temperature rise below 2^0 C and to limit temperature increase even further to 1.5^0 C. Additionally, the Paris Agreement aims to strengthen climate change adaptation actions. In 2015, Belize joined the Paris Agreement, but had submitted its Intended National Determined Contribution (INDC) well in advance of the signing of the agreement. The INDC is a requirement under the Paris Agreement to keep member countries accountable by outlining their efforts to reduce the national emissions and climate change adaptation.

The INDC for Belize addresses population growth, socio-economic dependence on the agriculture and tourism sector, natural resources, and energy demands. It also lists the existing frameworks, policies, projects and activities that address sectors with significant contributions to Belize's greenhouse emissions that would satisfy the 1.5^0 C goal of the Paris Agreement. The updated INDC was presented in August 2021.

1.2.4. Ongoing National & Regional Projects

The Caribbean and Central American region has received international funding for several conservation initiatives due to its rich biodiversity and ecosystem services. The following are key projects, categorized by their developmental stage, that relate to landscape restoration in Belize and the region:

a) REDD+ Readiness Preparation Project of Belize (2013-2020)

Approximately 848,000 USD has been committed from the Forest Carbon Partnership Facility-Readiness Fund to develop the National REDD+ Strategy and Action Plan, which aims to address the drivers of degradation and deforestation. The strategy will be supported by the National Forest Reference Emissions Level and a monitoring framework.

b) Conservation of the Maya Forest Corridor (2019-2024)

The Maya Forest Corridor (MFC) initiative is implemented by the MFC coalition (GWC, ERI, Runaway Creek, Belize Zoo, Forest Department, and others) to have a functioning biological corridor through actions that balance the social, cultural, and economic well-being of the Maya Corridor Landscape. Approximately 28 million USD was committed for the acquisition of land and implementation of the MFC from 2019 to 2024. There will be opportunities for restoration, such as in farms within the MFC landscape that include cattle, citrus, corn, sugar, and other crops. This initiative does and will include several individual projects.

c) Integrated Ridge to Reef Management of the Mesoamerican Reef Ecoregion Project (MAR2R) (2020-2024)

This project was funded bay Global Environment Facility (GEF) and World Wide Fund for Nature (WWF), with the Central American Commission for Environment and Development (CCAD) for Mexico, Belize, Guatemala and Honduras, with objectives to:

1. Achieve a consensual vision for a Sustainable and Social Tourism in the ecoregion.
2. Develop sustainable best practices guidelines for the operation in the sector.
3. Strengthen the capacities of the public and private sectors at the regional level and by country.
4. To influence in the inclusion of sustainable and social tourism as a priority on the regional agendas.

d) Increasing climate resilience through restoration of degraded landscapes in the Atlantic region of Central America (2020-2025)

This regional project focuses on the coastal Atlantic region of Belize, Honduras and Guatemala to strengthen resilience induced by extreme weather and changing climate. Coastal zone resilience will be achieved through landscape restoration efforts that include reforestation of deforested coastal areas, restoration of degraded mangroves and coastal swamps, and promoting sustainable management of vegetation and coastal lands. Specifically, the project will address the information gap on best land-use practices and will enable restoration investments in Belize. For the region, approximately 12.26 million USD was committed to achieve the restoration efforts from 2020 to 2025.

e) Belize's First Agroforestry Concession for Conservation and Livelihoods: A Case Study (2014-2029)

The Ya'axche Conservation Trust, in collaboration with the Forest Department and Trio Farmers Cacao Growers Ltd., has developed a community cacao agroforestry concession within the Maya Mountain North Forest Reserve. The objective of the agroforestry concession is to reduce threats to biodiversity and habitat loss, while allowing local farmers access to grow cacao. The agroforestry concession was approved by the Forest Department in 2014, with the renewable contract ending in 2029. Approximately 1.15 million USD in grant funding has been invested into the concession and its associated activities.

1.2.5. Completed national & Regional Projects

a) Integrating Protected Area and Landscape Management in the Golden Stream Watershed (2006-2013)

Approximately 2,120,518 USD was committed for the Golden Stream Watershed (GSW) to function as a model of how multiple protected areas within an ecological interconnected and interdependent biodiversity corridor area can jointly achieve conservation and sustainable development objectives. The objectives should contribute to the sustainability of Belize's national protected area system. The projected was launched in 2016 by Flora and Fauna International (FFI) and was completed in 2013.

1.2.6. Projects under design/negotiation

Some proposed projects under negotiation will be key contributors to landscape restoration are the Global Wildlife Program (GWP)[7] that will enhance jaguar corridors and strongholds through improved management and threat reduction; the Integrated Management of Production Landscapes[8] to deliver multiple global environmental benefits from sustainable land and water management; the Integrated Flood Management in the Upper Regions of the Belize River Watershed; Building the Adaptive Capacity of Sugar Cane Farmers in Northern Belize[9]; and Building the climate resilience of the New River Watershed in Belize[10].

7 Belize was added as part of the GWP Phase II, approved by the Global Environment Facility (GEF) Council, in June 2019.

8 GEF – concept approved November 2017.

9 Green Climate Fund – Project Preparation Funding Application approved August 2020.

10 Concept Note to the GCF was approved.

2. The Planning Context – the External Environment

Urban, rural, and agricultural development has significantly expanded into the forested areas of Belize, causing high rates of deforestation and degradation or indirectly degrading buffering forest. The political, economic, socio-cultural, technological, environmental, and legal (PESTEL) factors that further promote, exacerbate, or hinder deforestation, degradation, and land use change will advise the National Landscape Restoration Strategy on the factors that are prevalent in Belize. Based on literature review (see Annex 1), supplemented by consultations with representatives of some key NGOs, and governmental and private agencies (see Annex 2), a detailed PESTEL analysis was conducted. The results of the PESTEL analysis are summarized below. Due to the Covid-19 pandemic, and similar to the rest of the world, Belize's economy has experienced a severe downturn. Apart from other pre-pandemic factors occurring in Belize, new challenges have risen as a consequence of the pandemic, which are addressed in the PESTEL analysis.

2.1. Political Factors

Belize's political environment is considered stable, as evidenced by the General Elections in November 2020, and there was a peaceful transition to the new Administration. However, there is no streamlined process to adopt a policy from one government to the next[11]. For example, the previous administration/government did not finalize the 2019 National Land Use Policy and Planning Framework, and it is yet to be determined whether or not the incumbent government may finalize it. A similar endeavour that both administrations shared was that due to the Covid-19 pandemic, a shift in economic planning from tourism towards food security and agriculture started to take place. Although the ***#planBelize*** Manifesto of the

11 Interviews with key stakeholders.

current administration refers to various proposed political reforms and innovations, including some that would promote landscape restoration (https://planbelize.bz/about-planbelize/), overall accountability and oversight mechanisms continue to remain weak. Past government administrations have shown that there is insufficient political will to institute the necessary reforms to improve accountability, the inadequacy of which has led to prominent levels of corruption in the public and private sector[12].

The current land distribution system has disenfranchised people who would most likely participate in restoration activities, since the poorer are more agriculturally oriented, but may not hold tenure to the lands within which they work[13]. Additionally, the land distribution system has allowed people to obtain more leases than they need for land speculation purposes[14].

Belize has a fairly good environmental platform as it relates to nationally and internationally supported conservation projects and initiatives. The Government of Belize (GOB) has also developed and endorsed various well-designed sustainable development plans and frameworks for the country (e.g., the Growth and Sustainable Development Strategy). However, the implementation of such sustainable development strategies still needs to be internalized across all sectors.

Within the Forest Department, the Chief Forest Officer (CFO) prepares fire protection plans for designated fire protected areas. Landowners residing within a designated fire protected area are responsible for planning out prescribed fires and must cover the expenses to carry them out within a specified timeframe. However, this may not be consistently enforced as evidenced by the rampant and destructive 2020 fires in Central Belize, and the challenge to determine which department is responsible to monitor fires.The Forest Department has the responsibility and authority over all terrestrial natural resources, but allows community-level governance of community forest resources to be used for personal or commercial purpose. The Agriculture Department, however, has authority over agricultural lands, where fires set on agricultural lands are not always planned and monitored and can spread unto the forest, causing extensive and damaging forest fires. There is a need to clarify which agency takes the lead when both are interlinked.

The current administration recently appointed a Commissioner of Indigenous Peoples' Affairs. The Commissioner represents GOB in its legal duty to implement the Caribbean Court of Justice (CCJ) 2015 Consent Order and Judgement related to communal Maya land rights (See Social Factor for its social implications).

12 Ibid.

13 Interviews with key stakeholders.

14 Ibid.

2.2. Economic Factors

The Covid-19 pandemic has created a massive economic downturn, which has dramatically reduced GOB's revenue base and resulted in curtailed spending. Prior to Covid-19, Belize had experienced three consecutive quarters of negative growth, and Belize's debt to GDP ratio (DTGR) amounted to approximately 105.08% (BNN, 2020). Belize's DTGR for 2020 is 134.1%, the highest debt-to-GDP ratio in the Caribbean and Central American region (GOB, 2021). Belize's GDP growth decreased from 2% to 0.2% in 2019 (The World Bank, 2021). The real GDP per capita has been trending downward since 2010 but fell sharply from $7,040 in 2019 to $5,843 in 2020 due to the pandemic (GOB, 2021). Similarly, the real GDP collapsed in 2020 to 2007 levels, after a steady increase over a 13-year period (GOB, 2021). The 2020-2021 National Budget projected a deficit of $232 million (BNN, 2020). The Covid-19 pandemic has negatively affected the agriculture, tourism, construction, and transportation sectors. The pandemic has also indirectly created high levels of unemployment due to the severe decline of the tourism industry, which has been one of Belize's largest GDP contributors. Between 2019 and 2020, the unemployment rate increased from 10.4% to 29.6%, while the underemployment rate also increased from 22.7% to 38% (GOB, 2021). One in five Belizeans applied for Covid-19 financial relief, representing 43% of the national labour force and 19.7% of the national population (BNN, 2020).

The primary sector contributes 10% to Belize's GDP, with agriculture contributing the most, followed by fisheries and forestry (BNN, 2020; SIB, 2018). In northern Belize, sugarcane, grains, and vegetables have been the most important economic sector, as are bananas and citrus for southern Belize. With sugarcane production on a decline due to the 2019 drought and the 2020 floods caused by Hurricanes Eta and Iota, coupled with high transportation costs due to poor infrastructure within ports and road systems, the economy in northern Belize and the country have been greatly impacted (NAFP, 2015). As for liquefied petroleum gas (LPG), wholesale and retail prices have steadily increased back to levels that existed before the creation of the National Gas Company. In May 2020, the wholesale price was $2.26 per gallon and retail price was $3.82 and $3.96 per gallon for urban and rural areas, respectively. In January 2021, wholesale prices increased to $3.16 per gallon and retail prices increased to $4.76 and $4.86 per gallon for urban and rural areas, respectively. The increase is attributed to fluctuations in acquisition prices for butane (Trejo, 2020; Trejo, 2021). The dependence on fuel wood remains substantial especially in rural communities.

Within the agriculture sector, poultry production has contributed the most economic output (BNN, 2020). However, depopulation measures had to be taken to reduce cost during the Covid-19 pandemic. The livestock, dairy and vegetable sector also experienced severe domestic and international market contractions due to the steep fall in demand, the 2019 and 2020 drought, and the limited market access and transportation due to Covid-19 restrictions.

Further exacerbated by the pandemic, the 2019 drought affected 7,325 farmers, which resulted in a 38.40 million USD loss (Matus, 2020).

There has been limited financing for agriculture investment since policy makers have maintained that agriculture should compete with industrial and service sectors (NAP, TBD). Additionally, farmers who wish to invest in their farm are burdened by high interest rates and slow crop returns, and environmental sustainability is not often included in their investment plans due to lack of funds[15], or they may not understand the benefits of incorporating sustainable agricultural practices that produce higher crop yields. For example, Programme for Belize asserts that Mennonites from Indian Creek have expressed unwillingness to incorporate trees in their agriculture, because it would result in 5% less production. This attitude reflects the lack of awareness and understanding of the effectiveness of silvopastoral systems.

The role of the private sector is important since the public sector alone cannot transform the Agriculture and Food Sector due to the high debt level and limited skill set within GOB. However, through various national economic development strategies (e.g., the NSTMP, CMCC, GSDS, and Horizons 2030), Belize's economy shows positive signs of greening (at least pre-Covid).

The New Growth Industries Ministry that was established by the new administration will push for the creation and expansion of new industries that are dependent on natural resources (e.g., the hemp industry)[16]. Local products are not nationally promoted, and products are often only sold within the district that produces them. For example, Toledo farmers supported by Ya'axche Conservation Trust sell most of their products only within Toledo. Belize's product demand has mostly been driven by the external market, which has been affected by Covid-19.

2.3. Socio-Cultural Factors

Belize's population was estimated to be 410,695 for 2020 (SIB, 2021). There has been an increase in population growth within small rural communities and urban centres. In 2002, the poverty rate was 33.5%, and increased to 42.3% in 2009 (NEPS, 2014); by 2018, the Statistical Institute of Belize reported a national poverty rate of 52%[17], and decreased slightly to an estimated rate of 50% poverty for 2019 (NAP, TBD). The increasing poverty rates, compounded by increased immigration from neighbouring countries, as well as pressures from Guatemala into Belize's forests from El Pilar to Columbia River Forest Reserve, has increased demand for

15 Interviews with key stakeholders.

16 Ibid.

17 Statistical Institute of Belize, http://sib.org.bz/press-release-2021-06-30/

18 Ibid.

land and natural resources use[18]. Impacts from land degradation caused by the high demand of natural resources disproportionately affect women and youth the most[19]. Additionally, rural communities are mainly affected by water-borne diseases and disproportionately difficult access to health care facilities[20].

There are 9,663 farmers and 11,062 farms in Belize, with Orange Walk District having the highest number of farmers and farms (Matus, 2020). However, despite the number of farms available to produce, there was a shortage in certain products due to the Covid-19 pandemic and the community restrictions imposed by GOB to prevent the spread of Covid-19, which then limited access and transportation for farmers to reach the domestic market during 2020. As a result, there has been an increasing awareness on backyard gardens. Belize's economy declined with the Covid-19 pandemic, not only in agriculture but also in tourism and commerce, and a general estimated economic contraction of 15.5% in 2020[21] by ECLAC.

Women involvement in agriculture remains weak because of gender-related social issues. According to the International Center for Tropical Agriculture (CIAT)[22] and the World Bank (2018), approximately 23,400 people in Belize are employed in agriculture, but only 9.4% are women. Youth involvement in agriculture also remains weak because young people tend to shun agriculture due to its association with rural economies and their perception that farming is antiquated (NAFP, 2015). Another challenge lies in land tenure, where several rural poor people do not have secure tenure on the land that they are working for subsistence farming, while on the other hand, Mennonite farmers have been able to purchase large swathes of land. The Mennonites have created a large agriculture enterprise that has made Belize highly dependent on Mennonite farming for its food security.

Belize’s Supreme Court has recognized Maya customary land tenure in southern Belize. In 2015, the Caribbean Court of Justice (CCJ) Consent and Order Judgement achieved a historic legal affirmation of indigenous land rights in Belize. However, there is still a need for indigenous peoples to receive free and prior informed consent (FPIC) related to any external development on Maya land.

19 Ibid.

20 Ibid.

21 Economic Commission for Latin America and the Caribbean. Preliminary Overview of the Economies of Latin America and the Caribbean. 2020. Available: https://repositorio.cepal.org/bitstream/handle/11362/46504/7/PO2020_Belize_en.pdf

22 Spanish acronym.

2.4. Technological factors

Current farming practices within Belize are generally inefficient and require large areas of land[23]. Belize lacks proper land use mapping and appropriate development zonation for farmers and developers, respectively. Most agricultural land under production is not found within arable lands (that is, land suitable for agriculture) (see Environmental Factors section). Most of the current lands being used are considered unsuitable for agriculture, and need to be fallowed and improved; most farmers do this by slash and burn (shifting agriculture), but in southern Belize, the Ya'axché Conservation Trust has been promoting sustainable practices such as mulching and Inga alley cropping.

Additionally, several villages, especially in southern Belize, do not have electricity or access to mobile phone coverage. Poor electricity and cell phone coverage limits their access to technological advances and to information that could improve agricultural practices[24]. The deteriorating conditions of the feeder roads leading to the highways, also makes it difficult for farmers to transport their products to and from the market[25].

Apart from the day-to-day difficulties that farmers face to produce and transport their products, Belize has had a lack of the proper tools and research to develop better agricultural practices and forest management. For example, Belize does not have a proper water management plan that addresses the water catchment use for agriculture and there is no established soil protection program[26]. Although there are many experts and knowledgeable people in Belize, there is a lack of research conducted specifically on restoration, sustainable agriculture, and restorative plant species in and for Belize[27]. These types of research must also include indigenous perspectives and location specific knowledge, for inclusivity and transparency. The Government of Belize (GOB), non-governmental organizations (NGOs) and private institutions have started using different software (such as ArcGIS, SIMIS, and LiDAR) for more accurate data gathering, but the access and education to use such software by local farmers is lacking. As for community forestry workers, their skill set in technical forestry and business is also greatly lacking[28].

Several NGOs have dedicated their time and effort into educating farmers and improving their practices, such as the Toledo Institute for Development and Environment, Ya'axché Conservation Trust, Sarteneja Alliance for Conservation and Development, and others, as well

23 Ibid.
24 Ibid.
25 Ibid.
26 Ibid.
27 Ibid.
28 Ibid.

as the Agriculture Department. A grassroots initiative in Toledo provides different indigenous varieties of corn to indigenous farmers for community use so as to maintain cultural integrity and promote food sovereignty[29]. However, many organizations are restricted from their full potential due to weak management structure to enforce regulations and their limited financial resources[30]. Lack of funds results in low or no supplies of plants and greenhouses available for the implementation of proper agricultural practices or restoration activities.

Growing crops using chemicals has been the fastest and easiest route for many farmers, since growing crops organically requires more knowledge of soil and crop management. Agrochemicals, which include pesticides and plant/animal growth regulators, are regulated by the Pesticides Control Board (PCB), but fertilizers are regulated by Belize Agricultural Health Authority (BAHA). Agrochemical use is largely unregulated since legislation needs to be updated or written in regard to government and pesticide industry responsibilities[31]; proposals for this to be updated were submitted to the Government in September 2021. Although chemical quantities are unregulated, there is reliable information available on the approximate pesticide use for different crop-producing regions of the country[32]. The Corozal Sustainable Future Initiative (CSFI) has been creating awareness about systemic pesticides and sustainable agricultural practices, and the PCB launched its 'Grow Safe' campaign in 2019, and is actively looking for partners with an interest in reducing reliance on Restricted Use Pesticides.

Several farmers have started to experience first-hand the impact of climate change. Mennonite farmers, such as those from Blue Creek, experiencing the impacts have started to put in place adaptation practices[33]. GOB and funding agencies have acknowledged these changes and have started to become more interested in sustainable and climate-smart agriculture to improve production and efficiency amidst the challenges from climate change. The Agriculture Department has been focusing and promoting climate-smart agriculture, mixed farming systems, agroforestry and the reduction of post-harvest losses (NAP, TBD)[34]. The GOB secured agricultural development financing via the International Fund for Agricultural Development (IFAD) to introduce climate-resilient agricultural practices that will allow small-holder farmers to have a sustainable production process and improved market access for their produce, even under the stress of climate change and extreme climatic events, therefore increasing their economic, social, and environmental resilience. This initiative will benefit communities in five priority areas the Orange Walk District, Belize District, Cayo District, Stann Creek District and the Toledo District, spread across 23 communities (GOB & IFAD, 2020).

29 Ibid.

30 Ibid.

31 Interviews with key stakeholders.

32 Ibid.

33 Ibid.

34 Ibid.

2.5. Environmental factors

Belize has 61.6% of forest cover, with approximately 35.8% within the National Protected Areas System (NPAS) (NBSAP, 2016). From 1980 to 2010, the national deforestation rate was calculated to be 0.6% per year (9,872 ha/year) (Cherrington, et al., 2010). However, the deforestation rate showed an increase between 2010 to 2012 (11,671 ha/year), and trends show a further increase. Between 2010 and 2012, 93% of deforestation occurred outside protected areas and 6.4% occurred within protected areas, mostly along the western border with Guatemala from the Vaca Forest Reserve down to the Columbia River Forest Reserve (NBSAP, 2016). According to Global Forest Watch[35], from 2010 to 2020, Belize lost 99.4 ha (8.7%) of humid primary forest, making up 54% of its total tree cover loss in the same time period. From 2010 to 2020, Belize lost 186,000 ha of tree cover, equivalent to an 11% decrease in tree cover since 2000. In studies conducted by IUCN in the framework of the Selva Maya Project, it was identified that within the 16 priority protected areas for the project in the period 2016-2020 the deforestation rate was 0.0015 on average, however outside of them the rate was -0.0030, that is, approximately 76,000 hectares. The Vaca Forest Reserve lost approximately 562 hectares in the 2016-2020 period[36]. Deforestation along the western border is a result of trans-boundary incursion from Guatemala. Contributing to the further degradation of forests in protected areas, forested land within protected areas that buffer Maya communities have also been de-reserved and parcelled out[37].

As for the coastal zone, 34% of Belize's mangroves are currently at low risk from human activity, 60% are at medium risk, and 6% are under high threat (CZMAI, 2016). Belize's coastal zone[38] is an area of 17,547.61 km², with only 0.45% developed as of 2010[39]. Over the past decades, economic development has become prevalent within the coastal zone as a result of population growth and tourism (CZMAI, 2016). Although Belize has developed more than one land use policy, the updated Land Use Policy of 2019 has not been accepted, and cannot be used to address land use concerns, or appropriate use of land.

About 38% of Belize's landscape is considered arable, but only 7% of the total land area is actively being used for agriculture, of which only 3.3% is arable (CIAT & World Bank, 2018; Itza, 2019; FAO, 2015). Interestingly, arable land can be found within protected areas, as in the Rio Bravo Conservation and Management Area, a private protected area used for sustainable

35 Belize Interactive Forest Map & Tree Cover Change Data | GFW (globalforestwatch.org).

36 Puyravaud, J.P. 2002. Standardizing the Calculation of the Annual Rate of Deforestation. Forest Ecology and Management, 177, 593-596. https://doi.org/10.1016/S0378-1127(02)00335-3.

37 Interviews with key stakeholders.

38 The coastal zone includes the mean high water mark up to the territorial sea with the 3-kilometer buffer along the coastline included (CZMAI, 2021).

39 CZMAI, 2021.

forest management which has been identified as land suitable for rice production[40]. Due to population increase, there is a growing national and international demand for natural resources (e.g., lumber, NTFPs and wildlife) and an increasing local demand for land resources, resulting in the expansion of the agricultural frontier. Some users of the agro landscape, such as the Banana Growers Association, attest that the banana industry plantations only lie within arable land, and would not expand on land that is not economic for such plantations. At the same time, there are idle lands that have been previously cleared for agriculture, but no regulations have been set in place to make use of them. Concurrently, agriculture expansion commences with land clearing and the exploitation of timber, which may be harvested illegally. There is a large number of sawmills in Belize, and many purchase illegal logs since there has been a very low supply of legally harvested timber[41].

The major environmental factors that affect agriculture are climate and weather. Agriculture has become extremely vulnerable to climate change due to high temperatures, and the increased frequency and intensity of hurricanes and droughts (NCCPSAP, 2014). However, to support climate change mitigation and adaptation, and in compliance with the Paris Agreement, Belize established a Forest Reference Emissions Level from 2001-2015 that aids as a benchmark for assessing Belize's performance in implementing activities that reduce emissions from deforestation and degradation (Forest Department, 2020).

Although laws, strategies, and policies have been written for the protection of Belize's natural resources, many are not consistently implemented[42]. For example, mangrove restoration projects are not well defined, enforced or implemented, and fire protections plans are either not properly or completely executed by landowners[43]. Furthermore, along any waterbody, such as rivers, ponds or the sea, a 66-foot forest buffer must be left in place, but this rule is not often implemented[44]. Watershed protection is also not enforced, even though watersheds are a critical concern for agriculture, including the banana industry[45]. The expansion of settlements and poor agricultural practices has become prevalent within watersheds, which contribute to soil erosion and degrade water quality. Unsustainable agricultural practices have also led to poor water quality and low water availability. Many farmers completely depend on wells (aquifers) for their water source, which cause extensive extraction and contamination to the water source. Belize does not have an established water quality baseline for all types of water and usage, so proper monitoring cannot be done effectively and accurately[46].

40 Interviews with key stakeholders.

41 Ibid.

42 Interviews with key stakeholders.

43 Ibid.

44 Ibid.

45 Ibid.

46 Ibid.

One of the major gaps within the protected areas system, is that only a portion of one of the three biological corridors is legally protected - the North-eastern Biological Corridor. Just recently, 236,000 acres of land which were once exploited for timber and NTFP's, are now being protected under the Belize Maya Forest (Trust), filling a critical gap in the Belize forest network, and adding benefits for connectivity for wildlife between the corridors. The Department of Environment (DOE) requires that a buffer be left on private lands along the biological corridors[47], but it is unclear whether this applies for established biological corridors only, or also for the unofficially designated biological corridors.

2.6. Legal factors

There are several gaps and inconsistencies within the laws of Belize in relation to land and land use[48]. For starters, there are no legal definitions for the terms "unimproved land" and "improved land", but yet all agricultural land is taxed as unimproved land (Roberson, 2017). Forested lands that are logged for the local timber industry have had a valuation increase, almost tripling the land taxes under Statutory Instrument No. 32 of 2016 (Roberson, 2017). Ecosystem services and the benefits of forested land are not yet considered, and the land tax regime does not offer incentives to producers and farmers to support new development and conservation priorities (NAP, TBD). Other terms, such as "good husbandry practices", and "good practices" and "appropriate action", which could be found within the Registered Land Act (CAP 194) and the Water Industry Act (CAP 222), respectively, are also not clearly defined, but only reference the Ministry and the Act responsible.

While laws in Belize are generally well-written, the challenge lies in their effective, consistent, and fair enforcement[49]. A huge loophole in Belize's laws that put a strain on good management and enforcement is the inclusion in the laws of phrases such as "…at the discretion of the minister", "the minister may exempt…", and "the minister may make regulations…". These phrases are found within the Land Tax Act, Cap. 58, National Lands Act, Cap. 191, and the Land Utilization Act, Cap. 188, for example. Such provisions have in the past undermined good legislation in Belize[50], and some key policies at times tend to be left in the back burner and without becoming proper legislation[51]. Current environmental legislation and review processes may cause delays in the development process, thereby potentially discouraging investment in development projects. However, some of these processes are necessary to ensure that any

47 Ibid.
48 Ibid.
49 Ibid.
50 Ibid.
51 Ibid.

impact to the ecological integrity of the proposed development site is minimized or prevented altogether.

Land can be privately owned, but the trees located on the land are owned by the government[52]. Certain species of trees can be removed or taken by the GOB, if it so desires. As for indigenous lands, the Forest Department has an *ad hoc* agreement with Maya communities, that trees and non-timber forest products (NTFPs) are allowed to be harvested for personal consumption within communal lands. However, the communal lands are not designated, creating boundary conflicts between different communities that border each other[53]. There are still prevailing issues between the indigenous people of Belize and GOB over land rights and tenure, since GOB still legally holds tree tenure within Maya lands. The insecurity of land and tree tenure could hamper the adoption of agroforestry practices or any other restoration practices by the indigenous people (NAP, TBD).

52 Interviews with key stakeholders.

53 Interviews with key stakeholders.

3. Summary of the ROAM process and results

Since Belize's Bonn Challenge Commitment in 2019, Belize utilized ROAM as a tool to identify and analyse degraded and deforested areas that are suitable for Forest Landscape Restoration (FLR). IUCN's definition of FLR is "the process of regaining ecological functionality and enhancing human well-being across deforested or degraded forest landscapes." This process allows for multiple land uses, such as agriculture, hunting, natural regeneration, and protection of wildlife in order to sustain present and future needs without damaging ecosystem services (IUCN & WRI, 2014). Some of these ecosystem services include carbon storage, soil stability, clean water, air quality, raw materials, and recreation (Elliott, Blakesley & Hardwick, 2013). Additionally, ROAM aids in identifying priority areas based on the country's priorities, through the definition of key ecosystem services and productive areas to be restored, and that will be committed for restoration under the Bonn Challenge pledge.

The ROAM framework has three phases: (1) Preparation and planning, (2) Data collection and analysis, and (3) Results to recommendation (IUCN and WRI, 2014). These three phases delivered the following main products, which were developed in collaboration and engagement with key stakeholders across Belize:

- Total extent of restoration opportunities;
- Feasible restoration strategy types (restoration practices);
- Cost-benefit analysis for each restoration strategy;
- Priority areas for restoration that are socially, economically and ecologically feasible; and
- Policy, financial and social incentives proposal that support restoration.

The expected outcomes of ROAM include governmental leadership and joint support with multistakeholder engagement at different levels and sectors, such as other governmental

institutions, NGOs, indigenous groups and private sector for restoration; better information for land-use decision-making; input for climate and disaster risk adaptation and mitigation, biodiversity conservation, and restoration strategies; and supports the allocation of resources, including prioritization of investment for restoration programmes.

Several ROAM national workshops were conducted convening the Belize National Restoration Round Table and the Gender and Restoration Committee, as the two main consultation platforms of the process (see in Annex: participants of the process). The main results are summarized below.

The two first national ROAM workshops (one carried out with the Gender and Restoration Committee and another with the Belize National Restoration Round Table) selected criteria to identify the landscape restoration opportunity areas for Belize. The criteria included biodiversity/ connectivity, water, vulnerability, soil management and conservation, and pollination. Based on land-use data and geodata available for each criterion, maps were created for each, and then overlayed to show the restoration opportunity within the sum of the criteria. Furthermore, forest degraded landscapes and agro landscapes were intersected with the opportunity criteria map to form the opportunity restoration map (Chavarria, 2019). The forest degraded landscapes include medium, high, and very high disturbances caused by hurricanes, forest fires, exploitation, pests, and other human impacts. As for the agro landscape, only the medium, high, and very high, restoration opportunity categories were considered for the opportunity areas map (Chavarria, 2019).

Therefore, this map of opportunities (Figure 1) allows us to identify the location, the area (hectares), and type of lands that have the opportunity to be restored in the country. This information is key to defining the actions necessary to recover priority ecosystem goods and services, as well as to measure the effort that the country must carry out.

The second national ROAM workshops were carried out with the two consultation platforms who validated the opportunity restoration map, identified the restoration actions for Belize, and assisted in the definition of the restoration practices, that were later verified and adjusted with the different stakeholders that will implement the practices on the ground.

The opportunity areas map identified 382,592 hectares of degraded forests and agro landscapes which when restored, will recover the ecosystem services and functions prior to human disturbance or natural disasters (Table 1).

The restoration actions within the agro landscape were developed for the following land uses: banana, rice, sugarcane, citrus and coconut production, and livestock (as in table 2). Within the forest landscape, restoration actions were split into two categories: inside protected areas

Table 1. Areas of opportunity for restoration in the landscape of Belize in hectares

Restoration Opportunity Areas in the Belizean Landscape	
Land use	**Opportunity Areas (ha)**
Forest degradation inside protected areas	43,983.58
Forest degradation outside protected areas	179,361.28
Total forest landscape	**223,344.86**
Banana	2,520.39
Coconut	131.22
Other crop	52,868.13
Pastures	57,873.66
Rice	1,420.07
Sugar cane	44,434.25
Total agricultural landscape	**159,247.72**
Total Belize Landscape	**382,592.58**

and outside protected areas. Restoration actions within the forest landscape were developed on different land uses and ecosystem types, as represented in the table 2.

The cost-benefit analysis compares the Business as Usual (BAU) actions to the FLR actions within a 20 year period at a 9% discounted rate (Gutierrez, 2020). The analysis examines the costs for implementation, maintenance, and direct incomes from product sale, and avoided costs and benefits of FLR and BAU actions. The cost-benefit analysis also identifies the net benefits from FLR actions, which include benefits that cater to the protection and conservation of ecosystem services.

The Net Present Value (NPV)[54] for the FLR and BAU actions within the agro landscape were determined for each land use type aforementioned. The FLR actions for rice, citrus, coconut,

54 NPV is the total value of a potential investment opportunity.

Table 2. Restoration actions in the agricultural and forest landscape

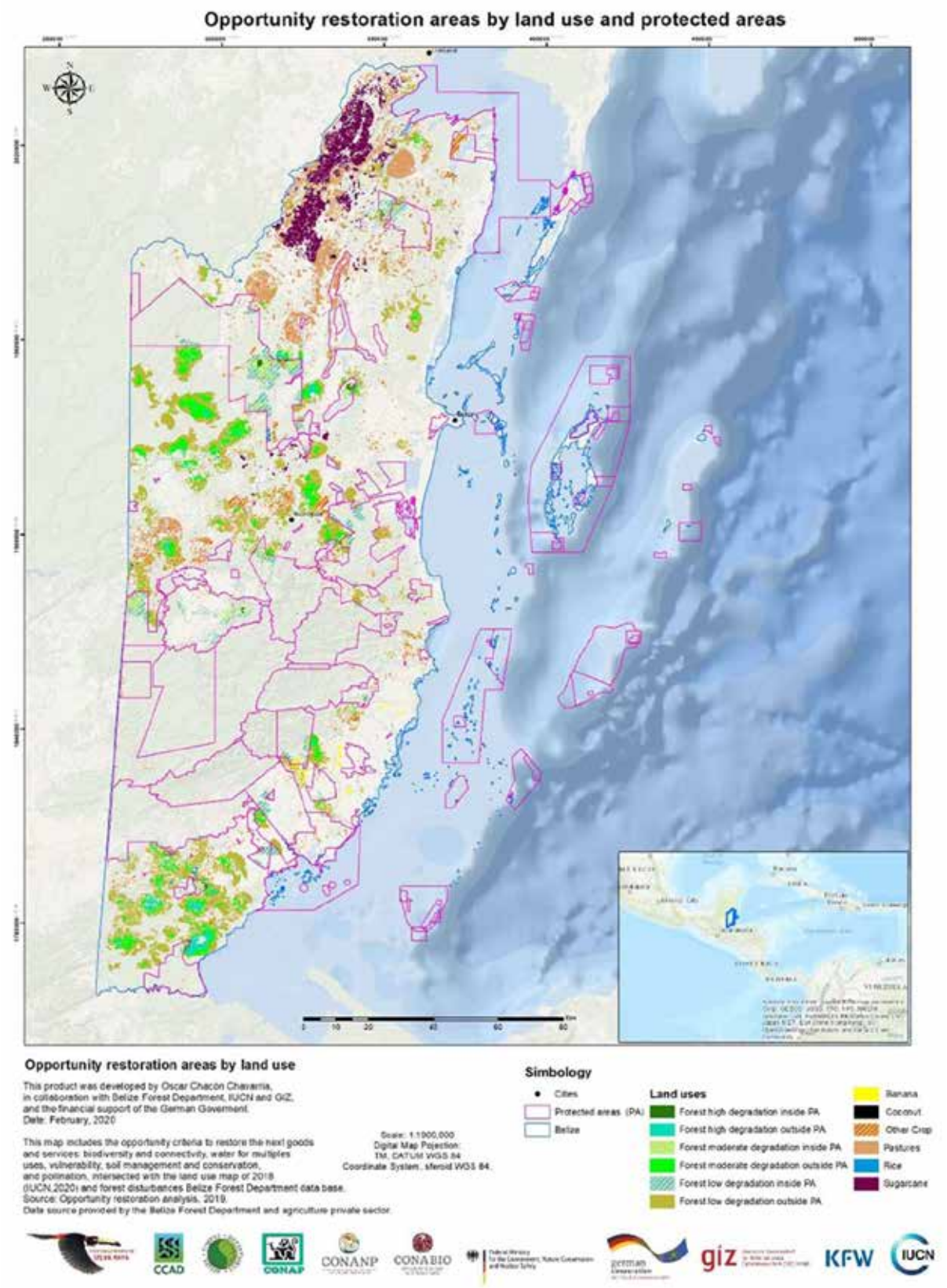
Land Use	Total Opportunity Area (ha)
Banana production	Improved variety, good agricultural practices, and soil management
Rice production	Improved variety and good agricultural practices
Sugarcane production	Good agricultural practices, soil management and green harvesting
Livestock	Silvopastoral system
Citrus production and coconut production	Citrus-coconut system with good agricultural practices and soil management
Deforested and heavily degraded broadleaf forests within protected areas (IUCN categories I, II and III)	Assisted succession through nucleation techniques
Broadly degraded broadleaf forest in protected areas (IUCN categories IV, V and VI)	Regeneration assisted with ecological restoration techniques
Broadleaf and mixed forest within protected areas (for all classes) degraded (low and medium)	Passive regeneration
Broadleaf and mixed forest (outside protected areas) under sustainable management. Forests that have been exploited and buffer zones	Assisted regeneration with enrichment planting in strips Assisted regeneration for a sustainable forest management model
Degraded pine forest	Assisted regeneration with enrichment planting in lines Assisted regeneration with enrichment planting in strips

and livestock showed to have a significantly higher NPV than BAU, whereas the FLR action for banana had a higher NPV under BAU. As for sugarcane, both the FLR and BAU actions had a negative NPV, implying zero financial returns on both actions (Gutierrez, 2020).

Alternatively, the NPV for the FLR actions within the forest landscape were analysed based on the six types of restoration actions developed: 1) enrichment planting strip, 2) passive regeneration, 3) ecological restoration, 4) sustainable management, 5) enrichment planting, and 6) nucleation (Sanchez-Monge, 2020) . Sustainable management was the only restoration action to have a positive NPV, with the other actions having a negative NPV, because these actions do not contemplate a direct economic activity[55]. However, FLR actions also support

55 Nucleation is defined as a technique that seeks to increase the internal diversity of fragments devoid of vegetation in restoration areas (Sanchun, et. al., 2016).

Figure 1. FLR opportunity areas within forests and agro-landscape



environmental benefits, such as reducing erosion, sediment export, nutrient export and increasing carbon sequestration (Gutierrez, 2020). These additional benefits coupled with the financial benefits received from the FLR implementation, largely outweigh the benefits from the BAU actions.

After estimating direct income (monetary benefits), the analysis of FLR actions try to evaluate different environmental benefits and social benefits of restoration actions, that is, the co-benefits of FLR (IUCN and WRI 2014). The purposes of estimating the co-benefits are: (1) to understand the broader impact of FLR actions, and (2) to address the needs and interests of the stakeholders about the impacts of implementing the proposed FLR actions. The environmental co-benefits estimated were erosion control, sediment retention, nutrient retention (nitrogen and phosphorus), impact on baseflow and quick flow, carbon balance, and job creation.

The potential of each restoration action to reduce erosion; decrease the export of sediments and nutrients (N and P); and increase baseflow and reduce quick flow was estimated by calculating the difference between the 'current scenario' and the 'restored scenario'. Thus, this analysis shows what are the restoration actions with the greatest impact on the environmental criteria and the areas associated to these actions, which help to identify priority areas for restoration. For example, the restoration of silvopastoral system, soil conservation practices in banana, orange and coconut are the practices with the greatest impact on coastal ecosystems, reducing nutrients exportation, and safeguarding this important ecosystem for one of the key Belize's economic activity.

Finally, the stakeholders participated in ranking socioeconomic and environmental criteria and based on the ranking results, developed a priority areas map showing the prioritized agro landscape and forest landscape at 79,822 hectares and 50,179 hectares, respectively, totalling 130,000 hectares (Table 1 and 2, Figure 2) of the landscape. The 130,000 hectares of priority areas represents the official Bonn Challenge Pledge for Belize.

Table 3. Opportunity and Priority areas in hectares within forests and agro landscape areas[56]

Forest Landscape		
Land use	**Opportunity Areas (ha)**	**Priority Areas (ha)**
Forest degradation inside protected areas	43,983.58	119
Forest degradation outside protected areas	179,361.28	50,060
Total Area	**223,344.86**	**50,179**

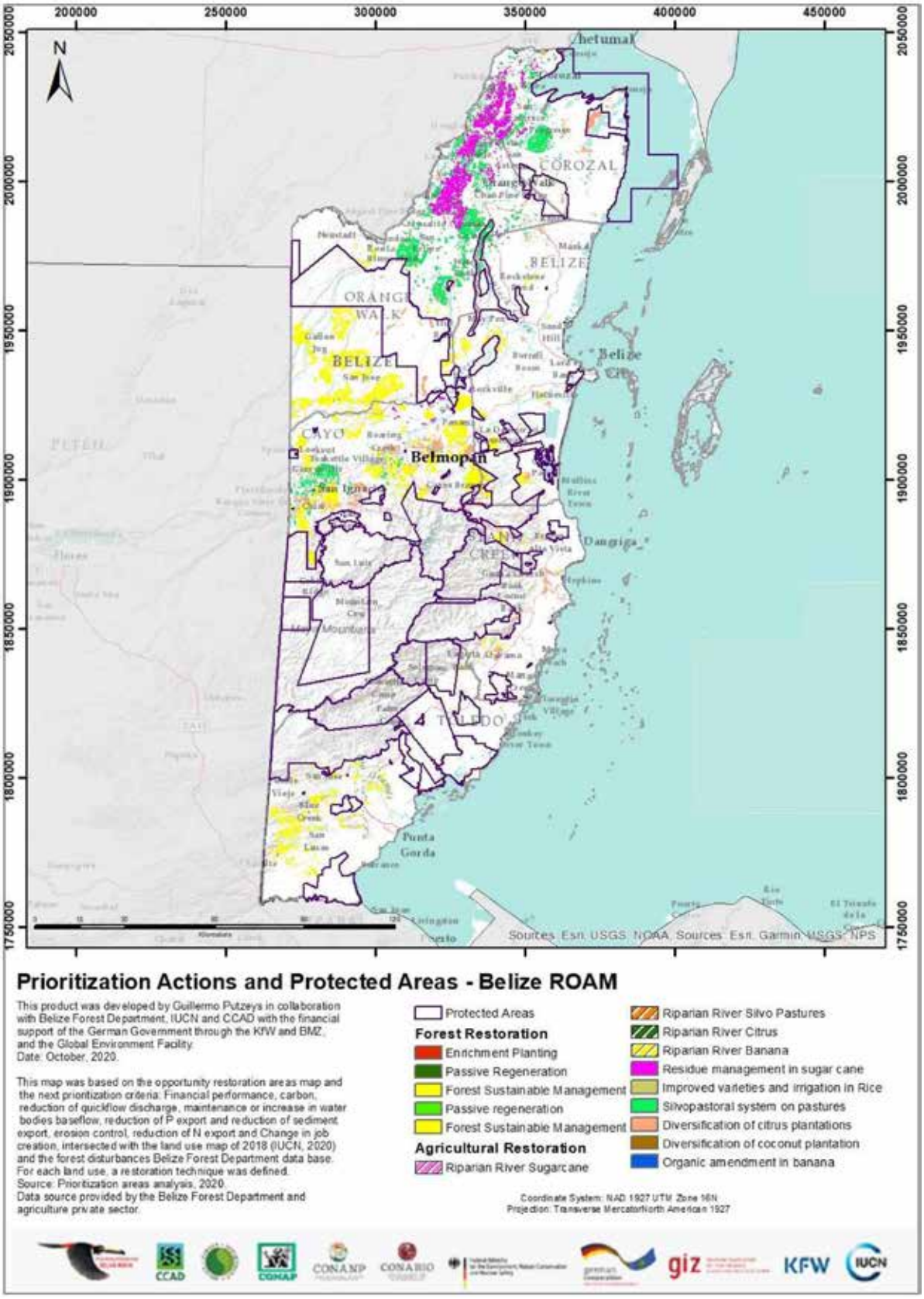
Agro landscape		
Land use	**Opportunity Areas (ha)**	**Priority Areas (ha)**
Banana	2,520.39	288
Coconut	131.22	78
Other crop	52,868.13	22,078
Pastures	57,873.66	34,354
Rice	1,420.07	126
Sugar cane	44,434.25	22,898
Total Area	**159,247.72**	**79,822**

Table 4. Total area of Opportunity Areas and Priority Areas

Land Use	Total Opportunity Area (ha)	Total Priority Area (ha)
Forest Landscape	223,344.86	50,179
Agro-landscape	159,247.72	79,822
Total	**382,592.58**	**130,001**

56 The areas include high, medium and low degraded forests/agro landscapes (IUCN, 2020).

Figure 2. Priority areas within forests and agro landscapes



4. Assessing the current status of the landscape restoration process in Belize

An analysis of internal strengths and weaknesses and external opportunities and threats (SWOT) was performed related to the landscape restoration process. The SWOT analysis allowed the planning team to clearly and strategically identify what internal strengths and external opportunities can be capitalized on, and what internal weaknesses and external threats need to be eliminated, reduced or carefully managed. The synthesized performance statements are presented below (See Annex 5 for the detailed results of the SWOT Analysis).

4.1. Strengths

Stakeholder organizations may be able to support landscape restoration efforts by providing resources that would support landscape restoration activities. Several stakeholder organizations have experience in community engagement and planning, which they can use in the landscape restoration process. Rural inhabitants, specifically the rural poor, farmers, and producers, have experienced and recognize the effects of degradation and deforestation on their landscape. Consequently, these communities would welcome the opportunity to revitalize the landscape and enable community activities to be harmonious with restoration activities, which would improve their livelihoods in return. The landscape restoration process would create jobs and encourage young Belizeans to engage in meaningful employment that would support the restorative actions and their benefits. Community involvement creates inclusivity, which would bode well for landscape restoration efforts. Currently, communities, such as Conejo and Santa Teresa, are engaged in community-based sustainable forest management programs that were developed with the support of the Sarstoon Temash Institute for Indigenous Management (SATIIM) and the Forest Department.

For years, stakeholder organizations (including conservation NGOs) have built a working relationship with the Government of Belize, especially with the Forest Department, focusing their efforts on protected areas management. Stakeholder organizations share the will and desire to implement landscape restoration actions which aligns with their goals of protecting Belize's natural resources. Stakeholder and NGO's have the capacity through key technical experts to implement restoration actions on field, established networks with other organizations that can provide support, assist in the orientation, training, and equipping participants in the landscape restoration process, and more importantly, they already have experience in forest landscape restoration, and have established activities that contribute to the maintenance of ecosystem goods and services. Several organizations are conducting biodiversity monitoring and other monitoring related to ecosystem services (such as water) that measure the effectiveness of conservation management actions. Community-based sustainable forest management, which include restoration and assisted regeneration activities, area already being conducted. Some restoration activities are already taking place, such as the implementation of climate smart agricultural practices/systems and tree planting campaigns. Climate-smart agriculture training and demonstration plots are also being promoted and established to educate farmers on the advantages of adopting such practices. The Forest Department has six (6) range offices which facilitate the deployment of resources, such as technical support and tree saplings from their nurseries. A wide variety of local tree species are easily accessible and could be utilized in restoration efforts.

Stakeholder organizations have the desire to convene to discuss steps moving forward with landscape restoration and to include technologies to monitor the restoration process. Additionally, international partners could also assist in restoration activities via funding or physical assistance. The majority of organizations in Belize that have access to funding, are already implementing projects and have project management abilities to collectively implement the strategy.

4.2. Weaknesses

Internal factors faced by stakeholder organizations that do not bode well for landscape restoration efforts were identified in order to determine the improvements that need to be made. At the operational level, some stakeholder organizations have insufficient knowledge and capacity to landscape restoration, which would affect the implementation of the NLRS. Very few stakeholder organizations have human resources and the technical capacity dedicated to restoration, and forest landscape restoration is often not programmed in organizational workplans. Additionally, there is limited collaboration and collective understanding among organizations in relation to landscape restoration. Therefore, coordination for implementing national policies and plans must be improved and established within the organizations. Another factor that could affect the

proper implementation of the restoration strategy is the inability of conservation organizations to influence key private sector groups that should be involved in restoration.

There is a need to improve and establish a strong inter-ministerial and inter-sectoral track record for collaborative work pertaining to all forms of development and conservation projects, which may be expected for restoration efforts. Enforcement of legislation or implementation of polices, laws and practices to enable restoration efforts, and leverage financial resources are needed for the proper implementation of the NLRS and achieving the restoration tragets. Furthermore, an adjusted legislation would promote reforestation or landscape restoration initiatives to address development activities that cause land degradation. Due to limited human and financial resources, the Forest Department alone does not have the capacity to support a forest restoration program.

Although some stakeholder organizations support restoration activities, there is limited local capacity to execute and /or coordinate large scale restoration efforts with strong investment. There is also not enough training and demonstration plots –with evidence, materials, and sound information– to educate famers on the advantage of adopting climate-smart agriculture practices on small and large scale systems. In fact, a successful restoration operation requires great understanding on the appropriate trees and where and how to plant and maintain them within the landscape. A repository/system of related information does not exist for Belize. Apart from the list of trees, there is also limited knowledge and information gathered on seeding, seed germination, nursery production and transplantation. Additionally, wetland ecology and bioremediation technologies are poorly understood when addressing and controlling nutrient discharge from landscapes. Therefore, through good field and literature research and the assistance of technical experts, knowledge gaps could be addressed. If we recognize that the implementation and adoption of sound smart agriculture/forestry/silvopastoral practices require clear market and financial incentives, then, special attention should be put on specific market opportunities and arrangement, as well as financial mechanisms to facilitate restoration.

Although several stakeholder organizations have experience in engaging local communities in projects and activities, minimal focus is given to community livelihoods versus protected areas management and conservation initiatives. The lack of technology in the rural communities has also created poor participation in restoration actions. Suspicions of hidden motives and lifestyle restrictions imposed by conservation initiatives has also perpetuated mistrust among community members living within priority landscapes. Several communities are therefore not receptive to behavioural change that would support forest landscape restoration actions, especially if the actions are not suited for them in the short-term. On the other hand, for the communities and farmers that are interested in these actions, they lack the proper human, technological resources and market opportunities and channels. Thus, unstainable land use practices and developments continue to cause degradation and deforestation.

4.3. Opportunities

The landscape restoration process brings about national and international opportunities that can support actions that create favourable outcomes for all parties involved in the process. A depressed economy, further exacerbated by floods and droughts, has greatly impacted farmers and their livelihoods. The degradation of nature puts economies at risk. Changes in crop supplies caused by the decline in pollinating insects alone, for instance, could result in an annual net loss of USD 191 billion, globally.

To combat this challenge, a conservation-based industry could be developed that focuses on employment, reviving the weakened economy and adding true value to conservation initiatives. The NLRS would encourage the restructuring of the economy from one based on exploitation, to one grounded on maintaining and benefitting from ecological services provided by functioning landscapes, while contributing to economic and social development. Apart from the ecosystem services that restoration actions provide, crops produced using regenerative methods have increased in demand in the global market.

Landscape restoration has become a global action to reverse or improve degraded or deforested landscapes. Developed nations, especially, have committed financially to restoration, and are even contributing to funding developing nations on their initiatives involving restoration actions. Collaboration among the stakeholder organizations involved in the restoration process will also yield higher funding opportunities. Since the objectives of the landscape restoration process are aligned with the REDD+ strategy, funding opportunities via the REDD+ strategy may exist. Restoration is becoming recognized as a national priority to build Belize's resilience against climate change. There are already several ongoing projects that involve some level of restorative actions, such as the Phase 2 of the Selva Maya Program (KfW), and the New River management planning process (Mar2R).

Since restoration initiatives, as a Nature Based Solution is increasingly recognized as a key driver to promote green and blue economies[57], and are expanding across the globe, there are now a myriad of conservation partners, academics, and experts locally and internationally that can provide valuable information or guidance to fill capacity gaps. Key experts can also provide guidance on addressing the public on forest landscape restoration via education and outreach.

57 http://www.nbspolicyplatform.org/countries/belize/pdf/
https://www.pewtrusts.org/en/research-and-analysis/articles/2020/09/24/belize-plans-nature-based-solutions-in-fight-against-climate-change
https://www.worldbank.org/en/news/feature/2021/03/24/resilience-and-conservation-in-a-changing-climate-the-case-of-belize
https://www.worldbank.org/en/news/feature/2021/03/24/resilience-and-conservation-in-a-changing-climate-the-case-of-belize

Monitoring and evaluation projects catered to assessing climate change impacts and climate-smart agriculture practices could also be implemented, which would inform best use practices. Once the NLRS becomes established, payment for ecosystem services could be evaluated to determine if they could be integrated in restoration programs in Belize.

The landscape restoration strategy aligns with several national initiatives or strategies, as well as various international agreements that Belize is party to. Landscape restoration is also consistent with several of the Sustainable Development Goals, (14.1[58], 15.1[59], 15.2[60] and 15.3[61]), thus allowing for resources to be better mobilized. Therefore, the Government of Belize could be supportive and in favour of the NLRS implementation since the actions could provide necessary resources that are not currently available.

The NLRS can also play an important and significant role in the economic response to the Covid-19 pandemic[62]. The pandemic has depressed economic demand and removed or reduced sources of income for many people . Restoring forests and other degraded landscapes requires physical labour to prepare the land, plant and tend to the trees of the newly restored vegetation. Aligning private sector business models with NLRS objectives can create long-term stable employment and economic activity in the form of workjobs that support conservation.

The Forest Departments' Medium Term Development Strategy, submitted to Ministry of Economic Development and Ministry of Finance, is to maximize the use of natural capital through the application of nature-based solutions and to strengthen resilience to climate change impacts. This means implementation of the agroforestry policy, successful achievement of the Belize Bonn challenge pledge through the implementation of the National Landscape Restoration Strategy, and capitalization of REDD+ Carbon credits through payment for results.

58 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.

59 By 2020, sustainably manage, and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience and take action for their restoration, to achieve healthy and productive oceans.

60 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.

61 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world.

62 The COVID-19 pandemic caused the global economy to shrink by an estimated 3.5% in 2020. 8.8% of global working hours were lost, equivalent to 255 million full-time jobs, and severe long-term economic consequences are predicted.

4.4. Threats/Challenges

Landscape restoration efforts can be undermined by external factors at the national and international level. One of the major and most recent challenges has been the Covid-19 pandemic. The pandemic has resulted in unprecedented challenges on livelihoods in Belize and the world. Due to the global international financial crisis caused by pandemic-related lockdowns and job losses, the post-pandemic economic recovery, growth and development prioritization may create a hindrance to funding forest and landscape restoration efforts. Nationally, there is also limited available financial resources since the large domestic and external debt is also prioritized. Severe climate impacts from floods, droughts, and hurricanes, also threaten economic recovery and pose significant challenges to the success of forest and landscape restoration efforts.

Before the pandemic, Belize's economic situation was already declining. Development projects have been on the rise, leading to an increase in habitat conversion/deforestation. Higher monetary value is derived from conversion versus restoration in the short term, and with the current fiscal challenges, the GOB is pressured to encourage and support large development projects and rural expansion for an increasing population. Protected areas and forest reserves have also undergone de-reservation in the past for development. The challenge with large-scale developments is that they tend to focus their business models on making a profit first and foremost, rather than on minimizing or mitigating environmental and social impacts. On the other end of the spectrum, it is not a customary practice for environmental lobbyists to do a cost-benefit analysis of economic investments.

The expansion of the agricultural frontier is causing massive landscape degradation and deforestation. Along the border with Guatemala, cross-border incursions and extraction of natural resources from our forests continue to pose a threat to Belize's biodiversity and undermine territorial integrity. Furthermore, forest degradation, whether direct or indirect, has resulted from ongoing road development. Road development opens and divides forested land, which make these areas accessible for illegal logging, poaching, and conversion to agriculture. The proposed highway through the Rio Bravo Conservation and Management Area, and the Coastal Road crosses through the Runaway Creek Private Reserve, the Manatee Forest Reserve, and Grants Work Forest Reserve, will disrupt forest connectivity.

5. Vision, Mission and Key Result Areas

The Vision for the National Landscape Restoration Strategy (NLRS) is as follows:

> **"Human well-being, local livelihoods, biodiversity and ecosystem services are improved via the regeneration and restoration of at least 130,000 hectares of Belize's degraded soils, forests, and agricultural landscapes."**

This following Mission is the focus of the NLRS over the medium-term (that is, between now and 2030):

> **"Conduct forest and agricultural landscape restoration initiatives within priority areas, via the creation of the enabling environment (policies/laws), local collaboration and broad partnerships, sharing lessons learnt and experiences, and mobilizing resources, for the benefit of all Belizeans, but with a particular focus on building the capacity of farmers, rural and indigenous people, and relevant institutions."**

Five Key Result Areas (KRAs) were identified (Figure 3). These KRAs are critical success factors where strong positive results must be realized for the NLRS Mission to be achieved, and therefore, move toward realizing the NLRS Vision.

Strategic objectives were defined spelling out a set of feasible strategy alternatives to positively impact each Key Result Area (Figure 4).

These strategic objectives and their associated strategies were incorporated into the NLRS with appropriate responsibilities and time frames assigned (see Section 7).

Figure 3. Philosophical Framework for the NLRS for Belize and the KRAs

NATIONAL LANDSCAPE RESTORATION STRATEGY FOR BELIZE
Philosophical Framework

Vision:
Human well-being, local livelihoods, biodiversity and ecosystem services are improved via the regeneration and restoration of at least 130,000 hectares of Belize's degraded soils, forests, and agricultura landscapes.

Mission:
By 2030, conduct forest and agricultural landscape restoration initiatives within priority areas, via the creation of the enabling environment (policies/laws), local collaboration and bread partnerships, sharing lessons learnt and experiences, and mobilizing resources, for the benefit of ali Belizeans, but with a particular focus on building the capacity of farmers, rural and indigenous people, and relevant institutions.

KRA #1	Enabling Environment (policies/legislation)
KRA #2	Human Well-being and Local Livelihoods
KRA #3	Forest and Agro-Landscape Restoration
KRA #4	Biodiversity and Ecosystem Services
KRA #5	Resource Mobilization and Capacity Building

Figure 4. National Landscape Restoration Strategy Roadmap

6. Strategic Objectives and Actions

6.1. Enabling Environment (policies/legislation)

Strategic Objective #1: By 2030, conduct a comprehensive review of pertinent laws related to landscape restoration with a view to strengthening legislation and synergies among laws.

Strategic Actions:

a) Establish a Multi-agency Task Force that is charged with championing and overseeing the implementation of the National Landscape Restoration Strategy (NLRS).

b) Develop and implement an advocacy campaign geared at building support among all sectors for the implementation of the NLRS.

c) Improve monitoring of activities, and strengthen enforcement of laws pertinent to landscape protection and restoration, including sustainable forest management and regenerative agriculture, where they exist.

d) Carry out legislative analysis to identify gaps and conflicts in legislation pertaining to landscape protection and restoration, including sustainable forest management and regenerative agriculture.

e) Formulate legislation to govern the development and implementation of watershed management plans.

6.2. Human Well-being and Local Livelihoods

Strategic Objective #1: Communities develop and sustain local livelihoods and improve their well-being within prioritized agro landscapes by 2030.

Strategic Actions:

a) Review and determine feasible economic alternatives supporting livelihoods.

b) Finance and implement short-term economic alternatives in order to support livelihoods of participating farmers.

c) Institute reward, incentive and recognition mechanisms for farmers, land/forest managers, and industries that engage in restorative land management practices.

6.3. Forest and Agro Landscape Restoration

Strategic Objective #1: Sustainable Forest Management in prioritized broadleaved forests is strengthened via reforestation and assisted regeneration by 2030.

Strategic Actions:

a) Conduct ground-truthing via forest assessments and inventory within the prioritized broadleaf forests.

b) Establish the reforestation and assisted regeneration methodology for the prioritized broadleaf forests.

c) Implement a reforestation and assisted regeneration program within the prioritized broadleaf forests.

Strategic Objective #2: Sustainable regenerative agricultural practices/systems are being implemented in prioritized agro landscapes (excluding pastures) by 2030.

Strategic Actions:

a) Support and develop demonstration home gardens as a model for other homes across rural and urban areas of the country.

b) Establish agroforestry systems in degraded agro landscapes (such as banana and citrus, and excluding sugar cane), including capacity building in implementation of these systems.

c) Establish regenerative practices in rice fields and sugar cane plantations that are degraded due to poor management.

d) Restore and protect riparian zones that are within prioritized agro landscapes.

Strategic Objective #3: Silvopastoral systems are being implemented in prioritized pastures (land used for livestock only) by 2030.

Strategic Actions:

a) Improve and enhance vegetation cover on existing pasture (grazing land).

b) Expand improved fallow lands (for example, by planting trees and shrubs) that are used for grazing leaving the land to recover on its own.

c) Intensify the productivity of existing grazing areas (i.e., be able to increase livestock per unit of area).

6.4. Biodiversity and Ecosystem Services

Strategic Objective #1: By 2030, develop and implement watershed management plans in order to restore and protect Belize's watersheds and riparian forests within priority areas.

Strategic Actions:

a) Rapid watershed assessments (RWAs) to identify areas that are undergoing change in order to implement restoration strategies, and inform management plan development.

b) Establish a task force for each watershed with special attention to wide stakeholder consultation and inclusion in the decision making process (e.g., New River Task Force).

c) Develop watershed management plans.

d) Implement plans with the restoration of 6,000 hectares[63] of riparian zones.

e) Monitoring by the key organization and communities involved, with independent validation.

63 IUCN, 2020.

Strategic Objective #2: By 2030, develop and implement a national public awareness and education strategy that focuses on promoting healthy, productive and restored forests and agro landscapes, and educating Belizeans on the pertinent laws related to landscape restoration.

Strategic Actions:

a) Review lessons learned and challenges faced by other organizations (i.e. FCD & their Chiquibul Watershed awareness) for the implementation of public awareness and education strategy.

b) NGOs and GOB collaborate to develop and plan common messages.

c) Implement public awareness and education campaign via television and radio ads, social media, and morning shows, and school visits.

d) Include restoration activities in the school curriculum at various levels.

6.5. Resource Mobilization and Capacity Building

Strategic Objective #1: By 2030, a national landscape restoration funding mechanism is in place to support forest and agro-landscape (including silvopastures) restoration initiatives.

Strategic Actions:

a) Advocate for the Government of Belize to assign funding to support forest and agricultural landscape restoration as part of our Nationally Determined Contributions.

b) Develop a transparent and secure mechanism through which the Environmental Management Fund (EMF) can contribute to restoration activities.

c) Determine the feasibility of payment for ecosystem services (PES) mechanisms, particularly exploring the role of the private sector, so that landscape restoration initiatives are sustained and resilient.

d) Develop pilot programs through large industry to finance/incentivize restoration activities.

Strategic Objective #2: By 2030, sustainable regenerative agricultural practices have become the norm in each district thereby strengthening food sovereignty capabilities.

Strategic Actions:

a) Conduct literature review on sustainable regenerative agriculture for its proper implementation within priority areas.

b) Train at least 50% of the staff of the Agriculture Department and other relevant institutions in agro-landscape restoration initiatives.

c) Train at least 50% of the staff of the Forest Department and other relevant institutions in forest restoration initiatives.

d) Establish partnerships with participating farmers to support the implementation and oversight of restoration activities.

e) Identify existing nurseries and improve at least 15 (of those identified) or establish new ones if needed across the country (community nurseries for local trees).

f) Organize a Native Tree Species Restoration Group in each district to support and facilitate seed sharing and research.

g) Capacity building in seed collection, storage, and management.

h) Provide skills training on soil regeneration and land restoration to at least 10% of farmers and producers in each district.

i) Develop 5% of farms in each district (across landholding size range) into model farms that demonstrate sustainable, restorative, and climate-smart agriculture.

j) Incorporate the use of technology to maximize the impact of extension services, marketing, data collection and other areas that are key to restoration activities.

k) Collate and publish experiences that document the restoration methodologies and results of participating landowners/farmers.

7. NLRS Implementation Schedule (2021-2030)

Strategies/Tactical Objectives *What will be done?*	Year									
	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Key Result Area #1: Enabling Environment (policies/legislation)										
Strategic Objective #1: By 2030, conduct a comprehensive review of pertinent laws related to landscape restoration with a view to strengthening legislation and synergies among laws.										
a) Establish a Multi-agency Task Force that is charged with championing and overseeing the implementation of the National Landscape Restoration Strategy (NLRS).	X									
b) Develop and implement an advocacy campaign geared at building support among all sectors for the implementation of the NLRS.	X	X	X	X	X	X	X	X	X	X
c) Improve monitoring of activities, and strengthen enforcement of laws pertinent to landscape protection and restoration, including sustainable forest management and regenerative agriculture, where they exist.	X	X	X	X	X	X	X	X	X	X
d) Carry out legislative analysis to identify gaps and conflicts in legislation pertaining to landscape protection and restoration, including sustainable forest management and regenerative agriculture.	X	X	X							
e) Formulate legislation to govern the development and implementation of watershed management plans.	X	X	X	X	X	X	X	X	X	X
Key Result Area #2: Human Well-being and Local Livelihoods										
Strategic Objective #1: Communities develop and sustain local livelihoods and improve their well-being within prioritized agro landscapes by 2030.										
a) Review and determine feasible economic alternatives supporting livelihoods.	X	X	X							
b) Finance and implement short-term economic alternatives in order to support livelihoods of participating farmers.				X	X	X	X	X	X	X
c) Institute reward, incentive and recognition mechanisms for farmers, land/forest managers, and industries that engage in restorative land management practices.				X	X	X	X	X	X	X
Key Result Area #3: Forest and Agro-Landscape Restoration										
Strategic Objective #1: Sustainable Forest Management in prioritized broadleaved forests is strengthened via reforestation and assisted regeneration by 2030.										

a) Conduct ground-truthing via forest assessments and inventory within the prioritized broadleaf forests.	X	X								
b) Establish the reforestation and assisted regeneration methodology for the prioritized broadleaf forests.	X	X								
c) Implement a reforestation and assisted regeneration program within the prioritized broadleaf forests.			X	X	X	X	X	X	X	X
Strategic Objective #2: Sustainable regenerative agricultural practices/systems are being implemented in prioritized agro landscapes (excluding pastures) by 2030.										
a) Support and develop demonstration home gardens as a model for other homes across rural and urban areas of the country	X	X	X	X						
b) Establish agroforestry systems in degraded agro landscapes (such as banana and citrus; excluding sugar cane), including capacity building in implementation of these systems			X	X	X	X	X	X	X	X
c) Establish regenerative practices in rice fields and sugar cane plantations that are degraded due to poor management			X	X	X	X	X	X	X	X
d) Restore and protect riparian zones that are within prioritized agro landscapes		X	X	X	X					
Strategic Objective #3: Silvopastoral systems are being implemented in prioritized pastures (land used for livestock only) by 2030.										
a) Improve and enhance vegetation cover on existing pasture (grazing land)		X	X	X	X	X	X	X	X	X
b) Expand improved fallow lands (for example, by planting trees and shrubs) that are used for grazing leaving the land to recover on its own		X	X	X	X	X	X	X	X	X
c) Intensify the productivity of existing grazing areas (i.e., be able to increase livestock per unit of area)				X	X	X	X	X	X	
Key Result Area #4: Biodiversity and Ecosystem Services										
Strategic Objective #1: By 2030, develop and implement watershed management plans in order to restore and protect Belize's watersheds and riparian forests within priority areas.										
a) Rapid watershed assessments (RWAs) to identify areas that are undergoing change in order to implement restoration strategies, and inform management plan development.		X	X							

b) Establish a task force for each watershed with special attention to wide stakeholder consultation and inclusion in the decision making process (e.g., New River Task Force).			X	X	X	X				
c) Develop watershed management plans.			X	X	X	X				
d) Implement plans with the restoration of 6,000 hectares of riparian zones.						X	X	X	X	X
e) Monitoring by the key organization and communities involved, with independent validation.							X	X	X	X
Strategic Objective #2: By 2030, develop and implement a national public awareness and education strategy that focuses on promoting healthy, productive and restored forests and agro landscapes, and educating Belizeans on the pertinent laws related to landscape restoration.										
a) Review lessons learned and challenges faced by other organizations (i.e. FCD & their Chiquibul Watershed awareness) for the implementation of public awareness and education strategy.	X	X								
b) NGOs and GOB collaborate to develop and plan common messages.	X	X								
c) Implement public awareness and education campaign via television and radio ads, social media, and morning shows, and school visits.		X	X	X						
d) Include restoration activities in the school curriculum at various levels.		X	X	X						
Key Result Area #5: Resource Mobilization and Capacity Building										
Strategic Objective #1: By 2030, a national landscape restoration funding mechanism is in place to support forest and agro-landscape (including silvopastures) restoration initiatives.										
a) Advocate for the Government of Belize to assign funding to support forest and agricultural landscape restoration as part of our Nationally Determined Contributions.	X	X	X	→						
b) Develop a transparent and secure mechanism through which the Environmental Management Fund (EMF) can contribute to restoration activities.	X	X								
c) Determine the feasibility of payment for ecosystem services (PES) mechanisms, particularly exploring the role of the private sector, so that landscape restoration initiatives are sustained and resilient.	X	X								
c) Develop pilot programs through large industry to finance/incentivize restoration activities.			X	X	X	X	X	X	X	X

Strategic Objective #2: By 2030, sustainable regenerative agricultural practices have become the norm in each district thereby strengthening food sovereignty capabilities.										
a) Conduct literature review on sustainable regenerative agriculture for its proper implementation within priority areas.	X	X	X							
b) Train at least 50% of the staff of the Agriculture Department and other relevant institutions in agro-landscape restoration initiatives.	X	X	X	X						
c) Train at least 50% of the staff of the Forest Department and other relevant institutions in forest restoration initiatives.	X	X	X	X						
d) Establish partnerships with participating farmers to support the implementation and oversight of restoration activities.		X	X	X						
e) Identify existing nurseries and improve at least 15 (of those identified) or establish new ones if needed across the country (community nurseries for local trees).	X	X								
f) Organize a Native Tree Species Restoration Group in each district to support and facilitate seed sharing and research.	X	X								
g) Capacity building in seed collection, storage and management.	X	X	X							
h) Provide skills training on soil regeneration and land restoration to at least 10% of farmers and producers in each district.	X	X	X	X	X	X				
i) Develop 5% of farms in each district (across landholding size range) into model farms that demonstrate sustainable, restorative, and climate-smart agriculture.	X	X	X	X	X	X	X	X	X	X
j) Incorporate the use of technology to maximize the impact of extension services, marketing, data collection and other areas that are key to restoration activities.	X	X	X	X	X	X				
k) Collate and publish experiences that document the restoration methodologies and results of participating landowners/farmers	X	X	X	X	X	X	X	X	X	X

References

Belize National Agroforestry Policy (NAP) (DRAFT). (TBD). National Climate Change Office.

Belize Network of NGOs (BNN). (2020). National Recovery Strategy.

Chavarria, O.C. (2019). *Informe técnico Final – Mapa de oportunidades de restauración de Belice*. Deutsche Gesellschaft für Internationale Zusammenarbeit.

Cherrington, E., Ek, E., Cho, P., Howell, B. F., Hernandez, B. E., Anderson, E. R., Flores, A.I., Garcia, B.C., Sempris, E., & Irwin, D. E. (2010). *Forest Cover and Deforestation in Belize: 1980–2010.*

CIAT, World Bank. (2018). Climate-Smart Agriculture in Belize. CSA Country Profiles for Latin America and the Caribbean Series. International Center for Tropical Agriculture (CIAT); World Bank, Washington, D.C.

Coastal Zone Management Authority and Institute (CZMAI). (2016). *Belize Integrated Coastal Zone Management Plan*. Ministry of Agriculture, Forestry, Fisheries, the Environment & Sustainable Development.

Elliott, S. D., Blakesley, D., & Hardwick, K. (2013). *Restoring Tropical Forests: a practical guide*. Royal Botanic Gardens, Kew.

FAO. 2015. A*QUASTAT Country Profile – Belize*. Food and Agriculture Organization of the United Nations.

Forest Department. (2020). *Belize Forest Reference Level, 2001 - 2015*. Belmopan City: Government of Belize.

GOB. (2021). *Economic Performance and Fiscal Review* [Presentation]. Ministry of Finance.

Government of Belize (GOB) & International Fund For Agricultural Development (IFAD). (2020). *Resilient Rural Belize (Be-Resilient) Financing Agreement- Draft for Negotiations*.

Gutierrez, C.J.M. (2020). *Benefits derived from the restoration of the productive rural landscape in Belize*. IUCN.

Itza, C.A. (2019). *Report on Belize Current Land Inventory and Description*.

IUCN and WRI (2014). *A guide to the Restoration Opportunities Assessment Methodology (ROAM): Assessing forest landscape restoration opportunities at the national or sub-national level. Working Paper (Road-test edition)*. Gland, Switzerland: IUCN. 125 pp.

IUCN. (2020). *Third ROAM phase: Cost-benefit and Co-benefit Analysis* [PowerPoint Presentation].

IUCN. (n.d). The Bonn Challenge. Retrieved June 8, 2021, from https://www.iucn.org/theme/forests/our-work/forest-landscape-restoration/bonn-challenge

Matus, M. (2020). *Towards Food Security Post Covid-19* [Presentation]. Ministry of Food and Agriculture.

National Agriculture and Food Policy of Belize (NAFP), 2015-2030. (2015). Ministry of Agriculture.

National Biodiversity Strategy and Action Plan, 2016-2020. (2016). Ministry of Agriculture, Forestry, Fisheries, the Environment and Sustainable Development.

National Climate Change Policy, Strategy and Action Plan to Address Climate Change in Belize (NCCPSAP). (2014). Caribbean Community Climate Change Centre (CCCCC) & Ministry of Forestry, Fisheries and Sustainable Development.

National Environmental Policy and Strategy (NEPS), 2014-2024. (2014). Department of Environment.

Roberson, B. (2017, May). An Overview of Land Taxes on Agricultural Property Past, Present and Future. The Belize Ag Report, Issue 36.

Salas, O. (2015). National Forest Policy. Forest Department.

Sanchez-Monge, M. (2020). *Definition of landscape restoration practices on forest land designation with the application of the Restoration Opportunities Assessment Methodology (ROAM) in Belize*. Consultant Report.

Statistical Institute of Belize (SIB). (2018). *Percent of Total GDP by Activity, 1992-2018*. http://sib.org.bz/statistics/gross-domestic-product/

Statistical Institute of Belize (SIB). (2021). *Key Indicators*. http://sib.org.bz

The World Bank. (2021). GDP growth (annual %) – Belize. https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?locations=BZ

Trejo, J. (2020, May 13). New Controlled Prices of Liquefied Petroleum Gas (LPG). *Belize Bureau of Standards*.

Trejo, J. (2021, January 8). New Controlled Prices of Liquefied Petroleum Gas (LPG). *Belize Bureau of Standards*.

Annex 1: Belize national pledge letter

GOVERNMENT OF BELIZE
Ministry of Sustainable Development, Climate Change and Disaster Risk Management

Sustainable Development, Climate Change and Disaster Risk Management
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Market Square, City of Belmopan
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Ref No: FD/GEN/1/01/21 (5)

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22 July 2021

Mrs. Ursula Parrilla
Regional Director
IUCN Regional Office for Mexico,
Central America and the Caribbean
San Jose
Costa Rica

Dear Bonn Challenge Secretariat,

Belize is pleased to present to the Secretariat, our Bonn Challenge pledge of bringing 130,000 hectares into restoration by 2030. This commitment is based on results generated through the implementation of the Restoration Opportunities Evaluation Methodology (ROAM) which allowed us to make informed and evidence-based decisions in accordance with national priorities and ongoing programs.

Among the relevant national actions underway, the following programmes and initiatives are aligned to implement our pledge: i) Integrated management of production landscapes to deliver multiple global environmental benefits (2019-2024); ii) Increasing climate resilience through restoration of degraded landscapes in the Atlantic region of Central America, Adaptation Fund (2020-2025); iii) Integrated Flood Management in the Upper Regions of Belize River Watershed; Biodiversity Program: Linking the Central American Landscape (2021-2025); iv) Protection of the natural resources of the Selva Maya (Mexico, Guatemala, Belize) (2021-2025); v) Guardians of the Forest and Regenerative Agriculture 'Communities in Forest Buffer Zones Across Rural Belize (GCF); and vi) Building the Adaptive Capacity of Sugar Cane Farmers in Northern Belize.

Through the execution of the ROAM, Belize prioritized a total of 130,000 hectares for the period 2020-2030. The goal is to implement reforestation practices for 44,000 hectares in forest areas inside and outside protected areas, as well as the restoration of 6,000 hectares of degraded and deforested riparian forests. In addition, restoration will improve the management of 80,000 hectares of the agro-landscape through improved agricultural and agroforestry practices.

The impact of the restoration actions will contribute to the adaptation of our country to the effects of climate change, and to reduce the emissions caused by the use and change of land use in our country and contribute positively to our economic development and sustainable growth. The achievement of our Bonn Challenge pledge will contribute to multiple domestic and international targets including obligations under the Paris Agreement and the CBD among others.

We take the opportunity to acknowledge and thank IUCN for its continued assistance to Belize in the implementation of ROAM and the development of our National Landscape Restoration Strategy. We look forward to our continued collaboration and reaffirm our interest to work with IUCN to achieve its Bonn Challenge commitment and requests IUCN's assistance in continuing to support our Belize efforts to strengthen Functional Landscape Restoration (FLR) actions at national level and in the framework of regional initiatives.

The Ministry of Sustainable Development, Climate Change and Disaster Risk Management takes this opportunity to renew to the IUCN and Bonn Challenge Secretariat, the assurances of its highest consideration.

Sincerely yours,

Ministry of Sustainable Development, Climate Change and Disaster Risk Management

HON. ORLANDO HABET, MSc.
MINISTER OF SUSTAINABLE DEVELOPMENT,
CLIMATE CHANGE AND DISASTER RISK MANAGEMENT

Annex 2: Persons Interviewed for PESTEL Analysis

1. Beth Roberson, Belize Ag Report.
2. Colin Mattis, National Climate Change Office.
3. Edilberto Romero, Programme for Belize.
4. Elma Kay, Environmental Research Institute University of Belize.
5. Heron Moreno, Corozal Sustainable Future Initiatives.
6. Marcelino Avila, Agroforestry Policy Consultant.
7. Nayari Diaz-Perez, Protected Areas Conservation Trust.
8. Pablo Mis, Maya Leaders Association.
9. Rafael Manzanero, Friends for Conservation and Development.
10. Said Gutierrez, Ya'axché Conservation Trust.
11. Sam Mathias, Bananas Growers Association.
12. William Neal, Belize Sugar Industry/ American Sugar Refining.

Annex 3: Participants of the process

The ROAM process, by principle and by design, requires the active engagement of a variety of stakeholders. In the case of Belize, two main consultation bodies were formed for this purpose:

- The National Restoration Round Table.
- The Gender and Restoration Committee.

In National Restoration Round Table, governmental institutions and representatives from the private sector were the most represented sectors, and it also included the participation of civil society, indigenous people and academic sectors (refer to Annex 1 for a complete list of participants). The following figure shows institutional and organization actors that constituted in the National Restoration Round Table and the main sectors represented:

Figure 5. Member organizations and sectors represented in the National Restoration Round Table

In the case of the Gender and Restoration Committee, governmental institutions and representatives of the indigenous people were the most represented sectors, and it also included the participation of civil society, youth groups and academic sectors (refer to Annex 1 for a complete list of participants). The following figure shows institutional and organization actors that constituted in the Gender and Restoration Committee and the main sectors represented:

Figure 6. Member organizations and sectors represented in the Gender and Restoration Committee

The consultation process

The two participatory bodies (National Restoration Round Table and Gender and Restoration Committee) played a key role in the consultation processes of the ROAM, that were organized in 3 phases. On each phase a series of workshops were organized in which technical inputs were shared and the inputs and feedback from the different stakeholders were collected to inform the next steps of the process. The table below summarizes the consultation process carried out:

Phases	First consultation phase	Second consultation phase	Third consultation phase
Main objectives	• Define key ecosystem services. • Identify key degradation processes. • Agree restoration criteria. • Identify sources of information per criterion.	• Define restoration strategies. • Agree transitions. • Agree transitions & services matrix.	• Results matrix. • Transitions assessed by zone or landscape. • Criteria for prioritizing.
Participants	• The National Restoration Round Table • The Gender and Restoration Committee		
Workshops	• First gender and restoration workshop: “Integrating gender approach in the selection of criteria for landscape restoration opportunities areas in Belize". Date: March 26th 2019. • First national restoration workshop: “Selection of criteria for the landscape restoration opportunities areas in Belize”. Date: March 29th 2019.	• Second gender and restoration workshop Validate the Belize opportunity restoration map and identify restoration actions. Date: July 1st 2019 and July 2nd 2019. • Second national restoration workshop of Belize National Restoration Round Table: “Definition of restoration actions”. Date: July the 2nd 2019. • Third meeting of Belize National Restoration Round Table: “Socialization of the opportunity restoration map and actions. Date: February 27, 2020.	• Fourth meeting of Belize National Restoration Round Table: Prioritization of restoration areas. Date: September 29th, 2020.

Annex 4: Restoration Actions for Agro and Forest Landscapes

Land use	Restoration	Detailed activities	Direct benefits
Banana production	Improved variety, good agricultural practices and soil management.	• Composing to apply soil fertilizer and amendments. • Soil amendments to improve soil organic matter. • Biofertilizer and biopesticides.	Banana production.
Rice production	Improved variety and good agricultural practices.	• Planing high yielding varieties. • Water-efficient irrigation (alternate wetting and drying).	• Rice production.
Sugarcane production	Good agricultural practices, soil management and green harvesting.	• Eliminate second residue burning. • Residue should be treated with an effective microorganism or other bio-products to decompose. • Bio-products to be applied five times per cane cycle during the residue management and on leaves. • Apply soil amendments or increase organic matter in the soil.	• Sugar production. • Compost. • Biofertilizer. • Biopesticide.
Livestock	Silvopastoral system	• Establish better biomass producing grass to ensure better animal nutrition. • Establish trees to serve as shading. • Establish trees that serve as a protein source. • Plant fruits trees or other edible grafted crops that can serve as feed during droughts.	• Cattle live weight production. • Timber production. • Fruit production. • Protein biomass.
Citrus production and coconut production	Citus-coconut system with good agricultural practices and soil management.	• Reduce soil erosion by introducing cover crops. • Intercropping with coconut trees. • Development of biopesticide to eliminate vector and boost crop nutrition. Application of organic sources to improve crop organic matter and improve soil fertility.	• Orange production. • Coconut production.

Land use		Forest landscape restoration action
Inside protected areas	Deforested and heavily degraded broadleaf forests within protected areas (IUCN categories I, II and III).	Assisted succession through nucleation techniques.
	Broadly degraded broadleaf forest in protected areas (IUCN categories IV, V and VI).	Regeneration assisted with ecological restoration techniques.
	Broadleaf and mixed forest within protected areas (for all classes) degraded (low and medium)	Passive regeneration.
Outside protected areas	High degraded broadleaf and mixed forest.	Assisted regeneration with enrichment planting in strips.
	Moderate and low degraded broadleaf and mixed forest	Assisted regeneration for a sustainable forest management model.
	High degraded pine forest	Assisted regeneration with enrichment planting in strips.
	Moderate and low	Assisted regeneration with enrichment planting in lines.

Annex 5: The Planning Process

The NLRS Planning Process comprised the following four Phases:

1. Preparation Phase:

   a) Preparation of Work Plan.

   b) Literature compilation and review.

   c) Preliminary mapping of policies, programmes, and projects, laws and regulations where restoration actions agreed in Belize are currently being promoted.

2. Environmental Monitoring Phase:

   a) Conducted stakeholder consultations on the political, economic, social, technological, ecological, and legal (PESTEL) factors related to the current state of degradation, drivers of deforestation, degradation, and land use change.

b) Consolidation of the findings of literature review and consultations into a draft PESTEL matrix (the external context).

c) Summarize PESTEL results into a description of the legal, political, socio-cultural, economic, and environmental context of Belize related to the current state of degradation, drivers of deforestation, degradation and land use changes.

3. The Planning Phase:

a) Planning to Plan: Which individuals will participate in the SP process? What is the desired implementation timeframe for the Strategic Plan? Who will be the key champions of the plan? How much detail required to operationalize the plan? What will be "fleshed out" immediately and what will be developed over time? Planning workshop schedule?

b) Planning Workshop #1: PESTEL presentation (situational assessment), defining Vision, defining Mission.

c) Planning Workshop #2: Unpacking the Mission, defining Key Result Areas, How will the KRAs be done? Performance Audit (SWOT Analysis).

d) Planning Workshop #3: Defining Strategic Activities, Critical Success Factors and Indicators.

e) Planning Workshop #4: Action Planning – What are the core/vital strategic actions that must be implemented?

f) Development of the NLRS Results Framework.

4. Reporting Phase:

a) Prepare the first draft of the Strategic Plan.

b) Submission of final Strategic Plan.

Annex 6: SWOT Analysis Results

Strengths:

- The landscape restoration process facilitates the creation of an inclusive set of plans that can succeed because communities are involved from the beginning.
- The landscape restoration process is a multi-faceted initiative that involves different experts, all of whom shall require orientation and training, equipping, and supporting that can also be facilitated through a collective of organizations with connections and technical experts.
- Alienated communities, especially rural poor communities that feel voiceless and overlooked, would welcome the opportunity to become involved in designing strategies to revitalize the landscape and revitalize their lives, find a voice, participate in a national initiative, perhaps creating a model of stewardship.
- Youths and young adults in need of jobs are eager to engage in meaningful employment, learn new skills, and engage in something positive that benefits everyone, given the potential to instil the sustainability of planting trees and encouraging reforestation as nature-based strategies for adaptation to climate change.
- A collective of powerful and focused organizations.
- Enhanced and improved collaboration between organizations and the Government.
- The Forest Department has working relations with conservation NGOs already involved in PA management and FLR ROAM assessments.

Weaknesses:

- A less than adequate understanding of working with eroding processes and cultural practices within Belize to successfully plant appropriate trees within the appropriate positions within the landscape under restoration and ensure those trees to grow. This can be rectified with a bit of remote imagery and field survey research.
- Lack of a relatively complete list of trees appropriate for inclusion in a landscape restoration project, along with information on seeding, seed germination, nursery production and transplantation are issues, but all of this can be provided through a good literature search and involvement of tropical dendrology experts.
- A poor understanding of wetland ecology and bioremediation technology, which can go hand in hand when discussing control of nutrient discharge from landscapes, hampers both the conservation and restoration of wetlands and the application of effective bioremediation engineering. This set of issues can also be resolved by involving qualified experts.
- The lack of a coordinated approach to landscape restoration efforts.
- Limited financial resources to implement targets.
- Inadequate staff competency.
- Limited collaboration and mutual understanding among organizations.
- Limited human resources dedicated to restoration and technical assistance for restoration.

- Stakeholder organizations have the will and desire to see this project through.
- Ability to convene stakeholders nationally given our small size.
- Experience with community engagement and planning.
- Experience with some forest landscape restoration activities.
- Solid system in place for sustainable forest management on which restoration and assisted regeneration requirements can be layered.
- Certain foundations are already in place in terms of restoration, such as implementing climate smart agricultural practices/ systems and tree planting campaigns.
- Climate smart agriculture training and demonstration plots are being promoted and set up to educate farmers on the advantage of adopting such practices.
- Stakeholder organizations provide a national public awareness and education strategy that focuses on promoting healthy, productive and minimal environmental impact.
- Majority of organizations in Belize have access to funding and have great project writing and project management abilities.
- Communities are engaged when it comes to the sustainable management programs and community forestry programs developed by the Forest Department.
- Maintain effective ecosystem goods and services.
- Access to a forest monitoring system to generate the Belize land use map.
- International partners that could assist in restoration activities.
- Most organizations are doing biodiversity monitoring and other monitoring related
- Coordination for implementation of national policies and plans needs to be improved to have collaboration as a practice.
- Inability of conservation organizations to reach/influence some of the key private sector groups that need to be involved in restoration.
- Insufficient enforcement of legislation or implementation policies to enable restoration efforts.
- Limited training and demonstration plots to encourage farmers on the advantage of adopting such Climate Smart Agriculture practices on small- and large-scale systems.
- Due to limited resources, community engagement is not where it needs to be. More focus is given to protected areas and less to community livelihoods.
- There is no reforestation or restoration legislation in place after degradation activities.
- There is no restoration program in place to guide restoration activities within the Forest Department.
- Forest Landscape Restoration is not programmed in work plans.
- Poor inter-ministerial and inter-sectoral collaborative track record.
- Limited local capacity with the knowledge to execute large scale restoration.
- Insufficient organization among local farmers.
- Lack of trust among community members living within the landscape of focus seems like a local situation but is found around the world. Many people, especially in rural communities, are often suspicious of hidden motives and restrictions placed on their lifestyles.

to ecosystem services to measure the effectiveness of our actions.

- The Forest Department is geographically positioned in most districts which allows for a decentralized deployment of resources; district offices also have nurseries.
- Farmers, producers and rural inhabitants understand and recognize the degradation problem.
- Existing collaborations with organizations focused on large scale restoration of degraded lands.
- Existing collaborations with organizations utilizing agriculture technologies to monitor the restoration process.
- Access to organizations which are demonstrating large scale restoration projects.
- Great project writing and project management abilities can be leveraged amongst organizations to work as a collective to implement the strategy.
- Increasing opportunities exist to involve and engage communities and to make community activities more compatible with protection activities/protected areas.

- Conflicting policies, laws and practices, and lack of implementation and coordinated legislation and policy to support restoration efforts.
- Continued unsustainable land use practices and developments.
- Communities not receptive to behavioural change and accepting FLR.
- Poor participation from local and rural communities due to the lack of technology.
- Lack of "critical mass" for implementing the NLRS action plan.

Opportunities:

- Impacts of a depressed economy are exaggerated by recent floods and droughts taking a toll on farmers. Here is the opportunity to help develop a conservation-based industry that builds capital for now and the future while contributing to the revival of a weakened economy by providing jobs that invest in people and add true value to conservation initiatives.
- Developed nation's financial commitments to restoration efforts at the global level.

Threats:

- The Covid-19 pandemic has created unprecedented challenges on livelihoods.
- Post-Covid economic recovery, growth and development prioritization may create a hindrance to funding forest restoration efforts.
- Due to the global international financial crisis, there may be limited/reducing funding opportunities.

- Restoration is becoming recognized as a national priority in building national resilience.
- The restructuring of the economy from one based on exploitation to one grounded on maintaining and benefiting from ecological services provided by functioning landscapes that are protected and maintained in functional states. (Focus on the Green Economy and the Blue Economy for wetlands and mangroves).
- Greater collaboration can yield to higher funding opportunities to implement the strategy; International funding available for restoration – e.g., phase 2 of the Selva Maya Program (KfW), restoration of the New River (Mar2R), and other organizations interested in Belize, i.e. WRI, WWF, Coca Cola, UNDP, REDD+, Regent Tropics (initiatives for restoration).
- Access to a wide network of conservation partners, academics, and experts from the region to assist filling of capacity gaps.
- Access to a variety of local species to employ in restoration efforts.
- Partnerships to implement monitoring and evaluation projects that pertain to climate change impacts and climate smart agriculture practices.
- Integrate programs for payment for ecosystem services – e.g., water rights.
- The SDGs – there are several SDGs under which we can make contributions in terms of mobilizing resources that could make a significant contribution to the program – need to make that connection so we can better mobilize resources.
- GOB would be very favourable to the program because it can capture resources
- Lack of available financial resources nationally, related to unsustainable domestic and external debt levels.
- Political corruption is a major issue. Any initiative running counter to some agreement made between political officials and corporate representatives tends to be opposed, derailed, or otherwise stopped or reduced.
- Corporate resistance can be very disruptive to long term conservation plans, such as a piece of property within a national corridor placed on the market.
- Impacts of climate extremes (floods, droughts, hurricanes) threaten economic recovery and represent great challenges to the success of forest restoration efforts, functions of bioremediation systems, etc.
- The International Court of Justice decision concerning the future of Belize's territorial integrity. Land hungry Guatemalans could pour into Belize's western forests and areas just as they did in the Petén, and within a decade the impacts that degraded the massive Petén Forest could be replicated in Belize.
- The poverty and population pressure in Guatemala is causing illegal immigration and extraction of natural resources in our forests - cross border incursions.
- The current economic situation leading to increased habitat conversion/ deforestation rather than restoration; higher monetary value to be derived from conversion vs. restoration – GOB facing tremendous pressure with the current fiscal situation.
- The environmental lobbyists tend to not evaluate the economic investments that have to be made (e.g., renewable energy is expensive to do in the short term.

that may not be readily available at the moment.

- Will contribute to the different international agreements Belize is party to.
- The environmental lobby – positive via additional resources, and support of sustainable development.
- Increased road development.
- Alignment of the REDD+ strategy along with the NLR Strategy, therefore increased funding opportunity for the NLRS and policy support.
- Alignment of Forest Department Sustainable Forest Management strategies to NLR strategy.
- Alignment of the National Determined Contribution (NDC) to the NLR strategy, especially since the NDC has defined areas to be restored.
- Identification and mobilization of funding opportunities and resources.
- Coordinate among key agencies the sensitization of the public on FLR via education and outreach.
- Demand is increasing for crops produced using regenerative methods.
- Road development directly and indirectly leads to forest degradation. Road development opens forested land, which could become converted to agriculture (e.g., proposed highway through the RBCMA which could disrupt forest connectivity).
- Expansion of the agricultural frontier resulting in more deforestation.
- Further degradation of standing forest in all lands (public, private and communal)
- De-reservation of protected areas and forest reserves.
- International organizations who may be supporting chemical based mono-cropping systems.
- Business models that make profit the absolute priority rather than environmental and social impact.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
Key Result Area #1: Enabling Environment (policies/legislation)				
Strategic Objective #1: By 2030, conduct a comprehensive review of pertinent laws related to landscape restoration with a view to strengthening legislation and synergies among laws				
a) Establish a Multi-agency Task Force that is charged with championing and overseeing the implementation of the National Landscape Restoration Strategy (NLRS).	Forest Department (with Cabinet endorsement).	Term of Reference of the Task Force; Inaugural Meeting; Scheduled Meetings and Minutes.	By the end of 2021.	• Forest Department, Agriculture Department, DOE, Industries, Academia, and Civil Society agree to form the Task Force. • Task Force Proposal Cabinet Paper is co-sponsored by the Ministers of SDCCDRM, AFSE, and HDFIPA, and endorsed by Cabinet.
b) Develop and implement an advocacy campaign geared at building support among all sectors for the implementation of the NLRS.	Multi-agency Task Force (Forest Department, Agriculture Department, DOE, Industries, Academia, & Civil Society).	Advocacy Campaign Plan; Project Reports.	2021 - onward.	• Funding secured to implement the campaign.
c) Improve monitoring of activities, and strengthen enforcement of laws pertinent to landscape protection and restoration, including sustainable forest management and regenerative agriculture, where they exist.	Government Agencies (Agriculture Department, Forest Department, DOE, Hydrology Department).	Monitoring site visits to priority watersheds increased.	2021 - onward.	• Resource availability (human & financial). • Key expert engagement • Strong interagency collaboration.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
d) Carry out legislative analysis to identify gaps and conflicts in legislation pertaining to landscape protection and restoration, including sustainable forest management and regenerative agriculture.	Multi-agency Task Force – subcommittee; Solicitor General; Attorney General; Legal Consultant.	Completed legislative analysis and contracting of a legislative consultant.	2021 - 2023.	• Political will. • Key expert engagement. • Legislative analysis includes a review of all district land valuation tables in order to recognize the value of forests and its ecosystem services.
e) Formulate legislation to govern the development and implementation of watershed management plans.	Multi-agency Task Force; Solicitor General; Attorney General's Ministry.	Improved legislative agenda; Draft legislation completed.	2021 - onward; Concurrent to #4,1a.	• With attention to institutional responsibilities, and environmental and ecological standards to be met. • Key expert engagement. • Political will.
Key Result Area #2: Human Well-being and Local Livelihoods				
Strategic Objective #1: Communities develop and sustain local livelihoods and improve their well-being within prioritized agro landscapes by 2030				
a) Review and determine feasible economic alternatives supporting livelihoods.	Project implementation agencies along with FD and NGOs in collaboration with other agencies such as BELTRAIDE, BMDC.	At least 3 to 5 alternative livelihood initiatives identified.	2021 - 2023.	• Secured funding. • At least two financing institutions engaged. • Donor agency(ies) identified.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
b) Finance and implement short-term economic alternatives in order to support livelihoods of participating farmers.	Ministry of Local Government; Agriculture Department; NGOs (such as Ya'axché); Communities.	10% of farmers involved in alternative livelihoods.	2023 - 2030.	9,663 farmers (BAIMS, 2018) • Corozal – 3,009. • Orange Walk – 2,891. • Cayo – 1,715. • Belize – 549. • Stann Creek – 444. • Toledo – 1,055.
c) Institute reward, incentive and recognition mechanisms for farmers, land/forest managers, and industries that engage in restorative land management practices.	Multi-agency Task Force; Ministry of Finance.	Number of participating farmers, land/ forest managers, and industries	2023 - 2030.	• Secured funding. • GOB support via Cabinet endorsement. • Budget allocations (via CAP III?).
Key Result Area #3: Forest and Agro Landscape Restoration				
Strategic Objective #1: Sustainable Forest Management in prioritized broadleaved forests is strengthened via reforestation and assisted regeneration by 2030				
a) Conduct ground-truthing via forest assessments and inventory within the prioritized broadleaf forests.	Forest Department; Forestry Consultant.	Forest Assessments and Inventory Report	2021 - 2022.	• Focuses on 50,000 ha of prioritized broadleaf forests by 2030. • Secured funding.
b) Establish the reforestation and assisted regeneration methodology for the prioritized broadleaf forests.	Forest Department; Forestry Consultant; IUCN.	Methodology Report/ Manual.	2021 - 2022.	• Focuses on 50,000 ha of prioritized broadleaf forests by 2030.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
c) Implement a reforestation and assisted regeneration program within the prioritized broadleaf forests.	Forest Department; Landowners; Concessionaires.	50,000 hectares reforested/ regenerated (prioritized broad-leaved forests).	2023 - 2030.	• Focuses on 50,000 ha of prioritized broadleaf forests by 2030. • Secured funding. • Cooperation by landowners and concessionaires.
Strategic Objective #2: Sustainable regenerative agricultural practices/systems are being implemented in prioritized agro landscapes (excluding pastures) by 2030				
a) Support and develop demonstration home gardens as a model for other homes across rural and urban areas of the country.	Agriculture Department; NGOs (Ya'axché, SHI, Humana); Private Sector (RegenTropix).	10 model urban home gardens per town/city and 1 model home garden per village established.	2021 - 2024.	• Involvement of SHI (they already have programs in place). • GCF (funds secured).
b) Establish agroforestry systems in degraded agro landscapes (such as banana and citrus; excluding sugar cane), including capacity building in implementation of these systems.	Agriculture Department; NGOs (Ya'axché); Forest Dept; Private Sector (RegenTropix, TKO Farms - Teakettle).	22,444 ha of prioritized agro landscapes restored, broken down as follows: • 288 ha banana. • 78 ha coconut. • 22,078 ha other crops.	2023 - 2030.	• System determined based on the land and region. • Involvement and cooperation of Mennonite communities. • Equipment procured. • GCF (funds secured).
c) Establish regenerative practices in rice fields and sugar cane plantations that are degraded due to poor management	Agriculture Department; SIRDI; CREI; CGA; BGA; 4 sugar cane organizations; Private Sector (RegenTropix).	22,898 ha of sugar cane restored; 126 ha of rice fields restored..	2023 - 2030.	• GCF (funds secured).

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
d) Restore and protect riparian zones that are within prioritized agro landscapes	Agriculture Department; Forest Dept; DOE; Private Sector (RegenTropix).	6,000 hectares of riparian zones restored and protected.	2022 - 2023 (protection); 2024 - 2025 (restoration).	• Measures to enforce protection of riparian zones supported by GOB. • Cooperation and willingness of land owners.
Strategic Objective #3: Silvo-pastoral systems are being implemented in prioritized pastures (land used for livestock only) by 2030.				
a) Improve and enhance vegetation cover on existing pasture (grazing land).	Agriculture Department; BLPA; Private Sector (Mennonite Communities); Other LPAs.	Vegetation cover within 34,354 ha of pasture has been improved and enhanced using different systems such as shade trees, fencing, forage crops, etc.	2022 - 2030	• Ministry staff have technical capacity to implement these systems. • Budget/finances in place for implementation. • Lessons learned from the LAC region incorporated/ used for guidance.
b) Expand improved fallow lands (for example, by planting trees and shrubs) that are used for grazing leaving the land to recover on its own.	Agriculture Department; BLPA; Private Sector (Mennonite Communities); Other livestock producer associations (LPAs).	50% of fallow lands in prioritized pastures have been enriched.	2022 - 2030.	• Financial support from different initiatives. • Cooperation and involvement of cattle ranchers/land owners. • Lessons learned from the LAC region incorporated/ used for guidance.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
c) Intensify the productivity of existing grazing areas (i.e., be able to increase livestock per unit of area)	Agriculture Department; BLPA; Private Sector (Mennonite Communities); Other LPAs	100% of farms within prioritized areas in each district converted from extensive to intensive system (rotation)[64]	2024 - 2030.	• Financial support from different initiatives • Cooperation and involvement of cattle ranchers/landowners
Key Result Area #4: Biodiversity and Ecosystem Services				
Strategic Objective #1: By 2030, develop and implement watershed management plans in order to restore and protect Belize's watersheds and riparian forests within priority areas				
a) Rapid watershed assessments (RWAs) to identify areas that are undergoing change in order to implement restoration strategies, and inform management plan development.	Multi-agency Task Force; Consultant(s).	Finalized & accepted methodology; RWAs carried out in each watershed within the priority areas.	By 2022 to standardize methodology; 2022 - 2023 to carry out RWAs in order of priority.	• Resource availability. • Ample personnel. • Local experts' involvement and engagement. • Standardized methodology available.
b) Establish a task force for each watershed with special attention to wide stakeholder consultation and inclusion in the decision making process (e.g., New River Task Force).	Ministry of Sustainable Development.	Accepted TOR.	Within the timeline of 4,1c.	• Resource availability.• Engagement of international researchers.

64 There are 268 registered livestock farms in Belize (Corozal = 70; Orange Walk = 55; Belize = 12; Cayo = 93; Stann Creek = 6; Toledo = 32) (BLPA Annual Report, 2016).

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
c) Develop watershed management plans.	Watershed Task Force; Multi-agency Task Force; Consultant(s).	Completed management plans.	2023 - 2026.	• Training and planning to start in 2021. • Resource availability. • Ample personnel. • Multi-interest groups represented. • Engagement of international organizations.
d) Implement plans with the restoration of 6,000 hectares of riparian zones.	Watershed task force; Multi-agency Task Force	6,000 hectares of riparian zones have been restored; Related to #3,2d.	2026 - 2030.	• Stakeholder willingness and participation. • Lessons Learned (i.e., Sibun Watershed Association). • Watershed information must be readily available.
e) Monitoring by the key organization and communities involved, with independent validation.	Watershed task force; Multi-agency Task Force.	Monitoring reports, measurement of success.	Seasonally after plan implementation.	• Stakeholder willingness and participation. • Lessons Learned (i.e., Sibun Watershed Association). • Watershed information must be readily available.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
Strategic Objective #2: By 2030, develop and implement a national public awareness and education strategy that focuses on promoting healthy, productive and restored forests and agro landscapes, and educating Belizeans on the pertinent laws related to landscape restoration				
a) Review lessons learned and challenges faced by other organizations (i.e. FCD & their Chiquibul Watershed awareness) for the implementation of public awareness and education strategy.	Multi-agency Task Force.	Streamlined document to guide 4, 2b.	2021 - 2022.	• Stakeholder willingness and participation. • Local experts' involvement and engagement.
b) NGOs and GOB collaborate to develop and plan common messages.	Multi-agency Task Force - subcommittee.	Completed communication strategy and contracting of a public relations firm.	2021 - 2022.	• Fundraising. • Stakeholder willingness and participation.
c) Implement public awareness and education campaign via television and radio ads, social media, and morning shows, and school visits.	Multi-agency Task Force.	Public awareness and education campaign ads have rolled out; Change in public knowledge, attitude and perception towards restoration.	2021 - 2024.	• Stakeholder willingness. • Public receptiveness and engagement to the message.
d) Include restoration activities in the school curriculum at various levels.	Multi-agency Task Force; Ministry of Education.	Completed landscape restoration school curriculum.	2021 - 2024	• Ministry of Education support and cooperation. • Secured funding.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
Key Result Area #5: Resource Mobilization and Capacity Building				
Strategic Objective #1: By 2030, a national landscape restoration funding mechanism is in place to support forest and agro-landscape (including silvopastures) restoration initiatives				
a) Advocate for the Government of Belize to assign funding to support forest and agro-landscape restoration as part of our Nationally Determined Contributions.	Multi-agency Task Force, MSDCCDRM, MAFSE.	Amount of funding earmarked by the MSDCCDRM and MAFSE to support forest and agro-landscape restoration initiatives, respectively.	2021 - 2023; and then annually.	• Availability of grant funds for CAPIII projects. • REDD+ strategy aligned. • Results-based payments used. • Improvement of Belize's fiscal situation.
b) Develop a transparent and secure mechanism through which the Environmental Management Fund (EMF) can contribute to restoration activities.	MSDCCDRM; Ministry of Finance.	Amount of funding contributed by the EMF to restoration activities.	2021 - 2022.	• EMF purpose includes support to landscape restoration.
c) Determine the feasibility of payment for ecosystem services (PES) mechanisms, particularly exploring the role of the private sector, so that landscape restoration initiatives are sustained and resilient.	Multi-agency Task Force; Consultant(s).	PES Feasibility Report (with finding and recommendations)	2021 - 2022.	• Secured funding. • Private sector support.
d) Develop pilot programs through large industry to finance/incentivize restoration activities.	Multi-agency Task Force; Private sector.	Number of pilot programs per year.	2023 - 2030.	• Private sector support.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
Strategic Objective #1: By 2030, a national landscape restoration funding mechanism is in place to support forest and agro-landscape (including silvopastures) restoration initiatives				
a) Conduct literature review on sustainable regenerative agriculture for its proper implementation within priority areas.	Agriculture Department; Multi-agency Task Force; University students.	Literature Review Reports; Research papers.	2021 - 2023.	• Lessons learned from the LAC region incorporated/ used for guidance.
b) Train at least 50% of the staff of the Agriculture Department and other relevant institutions in agro-landscape restoration initiatives.	Agriculture Department (include private sector, producers, farmers, associations, investors).	50% or more of the staff of the Agriculture Department trained.	2021 - 2024.	• Lessons learned from the LAC region incorporated/ used for guidance. • Support from international partners (such as FAO and NGOs).
c) Train at least 50% of the staff of the Forest Department and other relevant institutions in forest restoration initiatives.	Forest Department (include private sector, producers, farmers, associations, investors).	50% or more of the staff of the Forest Department trained.	2021 - 2024.	• Lessons learned from the LAC region incorporated/ used for guidance. • Support from international partners (such as FAO and NGOs).
d) Establish partnerships with participating farmers to support the implementation and oversight of restoration activities.	Forest Department; Agriculture Department.	Number of MOUs (i.e., partnership agreements).	2022 - 2024.	• Buy in and participation by farmers.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
e) Identify existing nurseries and improve at least 15 (of those identified) or establish new ones if needed across the country (community nurseries for local trees).	Forest Department and Agriculture Department, in collaboration with NGOs and communities.	Existing nurseries identified; Existing nurseries have been improved; New nurseries established.	6 to 12 months - first year (2021 - 2022).	• Budget allocation or availability. • Seasonality (wet and dry season). • Transportation. • Human resources allocation. • Community buy in and participation.
f) Organize a Native Tree Species Restoration Group in each district to support and facilitate seed sharing and research.	Forest Department and Agriculture Department, in collaboration with NGOs and communities.	Seed source established; Locations for seed storage have been identified and established; Research proposals.	6 to 12 months within the 1st year (2021 - 2022).	• Budget allocation or availability . • Seasonality (availability of seeds). • Transportation. • Human resources allocation. • Community buy in and participation.
g) Capacity building in seed collection, storage and management.	Forest Department in collaboration with the Agriculture Department and NGOs.	Number of communities trained.	2021 - 2023 (series of trainings).	• Budget allocation. • Community buy in and participation
h) Provide skills training on soil regeneration and land restoration to at least 10% of farmers and producers in each district.	Agriculture Department; FAO.	10% of farmers and producers in each district trained.	2021 - 2026.	9,663 farmers (BAIMS, 2018) • Corozal – 3,009. • Orange Walk – 2,891. • Cayo – 1,715. • Belize – 549. • Stann Creek – 444. • Toledo – 1,055.

Strategies/Tactical Objectives *What will be done?*	Responsibility Who will guide this work?	Indicators What are the implementation targets?	Timeline By when? (Month/Year or Quarter/Year)	Critical Assumptions What needs to be in place for activities to be implemented?
i) Develop 5% of farms in each district (across landholding size range) into model farms that demonstrate sustainable, restorative, and climate-smart agriculture.	Agriculture Department; FAO.	Farms in each district developed into model farms according to the following percentages: • 1 to 50 acres: 5% • 51-100 acres: 5% • 101-250 acres: 5% • Over 250 acres: 5%	2021 - 2030.	• Farmers cooperate to engage in transitioning from agrochemical-dependent farming to organic farming. 9,697 farms (IFAD, 2007)[65]: • Below 5 acres: 2.357. • Between 5 to 20 acres: 3,198. • Between 21 to 50 acres: 2,641. • Between 51-100 acres: 1,020. • Between 101-250 acres: 313. • Over 250 acres: 168.
j) Incorporate the use of technology to maximize the impact of extension and monitoring services, marketing, data collection and other areas that are key to restoration activities.	Forest Department; Agriculture Department; National Climate Change Office and Meteorological Department; Ministry of e-Governance.	Meteorological stations established at model farms; National-level meteorological data sets developed.	2021 - 2026.	• Secured funding. • Technology available. • Agencies and farmers trained in the use of the technology.
k) Collate and publish experiences that document the restoration methodologies and results of participating landowners/farmers.	Multi-agency Task Force; Consultant(s).	Results published and disseminated.	2021 - 2030.	• Budget allocation or availability. • Buy in and participation by farmers.

65 Source: IFAD (2007), on the basis of information from the Belize Farmers' Registry (need to update).

Annex 8: List of Stakeholders Consulted for Development of the NLRS

1. Beth Roberson, BelizeAg Report.
2. Beverly Burke, Santander.
3. Bevington Cal, Maya Leaders Alliance.
4. Brianne Young.
5. Chris Ramirez, Regen Tropix.
6. Christina Garcia, Ya'axché Conservation Trust.
7. Colin Mattis, National Climate Change Office.
8. David Gibson, CSSPAR & Regeneration Belize.
9. Dion Daniels.
10. Dr. Ed Boles, Aquatic Ecologist.
11. Edgar Correa, Forest Department.
12. Edilberto Romero, Programme for Belize.
13. Dr. Elma Kay, University of Belize Environmental Research Institute (UB ERI).
14. German Novelo, Forest Department.
15. Heron Moreno, Corozal Sustainable Future Initiative.
16. Ivanna Waight-Cho, UB ERI.
17. Jeffery Joseph, SIRDI.
18. Dr. Jennie Saqui.
19. Joyce Tun, Protected Areas Conservation Trust.
20. Ki'ila Salas, Consultant.
21. Dr. Latha Thomas, Science Department, University of Belize.
22. Leonel Requena, UNDP/GEF/Small Grants Programme.
23. Leticia Westby, Sugar Industry Research and Development Institute (SIRDI).
24. Luciano Chi, SIRDI.
25. Dr. Marcelino Avila, Senior Policy Advisor, Office of the Prime Minister.
26. Megan Lopez, Ya'axche Conservation Trust.
27. Melinka Najera, IUCN.
28. Melissa Zuniga, National Garifuna Council.

29. Omaira Avila Rostant, Caribbean Agricultural Research and Development Institute.
30. Osmany Salas, Consultant.
31. Pablo Mis, Maya Leaders Alliance.
32. Dr. Percival Cho, MSDCCDRM.
33. Rafael Manzanero, Friends for Conservation and Development.
34. Raul Chun, Forest Department.
35. Reina Co, Toledo Cocoa Growers Association.
36. Wilber Sabido, Forest Department.
37. William Neal, Belize Sugar Industries-ASR.
38. Yanira Pop, Forest Department.

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