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# Guyana MRV Support – Mid Term Evaluation

Final Report

17 February 2020



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# Acronyms

Acronym	Definition
ADOD	Avoided Deforestation and Degradation
APA	Amerindian Peoples Association
CI	Conservation International
CMRV	Community Monitoring, Reporting and Verification
CREWS	Community Resource Extension Workers
DAC	Development Assistance Committee
EIMMS	Environmental Information Management and Monitoring System
FAO	Food Agriculture Organisation
FCPF	Forest Carbon Partnership Facility
FLEGT	Forest Law, Enforcement, Governance and Trade
GCF	Green Climate Fund
GFC	Guyana Forestry Commission
GGMC	Guyana Geology and Mines Commission
GHG	Greenhouse Gas
GIMU	Geographic Information Management Unit
GINRIS	Guyana Integrated Natural Resources Information System
GLSC	Guyana Lands and Surveys Commission
GRIF	Guyana REDD+ Investment Fund
GRM	Grievance and Redress Mechanism
GSDS	Green State Development Strategy
GSF	Guiana Shield Facility
GSI	Guiana Shield Initiative
HFLD	High Forest Low Deforestation
IDB	Inter-American Development Bank
IPCC	Intergovernmental Panel on Climate Change
Iwokrama	Iwokrama International Centre for Rain Forest Conservation and Development
KMCRG	Kanuku Mountains Community Representative Group
LCDS	Low Carbon Development Strategy
JCN	Joint Concept Note
MNR	Ministry of Natural Resources
MoIPA	Ministry of Indigenous Peoples Affairs
MOU	Memorandum of Understanding
MOTP	Ministry of the Presidency
MRV	Monitoring, Reporting and Verification
MRVS	Monitoring, Reporting and Verification System

<b>MTR</b>	Mid-Term Review
<b>NICFI</b>	Norwegian International Climate and Forest Initiative
<b>NDCs</b>	Nationally Determined Contributions / National District Council
<b>NOK</b>	Norwegian Krone
<b>NORAD</b>	Norwegian Agency for Development Cooperation
<b>NRDDB</b>	North Rupununi District Development Board
<b>NTC</b>	National Toshaos Council
<b>OCC</b>	Office of Climate Change
<b>OIM</b>	Opt-In Mechanism
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PES</b>	Payment for Ecosystem Services
<b>RBP</b>	Result Based Payment
<b>REDD+</b>	Reducing Emissions from Deforestation and Forest Degradation, as well as conservation, sustainable management of forests and enhancement of forest carbon stocks.
<b>R-PP</b>	Readiness Preparation Proposal
<b>UG</b>	University of Guyana
<b>UNDP</b>	United Nation Development Programme
<b>UNFCCC</b>	United Nations Framework Convention on Climate
<b>WWF</b>	World Wildlife Fund



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## Executive Summary

In 2009 the Governments of Guyana and Norway agreed to cooperate on broader emission reduction goals under the umbrella of UNFCCC-REDD+. The activity resulted in the development of a Measurement Reporting Verification (MRV) system for a comprehensive, consistent, transparent and verifiable assessment of forest area change. Since inception Guyana Forestry Commission (GFC) has made steady incremental gains through the inclusion of new sources of satellite data and refinement of mapping and reporting processes. That Guyana is a high forest low deforestation (HFLD) country has shaped the basic thinking behind the current Guyana-Norway partnership: to reward retaining deforestation at low levels.

The Guyana Forestry Commission (GFC) has built tremendous skills over the years with capacity improving year on year. The GFC team had already attained a high level of competence over the first phase of the project (Years 1-5) and have consolidated their skills in the second phase (Years 6-9). The GFC has a very strong internal team and they continue to evolve against the moving background of other evolution inside Guyana.

One of the key objectives of the MRV's second phase (2015 to 2020) is to improve the system so to allow Guyana to continue to monitor forest change in the event of a "non-REDD+ payment" scenario.

In 2018 the GFC facilitated consultations with several agencies to identify options for further use of MRVS data and outputs for forest monitoring and management. The consultation process found considerable interest in the increased use of MRVS data across Government agencies and non-government organisations, for a broader range of potential applications linked to their areas of work. An overarching theme across agencies was the need for up-to-date information on land cover changes. It is encouraging that the GFC has begun to look beyond perfecting the engineering aspects of forest monitoring, towards outreach to other sectors and the application of the data collected.

The MRVS has brought much more accuracy and specificity to the commitment in Guyana to keeping forest standing. One important and unexpected impact which results from the creation of the MRVs is that other sectors can see the value of setting up a similar system for their own work, creating baselines against which to monitor their own progress towards goals. Given the enormous importance of Guyana's oil resources, which will come on stream during 2020 and which risk overshadowing ongoing work on forests, land-use management and land-use change, the role of the Presidency, and the bodies within it, will be central, and must be supported and kept well-informed.

While many of Guyana's technical agencies have been making increasing use of MRVS data, it is probably the case that the GFC and these same agencies have been less good at explaining to politicians and to citizens in general the relevance of forest or the urgent need to be prepared for climate change. Still less do these categories of people probably understand how REDD+ and the MRVS can help them. Ensuring that an appropriate communication strategy reaches these two categories of people will be essential if arguments that some part of the oil revenues should be committed to forest protection and forest monitoring are to be accepted. The task is rendered doubly urgent by the great likelihood that some oil revenues will be invested in roads and mining and that the forest will consequently be much more difficult to protect than it has been in the past. A greatly increased need of the MRVS for monitoring purposes, may or may not be met by a positive government response.

Meanwhile, whatever happens at national level, forest will not lose its importance for local people. One of the really important impacts of the MRVS, is the way in which it has created the potential for links between indigenous people and the national level. The training of local people so that they could be consulted about hotspots, trained to use GPS, and to report their findings to the national level, has created a link between remote communities and the capital which they found important. They were glad to adapt the skills to create Community MRVS (CMRVs) and are waiting for the moment when the Payment for Ecosystem Services (PES) arrangements originally proposed for them are reanimated in some form.

In general, Conservation International (CI) has been an excellent partner for NICFI /Norad, managing GFC effectively on the production of reporting and financial management documentation. In every other way, GFC has performed well, following roadmaps to the letter, taking MRVS skills to an exceptionally high levels and reporting punctually and fully. In these core activities it has not needed inputs from CI.

# 1 Introduction

## 1.1 Background

The climate and forest partnership between the Government of Guyana and the Government of the Kingdom of Norway was initiated in 2009. The goal of this agreement was to ensure close to zero deforestation in Guyana, as one of the world's net carbon sinks. The partnership is detailed in a Memorandum of Understanding (MOU) and a Joint Concept Note (JCN). The Norwegian government agreed to provide up to US\$250 million in performance-based payments to help Guyana transition to a low-carbon green development path.

As a follow-up to the Norway-Guyana agreement, Norway has supported Guyana in developing a Monitoring Reporting and Verification System (MRVS) and a mechanism for receiving financial payments for Guyana's provision of forest carbon-based services. These payments are result-based (RBP) with deforestation and forest degradation measured against an agreed reference level. Guyana's MRVS also provides a basis for the country to report on its commitments under the Paris Climate Change Agreement, where Guyana has committed to reduce emissions in its forestry and energy sectors.

The agreement between Guyana and Norway is one of the first national-scale initiatives to Reducing Emissions from Deforestation and Forest Degradation, as well as conservation, sustainable management of forests and enhancement of forest carbon stocks (REDD+) in the world. The MRV System, supported since 2009, is understood to be a continuous learning process that is progressively improved. This is particularly relevant as the MRVS matures and the trends and drivers of forest change are better understood.

The results generated from the MRVS have potential applications to a range of functions relating to policy setting and decision making within the natural resources sector, in particular to forest management. Guyana's MRV System has over the past five years generated a wealth of data that can be utilized in improving management of the multiple uses of forests.

The focus of this assignment is a mid-term review of the current period of MRVS support, for years 6-9 of the projects.

## 1.2 Objective of the MTR

The goal of the MRVS project is to contribute to Guyana's green development pathway by improving forest management within Guyana, through:

- Implementation of the MRVS;
- Reporting on the REDD+ Interim Indicators as outlined by the areas expressed in the Joint Concept Note or any other reporting framework agreed between Guyana and Norway;
- Streamlining these REDD+ performance indicators.

The project focus during years 6-9 is the implementation and further development of the key technical areas of forest area change assessment and monitoring and forest carbon measurement and monitoring, with emphasis placed on:

- Improvements in the emissions and removals reporting in fulfilment of the MRVS Roadmap Phase 2;
- Application of the system to improve forest management policy and practice, including regulatory frameworks;
- Capacity building of the Guyana Forestry Commission (GFC) and the REDD+ Secretariat;
- Assuring that a subsequent phase of the MRVS will take place.

The objective of this consultancy is to conduct a Mid-Term Review (MTR) of the MRVS project, from the start of the project in 2010 to date. The MTR draws the line from the initial start – when the focus was on creating a Forest Area Capacity Assessment – to the sophisticated MRV system established to date. The MTR puts considerable attention to the project period year 6-9.

## 1.3 Scope of Work

The evaluation focuses on year 6 (2015-2016) to year 9 (2019) of the project, which must be contextualised in the MRVS project achievements from its inception.

The MTR takes into account the Organisation for Economic Co-operation and Development's Development Assistance Committee (OECD DAC) criteria for evaluation of development programmes for assessing the project: *Relevance, Effectiveness, Efficiency, Sustainability* and *Impact*. Lessons learned to date and recommended actions to improve project delivery and performance are provided.

The MTR main goals are to:

- (i) document and assess the achievements for the development of the MRVS from its inception: *Effectiveness* and *Impact* parts of the MTR;
- (ii) determine the extent to which the objectives as defined in the logical framework have been met as of the date of the evaluation, and assess the likelihood of achieving them upon project completion: *Effectiveness* part of the MTR;
- (iii) assess Conservation International (CI) role and performance as executing agency identifying institutional strengths and weaknesses and recommendations for improvement: *Efficiency, Relevance, Effectiveness* and *Sustainability* parts of the MTR;
- (iv) identify potential options for improving the programme which could include modification of methods and approaches, activities, milestones, programme timelines, responsibilities of the Executing Agency's staff, schedule of activities and budget allocations: *Efficiency, Relevance, Effectiveness, Sustainability* and *Impact* parts of the MTR.

The Evaluation MTR team is composed of in-house staff and international experts contracted by LTS International Limited (LTS, part of the NIRAS Group), commissioned, under a draw-down contract to support Norad with technical assistance globally.



## 2 Methodology

### 2.1 Evaluation Framework Matrix

The Evaluation Framework matrix was constructed by the LTS team against the OECD DAC criteria for evaluation of development programmes: *Relevance*, *Effectiveness*, *Efficiency*, *Sustainability* and *Impact*. The full matrix can be found in Annex 1 – Evaluation Framework.

### 2.2 Field Visits and Interviews Schedule

The LTS team undertook field visits in Guyana for stakeholder interviews between October 28<sup>th</sup> to November 15<sup>th</sup>, 2019. This field mission was carried out in Georgetown (Region 2), Lethem and Annai (Region 9) and Iwokrama (Region 8). It consisted of in-depth interviews, inspection, and analysis of the project activities with direct stakeholders of the Norad-funded MRV programme, and in particular:

- (i) Interviews with Conservation International (CI), Guyana Forestry Commission (GFC) and Norad staff who participated in the programme design and execution;
- (ii) Interviews with local stakeholders and actual direct beneficiaries; and
- (iii) Interviews with a sample of consultants and/or technical assistance providers who were hired by CI/GFC to provide technical assistance under the programme.

After the field mission, the team carried out a number of desk-based interviews with the international stakeholders that have been involved in the programme. The full list of local and international stakeholders is provided in Annex 2 – List of Key Stakeholders and Interview Schedule.

As part of the data collection, the LTS team developed two scorecards; one to assess the quality of forest monitoring system, and the second one to assess the use of forest monitoring data” by other institutions within Guyana. The scorecards were each filled out by CI, GFC and the Ministry of Natural Resources (MNR), and results were combined to generate two overall scorecards which were included in the analysis. The scorecards are included in Annex 4 – Scorecards.

### 2.3 List of Documents Reviewed

The main purpose of the desk review was (i) to collect key background information on the programme to inform the LTS team and (ii) to summarise the reported programme outputs and emerging outcomes for field study verification.

The desk review has consolidated the background and relevant information collected through the key stakeholder interviews. Below is a summary of the resources made available and assessed against each of the MTR evaluation criteria:

- *Relevance*: Grants Agreements, Joint Concept Note, MRV Roadmaps, Forest Carbon Partnership Facility (FCPF) Mid-term Progress Report.
- *Effectiveness*: Interim Measures Reports, MRV Roadmaps, FCPF Mid-term Progress Report.
- *Efficiency*: CI Audit Financial Reports, Reviews of CI Reports, Grants Agreements.
- *Sustainability*: Grants Agreements and related Amendments, MRV Roadmaps.
- *Impact*: Interim Measures Reports, FCPF Mid-term Progress Report.

The list of references is included in Annex 3 – References.

## 3 MTR Findings

### 3.1 Relevance

#### 3.1.1 How has international good practice on national forest monitoring systems in an emission reporting context developed since the onset of the Guyana-Norway partnership?

The international context of MRV for REDD+ has changed since the onset of the Guyana-Norway partnership. In 2009, the partnership was one of the first – and indeed pioneering – attempts to design an approach for MRV that could support results-based payments. Ten years on, thinking on REDD+ MRV for results-based payments has matured. Additional standards and guidance have become available, most notably the Warsaw Framework for REDD+ in 2013 and the Green Climate Fund (GCF) scorecard for an RBP pilot scheme in 2017, but also the FCPF Carbon Fund’s methodological framework in 2013. Moreover, dozens of countries have launched their efforts for REDD+ MRV. In late 2019, as many as 39 countries have submitted forest Reference Levels to the United Nations Framework Convention on Climate Change (UNFCCC), and the FCPF Carbon Fund has built a pipeline of 18 emission-reduction programmes. Although pioneering at the time, Guyana’s approach to REDD+ MRV needs to be re-checked in the light of recent progress, to check whether it still reflects good practice for the REDD+ MRV which has now emerged from all this wealth of experience.

A crucial determinant of Guyana’s REDD+ MRV approach has remained unchanged: Guyana has a high forest cover and a low deforestation rate. Because of this, the Guyana-Norway arrangements are structured to provide results-based payments against efforts to retain that low deforestation rate (indeed, one of the purposes of the partnership was to demonstrate a way in which high forest low deforestation (HFLD) countries may be included in REDD+). In other contexts, donors have moved largely towards providing results-based payments only for emissions reductions below historical average deforestation levels. The FCPF Carbon Fund’s methodological framework and the GCF scorecard for an RBP pilot scheme only have very modest allowance for adjustments beyond the historical average, so does the Architecture for REDD+ Transactions (ART), which is undergoing public consultations at the time of writing this report. Using a historical average as a reference level for disbursing results-based payments would not be workable in Guyana.

This is no limitation, as the basic thinking behind the Guyana-Norway partnership also remains unchanged: to reward retaining deforestation at low levels. Reducing deforestation below its current or historical levels is fundamentally not an objective of the partnership. There is therefore no need to adopt the historical average reference level approach, which other countries frequently use. Related to this, there is no intention of transferring any sort of emission-reduction title from Guyana to Norway that could potentially be used to offset emission-reduction commitments under Norway’s domestic or international targets. The current setup, where payments for results are made with ODA funds, does not allow for such transactions.

#### 3.1.2 How has the socio-economic and institutional context in Guyana changed?

The change of government in 2015 brought various changes of emphasis in its wake. Both governments have a commitment to green issues: the government up to 2015 backing the Low Carbon Development Strategy (LCDS) and the current government having thrown its weight behind the Green State Development Strategy. Both are funded by the GRIF, the Guyana REDD+ Investment Fund. The GRIF is a trust fund established to fund appropriate LCDS and then GSDS activities pending the creation of an international REDD+ mechanism. It is funded by the Guyana-Norway partnership RBP which provided up to \$250 million, the final payment of \$50 million being paid over to the Guyana government in December 2019. Among its varied initiatives, the GRIF has invested in the Amerindian Land Titling Project, speeding the gaining of title by large numbers of Amerindian groups and making it possible for them to take part in Community MRV (CMRV) activities (but see section 3.4.5).

After 2015, the responsibility for the Department of the Environment was transferred from the Ministry of Natural Resources to the Ministry of the Presidency. The Department of Environment and the Department of Energy (responsible for oil) were both deemed so important that they needed to be located there. The Department of the Environment is responsible for reporting on the Rio conventions, and pulling together data from different departments to do so. New forms of collaboration and cooperation are only slowly developing

and data-sharing is not always well managed. Much more collaboration on land use management and land use change is needed, for instance. GFC is strong on land use change and has the metrics to show what is happening, but there is currently an almost complete lack of capacity for data management inside the Department of the Environment. Some interviewees observed that the Green State Development Strategy (funded through the GRIF) and the MRVS (funding managed by Conservation International) would benefit from further synthesis. There are currently very few mentions of the MRVS in the Green State Development Document, for instance, and both processes would benefit by drawing more fully on the other. Both their funding sources originate with Norway and attempts to align both more fully would be a very valuable task for the GRIF Project Management Office to take on.

Since 2015 the Ministry of Natural Resources has produced useful new policy documents for both forests and mining, and has updated the regulatory framework for both. The Office for Climate Change (OCC) is slowly bringing more activities which concern climate change and forests under its wing, and GFC takes policy guidance on REDD+ from the OCC.

In short, relationships between various relevant institutions are currently evolving, and it is not yet clear what the final arrangements will be. Given the enormous importance of Guyana's oil resources, which will come on stream during 2020 and which risk overshadowing ongoing work on forests, land-use management and land-use change, the role of the Presidency, and the bodies within it, will be central, and must be supported and kept well-informed.

### 3.1.3 How has Guyana's capacity for forest monitoring developed over the lifetime of the project?

Guyana's forest monitoring system has come a very long way since the beginning of the Norway-Guyana partnership. Several of the interviewees highlighted that prior to 2009, Guyana did not have a monitoring system for REDD+. The GFC was only equipped to conduct basic mapping for concession-level monitoring. On the forest carbon side, GFC capacity was limited to basic forest inventory. Ten years on the country has made much progress and developed solid systems for monitoring forest area and forest carbon monitoring – as well as for promoting its applications. Indeed, an overview of technical specifications since 2009 shows how Guyana has continued to improve its system over the years (Table 1).

Table 1: Development of Guyana's systems for monitoring forest area and forest carbon since 2009<sup>1</sup>

	Forest area monitoring	Forest carbon monitoring	Data application
Year 1 – 2010	Landsat, only forest non-forest	Only rudimentary carbon data, only rudimentary forest degradation	Not yet a focus
Year 2 – 2011	RapidEye, only forest non-forest	Carbon stratification, only rudimentary forest degradation	Not yet a focus
Year 3 – 2012	RapidEye, only forest non-forest	Carbon stratification, robust forest degradation	Community forest monitoring and mining
Year 4 – 2013	RapidEye, mapping of IPCC classes	Carbon stratification, robust forest degradation, shifting cultivation	Community forest monitoring and mining
Year 5 – 2014	RapidEye, mapping of IPCC classes	Carbon stratification, robust forest degradation, shifting cultivation, sinks	Community forest monitoring and mining
Year 6 – 2015/2016	Sentinel and Landsat, mapping of IPCC classes	Carbon stratification, robust forest degradation, shifting cultivation	
Year 7 – 2017	Sentinel and Landsat, mapping of IPCC classes	Carbon stratification, robust forest degradation, shifting cultivation	Community forest monitoring, mining, scientific publications
Year 8 – 2018	Sentinel and Landsat, mapping of IPCC classes	Carbon stratification, robust forest degradation, shifting cultivation, emissions by driver of deforestation and forest degradation	Community forest monitoring, mining, scientific publications, broader applications

For a first iteration of the annual reporting against interim indicators, Guyana relied on medium-resolution Landsat satellite images. The limitations were obvious, for example regarding the detection of forest degradation. During the following years high-resolution, yet expensive RapidEye imagery was used, which enabled Guyana to map area changes according to detailed land-use classes. More recently, Guyana has

<sup>1</sup> Based on information extracted from MRVS interim measures reports for years 1-8

introduced a combination of freely available Sentinel imagery with slightly lower resolution Landsat imagery. Use of low cost/no cost options are also a means by which the GFC seeks to ensure the sustainability of the system, should there be no future REDD+ payments. Besides the spatial detail, frequent on-the-ground observation is seen as important to promote data use for purposes beyond tracking emissions.

In the early days, Guyana had only rudimentary information on forest carbon stocks. Much effort was invested in collecting plot-based measurements for the development of emission factors. Initially international consultants had difficulty in believing in the very high carbon stocks to be found in Guyana's forests. But it was realised that Guyana's forest trees are slow growing, and the wood is very dense. The emission factor was 100 tonnes per hectare and this was the figure reported to UNFCCC. Default crown cover is 30%. Some forest only just about qualifies, but there is plenty of dense Greenheart forest as well.

Two years later, a carbon stratification for forests and logging damage factors became available to underlie more detailed and robust reporting. Stratification proved much simpler than had been expected because the forest is relatively homogeneous: the two main variables used in the end were potential for change (high, medium and low) and accessibility to these areas (more accessible and less accessible). The following years saw further improvements to the approaches, and efforts to broaden their scope.

Emissions from shifting cultivation and removals from growing trees were partially covered. (It had been assumed that the carbon consequences of shifting cultivation might be as high as 10% but analysis showed it to be scarcely 1 to 2%). The most recent report includes a detailed analysis of emissions broken down by the drivers of deforestation and forest degradation.

The carbon inventory has been the chief output so far. There are over hundred carbon plots and at any one time, some are being rotated out and new ones are being rotated in, over a 20-year cycle. Local people have been very helpful in enabling GFC to push into inaccessible areas. A full forest inventory did not exist originally (such forest inventory as existed had come about because of the handing out of logging permits and was limited to concession areas); but the GFC commenced work on a National Forest Inventory in 2018, which will be completed during 2020.

Most recently, Guyana has promoted the application of data for resource management purposes. During the early years, the system squarely focused on international emissions reporting. Soon after, efforts began for developing capacity at the community level, and to generate data of relevance to other sectors, notably mining. Outreach became important later, including through scientific publications. The most recent report further widens the scope and includes much discussion surrounding broader applications of data.

GFC has developed tremendous skills in recent years, with capacity improving year on year. It has a very strong internal team and GFC continues to evolve against the moving background of other evolution inside Guyana. International consultants from Indufor, Winrock and Durham University note how eager the GFC has been to have their inputs and to work with them.

### **3.1.4 What kind of capacity development will be required going forward?**

Guyana has been very consistent over the last ten years in evolving its forest monitoring approach. Building on this trajectory would require continued access to capacity-development inputs and the ability to experiment and further develop. GFC has worked on how to develop the MRV in changing times and continuing to build on what is there already

It is especially encouraging that most recently Guyana has begun to look beyond perfecting the engineering aspects of forest monitoring, towards outreach to other sectors and the application of the data collected. This will bring its own set of new challenges related to the ownership of the forest monitoring system and its sustainability. Such topics could become a focus for capacity development in the years to come.

The goals for the future must thus include:

- developing a more responsive system which will address the needs of other national-level users more effectively, and also be as cost-effective as possible;
- expanding outreach at civil society level. CMRV work needs to be reanimated, and there is a need for local people to take their place on National multi-stakeholder committees since they understand some of the issues better than anybody else. (see below section 3.4.5);

- publishing much more material about the progress of the MRVS in Guyana - ‘telling the Guyana story’ as one visiting technical expert put it, and teaching the world how to do what Guyana has managed so well;
- knowing when to cease striving for an ever more perfect system - avoiding the trap of ‘perfection becoming the enemy of success’.

### 3.1.5 Alignment with political context

Though working relationships can sometimes be difficult, MRV has up till now retained support with both political parties. The science has helped to bridge the politics.

The Ministry of Natural Resources, in which GFC sits, is in charge of both forestry and mining. In 2018, GFC helped to generate a Forest Policy and Plan with the Ministry, with the MRVS placed solidly within it. GFC is not powerful enough, in its own right, to ensure that forest policy is applied, but the ministry has benefited very much from MRV and is willing to use the data generated to support GFC in challenging illegal mining and logging.

GFC, MNR and other bodies have a strong interest in working together towards better governance and better land management, and a good example of this is trying to improve the quality of mining. Mining companies’ contracts include rehabilitation, but the reality is that there has been very little accountability, and mining exports its externalities to others un-challenged. According to the MNR, in the era before oil revenues come on stream, mining has been generating 30% of export earnings and it employs at least 150,000 people, so mining concessionaires have felt immune. Neither the pre-2015 nor the post-2015 government has been able to bring them to account. This may now change as GFC moves closer to real time monitoring (Sentinel is able to give new figures every five days). Real-time monitoring would mean that very timely information would be available on the activities of concessionaires. If they chose, MNR and GGMC would be able to pursue national scale rehabilitation efforts by miners.

Mangroves are currently managed under the Ministry of Agriculture, but they are being brought under GFC and protected under the Forests Act. They are becoming more and more important as higher tides and surges become more common. In the past people used to cut mangroves for fuelwood, but this has been stopped and there has been a Mangrove Restoration project. There is a need to improve land-use design and increase the preparedness of local people for the future: many are likely to have to move in the end. There are plans to monitor tides and surges to develop a better understanding of their seasonal pattern; and there is also a need for much better data sharing between weather forecasters, farmers and those responsible for mangrove protection.

The MRV system is thus in some ways well-aligned with the political context, but in other ways its value is still potential rather than actual. For instance, the Lands Commission needs to integrate the hinterland more, and has a four-year project under the GRIF for harmonising laws and policies. GFC could help with this in the near future. The Department of the Environment needs the data management skills that GFC can offer, but it has not yet done much to support forest policy.

#### **How important is the forests sector in the current political context?**

According to many of those interviewed, it is possible in the short run that the country is so gripped by the prospect of its upcoming oil revenues that an interest in forest protection dwindles. On the other hand, both of Guyana’s parties take the official view that petroleum dollars will in part be spent to fund green development. What does remain true is that Norwegian performance-based payments for forest conservation become less financially interesting beside revenues from oil. However, the need for climate change mitigation will not go away and Guyana’s forest will continue to be a precious asset both for its own needs and for those of others.

Guyana will be able to afford to support the MRVS, if it chooses, from its oil revenues. It could decide to set an example to other countries on Green Development pathways. For instance, it could insist that highly polluting industries pay some sort of restoration compensation, perhaps in partnership with the government. Its forest carbon stocks will be of value both to the country itself and potentially in deals with other countries (California has shown some interest in offsetting its emissions against Guyana’s carbon store). Even more importantly (Section 3.2.5) an increasing range of institutions within Guyana have started to use MRV data for their own purposes, and this in the long run is likely to prove the strongest argument of all for maintaining the ability to keep the MRV system in place. There has been a tremendous evolution in recognising the value of the MRVS, over the last decade.



### **What factors might affect political backing of the MRV project?**

The key unknown factor which might affect political backing for the MRV project is how the oil revenues come to be viewed. Oil certainly changes the role of forests in some aspects of national thinking. Until now forests have been very important for the financial support that they have garnered from Norway for Guyana. In addition to paying \$650,000 a year for the MRV programme, Norway's results-based payments have monetised the GRIF (Guyana REDD+ Investment Fund) with the sum of \$250 million between 2010 and the present. If oil, as expected, provides Guyana with \$300 million a year, Norway's contribution looks less valuable. It is imperative that good arguments are made for allocating some of that money to forests.

## **3.2 Effectiveness**

### **3.2.1 How well does the forest monitoring system perform as a basis for Norway's results-based payments?**

Guyana's work towards building a REDD+ MRV system for Guyana began in earnest only around 2009 when the Memorandum of Understanding for the Guyana-Norway Partnership was signed. A series of Joint Concept Notes lays out a set of agreed indicators and a carbon accounting approach for calculating results.

Accordingly, the latest iteration of the Joint Concept Notes lays out the following steps to calculate payments:<sup>2</sup>

- 1 Subtracting Guyana's reported and verified deforestation rate from the agreed reference level (0.275 percent per year);
- 2 Calculating emission reductions by applying a conservative estimate of carbon loss (100 tonnes carbon per hectare);
- 3 Subtracting from that number an estimate for forest degradation (using agreed indicators and a conservative carbon density);
- 4 Multiplying the amount of "avoided emissions" by USD 5 per tonne;
- 5 If the deforestation rate exceeds 0.056 percent, reduce payments on a sliding scale – with no payments if the rate is at, or above, 0.1 percent.

In most regards, Guyana's carbon accounting approach is similar to other countries' approaches for measuring and reporting REDD+ - but the reference level setting stands out. The following table includes a side-by-side comparison of several key carbon accounting elements (Table 2). Guyana moved beyond what is common practice under the UNFCCC process only with regards to the approach chosen for setting the reference level.

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<sup>2</sup> technical note on payments 2015 -

<https://www.regjeringen.no/contentassets/6a81714468874be7bf210dd4d09cfa33/technical-note-on-payments-to-guyana-for-the-fourth-reporting-period.pdf>

Table 2: Overview of carbon accounting issues in Guyana and in other countries' UNFCCC submissions<sup>3</sup>

	Guyana's approach	Most common approaches in the UNFCCC process and the GCF scorecard for the RBP pilot
<b>Reference-level setting</b>	"Combined incentives" reference level is based on an equal weighting of Guyana's mean deforestation rate and the mean rate in developing countries with deforestation. The reference-level setting is subject to declining payments in case of increasing deforestation (see Figure 1)	Most countries apply historical average deforestation rates (or historical trends in countries with increasing rates) without consideration of mean deforestation rates across developing countries. The GCF scorecards (see Annex 4 – Scorecards) strictly limit allowable adjustments.
<b>Ensuring additionality</b>	Approach implies that any emission reduction below the baseline is considered additional. There is no reporting on policy action and payments are not contingent.	No separate testing for additionality, implying that any emission reduction below the reference level is considered additional, nor is linkage to policy action checked upon.
<b>Mitigating displacement risks</b>	The scale of the submission is national, capturing most displacement, while international displacement is neglected. Guyana has undertaken efforts to also include forest degradation, capturing a larger share of emissions in the broadened scope.	Countries aim to increase scale and scope of REDD+ accounting to capture any emissions displacement, neglecting international displacement. Countries with subnational reference levels sometimes undertake efforts to prove that displacement does not occur.
<b>Mitigating any non-permanence risks</b>	The approach implies that achieved emission reductions are permanent.	Achieved emission reductions are considered permanent, with the implied assumption of systemic change.
<b>Dealing with uncertainties</b>	Major effort went into reducing uncertainties as much as possible. Some parameters are set conservatively. Guyana has undergone annual audits of their results.	Countries quantify and reduce uncertainties at varying levels, no efforts to be conservative. No sophisticated verification processes.

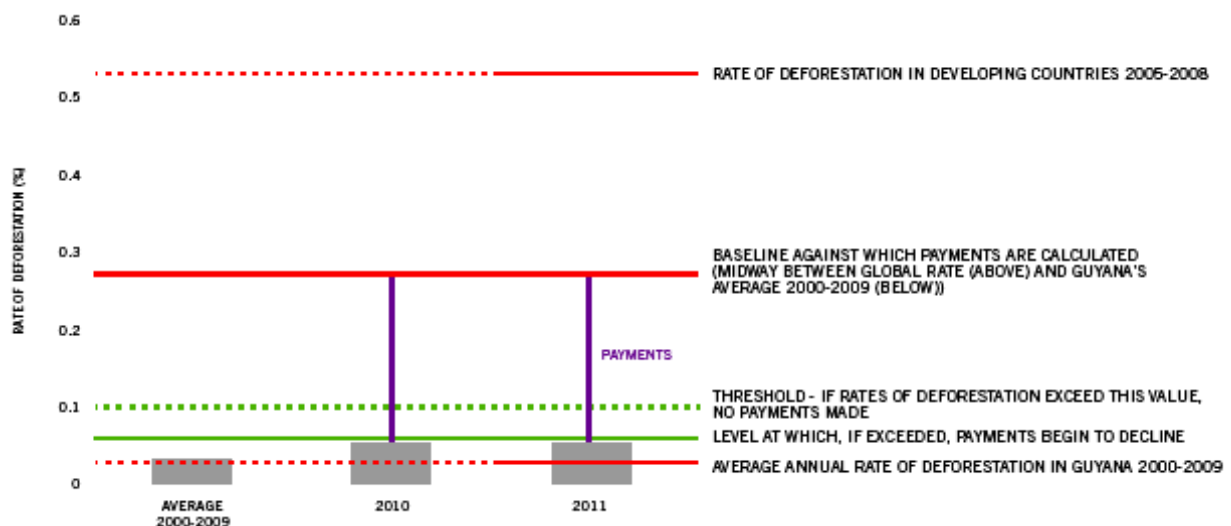


Figure 1: Guyana's "combined incentives" reference level<sup>4</sup>

<sup>3</sup> based on Joint Concept Notes and on FAO 2019

<sup>4</sup> Source: <https://theredddesk.org/markets-standards/guyana-guyana-redd-investment-fund-and-norway-partnership>

### 3.2.2 How well does the MRV system measure up against good practice in other countries for national forest monitoring systems in an emission reporting context?

A forest monitoring scorecard (Annex 4 – Scorecards) was used to assess the quality of Guyana's national forest monitoring system. This generic scorecard can support assessing technical and functional capacity for satellite land monitoring, forest inventories, reference level setting and greenhouse-gas inventories. It covers both the availability of system outputs and the required technical and functional capacities. The scorecard ratings were compiled by the evaluation team, based on careful triangulation of responses collected from the Guyana Forestry Commission, from the Ministry of Natural Resources and from Conservation International. Complete scorecards are included in the annex, here only selected ratings are discussed for satellite land monitoring and ground-based forest inventories.

Judging by the scorecard results, Guyana's satellite land monitoring system conforms to what is regarded as international good practice. It is the product of continuous investment across seven iterations of progress reports. There is a whole time series available of consistent land-use / land-cover change assessments and the Guyana Forestry Commission has built a strong team of regular staff that produces these using latest methodologies. The team has access to the necessary hardware and software, including also a digital archiving system.

Since Guyana does not have a national forest inventory, a targeted carbon inventory was conducted to establish emission factors. Many countries with REDD+ programmes use the opportunity of having funding available for forest inventory work to then launch a more general capacity development programme surrounding national forest inventories and the many applications of such data for structured forest management. Guyana opted to more narrowly focus on measuring carbon and has developed an ongoing programme to measure biomass and carbon stocks. It has not engaged in building a classical national forest inventory to support forest management.

However, both the satellite land monitoring system and any field inventories depend on external resources. The funding needs for these are considerable (see section 3.4.4) and have in the past been covered mainly through MRVS programme grants from Norway. Once the overseas component of this support is withdrawn, then the outlook for Guyana's forest monitoring becomes uncertain. Although staff at the Guyana Forestry Commission and all project partners are keenly aware of this, and frequently discuss options, there is no clarity as yet on what would have to be in place to secure a commitment to long-term domestic funding for forest monitoring.

In addition to international funding, Guyana has used international technical advice to build the forest monitoring system and the team continues to draw on international experts. This is unsurprising. Forest monitoring is a highly technical field that develops fast. Even Guyana's larger neighbours with a potentially deeper pool of technical expertise (Colombia, Mexico, Argentina, etc.) regularly have recourse to international expertise for developing and maintaining their forest monitoring systems. Guyana may expect to continue drawing on regular external technical advice in the long term, especially in the areas of new developments and the continued evolution of guidance provided by the UNFCCC and others.

Much of Guyana's forest monitoring is done first and foremost to report to Norway according to the set of interim indicators of the Guyana-Norway agreement. Further efforts are needed to ensure wide use of forest monitoring data within Guyana for its own needs, though very good start has been made.

Relatedly, Guyana's reporting to the UNFCCC could have been more diligent. REDD+ forest reference levels (FREL) are meant to be drawn from a national greenhouse gas (GHG) inventory system that also produces inputs for GHG inventories included in National Communications and Biennial Update Reports. Whilst Guyana was among the first countries to submit a REDD+ FREL to the UNFCCC, where other countries have since then moved towards improving their UNFCCC reporting, Guyana's reporting has been somewhat patchy and not in line with the quality seen in reporting to Norway.

### 3.2.3 How well does the forest monitoring system inform Guyana's own natural resource management? Is it suitable in terms of reliability and credibility, accessibility and relevance, and sustainability of the system and its data?

The **reliability** and **credibility** of the Guyana forest monitoring system is not in doubt. All of the international consultants who have worked on the forest monitoring system with GFC have been struck by the excellence of the data generated and by the commitment of the GFC MRVS team.

Seven audit reports for financial years 2011-2017, became available in 2019. They were all conducted by Edwin Aalders, (DNV-GL) and his team. He was the architect of the original auditing protocol. No problems were found with any of the reports, and the audits were unqualified. Indeed, as the auditor said, after three audits the GFC team were working to about 98% accuracy and were so focused on high quality that he was suggesting that a lower accuracy level would be quite adequate.

Quarterly progress reports are available from June 2017 (with one covering six months Jan-Jun 2018). The 2019 Implementation Plan and Budget is available, breaking down activities against result areas, with a baseline for each, and a budget for each outcome area. The summary budget information shows that project management and personnel costs are 7% of total costs. The July-September 2017 report for instance contains detailed progress update against 'outputs', ('Activities' in the Implementation Plan). The progress described is very clear and specific and it is easy to tell what has been undertaken. Many activities are contracted out to Winrock and Indufor AP; Durham University is contracted to provide an independent accuracy assessment of the area change analysis; and DNV the independent verifications. The report contains activities on lowering the cost of the system in case of an eventual no REDD+ payments scenario.

**Relevance** – while there is always more to be done, the MRVS has come a very long way. The year of highest forest loss was 2012 when the loss was 0.079% – less than 20,000 ha. As Guyana has become accustomed to the existence of the MRVS more and more people are beginning to use it. For instance, in the past forest concessionaires had to make an inventory and then go to GFC. Now they can go to Lands and Surveys and simply consult maps to identify potential logging sites. Because data are currently one year out of date, GFC are eager to move to the use of near real-time data. So far MRVS has been used only for information, but near real-time data would make it possible to use the system contractually to ensure compliance. At that point it will become a very powerful tool for both logging and mining concessions. The revised National Forest Policy and Plan (2018) contains a strong endorsement of and commitment to the MRV system.

More detail on **accessibility** and **relevance** with regard to Guyana's own natural resource management activities follow in the next section, 3.2.4. **Sustainability** is addressed in section 3.3.

### 3.2.4 Alignment with national needs

At the moment there are a series of national level processes going on which are all-important but which are poorly engaged with one another. The Green State Development Strategy, REDD+, the Forest Law, Enforcement, Governance and Trade (FLEGT), the MRVS and Sustainable Forest Management are all different processes with somewhat different goals.

FLEGT is set to transform forest governance in Guyana and has a place in REDD+ Policy with close linkages to top level priorities and actions as well as community development goals and programmes. At the international level FLEGT is a core part of Guyana's reporting under the Sustainable Development Goals, specifically SDG 13 and 15. It is also part of Guyana's Commitment under the Paris Agreement as expressed under Guyana's Nationally Determined Contributions (NDCs). At the bilateral level, FLEGT is part of the REDD+ Governance measures under Guyana-Norway Bilateral Cooperation. At the national level, FLEGT is part of the FCPF's REDD+ Strategy, it is a national priority under the Low Carbon Development Strategy and its successor the Green State Development Strategy. At the forest sector level, FLEGT forms part of the revised National Forest Plan and Forest Policy. At the same time, the MRVS is currently very separate from FLEGT and has had the chance to work through many more years of development and improvement, while FLEGT took time to get started. It is imperative that these varying initiatives, with their separate funding streams, are brought into a closer and more productive relationship, for the benefit of Guyana as a whole. The Office for Climate Change may have the capacity to lead on this and the Ministry of Natural Resources is also a potentially powerful player.

### **How is the MRVS used, what are the data used for? And which institutions use the data from the MRVS, and how?**

The GFC team has tried very hard to increase awareness of the MRVS and its data. They have trained other institutions to use their data (e.g. the Environment Protection Agency). Back when there were legal barriers to widespread use of RapidEye data, GFC had to purchase licences for others so they could use it. Now that Sentinel data is being used, data access and licence problems have more or less disappeared. They have helped other institutions make the best use of the data available – processing it for the many institutions which could not use the raw data. They helped to create capacity for other institutions, so they could share the results and share the products. They have also provided data to help the government of Guyana to show how it is contributing to the SDGs.

As far as capacity building for the future is concerned, GFC has tried to create a future cadre of GIS experts by starting early and training the students in the University who are doing Earth studies. There is still a need for curriculum development, however, and probably for a specific GIS degree. GFC has focused on the science and others have gradually come to see the usefulness of the data for their projects. GFC responds to requests for help in a timely and speedy way. Often it needs to make the information more user-friendly to be most useful to the body requesting data.

GFC is eager to move towards near real-time systems in order to be able to be more responsive in the future and of more use to other government bodies. It wants to make the information as user-friendly as possible.

Specific uses of MRVS data that were reported to the evaluators by GFC are illustrated in Table 3. GFC needs to make a stronger case for the many ways in which MRV data is now being used. This will strengthen justification for the continuation of MRV funding in the future. Among the bodies which have made use of MRV data, and which are not mentioned in Table 3, are Lands and Surveys, the Ministry of Natural Resources – mainly the Geographic Information Management Unit (GIMU) - and Sea Defences. Some bodies draw on figures from annual data reports in their own reporting, rather than attempting to use the raw data itself. For instance, researchers and lecturers use the MRV data in research proposals and funding proposals. The Inter-American Development Bank makes use of MRV printed data as well.

CI use the data to monitor deforestation caused by mining in their Norad-funded Avoided Deforestation and Degradation (ADOD) project, and plan to use it for mining restoration. It is also used to inform the national REDD+ strategy. The Department of the Environment is developing the Environmental Information Management and Monitoring System (EIMMS) for its own purposes and are eager to have others feeding data into it. It has in the past proved difficult to persuade Land Use Management agencies to collaborate on the creation of common databases, but up-to-date simpler technology may make for success this time. There are other agencies which do not yet use MRV data because they have not yet seen how to apply it and who need more guidance.



Table 3: The range of bodies currently making use of MRV data for their own purposes

Agency	Comments
Protected Areas Commission	to assist the PAC in building its GIS database;
Faculty of Agriculture & Forestry, University of Guyana	To build the capacity of the Forestry Department
Environmental Protection Agency	to assist the EPA in building its GIS database
Central Housing & Planning Authority	Climate Resilience Support for the Adequate Housing and Urban Accessibility Programme
Office of Climate Change	for Third National Communication
National Agricultural Research & Extension Institute	For the development of the National Mangrove Cover Map of Guyana
Ministry of Public Infrastructure	For road mapping and planning in hinterlands
Hydrometeorological Department	Development of Guyana National Flood Early Warning System
Guyana Geology & Mines Commission	For the purpose of supplementing the imagery required for the Vision 2020 Geological and Geochemical Projects scheduled for completion in 2020
Policy Forum Guyana	Production of maps related to mines
WWF Guyana	to map important watersheds and sources of rivers in the South Rupununi.
Faculty of Earth & Environmental Sciences, University of Guyana	teaching, practical and research tasks for students

#### Is / will it be used for UNFCCC purposes: national inventories; reporting on the NDCs?

The government already uses the MRVS to report to UNFCCC and other conventions. There is a current need to establish an emissions profile for each sector – agriculture, transport, energy, et cetera. This demands an inventory process and the Ministry of Agriculture will support the global framework for UNFCCC. They will work with the GFC, and two energy experts to produce these data. This work is seen as very important nationally and it links to many impacts. Guyana will use the data collected, to present its NDC at the November 2020 UNFCCC CoP 26 in Glasgow under the Paris Agreement. GFC has been asked to write the forest sector paper to go to the NDC meeting, and MRV data helps to provide the context for all NDC reporting.

#### Is it used for programmatic reporting beyond the Norwegian agreement? Other donors / multilaterals / internal Guyanese government monitoring and reporting?

The MRV has evolved over the years from 2010 to the point where it is much more than a reporting mechanism, as some of the ways in which it is been used illustrate. However, some agencies lack GIS imagery skills and some, like the Environmental Protection Agency do not have resident GIS experts.

The MRVS is on the cusp of becoming of much greater value to many other bodies, but more effort is needed. On the one hand the data need to be more publicly available and on the other hand people need to be trained so that they know how to use it. It is not clear whether relevant bodies are fully aware that the data are available to them. GFC has undertaken stakeholder engagement and publicity work but more is needed to demonstrate just how valuable the data is if used innovatively. There is a great deal of potential for expanding laterally.

According to NRM, GFC needs to be doing more strategic planning than it currently does. It has great capacity and, understandably, has focused on its own work up till now, whereas the great need is for GFC to help other sectors. The potential for the use of the MRVS in the Agricultural sector, by Lands and Surveys, and in Geology and Mines work, is enormous. Bodies which as yet barely use the MRVS, such as the Environmental Protection Agency, need to see how much more they could do if they knew how to use MRVS data.

GFC probably needs to indicate some of the barriers to progress that they have experienced. These have included working with agencies with no GIS skills at all and working with agencies unable to work with raw data but able to work with MRVS data once GFC has pre-prepared it for them in various ways. They have done some technical training of staff in other agencies as well. What they have found they mainly need is the

time and the staffing capacity to build up the skills of others, and they may need help with this – perhaps from CI.

### **What about other forest focused developments – is it used to support FLEGT needs? Lacey Act? Certification needs?**

The MRVS is not yet being used for FLEGT, and this should be a goal for the future. The evaluation team did not hear of any application of the MRVS being used to support the implementation of the Lacey Wildlife Act. The GFC works actively to promote sustainable forest management in all its forms from Reduced Impact Logging to Certification.

### **3.2.5 How well have the activities of the roadmap phase 2 been covered?**

The activities set out in the roadmap phase 2 have been followed closely, and very meticulously, and goals have all been met. It is now urgent to aim for more real-time data in order to deal more efficiently with the monitoring of mining and logging.

## **3.3 Efficiency**

### **3.3.1 In NICFI/Norad's view, how cost-efficient and time-efficient has CI's performance been?**

According to the CI Guyana and GFC proposal to the Government of Norway for the Years 6-9 MRV support, 2017:

- a) *“CI-Guyana will provide technical guidance and review [...], support communication activities to disseminate knowledge and publications to stakeholders, support the development of the monitoring and evaluation framework and other aspects of the project as required.”; and*
- b) *“CI-Guyana will ensure sound technical and financial management of the project by on-going management of the GFC's progress against deliverables, compliance with relevant national processes and regulations, flow-through provisions, and sound financial practices (including responsibility for the project's financial audit).”*

Norad is the major donor to CI Guyana, through two projects 1) the MRVS project, and 2) the ADOD project.

The CI Site Review of GFC execution of the MRVS project states identified several areas of non-compliance, including fee payments to GFC staff from the consultancy budget line. Following this finding Norad apparently had concerns about the CI Guyana “control environment” in general (according to organisational review of CI) and suspended CI's activities with subcontractors on the ADOD project between November 2018 and April 2019 while an extra-ordinary audit was undertaken.

According to the organisational review, the extra-ordinary audit of the financial statement of the ADOD project in Guyana was carried out in early 2019. The project passed the audit without any caveats or limitations. The auditors also checked the financial statements and audits of CI Guyana's sub-grantees. Norad then also commissioned an organisational review of CI, which included the MRVS project in CI-Guyana, but focussed on the ADOD project. The Organisational Review areas to be covered according to the framework of questions in the ToR were: organisational structure; governance; cost-efficiency; financial and administrative management; auditing process; results management; civil society strengthening; partnerships and responsiveness.

The cost efficiency findings of the review of the ADOD project noted that cost efficiency was dependent on the extent to which the project focused on longer term sustainability. Whereas the review noted frequent underspending on the ADOD project, which may suggest either a lack of progress or a limited capacity for delivery, this was not the case for the MRVS project.

The Organisational Review also noted that CI has well developed, documented and consistently operationalised financial and administrative management procedures that are deemed to be appropriate for the needs of the organisation, its partners and donors; that recent external audits have all been passed without caveats; and that the experience and capacity of finance staff at the HQ in the United States and in Guyana appears to be sound.

In Guyana, the Operations Department handles among other things human resource issues, grants management and financial management. The Organisational Review found the background of the senior staff members in the Department well qualified and experienced. It also noted that the CI Guyana finance and banking systems appear to work well in practice. Overall, CI Guyana seems to have been proven an effective partner.

### **3.3.2 What are its institutional strengths and weaknesses?**

At the point when CI was chosen to work with GFC and Norad the choice was between them and the IDB. CI's in-country experience and excellent performance made them the partner of choice for Norad, which needed a buffer between themselves and the government for fiduciary reasons.

CI's greatest strengths are that it is present on the ground and is a good delivery partner. From 2008 CI's international mandate placed people at the centre of conservation for the first time, and also sought to reach out to business. Though CI's greatest strength remains the management of protected areas, it has developed many other skills and good project management. CI has used landscape approaches to mainstream conservation into land management systems more broadly, as is intended in the ADOD project.

The Organisational Review found that to attain impact level changes, CI should ensure that it applies a long-term approach - beyond the time frame of the current ADOD project – and builds on the relationships developed, methodologies elaborated, and achievements attained during the project. The capacity to support implementation and follow up of the ADOD project was insufficient in Guyana in the project's initial stages, leading to an overly optimistic assessment of the organization's ability to commence implementation of planned activities and in the partner organisations' capacity to manage and make effective use of grants. At the same time CI Guyana was growing rapidly, and considerable time has to be spent on designing and managing new projects and programmes. This may have led to challenges in finding sufficient time to ensure proper follow-up of ongoing interventions. While CI Guyana has a professional, experienced and dedicated team, it is also a largely new team with extensive technical experience and a more limited programme management background.

In the case of the MRVS project, GFC certainly wanted to produce high quality results, and CI was encouraged by Norad to have GFC perform to a tight framework. The GFC are extremely competent and CI has not had to spend much time in playing a supporting role on the technical front.

Until 2015 CI probably received too much money from Norad (8-10% of the total project budget) for its support to the MRVS project. They were mainly responsible for managing project finances and needed to have little input to the evolution of the MRVS itself. After 2015 in years 6 to 9 overheads and indirect costs were capped at 7% of the total budget.

As far as CI is concerned, GFC say that the pace of project management could have been improved, and that the team were more responsive in the past.

### **3.3.3 Where are the priority areas for improvement?**

CI needs to promote CMRV more actively. CMRV activities are an important area for future focus (see section 3.4.5). It was the Global Canopy Programme, funded by Norad, that initiated CMRV activities. Subsequently WWF took over CMRV while CI worked with the GFC on MRVS. But the time has come now to bring the processes together again in a closer relationship.

Also, as mentioned above, CI might be able to play a helpful role in extending GFC's outreach with regard to the use of the MRVS by other agencies and ministries.

### **3.3.4 Are there improvements in methods, activities, programme timelines, responsibilities of staff, budget allocations, which would make a difference?**

In addition to the need for the improvements noted in the Organisational Review, and focussing specifically on CI's support to the MRVS programme, probably the top priority is to support GFC in making MRV data much more accessible to many more parties. Up till now this has been left as a burden for GFC alone, and the MRV team have done the best they could with the time they had available.

A much broader approach to making a wide range of bodies aware of the relevance of MRV data to their own needs is now essential. Alongside that, a plan for the urgent acquisition of MRV skills by other bodies both within government and also within the University of Guyana is required and a case made for it to NICFI and Norad. The data itself needs to be easier for the non-specialist to use – but that requires a much larger pool of specialists who know how to adapt data for specific needs.

If CI can help to increase the impact of the MRVS throughout government, and can make the case to NICFI / Norad for the training of additional MRV specialists, the percentage of the project budget that they earn will be well spent indeed.

### **3.3.5 What is the value added of CI?**

CI Guyana - GFC 2017 project proposal to Norway for the MRVS project years 6-9 states that the Guyana National Contribution to the project will be “direct and indirect support” to the relevant GFC programmes and that the Government of Guyana GFC budget reflects this support as part of the national contribution to the project.

CI's Site Review (July 2018) identified (i) incomplete compliance with procurement requirements; and, (ii) fee payments to GFC staff from the Fees and Services budget line (intended for external consultants) of the CI Guyana – GFC grant. This was regarded as “double dipping” by Norad, given that GFC activities on the project are part of the national contribution and included in the GFC budget. Promoting good governance and fighting corruption are priority areas of Norwegian Development Policy.

Norad responded by suspending CI activities with sub-grantees from November 2018 -April 2019 because of suspected weaknesses in their “control environment” – this was because of the CI Site Review report of GFC's execution of the MRVs project, which identified the financial management issues.

CI has experienced its own financial difficulties in the case of the ADOD project – mainly concerned with too-slow disbursement. In the case of its financial oversight of the MRVS project and the GFC, its job was to hold the line on which monies should come from the government of Guyana and which could come from Norad support to the project, and this it did, though not, seemingly, until the CI site review pointed out the error.

In general, CI has been an excellent partner for NICFI / Norad, managing GFC effectively on the production of reporting and financial management documentation. It does, however, seem to be the case that CI management might be necessary for GFC to comply fully with the standards of the Norway agreement from the financial point of view (but see also section 3.4.4). In every other way, GFC has performed superbly: following Roadmap 1 and Roadmap 2 to the letter, mastering MRVS skills to an exceptionally high standard and reporting punctually and fully. In these core activities it has not needed inputs from CI.

## **3.4 Sustainability**

### **3.4.1 How well is the ground prepared for a third phase of the MRVS operation in 2020-2030?**

Guyana's MRVS has come a long way from the original framework developed in 2009. The first MRV terms of reference and roadmap were followed closely. Interim measures reports were produced yearly by Indufor and DNV validation took place annually as well. Each year DNV verification opinion was that the values reported in the interim measures report had been obtained by applying methods in accordance with international good practice.

The final review of Years 1-5 noted that the MRV Roadmap had been critical for maintaining focus and direction of progress. Sustainability of the MRVS was being tackled both by building capacity within GFC and by using the results of the MRVS to mainstream forest monitoring or through national policy. At the same time concerns were already being raised in the review about sustainability in the case of a 'no REDD+ support' scenario.

The Guyana MRVS embarked on a further Years 6-9 implementation period in 2014. Goals during the period included the increased application of MRVS data for decision-making, and the ability to report fully on all emissions and removals by the end of the period. The GFC team followed the new Roadmap 2 assiduously, and it is reported in the year 8 Interim Measures report (November 2019, p6) that full accounting by sector has finally been achieved as planned (Table 4).

Table 4: MRVS Results 2018 (Year 8)

Table S1 (b): MRVS Results 2018 (Year 8)

Driver	Area (ha)	EF (t CO <sub>2</sub> /ha)	Emissions (t CO <sub>2</sub> /ha)
Deforestation			
Mining	6,936.3	1,045.1	7,249,092
Mining Infrastructure	687.6	1,045.1	718,593
Forestry	355.9	1,045.1	371,931
Infrastructure	67.1	1,045.1	70,176
Agriculture	511.8	1,104.2	565,122
Settlements	7.1	1,045.1	7,452
Fire	661.2	804.2	531,782
<b>Deforestation Total</b>	<b>9,227.1</b>		<b>9,514,149</b>
Degradation			
Timber harvest			1,830,856
Illegal logging			10,682
Mining degradation		8.1	164,523
<b>Degradation Total</b>			<b>2,006,061</b>
<b>TOTAL CO<sub>2</sub> EMISSIONS FOR GUYANA FOR 2018 FROM FOREST SECTOR</b>			<b>11,520,210</b>

However, broader issues now impact, in important ways, on the future of the MRVS operation. GFC cannot handle all of these alone.

Firstly, there is a real need to improve links between the main agencies. That is to say between the Office for Climate Change, the REDD+ Secretariat, GFC, and the Forest Carbon Partnership Facility. Because they are funded separately, several of the institutions managing climate change processes run on parallel tracks, rather than working in synergy.

In order to address this issue, the GFC facilitated consultation with several agencies to identify options for further use of MRVS data and outputs for forest monitoring and management in 2018. The process identified considerable interest in the increased use of MRV S data across government agencies and non-governmental organisations. A key theme across agencies was the need for up-to-date information on land cover changes. In response to this GFC, with Indufor, is in the process of introducing a prototype system modelled on the current MRVs but designed to allow more frequent monitoring of Guyana's natural resources. It is known as the Continuous Resource Monitoring System (CRMS). This CMRS design uses low-cost satellite data, and can generate monitoring products that support compliance processes, their promotion of awareness, and improved information flows between agencies, enforcement policies and regulations ('Review of Forest Monitoring Options, New Datasets and Technologies', 2018, GFC and Indufor). So far, the most effective transfer of skills and interests has often taken place when GFC works specifically with one other agency or ministry.

Secondly there is the need to broaden the reach of the MRVS. It is urgent to develop good quality reporting on mangroves, to complete and publish the research undertaken on the deforestation impacts of rotational agriculture, and to focus on measuring forest regrowth after mining. Monitoring landscapes suggests the need to be able to monitor not just the degradation and deforestation which occurs, but the conditions under which a landscape can revert to forest again. Costs have to be manageable and for this a series of cost benefit analyses need to be undertaken. MRV needs to be demand driven if it is to continue.

Thirdly, while the MRVS system is working well, and some government agencies are committed to further use of the MRVS, politicians and some policy makers have not really thought yet about how they are going to survive without Norway in the long-term.

Until now information about the MRVs has been disseminated through workshops, printed materials and booklets produced over the years by a variety of Guyanese consulting firms (Table 5).



Table 5: Summary of Main Outreach Consultants

Consultant	Period of execution	Activities Undertaken	Comments
Michelle Kalamandeen	April to June, 2013	Overview of Guyana's Monitoring Reporting & Verification System (MRVS), REDD+ Activities and the LCDS, & European Union (EU) Forest Law Enforcement Governance and Trade (FLEGT).	Executed under Guiana Shield Facility Project through UNDP.
Michelle Kalamandeen (lead), Patricia Fredericks and Odacy Davis	May to July, 2014	Overview of Guyana's LCDS, REDD+ Activities and the Monitoring Reporting & Verification System (MRVS).	Executed under Institutional Strengthening Project Phase 1 through Guyana Norway MoU.
Patsy Ross and Lawrence Lachmansingh	April to June 2015	To provide stakeholders with information on the status of REDD+ implementation in Guyana, including the MRVS and other REDD+ related areas such as Guyana's engagement with the EU FLEGT, the FCPF, establishing links to LCDS and other related REDD+ aspects.	Executed under MRVS Year 4 Support, through the Guyana Norway MoU.
Environmental Management Consultants (EMC)	July to October 2018	To further advance the level of discussion, feedback and overall understanding of REDD+ implementation in Guyana and the MRVS.	Executed under Transforming forest management in Guyana through an effective and sustained monitoring reporting and verification system (Years 6 – 9 MRVS support).

Most recently, for instance, in 2018, EMC presented to 25 government agencies, five private sector agencies and a few CSOs and NGOs. They have also conducted nine workshops in the hinterland with local people asking questions and discussing the subject. When they began, in 2016, rural people knew little about the MRV but the subject is much better understood now. In 2020 there are plans for two Georgetown seminars or workshops and 10 in the hinterland. The plan is to talk about social, environmental and governmental safeguards, the displacement of emissions, and reporting on MRV. EMC have also been explaining SIS (safeguarding information systems). The EMC material is thorough and earnest, but extremely dull and technical, and it does not inspire excitement in the future potential of the MRVS for the many sectors in Guyana which would benefit from the data. A very different approach now is needed for politicians and for the general public.

In due course, there has to be a transition to true costs so that there is budget support for GFC. Yet in order for politicians and policymakers to be prepared to commit up to \$1 million a year to GFC, they need to better understand the value they are getting from the MRVS, and this probably needs to be explained to them better.

For this, publicity will be essential. MongaBay has a contract from Norway to write and distribute environmental articles, but their work is very much aimed at people who are already interested in reading about environmental issues, so this will not necessarily reach politicians. There is a small film company in Guyana (called REEL) which makes capacity building publicity films. Possibly they could make a series of short easily accessible television films appealing to the layman, and to politicians. It is also important to get articles into the daily papers, to treat the environment and climate change as an urgent issue, and to teach people about the importance of mapping, and good quality spatial planning for the future.

### 3.4.2 What is needed for this to be assured from NICFI/Norad's point of view?

In Guyana, GFC's achievements need to be celebrated. The institution has been very stable; the mandate has been very clear. It has got better and better at what it does: it is very difficult to produce accurate annual data yet it has done it.

But an agenda of new activities needs to be prepared for a third phase of the operation of the MRVS so it becomes a true transition to an exit from Norway-Guyana cooperation in 2030. It will thus involve continuity

as far as reporting on the MRVS concerned, but relationships with other agencies and above all with politicians need to be invested in if Guyana is to see good reasons for taking on the costs of the MRVS over time.

The need is to improve the usability of the data and access to the data. National stakeholders need to be helped to work out what to use it for, and there needs to be an annual 'State of the Forest' report for professionals and for the general public, rather than simply a report to Norad.

Over the next few years, new opportunities for carbon markets of interest to Guyana may arise. At the moment the ART (Architecture for REDD+ transactions) trees standard is not well equipped for dealing with HFLD countries. Nevertheless, MRVS experts in Guyana / concerned with Guyana, are keeping an eye on the guinea pig case of Gabon (which is also a HFLD country). Gabon seeks to go through the ART certification for emission reductions and removals in partnership with Norway. This includes the TREES provisions on safeguards reporting and double counting, and ART processes for third-party verification. If Gabon achieves ART certification, this may offer a way forward for Guyana. It is thought likely that an ART 2.0 standard will be developed, custom-made for HFLD countries.

GFC needs support from other institutions, which in turn need strengthening. This is notably the case with the University of Guyana. GFC has made a start on this already, working on an undergraduate course at the University of Guyana to teach data analysis. It has also encouraged BSc and MSc students to analyse MRV results for dissertations and helped them with this. The University badly needs a specific degree in GIS – up till now there is only a BSc in Geography with a course unit in GIS, which is not enough. There is also a need somehow through the University to produce graduates with applied skills, rather than only students who take a purely academic approach to the topic. There are also other institutions with whom GFC need to harmonise results and ways to use them. For instance, the Ministry of Public infrastructure has a database which it is investing in, but at the moment it and the GFC use different dashboards.

It is possible that some of the broader needs for the success of the MRVS, which go beyond the work GFC has undertaken in-house, might be supported through the GRIF. The GRIF has been extended to 2021 and there will be a set of possible new projects, which could include outreach and strengthening initiatives. The GRIF could be the pathway for getting some money to the University for a new course and more applied training.

### **3.4.3 What is the likelihood of implementing the roadmap upon project completion?**

The roadmap has been followed closely and most of the tasks set out within it are already completed. If a Roadmap 3 is prepared, GFC can be relied on to follow it as carefully as they have the two previous Roadmaps.

### **3.4.4 How well is the ground prepared for an exit from the Norway-Guyana cooperation in 2030?**

As sections 3.4.1 and 3.4.2 make clear, there is a great deal to be done in order for Guyana to be ready for an exit from the Norway-Guyana cooperation in 2030. At the same time, what needs to be done has been clearly identified and some preliminary actions have already been undertaken in that direction – for instance the creation of the CRMS.

Outside GFC, progress tends to be slow. In the cases of both the Lands and Surveys commission and the University as well, progress is going more slowly than expected. For instance, at the University, GIS students understand maps and mapping but have so far had no exposure to policy and to the implications of MRVS results. Teaching them – and probably their lecturers – how to use data strategically will take much effort. Since there is money available in the GRIF account for moving big issues forward, there may be opportunities for inputs in these areas.

### **3.4.5 Embeddedness within Guyanese institutions and plans**

#### **To what extent are processes embedded into official systems and organisational setup?**

Overall, the MRVS is well embedded within Guyana's institutions and plans. There are plenty of examples of situations where the embeddedness needs to be strengthened or clarified.

In the Cooperative Republic of Guyana Revised National Forest Policy Statement 2018 Annex 3, it is stated that “GFC is responsible for enforcement of forest laws and regulations, monitoring and control of social and environmental impacts of operations within the State Forest Estate, collection of revenues from forestry activities and implementation of the national Monitoring Reporting and Verification System for country level land-use and forest change monitoring”. Thus, the MRVS is already formally embedded in Guyana’s revised forest policy document.

Without MRV, the Office for Climate Change said: “We would not have looked at mining, reclamation, forest concessions, and conservation in the level of detail which the MRVS made possible”.

However, as Guyana turns from being a poorer-than-average Latin American country to a much wealthier than average oil exporter, it needs to increase its ambitions to match its income, and for this it needs to take on some of the currently project-driven activities in the country as its own. Furthermore, as it becomes a wealthier country, Guyana will need to evolve towards long-term planning rather than project-prompted short-term effort.

REDD+ in Guyana is a case in point. It mainly services the Norway agreement, and is not yet fully institutionalised in its own right to serve Guyana’s own needs. Guyana needs to learn from countries like Vietnam where forest monitoring first and foremost serves to support governmental decision-making - and reporting to international contexts like REDD+ occurs “on the side” rather than being the main reason for maintaining a forest monitoring system. Vietnam undertook a concerted effort to increase its forest cover and has maintained periodic national forest inventories since the early 1990s in support of this goal. Plot-based national forest inventories are instrumental for controlling (and reducing) logging quotas because they provide information on growing stock and increments. Remote-sensing based information on forest cover is essential to track progress under Vietnam’s massive tree planting campaigns, most prominently the five-million-hectare reforestation programme. Since forest monitoring counts among Vietnam’s tools in support of forest policy objectives the country has funded forest monitoring from domestic sources and fully integrated it into its institutional make-up. If Guyana were to ambitiously integrate forest protection into its Green State Development Strategy, then there would certainly much to learn from countries like Vietnam on how to leverage forest monitoring in support of its policy goals (see FAO Forestry, 2020).

Similarly, the MRV steering committee functions only as an information sharing forum. It is not a consultative body, and this is partly because many of its members cannot interrogate the technical work. This is a good example of how important it is now to ensure that a much wider range of people have technical skills which they can use in the service of the country. The University is the starting point for this, but it would be good too, to think about intensive in-service training for more senior staff already working in ministries and other bodies. From now on it is necessary to focus funding and expertise inside Guyana, so that the MRV and REDD+ processes can as far as possible become more profoundly embedded within the government system.

Decision-makers need to be helped to put a value on forest and the University needs to have a leading role and to be far more personally and professionally engaged than they currently are in forest issues. Guyana has not so far made a good job of explaining to its citizens the relevance of forest or the urgent need to be prepared for climate change. People do not understand how REDD+ and the MRVS can help with this process.

Annual layman versions of the interim measures’ reports – as a ‘State of the Forest’ report – are needed so that the importance of forest is demystified for a general audience. The fear is that Guyanese scientists and ordinary people will not stand up for forests. Mining and logging will continue unabated, and oil and gas will absorb all of the country’s capacity.

### **How is the forest sector likely to develop in coming years? What is the relevance of the MRVs to those developments?**

What will Guyana do with the MRV data? There is the threat of the lack of sustainability because it is not clear that Guyana will want to go on spending a million dollars a year in keeping this data up to date. But there are two answers to that question: firstly, the money will certainly be available from oil revenues, the question is about whether it sees any value in spending the money that way. So, the second answer involves making a strong case for the current and future value of the MRV data to Guyana. It is already clear that other sectors can use these data to their advantage. In the development phase which will follow new investments based on enormous oil incomes the answer must be that MRV data can help to create an appropriate way forward for those investments.

More generally, the plan for the future of forests is that they will probably become less important for income generation and be protected mainly for conservation, tourism and for use by local people. However, it is probable that oil revenues will be invested in roads and mining and in this case the forest will be much more difficult to protect than it has been in the past. This greatly increases the need of the MRVS for monitoring purposes, but it is unclear at this stage what the government's approach to these issues will be. The fear is that the value of forest will only be appreciated when it is converted to money, so better arguments and better safeguards will be required.

### **Perceptions on where the Guyana MRV system development is going – national stakeholders; NICFI/Norad**

There is a need for a process which starts with the mapping of current skills in Guyana, which notes gaps, and which makes plans for upskilling those in most urgent need of those skills. A concentrated period of training on REDD+ and MRV will lead to better understanding of the environment and why the country needs to commit itself more deeply to these issues.

Links between all the key stakeholders need deepening, and this does not only involve bodies like the Office for Climate Change, Lands and Surveys, the GFC and various faculties in the University of Guyana, but also indigenous and local communities.

Continued efforts to strengthen the relationship between the GFC and the OCC where REDD+ is concerned will be of value. The REDD+ Secretariat draws on the technical skills of the GFC to continue its work on the monitoring and emissions side, while the OCC and the Presidency is responsible for the political recognition of the value of Guyana's forest. Both these aspects are essential and very complementary. It is important, for instance, that the OCC has asked the GFC to draft the REDD+ Technical Annex, ready for the Third National Communication. MRV forest results have been used in non-forest sectors quite extensively now (see section 3.2.4). There is now also some interest in using the MRV model itself in other sectors: that is to say, creating a baseline and monitoring against it to record improvements year-on-year and to monitor progress towards chosen goals. This is a model which could be used in any sector.

If Norad is prepared to continue – for an interim period – to support the MRVS, aspects of its broader applicability in other sectors and the creation of more experts with relevant technical skills, the forest will go on being high priority in Guyana. Especially during the early years of oil revenues, it would be very valuable for Norad support to continue, meanwhile slowly transitioning to full support of the MRVS by the government of Guyana.

There are current or hoped-for data applications of the MRVS at all levels of Guyana society. As far as domestic application of the data is concerned, the greatest demand is from those with some experience of the Community MRV, the CMRV. Rural people were trained using manuals and on-the-ground training to link to the national MRV process. They were taught to monitor possibly illegal mining and logging sites on state lands. WWF did the training of trainers and developed Community Resource Extension Workers (CREWS) to do this work. The process helped communities to monitor what was going on in their area in a way which would have been completely impossible for national level stuff to do. Hotspot (problem) data were sent to the local level and those trained went to check on the identified hotspots to discover whether deforestation has actually occurred, or whether there was an error in the map (for instance areas of bare rock were picked up instead), enabling validation of the satellite mapping product. Running alongside MRV validation work has been CMRV which records data about local people's own resources on titled lands rather than state lands. CMRV has been stalled since the general election in 2015. However, CI is planning to allocate more money for CMRV work in the next phase.

People used the MRV process for their own purposes – the demarcation of their own group lands. To get title they had to submit a sketch plan, have it investigated by Lands and Settlements, and Geology and Mines, and then have it turned into a formal map. 128 titles have been granted through the Amerindian land titling project under GRIF. This should then have led on to the application of the Opt-In Mechanism, through which local communities would have been paid for the carbon they were storing on indigenous lands. But that process has almost entirely been stalled since 2015 (though there was a trial pilot of the OIM in the indigenous village of Muritaro in 2017).

Whatever happens at national level, with the arrival of oil revenues, forest will not lose its importance for local people. It is vital to work with local communities and to reanimate relationships. It is GFC's opinion that CMRV must be dealt with better in the future. Local people have gone above and beyond what was required of them, and they deserve PES payments for the protection they are affording forests.



At regional level GFC has had three requests to get involved: in road planning and the forest change attendant on that; in village planning and in the planning of three completely new towns. They want to plan town hubs for hospitals, schools, and so on in places where they best serve surrounding villages. GFC has supplied data for that. The ministry of Public Infrastructure has asked for details about topography, and for information about where to explore, in the planning of hydro sites throughout the country.

There's also been much interest in better planning for mangroves, particularly from the EU. Initially there were too few internally generated resources to contemplate major inputs in mangrove improvement, but more recently there have been expressions of interest from Exxon who may fund mangroves as part of their corporate responsibility towards the SDGs.

### 3.4.6 To what extent is domestic budget allocated?

The MRVS currently cost \$1 million a year to operate, of which \$650,000 is paid by Norway and the remainder – around \$350,000 – by the Government of Guyana. So, an enhanced financial commitment from government will certainly be needed in the future even though some savings can probably be made. Cheaper better resolution imagery has already arrived, and fewer intensive inputs from consultants will be required in future. The GFC team produce the MRV numerical analyses independently each year and can solve new problems. The team acts in a timely way and are very skilled. There is also potential in the future for CMRV monitoring to take place with drones.

If the agency interest evinced in consultations with GFC leads to the application of the CRMS system, then real time monitoring will be essential, and it will be possible to make a good case for the allocation of some of the forthcoming oil revenues to support the MRV.

However, it would seem that there have been some serious problems recently with the allocation of government of Guyana funds to the Guyana Forestry Commission. These are worrying for the future of the MRVS, and for the relationship with Norway.

On August 7 2019, a post-Cabinet press briefing announced that the Cabinet had been informed that the Guyana Forestry Commission was experiencing financial constraints. The main issue affecting the financial liquidity of the GFC was the use of over \$600M by the previous PPP/C administration to purchase a property on High Street, Georgetown. The Director-General noted that “*Cabinet agreed that the Ministers of Natural Resources and Finance will meet to examine short – and medium-term remedies to address the cash flow issue.*” Government will be also looking at ways, under the Guyana/Norway agreement, to have funds available for the GFC as they stated: “*We are reviewing some of the arrangements under the agreement to see whether the Forestry Commission can be paid for the service which they provide*”.

At an August 22 2019 press conference, Minister of Natural Resources, said that while the commission has been experiencing some financial difficulties, the government, through his ministry, is working to return it to full viability by looking for ways to use the funds from the Guyana/Norway Agreement, the sale of the High Street, Georgetown building; accessing funds from the GRIF; and talks with the Guyana Geology and Mines Commission (GGMC) about ways in which costs could be shared.

A December 2019 Ministry of Natural Resources release on the Guyana – Norway Agreement, accessed from the Guyana Department of Public Information website, announced regarding the “GFC Financial Situation” that “*the reduction in production and accompanying log exports have negatively affected the financial situation of the GFC. This has resulted recently in delayed payments to staff especially given the lack of a reserve.*” The release also states that nearly 30% of GFC staff time and budget is used on the reporting commitments under the Guyana Norway agreement and that the GFC “*looks forward to a new round of the Norway Guyana agreement that will directly resource the commission for its role*”.

### 3.4.7 To what extent are data needed & used beyond reporting to Norway?

The report has presented quite a wide range of examples of ways in which data are needed and used beyond reporting to Norway.

Inside Guyana a wide variety of bodies have made use of MRVS data. In work with the Office of Climate Change, the GFC has been asked to make presentations on transport and on aviation. The GFC works most closely at the national level with Lands and Surveys and Geology and Mines both of which have GIS units, and are right now the readiest to act on MRV results. Neither the Environmental Protection Agency nor the Bureau of Statistics have capacity as yet.



The MRV data are also used for quite a wide range of international reporting. Every convention has its own reporting mechanism to which GFC has to adapt the MRV data, and this can sometimes be challenging. Data was collected for reporting to UNCCD by consultants hired by the Guyana Lands and Surveys Commission (the focal point for the UNCCD), but the data were prepared by the GFC. The OCC now does the reporting for the BUR and for the National Communication. There is no need for new data collection for that. The OCC has asked the GFC to draft the REDD+ Technical Annex, ready for the Third National Communication.

The NDC will also take an MRVS approach.

## 3.5 Impact

### 3.5.1 What impact has MRV achieved through enabling Norway's results-based payments?

Guyana has pledged 2 million ha for protection internationally. In the opinion of the OCC, the MRVS has brought much more accuracy and specificity to the commitment to keeping forest standing. It is also enabled many other ministries to see the value of spatial data and mapping. Various conflicts are best resolved through arguing from spatial data, and the availability of the MRVS data has encouraged buy-in as it has been used.

One important impact which results from the creation of the MRVs is that other sectors can see the value of setting up a similar system for their own work. Other sectors such as energy, transport, agriculture, and climate change mitigation are interested in creating baselines against which to monitor progress.

The OCC (office for climate change) will support GFC in the more effective measurement of deforestation linked to mining and in mangrove protection.

The Guyana Lands and Surveys Commission has been very dependent on the GFC for a long time. It is supposed to be setting up its own database since it is responsible for all lands. It has planned a National Spatial Data Infrastructure (NSDI) database but progress has been very slow.

The GLSC has an existing database known as Guyana Integrated Natural Resources Information System (GINRIS), a system been established for some time with the intention of developing GIS capacity in Guyana and serving as a repository for national GIS information. The plan was to have one central database where all information could be stored and accessed.

The plan in 2009 was that the MRVS system, developed and housed at the GFC, would complement GINRIS and that the joint systems would link GFC, GLSC, GGMC, the hydro-meteorological division, the Ministry of Amerindian Affairs and other relevant agencies to be identified. GFC's terms of reference back in 2009 included, as one of the activities required, working with others to set up an integrated and upgraded GINRIS system.

This has proved difficult to do even though GFC and GLSC do work together closely, and GFC's impact has clearly been much greater alone than it would have been if subsumed into GINRIS.

### 3.5.2 What impact has MRV achieved through informing better decision-making on natural resource management?

The MRVS has already helped decision-makers and planners in a variety of different sectors, as set out in earlier sections (e.g. section 3.2.4).

There is also the potential for greater impact in the future in decisions around climate change adaptation. The OCC has plans for new towns in the hinterland, well away from the increasingly vulnerable coast. These will demand new infrastructure, and much planning as migration to these towns takes place not only from the remoter hinterland, but possibly also from the coast, where sea surges are gradually removing the once fertile lands along the coast.

One of the really important impacts of the MRVS, which must not be squandered, is the way in which it has linked indigenous people and the national level. Those who live in the hinterland have in the past usually felt very remote from Georgetown and felt that Georgetown thought very little about them. The training of local

people so that they could be consulted about hotspots, trained to use GPS, and to report their findings to the national level, has created a link between remote communities and the capital which is very important. The opportunity provided by the CMRVs for people to demarcate their own territories and to report on the kinds of land use within them along with other local data, has been symbolically extremely important. It would be a tremendous pity if this was not taken forward. Local people have been involved for the first time in linking their own natural resource management practices to what goes on nationally. Some have had the opportunity, as well, to learn more about sustainable forest management, reduced impact logging and conservation. These are tremendously important impacts that could be built on them in the next phase of the Guyana-Norad agreement.

### 3.5.3 How could Guyana’s MRV system be further developed to follow progress in international good practice?

The data available in section 3.2.2 addresses this issue.

### 3.5.4 What impact has the Guyana Norway cooperation had in influencing MRVS progress in other countries?

The first way in which Guyana-Norway cooperation influenced MRVS progress in other countries was through the consultants who worked with Guyana. Winrock and Indufor both tested out new methods in Guyana, learned from some of the early mistakes made, and were able to apply improved approaches and procedures in other countries.

Guyana’s MRVS is internationally respected by those who know about it, but it does not get as much international recognition as it should because the Guyana case is not yet familiar one. That is one reason why it is urgent now for GFC and the colleagues it chooses to work with to publish information about the Guyana MRVS as widely as possible and to get it ‘on the map’. The process has begun (Watt et al. 2019; Dewnath et al. 2019; and UN 2019) but it needs to go much further.

One of the Indufor consultants pointed out how unusually excellent the GFC team was: *“They follow ToRs to the letter and manage complex audits. There’s been good leadership, good education, good training and real continuity, and it has borne results. Few other countries have done so well. In Laos there were too many agencies; in Tanzania there was poor leadership and also deep capacity issues; in some countries staff turnover may be so high that two thirds of a team change annually.”*

In the eyes of another consultant, *“Guyana is right up there with the very best countries such as Vietnam and Cambodia. Guyana is better than Brazil, and better than New Zealand”*. A third consultant said, *“They produce the best data I have ever seen: the level of mapping is very high (with the help of Durham University). It stands at 95% accuracy or higher”*.

Guyana has become a laboratory for other countries: it has been instrumental in helping Suriname and DRC to get the right REDD+ multiyear imagery. And it was Guyana that developed the system of hotspots to follow up on the ground, which is now being replicated in other countries.

## 4 Conclusions

### 4.1 Key Lessons from the MTR

#### 4.1.1 The capacity of the GFC MRVS team

The Guyana Forestry Commission (GFC) has built tremendous skills over the years with capacity improving year on year. The GFC team had already attained a high level of competence over the first phase of the project (Years 1-5), compared with before the MRVS project, and have consolidated their skills in the second phase (Years 6-9). They have a very strong internal team and they continue to evolve against the moving background of other evolution inside Guyana. This year, in year 8, they have finally achieved their goal of being able to make a detailed analysis of emissions broken down by the drivers of deforestation and forest degradation.

#### 4.1.2 The nature of Guyana's forest

That Guyana is an HFLD (high forest low deforestation) country has shaped the basic thinking behind the current Guyana-Norway partnership. The Guyana-Norway partnership focuses on rewarding Guyana's efforts to retain deforestation at low levels and is (at least so far) not intending to generate transferable emission reduction titles. So far, the good practice around REDD+ forest monitoring that other countries have developed over the last years (including with historical average reference levels) has only partial relevance to Guyana given their different deforestation contexts.

#### 4.1.3 Embedding MRV activities into Guyana's institutions and plans

In the opinion of the Office for Climate Change (OCC), the MRVS has brought much more accuracy and specificity to the commitment to keeping forest standing. It has also enabled many other ministries to see the value of spatial data and mapping. Various conflicts are best resolved through arguing from spatial data, and the availability of the MRVS data has encouraged buy-in as it has been used. One important and unexpected impact which results from the creation of the MRVs is that other sectors can see the value of setting up a similar system for their own work. Sectors such as energy, transport, agriculture, and climate change mitigation are interested in creating baselines against which to monitor their own progress towards goals.

Since 2015 the Ministry of Natural Resources has produced useful new policy documents for both forests and mining, and has updated the regulatory framework for both. The Office for Climate Change is slowly bringing more activities which concern climate change and forests under its wing (it is located in the Office of the President), and arguments have been made for transferring the work on REDD+ from GFC to the OCC. This makes sound political sense and gives REDD+ a better profile within government (even if it might actually be better technically supported if located with GFC).

In short, relationships between various relevant institutions are currently evolving, and it is not yet clear what the final arrangements will be. Given the enormous importance of Guyana's oil resources, which will come on stream during 2020 and which risk overshadowing ongoing work on forests, land-use management and land-use change, the role of the Presidency, and the bodies within it, will be central, and must be supported and kept well-informed.

#### 4.1.4 Building outreach capacity in the GFC MRVS team

It is encouraging that the GFC has begun to look beyond perfecting the engineering aspects of forest monitoring, towards outreach to other sectors and the application of the data collected. Their goals for the future include:

- Developing a more responsive system which will address the needs of other national-level users more effectively, and also be as cost-effective as possible;
- Expanding outreach at civil society level, reanimating CMRV work;
- Publishing much more material about the progress of the MRVS in Guyana - 'telling the Guyana story' as one visiting technical expert put it, and teaching others how to do what Guyana has managed well.

#### **4.1.5 Evolving institutional arrangements for managing natural resources in the Government of Guyana**

New forms of collaboration and cooperation are only slowly developing and data-sharing is not always well managed. Much more collaboration on land use management and land use change is needed, for instance. GFC is strong on land use change and has the metrics to show what is happening, but there is currently an almost complete lack of capacity for data management inside the Department of the Environment, although it sits in the Presidency and is intended to be politically important. Despite much technical progress, Guyana's forest monitoring system is fragile in that it depends both in terms of its *raison-d'être* and in terms of its funding on the Guyana-Norway partnership – development aid with a finite lifespan. In the longer term, Guyana will need to take on some of the currently project-driven activities in the country as its own and as it becomes wealthier, it will need to develop skills for long-term planning rather than project-prompted short-term effort.

Guyana will be able to afford to support the MRVS, if it chooses, from its oil revenues. There has been a tremendous evolution in recognising the value of the MRVS, particularly over the last four or five years, and an increasing range of institutions within Guyana have started to use MRV data for their own purposes. This in the long run is likely to prove the strongest argument of all for encouraging the government to commit the financial resources which will keep the MRV system in place.

#### **4.1.6 Communication with the public and with politicians**

While Guyana's technical agencies have been making increasing use of MRVS data, it is probably the case that the GFC and these same agencies have been less good at explaining to politicians and to citizens the relevance of forest or the urgent need to be prepared for climate change. Still less do these categories of people probably understand how REDD+ and the MRVS can help them.

Ensuring that an appropriate communication strategy reaches these two categories of people will be essential if any part of the oil revenues is to be committed to forest protection and forest monitoring. The task is rendered doubly urgent by the great likelihood that some oil revenues will be invested in roads and mining and that the forest will consequently be much more difficult to protect than it has been in the past. A greatly increased need of the MRVS for monitoring purposes, may or may not be met by a positive government response.

#### **4.1.7 Indigenous people and the national level**

Meanwhile, whatever happens at national level with the arrival of oil revenues, forest will not lose its importance for local people. One of the really important impacts of the MRVS, which must not be squandered, is the way in which it has created the potential for links between indigenous people and the national level. Those who live in the hinterland have in the past usually felt very remote from Georgetown and assumed that Georgetown thought very little about them. The training of local people so that they could be consulted about hotspots, trained to use GPS, and to report their findings to the national level, has created a link between remote communities and the capital which they found important. They were glad to adapt the skills to create community MRVS (CMRVs) and are waiting for the moment when the PES arrangements originally proposed for them are reanimated.

#### **4.1.8 The role of CI**

In general, despite some financial problems of its own (budget underspends) CI has been an excellent partner for NICFI /Norad, managing GFC effectively on the production of reporting and financial management documentation. It seems to be the case that CI management might be necessary for GFC to comply fully with the standards of the Norway agreement from the financial point of view. In every other way, GFC has performed well, following roadmaps 1 and 2 to the letter, mastering MRVS skills to an exceptionally high standard and reporting punctually and fully. In these core activities it has not needed inputs from CI.

## 4.2 Recommendations

### 4.2.1 Planning for a third Phase of Norway-Guyana cooperation which leads successfully to an exit

There is a great deal to be done in order for Guyana to be ready for an exit from Norway Guyana cooperation. At the same time, what needs to be done has been identified and some preliminary actions have already been undertaken in that direction.

The need is firstly to improve the usability of the MRVS data and access to it. Especially during the early years of oil revenues, it would be very valuable for Norad support to the MRVS to continue. If Norad is prepared to continue – for an interim period – to support the MRVS, aspects of its broader applicability in other sectors and the creation of more experts with relevant technical skills, the forest will go on being high priority in Guyana. However, a continued support project should include a trajectory of increasing domestic funding for forest monitoring. While so far only staff and premises have been covered by national funds, domestic funding should increasingly be used for all operational costs, and especially data collection. International assistance should slowly but steadily phase out. A trajectory for doing this could be agreed early on and become an integral part of the Guyana-Norway collaboration going forward.

Secondly specialist national stakeholders need to know how to use the data for their own needs. GFC have made a start on this, but more needs to be done.

Thirdly publicity about the importance of forests and climate change needs to be much more effective if it is to reach politicians and the general public.

The recommendations made in this section are all intended to feed into the planning which will lead to Norway's exit from involvement in Guyana.

### 4.2.2 The value of the MRVS for national processes

After developing the MRVS and improving it year-on-year in both phase I and phase II of the project, GFC reached a very high standard of reporting. The data was initially used to report to Norway in order to secure results-based payments, and then to report to other international bodies as demand dictated. Guyana's forest monitoring efforts are now increasingly focusing, as they should, on generating data for domestic users and their needs.

Developing a third phase of Norway's support to Guyana on forest monitoring should start out with a systematic data needs assessment. Such data needs assessments have been routinely conducted by leading capacity-development agencies in the sector (FAO and others). Stakeholders are brought together to explore specifically what kinds of data are needed, for what purposes, and where, for the government of Guyana and others. Stakeholders' data needs assessments can be complemented by an analysis of land-use policymaking and value chains to identify decision-making processes that data could inform. Where forest monitoring caters to important domestic data needs, it can also become the basis for further integrating the necessary systems into the country's institutional make-up and for allocating more domestic funding.

Results from other countries suggest that map-based data with spatial data and with frequent measurement time-points, tend to be more relevant to stakeholders than annual estimates for large areas. Some existing policy instruments or government programmes may have specific data needs that the forest monitoring system could address. While advancing on all those fronts, the forest monitoring system would also need to continue providing the high-quality estimates of carbon and greenhouse-gas reduction that enable international reporting, including to Norway.

#### Recommendations

- It is recommended that such a data needs assessment be mounted as soon as possible to help shape aspects of the third phase of Norway's support to Guyana.
- It is recommended that GFC move as soon as possible to the use of real-time data. So far MRVS has been used only for information, but real-time data would make it possible to use the system contractually to ensure compliance, and at that point it becomes a very powerful tool for both logging and mining concessions. Even more importantly, several of the agencies that wish to make more extensive use of



MRVS data are demanding real-time data and it will be urgent to respond to such demands as the MRVS continues to broaden its reach.

### 4.2.3 Strengthening the skill base in Guyana

GFC has built very high levels of competence, but that competence is fragile – it depends on those trained staying in post, on external donor funds, and on government commitment. Until now, the key focus has been on the development of forest monitoring systems and on preparing data for international reporting. However, to develop a more robust and resilient future for the use of the MRVS in Guyana there is a need now to think about broadening capacity, funding, and government interest.

Some may need no more than training which familiarises them with REDD+ and the MRVS and will lead to better understanding of the environment and why the country needs to commit itself to these issues. But many agencies, particularly those in the Presidency, need to acquire staff with technical skills as well, and there may not currently be enough of them in the country. So, a plan is needed for both the short-term and the long-term.

Many more resources will be needed to train technicians with GIS skills. Some of these can be drawn in the longer run from the University of Guyana. But this presupposes investments in a more focused curriculum and possibly a completely new GIS undergraduate degree. More immediately it seems essential to train those already in employment in some of the ministries and agencies in Georgetown concerned with land use planning, forest monitoring, the environment and so on. There is an urgent case to be made for intensive short courses for midcareer professionals as well as for full degrees.

#### Recommendations

- Following upon the data needs assessment there is a need for a process which starts with the mapping of current skills in Guyana, which notes the gaps between data needs and skills, agency by agency, and which makes plans for remedying those gaps.
- The intensive capacity building which bore such fruit in the case of the GFC team, needs now to be invested in two or three key agencies in government and also in relevant departments in the University. GFC itself needs to be involved in this, ideally alongside help from international specialists. Ideally a course would be devised which could be used again and again in the future.
- Funding from the GRIF would be relevant for the needs assessment, for the skill gaps assessment, and for the short intensive upskilling courses required. The GRIF has been extended to 2021 and its brief covers outreach and strengthening initiatives.

### 4.2.4 Encouraging closer working relationships between the key natural resource agencies in Guyana

Several interviewees in Georgetown noted the need to improve links between the main agencies concerned with natural resources. At the moment there are a series of national level processes going on, which are all-important but which are poorly engaged with one another. The Green State Development Strategy, REDD+, FLEGT, the MRVS and Sustainable Forest Management are all different processes with overlapping but somewhat different goals. It is imperative that these varying initiatives, are brought into a closer and more productive relationship, for the benefit of Guyana as a whole. The Office for Climate Change may have the capacity to lead on this and the Ministry of Natural Resources is also a potentially powerful player.

It is hoped that working together on the data needs assessment and the skill gaps assessment will increase the reasons for these agencies to work with one another and to become more aware of one another's capacities and skills. But it is also hoped that the Continuous Resource Monitoring System (CRMS) becomes a tool which also brings the more closely together. Some agencies are already very aware of the power of real-time data; others at this point are probably less so but will be able to learn from their peers.

#### Recommendations

- It is recommended that the prototype system modelled on the current MRVs, but designed to allow more frequent monitoring of Guyana's natural resources, the Continuous Resource Monitoring System (CRMS) – and hence more real-time data – be supported.
- There is a need for a national policy for data access and use right across government. Getting data release can be very slow and this slows down the decision-making which could be based on that data.

#### 4.2.5 Communicating with politicians and with the general public

While the MRVS system is working well, and some government agencies are committed to further use of it, politicians have not thought much yet about how they are going to survive without Norway in the long-term. In due course there must be a transition to budget support for GFC. Yet in order for politicians and policymakers to be prepared to commit up to \$1 million a year to GFC, they need to better understand the value they are getting from the MRVS, and this needs to be explained to them better.

Politicians are busy people and they need visual and media-friendly material about the MRVS to make it more accessible and for its vital role in land use planning in the country to be understood.

So far, efforts at outreach have not always been well targeted. Workshops commissioned by GFC from a consulting firm started not from the needs and interests that a variety of unrelated types of stakeholders might have, but from the assumption that participants all had an *a priori* interest in REDD+, carbon storage and ways to measure and monitor it. The same presentation, more or less, was given to Georgetown civil servants, NGOs, and to rural villagers in the hinterland

A dedicated effort needs to be undertaken to make data results accessible to politicians and domestic audiences alike. An intensive focus will be required including the production of attractive annual 'State of the Forest' reports, varied outreach to mainstream media, and the creation of web-platforms for public use.

##### Recommendations

- The first need is to identify journalists inside Guyana who understand how to communicate with the general public. This might involve the writing of stories in the daily press, and possibly the making short films for television. The focus should be not so much on the environmental benefits of MRV as on its value as a tool for efficient performance in many areas of government. The approach should treat the environment and climate change as urgent issues.
- Opportunities for presentations to politicians about the ways in which sustainable land-use planning will depend upon data from the MRVS, and can be improved by it, should be sought.
- Advice is needed to create a popular and easily accessible web platform, regularly updated, with stories about Guyana's natural resources.

#### 4.2.6 Bringing local people back into the picture

It is the opinion of both GFC and CI that that local people must be dealt with better in the future, and the community MRVS restored in importance. Many expectations were built up on the basis of the Opt-In mechanism and Community MRV data collection, which were then not met. Local people have gone above and beyond what was required of them in supporting the MRVS, and they deserve PES payments for the protection they are affording forests. Through the MRVS local people were able to link their own natural resource management practices to what goes on nationally. Some have had the opportunity, as well, to learn more about sustainable forest management, reduced impact logging and conservation. These are tremendously important impacts. Rural people are currently providing many environmental services without payment and they are getting very tired of this. There is a need for a new PES deal – to link enhancement, enrichment and protection.

##### Recommendations

- A decision needs to be taken about how to meet at least some rural expectations of PES payments.
- More thought is also needed about how to link the coast and the hinterland, the MRV and the CMRV, into a more coherent national system.

#### 4.2.7 Learning from relevant other Countries

It is possible that Guyana may in due course be able to align its forest monitoring efforts more closely with some other examples. In particular the case of Gabon is of interest for Guyana, since it is also a high forest cover and low deforestation country.

At the current time ART (Architecture for REDD+ Transactions) is still under development and has not yet incorporated the modifications needed to accommodate countries with high forest cover and low deforestation rates. Gabon seeks to go through the ART certification for emission reductions and removals in partnership with Norway. This includes the TREES provisions on safeguards reporting and double counting,

and ART processes for third-party verification. If Gabon achieves ART certification, this may offer a way forward for Guyana.

**Recommendation**

- It is recommended that MRVS experts in Guyana keep a close watch on the progress of the Gabon case, learning both from colleagues in Gabon and from Norway itself.

**4.2.8 Teaching other Countries**

Guyana is now in a position after nearly 10 years of development to teach others how to create an MRVS as effective as their own. The country's programme has already featured in the 2019 Global Sustainable Development Report, and the GFC team now needs to seek other opportunities to publicise Guyana's progress, and to position itself and its forests to increase its international reputation.

**Recommendation**

- Several of the external experts who regularly work with Guyana on its MRVS have recommended that more effort now be put into creating international publications which publicise Guyana experience. Both Norway and CI should encourage this.

# Annex 1 – Evaluation Framework

Table 6: Evaluation Framework Matrix

DAC Criterion	Evaluation Question	Sub-questions	Data Collection
<b>Relevance</b>	<ul style="list-style-type: none"> <li>How has the context of international REDD+ MRV changed?</li> </ul>	<ul style="list-style-type: none"> <li>How has international good practice on measuring REDD+ results developed since the onset of the Guyana-Norway partnership?</li> <li>How could Guyana's MRV system be further developed to follow progress in international good practice?</li> </ul>	<ul style="list-style-type: none"> <li>Changing international context for MRV since 2009</li> <li>Changing scope of MRV project since 2009 (continuous learning process)</li> <li>Stringency of MRV requirements compared against other countries</li> <li>Approach to baseline setting compared against other countries</li> <li>Suitability of existing frameworks instead of JCN indicators (ART, Carbon Fund methodological framework, others)</li> </ul>
	<ul style="list-style-type: none"> <li>How has the socio-economic and institutional context in Guyana changed?</li> </ul>	<ul style="list-style-type: none"> <li>How might the Guyana-Norway partnership develop until 2030?</li> <li>How has Guyana's context for capacity development on forest monitoring developed over the last years?</li> <li>What kind of capacity development will be required going forward?</li> </ul>	<ul style="list-style-type: none"> <li>Document MRV starting point for Guyana in 2009</li> <li>Achievements of other REDD+ countries on MRV</li> <li>Perceptions of achievement of GY on MRV compared with other countries</li> <li>Growing oil revenues</li> <li>Perceptions of gaps in capacity development</li> </ul>
<b>Effectiveness</b>	<ul style="list-style-type: none"> <li>How well does the forest monitoring system perform as a means to support and justify Norway's payments?</li> <li>How well does the forest monitoring system perform as a means to reporting to the UNFCCC?</li> </ul>	<ul style="list-style-type: none"> <li>How does the MRV system compare against REDD+ MRV systems of other countries?</li> </ul>	<ul style="list-style-type: none"> <li>Forest monitoring scorecard #1 on quality of the NFMS</li> <li>Achievements for the development of the MRVS from its inception</li> </ul>

DAC Criterion	Evaluation Question	Sub-questions	Data Collection
	<ul style="list-style-type: none"> <li>How well does the forest monitoring system inform Guyana's own natural resource management?</li> </ul>	<ul style="list-style-type: none"> <li>How does the MRV system compare against REDD+ MRV systems of other countries?</li> </ul>	<ul style="list-style-type: none"> <li>Forest monitoring scorecard #2 on policy relevance of the NFMS</li> <li>How well have the activities of the roadmap phase 2 been covered?</li> <li>What is the likelihood of implementing the roadmap upon project completion?</li> <li>What kind of data needs assessment has been performed?</li> <li>Are data being shared? Are data broken out by drivers? Are data spatially explicit? Etc.</li> </ul>
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>How cost-efficient and time-efficient has CI's performance been?</li> </ul>	<ul style="list-style-type: none"> <li>Assess CI's role and performance as executing agency identifying institutional strengths and weaknesses and recommendations for improvement.</li> <li>Identify potential options for improving the programme which could include modification of methods and approaches, activities, milestones, programme timelines, responsibilities of the Executing Agency's staff, schedule of activities and budget allocations.</li> </ul>	<ul style="list-style-type: none"> <li>Outline the roles, responsibilities and activities of CI, GFC, and other participants of the project</li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>How well is the ground prepared for a third phase of the MRVS operation in 2020-2030?</li> <li>How Well is the ground prepared FOR an exit from the Norway-Guyana cooperation in 2030?</li> </ul>		<ul style="list-style-type: none"> <li>What is needed for this to be assured: Norwegian perspective; Guyanese perspective</li> <li>Forest monitoring scorecard on quality of the NFMS</li> <li>Mainstreaming of forest monitoring into the institutional setup</li> <li>Legal aspects</li> <li>Budgetary aspects</li> </ul>



DAC Criterion	Evaluation Question	Sub-questions	Data Collection
Impact	<ul style="list-style-type: none"> <li>What impact has MRV developed through enabling Norway's results-based payments?</li> </ul>		
	<ul style="list-style-type: none"> <li>What impact has MRV developed through informing better decision-making on natural resource management?</li> </ul>		<ul style="list-style-type: none"> <li>Identify the regulatory frameworks (covers FLEGT; SDG 17 reporting)?</li> <li>Collect examples of better decisions taken that use improved data</li> <li>Was a data needs assessment conducted</li> </ul>
	<ul style="list-style-type: none"> <li>What impact has the Guyana-Norway cooperation developed by informing replication in other countries?</li> </ul>		<ul style="list-style-type: none"> <li>Identify any specific lessons learned and where / how these were taken up</li> </ul>

# Annex 2 – List of Key Stakeholders and Interview Schedule

## Key Local Stakeholders and Interview Schedule

Table 7: Key Local Stakeholders

Agency/Group	Name	Designation	Meeting Date	Place
Guyana Forestry Commission (GFC)	Pradeepa Bholanath	Head, Planning & Development	Oct-29, Nov-13	Georgetown
	Nasheta Dewnath	Programme Coordinator		
	Towana Smartt	GIS Manager		
	Jocelyn Dow	GFC Board of Directors Chairperson		
Project Management Office, MOTP	Janelle Christian	Head of Office of Climate Change (OCC)	Oct-29	Georgetown
	Marlon Bristol	Head		
	Nikolaus Oudkerk	Coordinator		
Amerindian Peoples Association (APA)	Jean LaRose	Member	Oct-30	Georgetown
	Laura George	Member		
Iwokrama	Dane Gobin	CEO	Oct-30	Georgetown
	Raquel Thomas	Director, Resource Management and Training		
	Vanessa Benn	Project Coordinator		
Ministry of Natural Resources (MNR)	Veetal Rajkumar	Head, Policy & Planning	Oct-31	Georgetown
WWF-Guianas, Guyana Office	David Singh	WWF-Guianas Country Director; Former Vice-President of CI-Guyana	Nov-01	Georgetown
Conservation International (CI)	Curtis Bernard	Senior Technical Director	Nov-01, Nov-13	Georgetown
	Kerry Anne Cort	Spatial Data Analyst		
	Shereeda Yusuf	Policy Manager (Former staff of OCC)		
Environmental Management Consultancy	Kandila Ramotar	Senior Environmental Officer	Nov-04	Georgetown
	Andrew Bishop	Climate Change, Land Policy & Planning and Environment Consultant		
Freelance Consultant	Vanda Radzik	Co-founder of Bina Hill Institute	Nov-04	Georgetown
WWF-Guianas, Guyana Office	Aiesha Williams	Country Manager	Nov-04	Georgetown
	Roxroy Bollers	GIS / CMRV / ODK Expert		
Regional Democratic Council	Bryan Allicock	Regional Chairman	Nov-05	Lethem
KMCRG	Patrick Gomes	Past President and Toshao of Marranau Village	Nov-05	Lethem
Nappi Village	Guy Fredericks	Toshao of Nappi Village	Nov-05	Nappi
St. Ignatius Village	Dennis Benedict	Toshao of St. Ignatius Village	Nov-06	St. Ignatius
	Francis Benedict	Former Toshao		
Moco-Moco Village	Mark George	Toshao of Moco-Moco Village	Nov-06	Moco-Moco
Aranaputa Village	Virgil Hardin	Toshao	Nov-07	Aranaputa
	Floyd Peters	Former CREW Member		
Annai Village	Mike Williams	Former Toshao Green Committee Member	Nov-07	Annai
North Rupununi District Development Board	Ivor Marslow	Community MRV trainer	Nov-08	Annai
	Laureen Pierre	Community MRV trainer		
	Students	Students		

Iwokrama Forest Reserve	Ron Allicock	Ecotourism Manager	Nov-10	Iwokrama
Iwokrama Forest Reserve	Raquel Thomas	Director, Resource Management and Training	Nov-10	Iwokrama
Guyana Lands and Surveys Commission	Naseem Nasir	Manager of Land Information and Mapping Division	Nov-12	Georgetown
Indufor Asia Pacific	Pete Watt	Resource Monitoring & Climate Change	Nov-13, Nov-14	Georgetown

## Key International Stakeholders and Interview Schedule

Table 8: Key International Stakeholders

Agency/Group	Name	Designation	Meeting Date
Winrock International	Timothy Pearson	Director, Ecosystem Services	Nov-21
Independent consultant	Patrick Chesney	Independent Consultant	Nov-22
DNV-GL	Edwin Aalders	MRV expert	Nov-22
University of Maryland	Jeffrey Pickering	Faculty Specialist	Nov-22
NICFI	Mads Halfdan Lie	MRV specialist	Nov-27
NICFI	Vedis Vik	MRV specialist	Nov-27
NICFI	Henrik Fliflet	MRV specialist	Nov-27
Wageningen University	Martin Herold	MRV expert	Nov-28
GFC	Pradeepa Bholanath	Head, Planning & Development	Dec-02
Norad	Sofi Halling	MTR Coordinator	Dec-03

## Annex 3 – References

Table 9: List of Documents Reviewed

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<b>Dewnath, N., Bholanath, P., Palma, R., Freeman, B., Wan, P. 2019.</b> Using Guyana’s monitoring, reporting and verification system to guide national forest management and decision-making. Conference Paper at “ <i>Continuous Monitoring of our Changing Planet: From Sensors to Decisions</i> ”, Baltimore, Maryland, USA, Oct 6-11, 2019
<b>FAO Forestry, 2020.</b> Better data, better decisions - towards impactful forest monitoring. Working Paper forthcoming March 2020
<b>FCG Sweden, 2019</b> Organisational Review of Conservation International Foundation Guyana. Henrik Alffram, Sweden.
<b>Forest Carbon Partnership Facility (FCPF) Readiness Fund May 2019.</b> Mid-term progress reporting for country: Guyana
<b>Mora, B., Herold, M., De Sy., V., Wijaya, A., Verchot, L. and Penman, J., 2012</b> Capacity development in national forest monitoring: experiences and progress for REDD+. <b>Joint report by CIFOR and GOF-C-GOLD.</b> Bogor, Indonesia,.
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## Annex 4 – Scorecards

### Scorecard on the Quality of the Forest Monitoring System

Table 10: Scorecard on the quality of the forest monitoring system

Satellite land monitoring system	No ☆	★	★★	★★★
Overarching deliverable				
Have historical remote sensing data been analysed?	No national scale analysis carried out yet	Assessment available for one point in time, but no change assessment	Assessment available for one point in time and change assessment	Consistent assessments available for several time points and a change assessment
Regular government programme				
Is there a regular ongoing government programme for land monitoring and mapping?	No regular ongoing government programme	Irregular land monitoring and mapping	Ongoing land monitoring programme with regular staff but dependent on external resources	Ongoing land monitoring programme with regular staff and budget allocation
Technical and functional aspects				
Is the geographic information system and remote sensing laboratory well equipped?	No laboratory available	Laboratory not well equipped	Hardware and software available with slow internet	Fully equipped laboratory with fast internet
Do relevant agencies effectively collaborate on land monitoring?	No effective data sharing, inconsistent land classification schemes	Ad hoc data sharing, but inconsistent land classification schemes	Ad hoc data sharing and official land classification scheme	Data is collected according to official land classification scheme and flows freely between several agencies based on regulations or Memoranda of Understanding
Is an accuracy assessment being carried out?	Accuracy assessment not carried out	Based on same data source	Based on independent data of similar quality	Through independently collected field data or high-resolution imagery
Are land monitoring data routinely archived?	No routine archiving, data scattered between several agencies and projects	Summary list available, but no central data management	Centralized data management, but data not fully digitized	Centralized data management and digital archive, possibly integrated with regular statistical systems
Technical capacity				
Does the government have the technical capacity to carry out forest land	Limited technical capacity	Medium technical capacity, requiring ongoing external assistance	Medium technical capacity, occasionally requiring external assistance	High technical capacities with limited need for external assistance

monitoring for REDD+?				
<b>National forest inventory</b>	<b>No ☆</b>	★	★★	★★★
Overarching deliverable				
Has a field-based forest inventory at a national scale been completed yet?	Not available or with limited coverage or without full government ownership	Once at national scale under government leadership	Several times but with incompatible methodologies	Several times with compatible methodologies, at national scale and under government leadership
Regular government programme				
Is there an ongoing programme for periodic inventories with institutional and budgetary provisions?	Not available or only for once-off inventory	Institutional mandates and plans but reliance on external funding	Institutional mandates and plans and significant national funding available	Budget allocation and institutional mandates for inventory cycle
Technical and functional aspects				
Has a methodology for the NFI been agreed?	Not available, only incomplete and inconsistent datasets available	Methodology available but outdated	Agreed and up to date methodology available, but datasets only partially compliant	Agreed and up to date methodology available and consistently implemented
Do data include ground-based biomass measurements for non-forest land-cover types?	No national scale forest inventory data available	In forest land only	Also in grasslands with varying tree cover	Comprehensive measurements across all types of land cover
Are data centrally managed for field-based forest inventories at national scale and for regional inventories?	Data scattered between several agencies and projects	Summary list of field-based forest inventories available, but no central data management	Centralized data management available, but data not fully digitized	Centralized data management and digital archive, possibly integrated with regular statistical systems
Are inventory results widely and transparently available?	Only summary information publicly accessible	Analytical reports publicly accessible	Analytical reports publicly accessible and rudimentary web interface	Analytical reports publicly accessible and detailed web interface
Technical capacity				
Does the government have the technical capacity to carry out an NFI for REDD+?	Limited technical capacity	Medium technical capacity, requiring ongoing external assistance	Medium technical capacity, occasionally requiring external assistance	High technical capacities with limited need for external assistance
<b>Forest reference (emission) level</b>	<b>No ☆</b>	★	★★	★★★
Overarching deliverable				
Has a FREL been developed and submitted yet?	Not yet available and not yet submitted	FREL under development	FREL developed and submitted, but not yet undergone technical assessment	FREL developed and submitted and undergone technical assessment

Regular government programme (not available)				
Technical and functional aspects				
Does ongoing land monitoring allow for change detection based on detailed classification scheme?	No change detection, or includes only deforestation	Only changes between forest and non-forest	Changes between six IPCC classes	Detailed classification scheme
Have scope, scale and construction methodology been decided?	No active discussions or decisions	Ongoing discussion, scope already defined	Ongoing discussion, scope and scale already defined, but not yet on the construction methodology	Decisions reached and justified on activities, pools, gases, national or sub-national scale, reference period and construction methodology
Have emission factors been chosen?	No active discussions or decisions	Ongoing discussion on emission factors	Emission factors have been chosen but do not fully effectively draw on forest inventory results	Emission factors have been chosen and effectively draw on forest inventory results
Has a forest definition been chosen for the FREL?	No active discussions or decisions	Ongoing discussion on the forest definition for the FREL	Forest definition chosen, but not fully consistent with forest definition for SLMS, NFI and NGHGI	Forest definition chosen and fully consistent with forest definition for SLMS, NFI and NGHGI
Have details on national circumstances been collected?	National circumstances not yet analysed	Either trends analysis or quantitative drivers analysis available	Both trends and quantitative drivers analysis available	Detailed trends and quantitative drivers analysis available justifying the construction methodology
Technical capacity				
Does the government have the technical capacity to develop FREL s for REDD+?	Limited technical capacity	Medium technical capacity, requiring ongoing external assistance	Medium technical capacity, occasionally requiring external assistance	High technical capacities with limited need for external assistance
<b>National greenhouse gas inventory system</b>	<b>No ☆</b>	<b>★</b>	<b>★★</b>	<b>★★★</b>
Overarching deliverable				
Does the government regularly report on land use in the NGHGI including the BUR Annex on REDD+ results?	No National Communications or Initial National Communication only	Several National Communications or BURs submitted, but contain only rudimentary land use NGHGI	Several National Communications or BURs submitted, including a detailed land use NGHGI	BUR Annex on REDD+ results submitted
Regular government programme				
Is there a GHG inventory team available for land	Not available, mainly done by	Available and consisting of permanent staff, but	Available and consisting of	Available and consisting of permanent and well-

use, land-use change and forestry?	external consultants	without clearly defined roles	permanent staff with clearly defined roles	trained staff with clearly defined roles
Technical and functional aspects				
Is there a functioning data sharing process between institutions involved in the NGHGI?	Data sharing ad hoc or data concentrated at one agency only	Through Memoranda of Understanding across several agencies, but not yet effective use of forest inventory and land monitoring results for the NGHGI	Through Memoranda of Understanding across several agencies and effective use of forest inventory and land monitoring results for the NGHGI	Legally assigned roles across several agencies, and effective use of forest inventory and land monitoring results for the NGHGI
Is the methodology documented transparently and in detail?	Only rudimentary documentation within National Communication	Some documentation within National Communication, but not fully transparent or insufficient detail	National inventory report available as part of the National Communication or BUR	Detailed and high quality national inventory report available as part of the National Communication or BUR
Are QA/QC procedures in place and being performed?	QA/QC not being performed	Either QA or QC being carried out, but no general procedures	QA/QC carried out ad hoc, but no general procedures	Protocols with assigned roles in place for QA/QC and being performed
Are an inventory improvement plan and a key category analysis in place and basis for planning?	Not in place	Both in place but not connected and not basis for planning	Both in place and connected, but not basis for planning	Both in place and connected, and effectively being acted upon
Technical capacity				
Does the government have the technical capacity to produce a NGHGI including the BUR Annex on REDD+ results?	Limited technical capacity	Medium technical capacity, requiring ongoing external assistance	Medium technical capacity, occasionally requiring external assistance	High technical capacities with limited need for external assistance

## Scorecard on the Use of Forest Monitoring Data

Table 11: Scorecard of indicators set for assessing the suitability of forest monitoring to inform policy-making<sup>5</sup>

Question asked	Possible answers	Follow-up question
Accessibility of the system and its data		
Are annual or biannual summary reports on the state of forests and its changes publicly available in a format that is easy to understand?	yes/no/n.a./don't know	What could be done to improve the accessibility of forest monitoring systems and data outputs?
Is a data-sharing policy among several relevant government agencies in place and implemented (e.g. including agencies for statistics, greenhouse gas inventories, forestry, agriculture etc.)?	yes/no/n.a./don't know	
Is detailed spatial information on forest area and its changes publicly available to anyone for download (possibly through a geoportal)?	yes/no/n.a./don't know	
Are forest monitoring results regularly taken up by mainstream media (possibly in response to dissemination efforts through	yes/no/n.a./don't know	

<sup>5</sup> A scorecard that consolidated the responses across agencies is not shown here because it wasn't straightforward to combine, but findings have been included in the analysis

press releases and press conferences, videos, promotional material, etc.)?		
<b>Reliability and credibility of results</b>		
Is detailed documentation on data sources, methodologies and data analysis publicly available to anyone?	yes/no/n.a./don't know	What could be done to improve the reliability of forest monitoring and its results?
Do data collection and analysis apply documented quality assurance/quality control procedures?	yes/no/n.a./don't know	
Do the forest monitoring data outputs (both field and mapping outputs) include error estimates?	yes/no/n.a./don't know	
Do the agencies operating the forest monitoring system consult on the methodology for data collection and analysis with other actors, including outside government and beyond the forest sector?	yes/no/n.a./don't know	
<b>Relevance of data</b>		
Does the forest monitoring system enable the collection of data beyond biophysical parameters (e.g. on socio-economic indicators or on drivers of change)?	yes/no/n.a./don't know	What could be done to improve the relevance of forest monitoring and its data to policy-making?
Does the forest monitoring system deliver estimates of forest area and its changes for annual or biannual time intervals?	yes/no/n.a./don't know	
Does the forest monitoring system deliver estimates of forest area and its changes at the scale of subnational jurisdictions (e.g. provinces or districts) or in a spatially explicit manner?	yes/no/n.a./don't know	
Does the forest monitoring system deliver data on change in forest biophysical parameters (e.g. through remeasurement of permanent sample plots)?	yes/no/n.a./don't know	
<b>Sustainability of forest monitoring system</b>		
Is a sufficient national budget allocated to an ongoing forest monitoring system that operates without international funding?	yes/no/n.a./don't know	What could be done to improve the sustainability of forest monitoring systems?
Are data stored in a permanently available and networked system (e.g. a dedicated server integrated with the governmental archiving infrastructure)?	yes/no/n.a./don't know	
Is there a sufficient number of permanent government staff with appropriate technical knowledge operating the forest monitoring system?	yes/no/n.a./don't know	
Has the forest monitoring system been operating in a similar form for at least ten years?	yes/no/n.a./don't know	

n.a. = not applicable



