



APPENDIX 1

BACKGROUND ON DEFINITION AND VALUATION OF GUYANA'S FORESTS

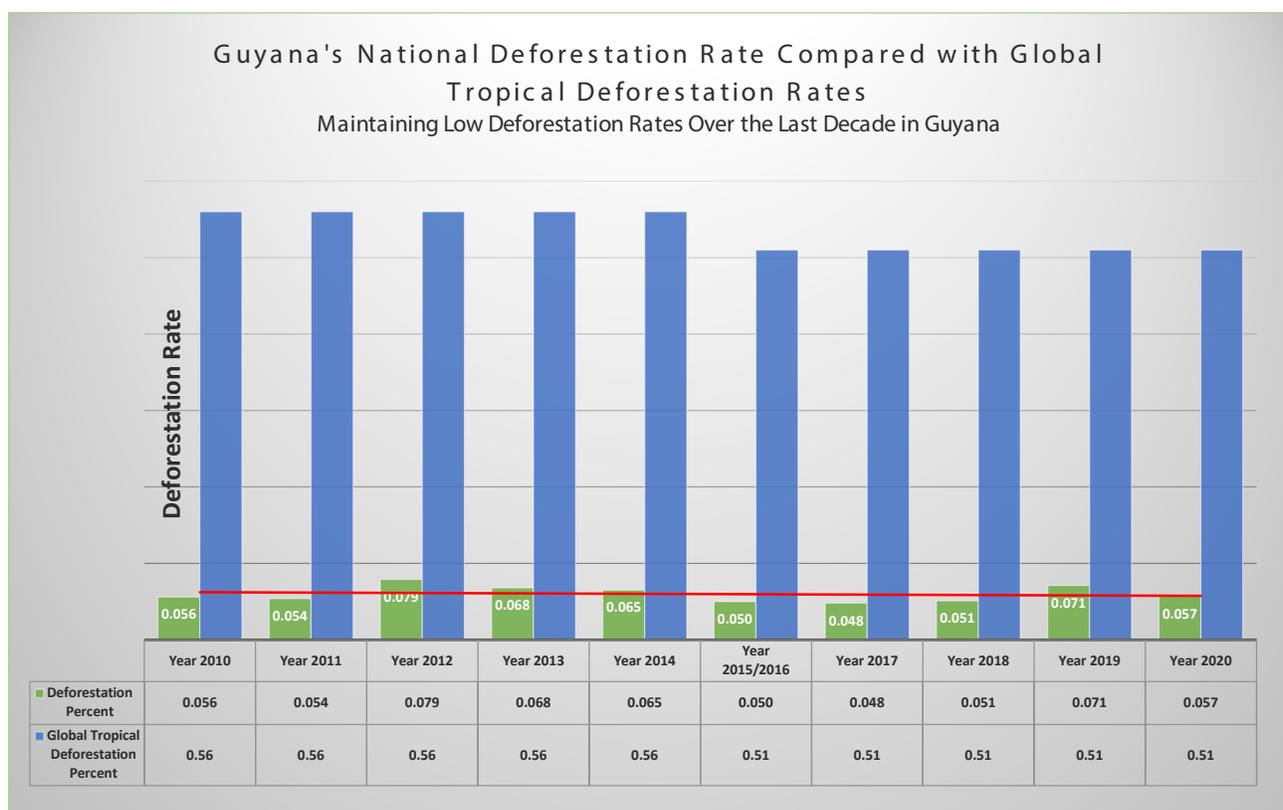
FOREST CLIMATE SERVICES

As set out in Chapter Two of this document, Guyana may progress with integration of its REDD+ Programme with voluntary carbon markets such as ART TREES. While the functional aspects are described in Chapter Two, there are certain institutional capabilities which underpin Guyana's market integration, mainly captured under two key capabilities (MRVS and Safeguards):

- **Monitoring, Reporting and Verification System (MRVS)** - Guyana's MRVS Roadmap, set out in 2009, was aimed at building a comprehensive national system to monitor, report and verify forest carbon emissions resulting from deforestation as forest degradation. The overarching objective of the Roadmap is for all forest-related emissions by sources and removals to be monitored, reported and verified following United Nations Framework Convention on Climate Change (UNFCCC) guidance. With steady progress over the last 12 years, this has been achieved. The MRVS is now a combined Geographic Information System (GIS) and field-based monitoring system that provides the basis for measuring verifiable changes in Guyana's forest cover and resultant carbon emissions, which will underpin results-based REDD+ compensation in the long-term, based on international guidance and best practice. Through the MRVS, Guyana can account for and report on forest change nationally in terms of forest area loss and forest carbon emissions. These reports have been the basis of performance measurement under the Guyana Norway Agreement. The MRVS will allow Guyana to account for performance under any new forest agreement in the future, while allowing the country to achieve the objectives of the Low Carbon Development Strategy. The system is well-positioned to integrate complex market-based fundamentals, including uncertainty assessment, provisions for risk reversals, project nesting, and linkages to forest carbon registries. Forest financing markets requirements of tracking additionality, leakage, preventing double counting and double issuance of carbon credits, and eventually facilitating project nesting have been addressed and will be further strengthened through the structure of Guyana's MRVS. Additionally, the work programme commenced on Community MRV will be advanced under the LCDS and will build on existing work conducted by Government and development partners over the past 10 years, including CI, WWF and Iwokrama.

MRVS Phase Three Priorities - MRVS Phase Three will support the improvement of the necessary human and physical capabilities sustained by local institutions and create the platform for monitoring, reporting and compliance verification under a market-based mechanism. This phase will also build on the REDD+ readiness phase of the MRVS development and result in routine annual reporting on forest carbon emissions and removals in compliance with UNFCCC and IPCC requirements. Simultaneously, the project will create complementary systems for reporting on REDD+ governance compliance requirements, such as supporting REDD+ forest sector safeguards, Guyana's Nationally Determined Contributions, and the UN Sustainable Development Goals 13 and 15.

Trend Line Showing Stable Deforestation Rates for Guyana from 2010 to 2020



- Safeguards Information System for REDD+ and ART-TREES** - Growth in the extractive sectors is only sustainable if safeguards are adhered to. The National Safeguards Information System (SIS) for REDD+ will seek to serve several functions for Guyana, including reporting on results-based financing, providing local information on the country's performance against the Cancun Safeguards for REDD+, as well as ensuring maintained stakeholder support for REDD+. More specifically, it will provide information on the actual outcomes of Guyana's conformance with the Cancun Safeguards throughout REDD+ implementation, including in the context of accessing REDD+ results-based payments in application of the methodological framework established in the Warsaw Framework for REDD+.

Through the development of the Safeguards Information System (SIS) for REDD+, Guyana intends to monitor REDD+ activities in accordance with the objectives of Cancun Safeguards and report on the progress in implementation of the Safeguards. Guyana is continuing efforts in implementing the safeguards listed in decision 1/CP.16. Further, Guyana seeks to develop a system for reporting in how safeguards are being addressed and respected in accordance with decisions 12/CP.17, 12/CP.19, 17/CP.21. The Cancun Safeguards have been agreed to at the 16th Conference of the Parties to the United Nations Framework Convention on Climate (COP16) in 2010. Countries are expected to implement these safeguards in keeping with national contexts and circumstances. More specifically countries are required to:

- Implement REDD+ activities in a manner consistent with the Cancun Safeguards. REDD+ activities, regardless of their funding source, are to be implemented in such a way that the Cancun Safeguards are addressed and respected.
- Establish a system to provide information on how Cancun Safeguards are being addressed and respected.
- Provide the most recent summary of information on how the Cancun Safeguards are being addressed and respected.

The following safeguards are among the areas to be included in Guyana's reporting:

- That actions complement or are consistent with the objectives of the national forest programme and relevant international conventions and agreements.
- Transparent and effective national forest governance structures, taking into account national legislation and sovereignty.
- Respect for the knowledge and rights of Indigenous Peoples and members of local communities by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples.
- The full and effective participation of relevant stakeholders, in particular, Indigenous Peoples and local communities.
- What actions are consistent with the conservation of natural forests and biological diversity, ensuring that the actions are not used for the conversion of natural forests but are instead used to incentivise the protection and conservation of natural forests and their ecosystem services and to enhance other social and environmental benefits.
- Actions to address the risks of reversals.
- Actions to reduce displacement of emissions.



Over the past decade, the advanced MRVS built in Guyana enables the country to move to the next stage of its forest climate services strategy. Key information relating to that strategy is set out in this appendix including:

- Definition of forests
- Resulting Forest Area
- National Forest Carbon Stock
- Valuation of Guyana's Forest Ecosystem Services
- Next Step in monetising value: ART-TREES

1. Definition of Forests

Guyana's definition of forests is in conformance with Decision 11/CP.7 of the Marrakesh Accord which was adopted by the UNFCCC in 2002. This was later extended to land use, land-use change and forestry activities carried out under the Clean Development Mechanism (CDM) of the Kyoto Protocol by Decision 19/CP.9 adopted at Milan (UNFCCC, 2004).

Guyana classifies land as forest if it meets the following criteria:

- **Size:** Over a minimum area of one hectare
- **Canopy Cover:** Tree cover of minimum 30%
- **Height of Stand:** At a minimum height of five metres at maturity.

Land area that satisfies the area, height and crown cover criteria for forest but are not classified as forest include lands that are predominantly under agriculture, infrastructural development and settlements.

2. Forest Area

Utilising the above definition, Guyana's MRVS Report 2020 reported total Forest Cover as 18,001,790 hectares about 85 percent of Guyana's territory.

3. Guyana's National Forest Carbon Stock

Guyana completed a national field assessment of forest carbon stocks in 2018 and concluded that on average at the 95 percent Confidence Level, one hectare of forest stores 1,213 tCO₂ (tons of carbon per hectare of forest). The results of the field assessment were submitted to the UNFCCC as part of Guyana's Reference Level for REDD+ and has been found to be robust. Additionally, the field assessment was also audited as part of the Guyana Norway Agreement Performance audits and validated.

Guyana's MRVS Report 2020, has reported total Forest Cover as 18,001,790 hectares.

Guyana's total forest carbon stock is:

Total Hectares of Forest X Average Carbon Stock per Hectare = Total Carbon Stock

$$18,001,790 \text{ ha} \times 1,213 \text{ tCO}_2 = 21,836,171,270 \text{ tCO}_2$$

4. Valuation of Forest Carbon and Wider Ecosystem Services of Guyana's Forest

Estimates of the economic value that Guyana's eco-system services provide to the world are up to US\$5.4 Billion annually. This derives from a focus on the broader ecosystem valuation. The valuation references the UNU-IHDP and UNEP (2014), Inclusive Wealth Report 2014, Measuring progress toward sustainability, published by the Cambridge University Press.

This Report assesses Non-Timber Forest Benefits. It expresses that one way to assess ecosystem services (ES) from an asset perspective is by valuing the expected flows of ecological services over time at their marginal contribution to economic welfare (United Nations Statistics Division 2013b). The valuation table below summarises the 15 highest values of ecosystem services, excluding climate services, as there is already a market for forest carbon services.

This results in total forest area of Guyana, multiplied by the value of US\$2,990 per hectare annually, and computing an estimated US\$5.4B annually.

Hectares of Forest X Value per hectare = Total Value

(18,001,790 ha X US\$2,990) = US\$54.B annually broader ecosystem services valuation

This is in line with other studies including a 2009 study by McKinsey & Company which used very conservative valuations to establish that the Economic Value to the World (EVW) provided by Guyana's forests if left standing, contributed US\$40 billion to the global economy each year.

On the other hand, a related independent assessment by McKinsey & Company estimated the value of Guyana's rainforest, if harvested and the land put to the highest value subsequent use, to be between US\$4.3 billion and \$23.4 billion. The wide range of estimates is driven by fluctuating prices for commodities such as logs, rice and palm oil – but the most likely estimate is US\$5.8 billion. This forest value known as Economic Value to the Nation (EVN) is the equivalent of an annual annuity payment of between US\$430 million and \$2.3 billion, with the most likely annuity payment being US\$580 million.

However, generating this EVN, while economically rational for Guyana, would have significant negative consequences for the world by reducing the Economic Value to the World (EVW) stated above.

Therefore, Guyana's advocacy for a market-based mechanism for valuing forests seeks to achieve a long-term monetisation of standing forest value that is between the Economic Value to the World (US\$40-US\$54 billion) and the Economic Value to the Nation (US\$580 million).

However, as set out in 2009, this will happen in a stepwise fashion, in part because capabilities for forest monitoring and verification need to be in place to begin.

The first phase was the Guyana-Norway partnership which used a proxy-based system as set out in the Guyana-Norway Joint Concept Note. Now that the MRVS and other capabilities have been built, the next step will be integration with a market mechanism as set out in Chapter Three of this LCDS.

5. Starting Access to Markets – Target Methodology

In guiding Guyana's integration with a jurisdiction-scale, market-based mechanism as set out in Chapter Three of this document, Guyana will be seeking markets that recognise all aspects of REDD+ as defined by the UNFCCC.

This means that Guyana believes that markets should create long term incentives to encourage all countries to improve their HFLD score (which captures both the extent

of standing forest and the rate of deforestation in a given jurisdiction). Practically, that means that markets must grow to recognise:

- Conservation of Standing Forests: Guyana's forests store more than 19.5 Gt CO₂ to 21.8 Gt CO₂.
- Removals: Every year, Guyana's forests remove about 154 million tCO₂ from the atmosphere
- Reductions in Deforestation: Guyana aims to stay 90 percent below the global average
- Restoration of Forests: Guyana aims to restore about 200,000 hectares of forest as a priority

Guyana will seek out markets that best match Guyana's strategic objectives across these four areas, and has set out a methodological approach, where the crediting level for grow emissions is to be determined by:

**Historical emissions level up to 15 years
plus
(HFLD Score X 0.1% of carbon stock)**

Where:

- Forest Carbon stock to include all carbon pools appropriately adjusted for uncertainty.
- Reversal buffers provisions not utilised, will be added to Guyana's carbon registry following the end of a crediting period.
- Inclusion of provision (subject to refinements) remaining forest.

Evolving markets will be kept under review but as of late 2021, the two market-based mechanisms that may deliver against Guyana's objectives for jurisdiction-scale approaches, aligned with global REDD+ targets, are:

- **ART-TREES - The Architecture for REDD+ Transactions (ART)** has been developed to foster the environmental integrity needed for REDD+ emission reductions and removals (ERRs) at national and jurisdictional scale. ART provides a credible standard and rigorous process to transparently register, verify, and issue REDD+ emission reduction and removal credits that ensure environmental and social integrity. ART also aims to unlock new long-term financial flows to protect and restore forests.
- **VCS-JNR** - As one of the leading voluntary carbon market standards, VCS provides an avenue for nesting of project level activities on reforestation within Guyana's carbon market structure and potentially, future integration of relevant HFLD aspects which may be adopted by these and similar standards. Nested project will be facilitated to include private sector engagement.