Guyana Forestry Commission

Strengthening of Guyana's Technical Capacity to Implement MRVS & Other REDD+ Related Activities

Guiana Shield Facility

July 2012

I. Project Identifying Information:

Applicant Organization:	**Guyana Forestry Commission**
Contact Person & Designation:	**James Singh, Commissioner of Forests**
Address:	**1 Water Street, Kingston, Georgetown, Guyana**
Phone/Fax #:	**592-226-7271-4 (Phone), 592-226-8956 (Fax)**
E-mail:	**commissioner@forestry.gov.gy**
Website:	**www.forestry.gov.gy**
Project Title:	**Strengthening of Guyana's Technical Capacity to Implement MRVS and other REDD+ Related Activities**
Location:	**Guyana**
Project Duration:	**24 months**
Proposed Start Date:	**June 2012**
Project Cost:	**539,000 USD (Over 24 month period)**
Amount Requested from Donor:	**490,000 USD**
Applicant Contribution (in kind):	**49,000 USD (i.e. 10% of 490,000)**
* Potential Supporting Funding Options	**Forest Carbon Partnership Facility**

* The FCPF transfer agreement arrangement for Guyana's receipt of FCPF funding has not yet been finalized.

* In terms of the status of Guyana's R-PP, Guyana is currently one of five pilot countries that will be using a Delivery Partner other than the World Bank, to channel FCPF funds. Guyana chose to work with the Inter American Development Bank (IDB), owing to synergies already existing through IDB's involvement in the Guyana REDD+ Investment Fund, and is in the process of finalizing its R-PP after an IDB review.
In the updated version of the R-PP (to be released shortly), while the MRV and progress that Guyana has made so far are detailed in the R-PP (Component 4), no funds will be requested from the FCPF for the development of Guyana's MRVS. This will be reflected in the R-PP budget. The future development of the MRVS may be supported through other sources including the Guyana REDD+ Investment Fund (GRIF). However, other approval will have to be secured prior to finalisation of such support.

Contents

1. Background/ Context

As one of the largest remaining blocks of primary tropical forest on Earth, the Guiana Shield Eco-Region has the potential to play a critical role in mitigating climate change. The Eco-Region contains both the highest percent of primary forest cover (over 90% is intact tropical forest) and the lowest human population density of any major tropical area. Guyana's forest covers approximately 85% of the country, contains over $5GtCO_2$ in above ground biomass, and is estimated at 18.39 million hectares (Guyana REDD+ Monitoring Reporting and Verification System (MRVS) Interim Measures Report, March 16, 2011.) The Government of Guyana has embarked on a national programme that aims to protect and maintain its forests in an effort to reduce global carbon emissions and at the same time attract resources to foster growth and development along a low carbon emissions path. Guyana is committed to providing a contribution to address the second most important source of carbon dioxide emissions world-wide, deforestation and forest degradation and is estimated at approximately 18% of global emissions.

Guyana initiated work on REDD+ in 2008 with the submission of a Readiness Plan Idea Note (RPIN) to the Forest Carbon partnership Facility (FCPF). The approval of this RPIN led to the subsequent submission of a Readiness Plan (RPlan), which later was renamed the Readiness Preparation Proposal (R-PP).

On November 9, 2009, the Government of Guyana and the Kingdom of Norway signed a Memorandum of Understanding which set out how the two countries will "work together to provide the world with a relevant, replicable model for how REDD-plus can align the development objectives of forest countries with the world's need to combat climate change." Norway committed to providing financial support of up to US$250 million by 2015 for results achieved by Guyana under the agreed REDD+ cooperation. A Joint Concept Note (JCN) accompanies the MoU signed between Guyana & Norway and describes the mechanism through which financial contributions to Guyana will be delivered and are based on results achieved in keeping its deforestation and forest degradation rates below an agreed level. Guyana's obligations outlined in the JCN relate to a) indicators of enabling activities; b) REDD-plus Performance Indicators; and c) efforts to support the acceleration of REDD Plus efforts in 2010.

Guyana has prepared a Road Map (Annex 4) in 2009 for the development of a national MRVS. The MRVS Road Map, which outlines the key steps to be taken over a 36 month period for the development of the MRVS, is built upon a capacity building approach to ensure the sustainability of the System. The work of this proposed project, which builds upon a capacity building approach, is linked directly to Objective Three of the GSF, which aims to support the exchange of knowledge and capacity building to enhance the conservation and sustainable development of the Guiana Shield eco-region, while supporting activities specific and relelvant to the progress of national REDD+ implementation.

This proposed project seeks to address activities outlined in both the MRVS Road Map as well as Guyana's R-PP, these being the Development of National Reference Level; REDD+ Consultations on development of the National MRVS; the Exploration of Co-benefits under the MRVS and the Development of national REDD+ Strategies. The outcome of the project will be the strengthening of Guyana's capacity to manage forest resources and environmental services through the development of an appropriate national reference level as well as aspects of the MRVS related to PES, which will in turn allow for strengthened monitoring of deforestation and forest degradation. The capacity building exercises will see improved knowledge of REDD+ and the MRVS, as well as the involvement of these communities in executing their foreseen roles in REDD+ and the MRVS.

2. Objectives of the Guiana Shield Facility Project (GSF)

The goal of the GSF Project is to promote and support the conservation and sustainable development of the Guiana Shield eco-region.

Specific Objectives:

a) Develop a long-term forum and vehicle to address national and in particular overarching regional environmental issues related to management of the ecosystems of the Guiana Shield eco-region.

b) Set up and maintain a sustainable financial vehicle for the conservation and sustainable development of the Guiana Shield eco-region and its ecosystem services.
c) Support the exchange of knowledge and capacity building to enhance the conservation and sustainable development of the Guiana Shield eco-region.

3. Organizational Profile- Guyana Forestry Commission

The Project will be fully executed by the Guyana Forestry Commission, which is mandated by law to:

- Advise the Government on, and implement the National Forest Policy;
- Be responsible for the management and control of the utilization of the forests to ensure an optimum yield of forest produce and the maintenance or improvement of the environment.

The GFC is governed by a Board of Directors appointed by the President. The Commissioner of Forests is the Chief Executive Officer and an ex-officio member of this Board. Being the State Agency to plan and manage the State Forest Estate, it has made efforts in the past to enhance sustainable forest management and to strengthen important areas such as legality, forest industry and training in harvesting practices. The GFC is a semi-autonomous organization formed in 1979 with a legal mandate to manage and control the utilization of the State Forest Estate. It main role is to ensure the sustainable utilization of the State Forest Estate in keeping with sustainable forest management principles and guidelines. The GFC also has a development mandate to ensure that that there is a balance among the pillars - social, economic and environmental development. The recently passed Forest Act 2009, by Parliament outlines these pillars and outlines key legislative requirements for the Commission work.
The GFC has, over the past 10 years, undergone rapid development in the implementation of sustainable forest management, legality, and environmental standards. It has also expanded its geographic scope to 26 field stations and a number of mobile stations on forest concessions and has a total staff complement of 360 employees. More recently, there was the development of modern and dynamic forest legislation and a suite of Forest Management policies, guidelines and practices that guide the operation of the Commission, many of these have already been successfully implemented. The GFC also has a strong community forest programme through which it extends implementation of sustainable forest management practices and overall development support, at the community level.
GFC has been tasked with the responsibility of overseeing the process to develop and implement the national REDD+ Strategy, including the national MRVS, as well as readiness activities under the FCPF. A REDD Secretariat (RS) was established as a new operational unit of GFC.

4. Statement of Project Goal, Objectives, Indicators and Activities*:*

Goal: The overall goal of the proposed project is in keeping with the principles of the GSF, which will strengthen the technical capacity of the GFC and other key agencies involved in REDD+ implementation (through the NMSSC), while assisting the GoG in the development of key technical components of REDD+ readiness activities in Guyana.

Objectives: The objectives of this project are to:

a) Establish the historic reference level and develop the future projected approach for REDD+
b) Build a two-way communication process to channel information to stakeholders on REDD + implementation.
c) Explore possible co-benefits to be incorporated into the national MRVS in keeping with the principles of Efficiency, Effectiveness and Equity;
d) Develop a set of national REDD+ Strategy options that will contribute towards the maintenance of Guyana's already low rate of deforestation and forest degradation

5. Project Description & Summary

There are four components proposed for execution with the GSF funding. These are listed according to priority below:

1. Component 1- Development of National Reference Level for REDD+
2. Component 2- REDD+ Consultations on development of the National MRVS
3. Component 3- Exploration of Co-benefits under the MRVS
4. Component 4- Development of national REDD+ Strategies

These components form the basis not only for preparing Guyana for implementing REDD+ locally, but also will contribute to the development of a Monitoring Reporting & Verification System for Guyana. It is intended that these components will be aligned to achieve the objectives of the GSF as well as those of Guyana's MRVS. REDD+ (which includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries) and activities related to REDD+, including the implementation of REDD+ readiness activities under the FCPF as well as the design of a national MRVS have become priority areas for implementation in Guyana. These activities are linked to Guyana's contribution to the fight against climate change, as well as in the protection of Guyana's forest resources and the services that they provide. This in turn, is linked to the GSF's objective of the conservation and sustainable development of the Guiana Shield eco-region and its ecosystem services.
Consultation, capacity building and the involvement of communities in the process are core components to the implementation of REDD+ in Guyana, which again, is aligned to the achievement of the GSF's objective of supporting the exchange of knowledge and capacity building to enhance the conservation and sustainable development of the Guiana Shield eco-region. These components contribute towards ensuring the sustainability of REDD+ implementation by the key agencies and groups involved.

Stakeholder engagement is not only an integral part of this project, but also a major tenet of the work of the Guyana Forestry Commission. In this, the GFC engages with stakeholder groups including government, non-government and civil society entities along with Amerindian villages and communities as well as other forest dependent groups. It is the policy of the GFC to ensure that there is adequate and effective stakeholder engagement in the development and implementation of new policies, codes of practice as well in projects. A number of feedback mechanisms have been developed to facilitate not only stakeholder engagement, but also for the dissemination information, these include the use of local print media (daily newspapers), the GFC's website (www.forestry.gov.gy), the use of mailing lists and internet noticeboard. The GFC's Community Development Officers and field and mobile stations located across the country as well as multi stakeholder groups such as the National Multi Stakeholder Steering Committee (NMSSC) of the GSF and the MRVS Steering Committee are other means through which the GFC engages stakeholder groups. Accompanying these mechanisms, the GFC frequently holds targeted stakeholder sessions, addressing various issues as they may arise, including on issues of REDD+, the review and revision of forest policies and guidelines and other forest related areas.
A significant percentage of the total budget under this project is being directed toward consultation and stakeholder engagement. It is for the purpose of consultation on GSF activities and REDD+ Strategy that this budget was targeted for. It is the intention that the NMSSC will provide an oversight body for stakeholder consultation and engagement that will extend to not only this committee, but to communities as well.

6. Project Components

The estimated timeframe for the execution of this project is 24 months. During this time, it is proposed that the following Components be implemented:

a. Component 1: National Reference Level developed

Guyana's reference scenario will be developed following the Intergovernmental Panel on Climate Change Good Practice Guidelines (IPCC GPGs), by UNFCCC guidance and modalities on reference levels developed so far, particularly the decisions of Copenhagen and Durban; and will establish the historic reference level and projected reference level, using both field data and remote sensing data. It is expected that there will be two main results:

- the establishment of the historic reference level and
- the development of the projected reference level based on the stock based approach.

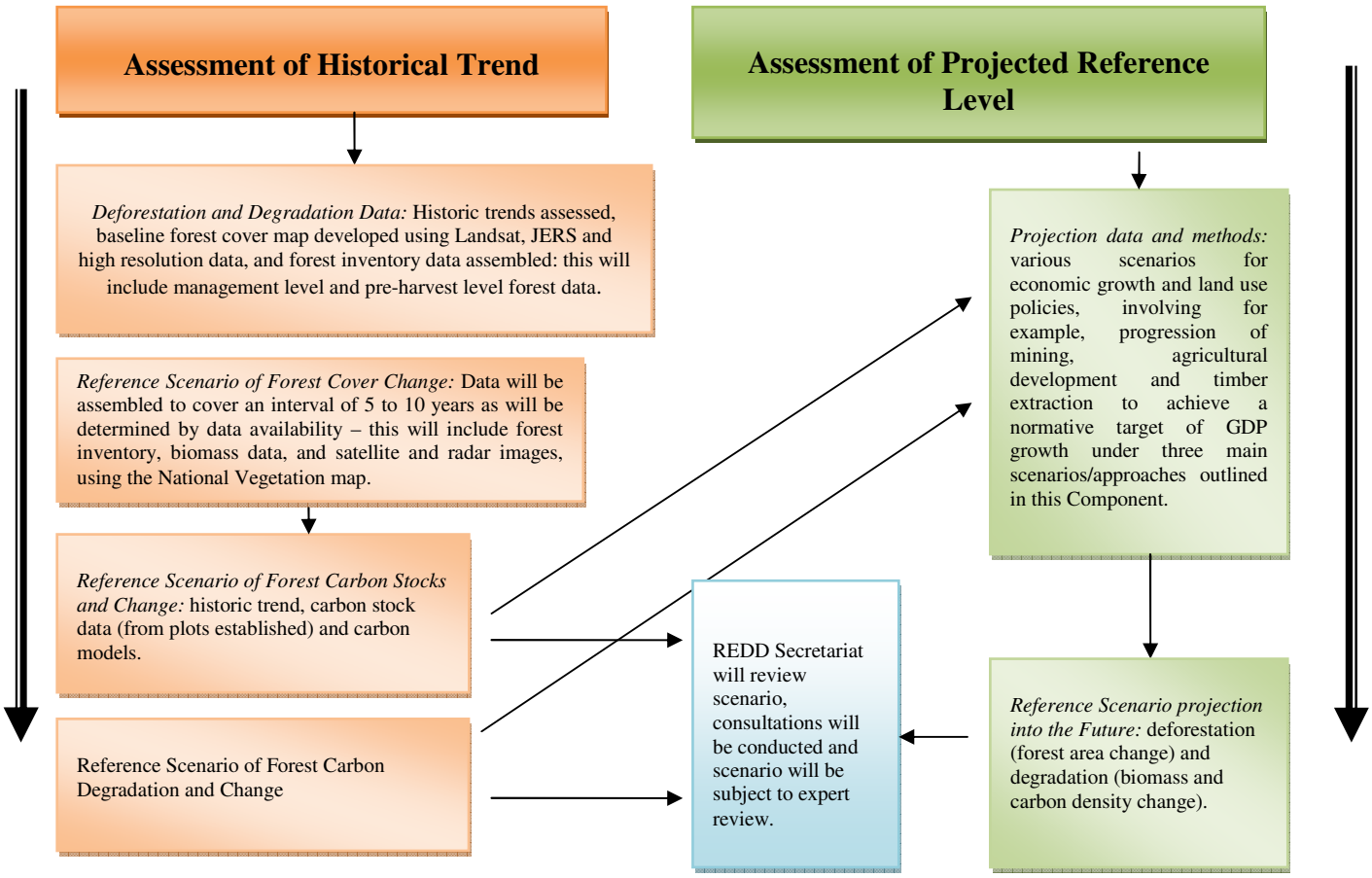


Figure 1 -Reference Scenario Framework which will be used has informed the Activities set out to achieve the outcomes listed above.

- Assessment of Historic Trend

Guyana has assessed the international policy discussions on REDD + and reference scenarios. This is summarized below[1]:

- For REDD + the reference level method under discussion is the stock based approach. These trends would be measured over multiple years (5–10) in order to reduce the impact of anomalous years.

[1] *Olander, P., et al, Reference Scenarios for Deforestation and Forest Degradation in support of REDD +: a review of data and methods.* http://www.sage.wisc.edu/pubs/articles/F-L/gibbs/erl8_2_025011.pdf

- The reference period selected will take into account current land use trends that are most feasible given constraints in available data.

Time Period of data for estimating historic reference levels:
The timeframe for the historic reference period for developing the reference scenario will be from 1990. The period October 1, 2009 to September 30, 2010 is used as the base year for Year 1 of the Forest Area Change Assessment as well as established in the MRVS. Guyana is a high forest, low deforestation (HFLD) country and as far back as utilization of the forest has been occurring; there have been low rates of deforestation and forest degradation. To be able to understand in a more comprehensive and holistic way, the historic impacts of various drivers on the forest, an extended time series allows for a more precise understanding to be enabled. Going as far back as 1990 allows for this to be achieved as well as for there to be comparisons rendered between the period 1990-2000, when older policies would have prevailed, and the more recent period of 2000-2009, when newer policies prioritizing sustainable management of the natural resources would have been in effect.

- **Assessment of Projected Future Reference Levels**

Approaches for projection of reference levels, and rationale for selection
The approaches that are tentatively identified to be used are:

a) **Scenario 1** – Projection based on historic trend prior using the business as usual approach (without REDD+)
b) **Scenario 2** – Projection based on undertaking a development plan to realize macroeconomic targets
c) **Scenario 3**- Projections based on Guyana fully utilizing its forests for various natural resources extractive activities and other uses, to generate revenues for development- which will take into account various considerations including the opting in/ no opt in of Amerindian communities.

The reason for this selection is to allow for the implications on reference levels using the current trend, projected into the future to be realized using the stock based approach; secondly, to assess the implications on reference levels for Guyana's development goals to be realized; and thirdly to assess the implications for Guyana's development plans with various considerations such as Amerindian communities Opting In/ not Opting In. Considerations for reference scenario modelling will be taken with regards to existing arrangements with other partners as well as developments in procedures and guidelines made by various internationally recognised groups and fora.

At the level of the UNFCCC international negotiations, discussion on Reference Levels is still ongoing. Under the activities for the GSF, Guyana will explore historic trends through various assessments and will also generate adjusted projected reference level. In establishing Reference Level under this activity, the following will be the main issues under consideration:

- Reference Scenario: a national reference emissions or removal level taking into account historical data and national circumstances, including low rates of historical deforestation and forest degradation, and assessed over a period of at least five years;
- Projected Emissions Reductions: a National REDD+ Plan, including policy approaches that state the total projected emissions reductions or removals to be achieved below the reference emissions or removal level during an agreed timeframe;
- Developmental Adjustment: an adjustment to the reference emissions or removal level either elevated or reduced and early action credits taking into account, inter alia, the developmental divergence and respective capabilities of REDD+ countries.

In the execution of the activities under the section on Reference Levels, such activities will be guided by UNFCCC guidance and modalities on reference levels developed so far, particularly the decisions of Copenhagen and Durban.

Activities to achieve Component 1:

The list below gives a more detailed appraisal of those activities and further actions required for the development of a reference scenario:

1. Assessment of data available on forest area, land cover change and carbon density and carbon stock.
2. Development of historical trend reference scenario for looking at land cover change, forest carbon density and deforestation and forest degradation.
3. Complete reference scenario modelling for: development plan, trends and macroeconomic trends forecasting following compilation of data on these areas. This will also include an analysis of bottlenecks/constraints to rational economic development in the key sectors (why large scale projects that may take place in the future did not take place in the past, and why do they become possible today, e.g. availability of financial resources, investors confidence, inaccessibility, soil fertility, technology progress, etc.). This will serve to make the projection-based scenario more robust)
4. Steps 1, 2 and 3 will include technical workshops and consultations through the Consultation and Participation plan (Component 1b) to ensure stakeholders feedback in the process
5. Integration of MRVS data and results into Reference Scenario Modelling
6. Review by independent expert.

b. Component 2: National Consultation & Outreach Activities on development of the National MRVS

It is acknowledged that the long-term success of the work on REDD+, including the successful design and implementation of the MRVS will be best supported by broad-based, inclusive domestic support. The GoG is therefore committed to implementing a robust consultation, participation, and outreach plan geared towards gathering information, issues and opinions from relevant stakeholders and processing these so that possible solutions can be formulated or amended to address the concerns of stakeholders. Furthermore, this activity will inform the relevant stakeholders, provide training, seek inputs and address issues and concerns raised by stakeholders through a continuous, iterative two way process of outreach programmes, consultations and dialogue, incorporation of ideas and effective dissemination of all relevant information. All aspects of this stakeholder consultation and participation plan will be based on the principle of free prior and informed consent. In recognizing this, the consultation and participation plan is viewed as a vital component for the successful implementation of REDD+.

Activities to achieve Component 2:

1. All consultation and awareness sessions planned will be executed in collaboration with the Office of Climate Change and the GFC. The National Toshaos Council (NTC) will also liaise closely with the OCC and the GFC in conducting consultations/awareness sessions. Further, the NTC will be provided with technical guidance from both the OCC & GFC on the more technical aspects of REDD+ implementation, prior to their commencement of their series of REDD+ consultations;
2. The consultation and participation process will be built upon the principle of free, prior and informed consent; targeted consultations will be held with the relevant stakeholders including Amerindian communities and villages;
3. A Consultation & Outreach Plan will be developed from initial consultations conducted
4. All information materials will be developed in a user friendly format, so that relevant stakeholders, especially the Amerindian villages and communities will be able to fully understand its content and therefore make free, informed decisions on its contents
5. Materials will be sent to stakeholders at least 30 days before a given, scheduled consultation process is to be held
6. All aspects of the consultation and outreach program will be fully documented and analyzed to determine how stakeholder input will be used, what strategies should be put in place, and which ones should be amended.

7. NTC, NGOs and other partners will be engaged to disseminate information amongst stakeholders, so that they fully understand the opportunity and the responsibility of promoting the dialogue within the community, and that the consultations held will indeed represent the understanding and the will of stakeholders affected by REDD+.
8. Consultations will be conducted at the village and community, regional and national levels; Reports from consultations will be sent back to stakeholders in a timely manner and feedback will be sought on the content of the reports.
9. Consultations will be implemented in a timely manner, with the proper materials, and to achieve pre-determined objectives/products. Translators will be available during consultations with indigenous communities.
10. An appropriate feedback mechanism will be developed to allow for sufficient exchange of views, opinions and recommendations;

- **Methodology**

Consultations will be designed and conducted according to national and international standards. To achieve optimum participation, which would enable effective discussions and results, the consultation and outreach program will use the following methods: Workshops

- Interviews
- Formal and informal discussions
- Surveys
- Advisory groups
- Education outreach and school outreach programs.
- Training
- Community Planning Groups

- **Content of the Consultations**

Consultations during Readiness preparation may include the following, among other possible topics:

- Current status of the country's forest and forest policies
- Deforestation and forest degradation – main causes and effects
- REDD+ details & links to the LCDS, benefits sharing of incentives, impacts and risks, strategy etc.
- The link between community activities and practices and the effective achievement of planned objective
- Development & implementation of the MRVS
- Implications on the environment in which livelihoods are earned (Mining/logging/hinterland farming/ etc.) by the predicted impacts of climate change for Guyana
- Implications of reductions in emissions of forest carbon for forest dependent livelihoods
- Areas of training and mentoring available, from whom, where, when and at what cost, and in compliance with the instruments
- Development of REDD+ Demonstration Activities for MRVS
- Individual, community and national involvement in all of the above.

Target Audiences

Based on the stakeholder mapping the groups below will be targeted for the consultations. These will be updated as more in-depth stakeholder analysis exercises are conducted. Some of the targeted national stakeholder groups include:

- Government agencies
- Forest dependent communities
- Non government bodies
- Civil society organisations

c. Component 3: Co-benefits under the MRVS explored

The Roadmap of the MRVS details the exploration of non-carbon ecosystem services and the feasibility of these within the national MRVS. In this, the requirements of a monitoring system for carbon as well as non carbon variables will be assessed. Some of the other benefits which are foreseen are:

- Involvement and empowerment of local communities though building the capacities of local communities to become engaged in activities relating to the MRVS. While Guyana's approach to the MRVS is that of a national approach, its success lies with the involvement of local communities, the private sector and to some extent, local NGOs. This will allow for the local communities to engage more effectively in any emerging forest payment schemes such as REDD+. It is foreseen that communities will benefit from new training and employment opportunities and will support REDD+ benefit-sharing mechanisms that compensate them or provide incentives for maintaining their forests.
- Multiple benefits from monitoring of non-carbon services such as biodiversity, production of food and water, watershed protection, disaster prevention: preventing floods, soil erosion and landslides etc. Some of the foreseen benefits are for examples socio-economic in terms of improved livelihoods; and ecosystem services, such as protection of biodiversity and watersheds. The monitoring of these multiple benefits will make it possible for Guyana to adapt national REDD+ strategies in order to avoid harm and maximize multiple benefits.
- More coordinated and harmonized monitoring and enforcement by the local natural resources management agencies - through improved institutional capacity and strengthening, the natural resources management agencies can monitor not only changes in carbon, but non- carbon elements. Improvements in areas such as remote sensing, carbon stock assessment and governance have been highlighted.
- This project will allow for these non carbon benefits to be further explored and inform future initiatives in this area.

Social and environmental impact assessment which will likely include a Safeguard information System has been comprehensively addressed under the work that Guyana proposed to do under FCPF (R-PP, Component 2d -SESA). This will also be maintained and reflected in the final version of the R-PP that is currently being revised. It is expected that the outcomes of the GSF initiative will serve to inform the activities under the RPP. In the activity area under GSF that seeks to explore co-benefits under MRV, the main output of such assessment will inform a technical report that will fulfil the following aspects of Year 2 of the MRVS roadmap:

- Approaches for setting reference levels, linking MRV and policy, and MRV co-benefits and synergies are explored and defined
- Monitoring system explored to cover key variables for other ecosystem services
- Explore potential co-benefits and synergies of the carbon measurements with other monitoring needs
- Assess the requirements of monitoring carbon variables and relevant information for other ecosystem services
- Finalize exploration of REDD MRV and implementation including broader ecosystem services and environmental accounting procedures and make recommendations.

Activities to achieve Component 3:

The MRVS Roadmap details that exploration will be conducted into non carbon ecosystem services and the feasibility of incorporating these within the national MRVS. In doing so, the following activities will be conducted:

1. Identify non-carbon schemes pertinent to REDD implementation and assess the feasibility of incorporating these into the MRVS
2. Assessment of the requirements of a monitoring system for carbon as well as non carbon variables.

3. Develop a timeframe for the incorporation and long term monitoring of each variable and the key outcomes expected

d. Component 4: National REDD+ Strategy developed

The objective of Guyana's REDD+ strategy is to maintain the already low rate of deforestation and forest degradation in Guyana by implementing related policy, procedures and programmes as well as by robust monitoring and enforcement. These will be aimed at addressing the drivers of deforestation and sources of degradation and will be conducted in the context and in support of the national priorities for sustainable development. The strategy will undertake an approach that is participatory, inclusive and will integrate all levels of stakeholders, to ultimately promote sustainable development in Guyana. The development of the REDD+ Strategy will be informed by a number of studies, consultations, study tours, demonstration projects and community programmes, in areas such as sustainable forest management, reduced impact from mining and infrastructure. The strategy will encompass a range of programmes aimed at maintaining a low level of deforestation (compared to the reference scenario) while promoting local development and social inclusion.

The REDD+ strategy will address the causes of deforestation (existing and potential), as well as address fundamental conditions for success. The strategy will consider the opportunity costs of REDD+, including the potential foregoing of revenues from carbon-emitting activities (in conjunction with the definition of the reference scenario), the cost of replacing livelihoods and/or the development of alternative sources of income.

Funding from this project will be used for the exploration and development of suitable REDD+ Strategy options, in collaboration and consultation with key stakeholder groups such as Amerindian and other forest dependent communities.

Activities to achieve Component 4: The design and selection of REDD+ Candidate Activities will be developed to address the respective drivers of forest area change in Guyana, more specially, mining, logging, infrastructure, fire and agriculture as well as the need for building of capacities. As such, the following activities will be conducted:

1. Assess the feasibility of the potential REDD+ Strategy options through analysis of the environmental and socio-economic risks for the proposed options.
2. Conduct a trade- off analysis / cost-Benefit Analysis (CBA) of each REDD+ candidate activity
3. Identify means of modification of the potential REDD+ Strategy options to compensate affected institutions and various stakeholder groups.

Beneficiaries

The main beneficiaries of the project will be:

a) Government of Guyana & the GFC- these entities will benefit directly from the implementation of this project, as through the development of reference levels, REDD+ Strategies, components of the MRVS as well as the conducting of consultation and outreach activities on REDD+, will further strengthen the Government's technical capacities to implement REDD+ nationally, as well as have a stronger position internationally at fora such as at the UNFCCC negotiations.

b) Forest dependent villages and communities groups- these groups will benefit both directly and indirectly. In this, they will be able to receive training in REDD+ as well as have direct input into the development of the REDD+ Strategy. Indirectly, these groups will benefit from lessons learnt from the implementation of these projects, in the development and implementation of community level projects in this regard.

c) Natural Resources Agencies in Guyana-these agencies will benefit directly from this project, in that the results of assessment conducted will be shared with key natural resources agencies to assist them in planning and managing initiatives in the various sectors.

d) Local & international environmental NGOS working in Guyana- they will benefit indirectly from the project. These NGOs work in collaboration with the GFC and provide assistance in the REDD+ process. The results of this project will provide a strong support to future activities.

7. Project Management

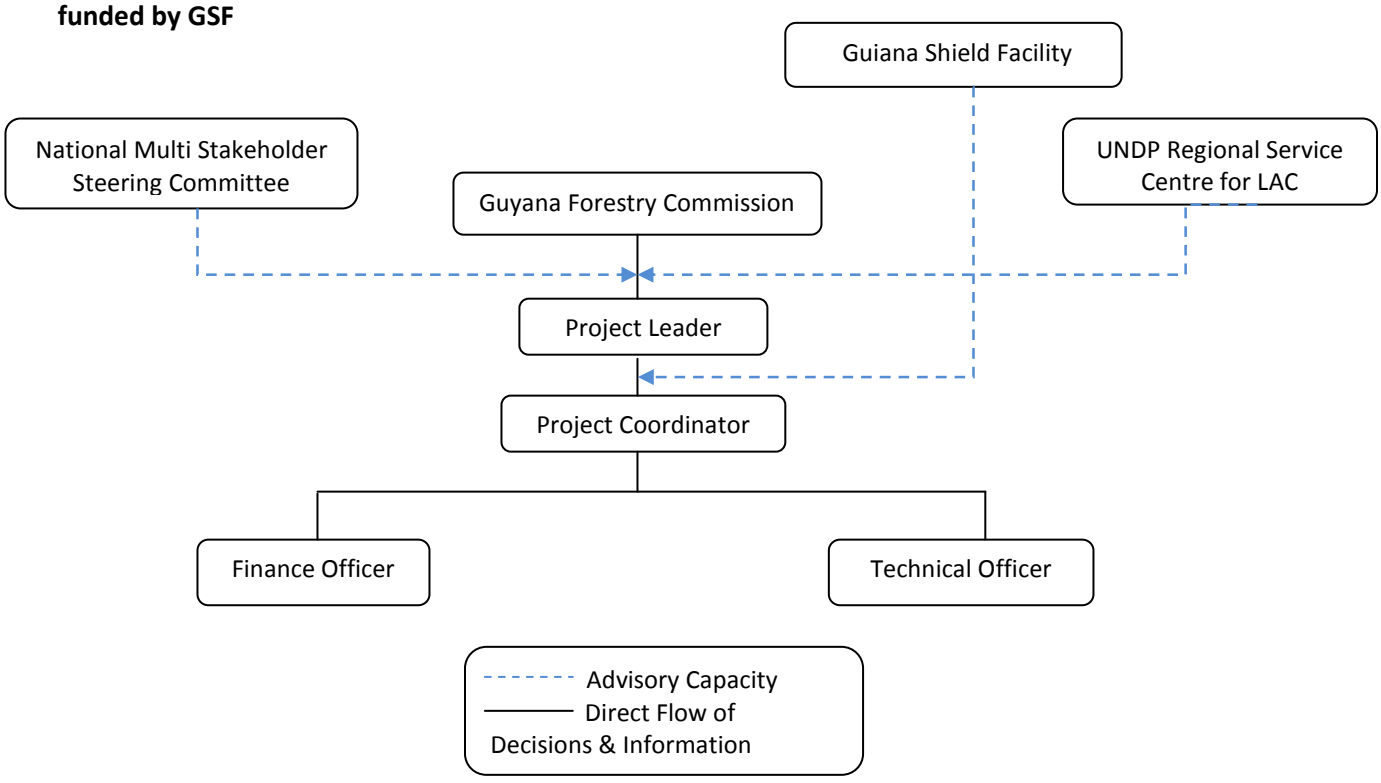
The Project Management Team will be as follows:

a) James Singh – Project Leader
b) Nasheta Dewnath – Project Coordinator
c) Loknauth Jagessar – Finance Personnel
d) Pradeepa Bholanath – Technical Officer

The GFC is the implementing agency for this project, with project activities executed through the REDD Secretariat (RS). As such the roles and functions of project leader, coordinator, finance personnel, etc., will be assigned to staff within the GFC & RS. These functions are part of the counterpart support being provided by the Government of Guyana and will be provided by already existing expertise and capabilities within the GFC & REDD Secretariat. This will allow for use of existing resources under the GFC & RS structures in the areas of project coordination and oversight and will also lend to an added advantage of institutionalizing lessons learnt from project activities. It will further support a smooth transition between project activities and continued and ongoing implementation of MRV related work.

The project will be implemented by the GFC, while being overseen by the National Multi Stakeholder Steering Committee (NMSSC) of the GSF. The NMSSC, which comprises representation of a number of key government and non-government bodies involved in the implementation of REDD+ in Guyana, will provide technical oversight for the project, including in the review of deliverables of the project. As such, implementation of this project will benefit from the inputs of all the relevant technical inputs from these members of the NMSSC.

Diagram below illustrating the Organizational Structure for the Implementation of the Project: Strengthening of Guyana's Technical Capacity to Implement MRVS & Other REDD+ Related Activities, funded by GSF



7.1 Description of Roles of Parties Involved

Regional Service Centre for LAC	It is envisaged that the Guyana Forestry Commission will benefit from technical advice from the Service Centre through the GSF Secretariat. This Centre is based in Panama and will support the UNDP Guyana and the GSF Secretariat in liaising with the other UNDP country offices within the eco-region. The RSC LAC will also provide technical support; facilitate inter-change of experiences and other knowledge management activities. The Centre will provide advice to the Guyana Forestry Commission upon request by the Commission to the Centre.
National Multi Stakeholder Steering Committee	Will provide technical oversight for the project, including in the review of deliverables of the project. As such, implementation of this project will benefit from the inputs of all the relevant technical inputs from these members of the NMSSC.
Guiana Shield Facility	Multi-donor fund. The facility contributions will be used to finance services, goods and works related to the implementation of activities proposed by Guyana under the GSF.
Guyana Forestry Commission	Executing agency for project. In this, the roles and functions of project leader, coordinator, finance personnel etc, will be assigned to staff within the GFC. These functions are part of the counterpart support being provided by the Government of Guyana and will be provided by already existing expertise and capabilities within the GFC & REDD Secretariat. This will allow for use of existing resources under the GFC & RS structures in the areas of project coordination and oversight and will also lend to an added advantage of institutionalizing lessons learnt from project activities. It will further support a smooth transition between project activities and continued and ongoing implementation of MRV related work.
Project Leader	Responsible for overseeing the implementation of the project in its entirety. Tasked with decision making authority. Overall responsibility for the successful planning and execution of a project.
Project Coordinator	Responsible for creating and managing the project schedule, managing the resource plan, tracking progress made on tasks, managing project issues and risks, communicating status, and managing the budget. Overall, responsible for tracking of time, costs, scope, and quality of the project.
Finance Officer	Responsible for financial oversight of project and its components. Will prepare financial reports and updates as required.
Technical Officer	Provide technical and administrative support to implementation of the project and its components.

8. Capacity Building & Collaboration

The implementation of this project will take on a multi-stakeholder approach, with it being overseen by the National Multi Stakeholder Steering Committee (NMSSC). This NMSSC comprises representation of the following agencies/ bodies:

- Office of Climate Change (OCC)
- Guyana Forestry Commission (GFC)
- Ministry of Amerindian Affairs (MoAA)
- Guyana Geology & Mines Commission (GGMC)
- Guyana Lands & Surveys Commission (GL&SC)
- Guyana Gold & Diamond Miners Association (GGDMA)
- GSF Donor Representative (EU)
- National Toshaos Council (NTC)
- University of Guyana (UG)
- Forest Products Association (FPA)
- Environmental Protection Agency (EPA)
- United Nations Development Program (UNDP)
- Guiana Shield Facility (GSF)

The NMSSC will be expected to be integrally involved in the implementation of the project, and to monitor and manage the progress made. The Committee is expected to review all deliverables from the various components to ensure that the scope aligns with the agreed requirements of project. The NMSSC will be further expected to provide advice on the means by which key stakeholder groups are kept informed of progress in the project. UNDP is part of National Multi Stakeholder Steering Committee, represented by the Resident Representative/ Deputy Resident Representative of UNDP and Dr. Patrick Chesney, Chief Technical Advisor, GSF. The Donor group will also be part of this Committee. The national MRVS Steering Committee acts in the capacity of the NMSSC of the GSF. As issues arise related to GSF, these are discussed at the level of the NMSSC. The Committee is chaired by the GFC, with the UNDP as co-chair. Overall, the NMSSC will allow for there to be close cohesion and coordination of activities implementation.

In Guyana, capacity building is seen as an integral aspect to the successful implementation of REDD+ and as such, is an ongoing process that is necessary to enable Guyana to properly sustain national level activities in the implementation of REDD+. Guyana will seek to learn from, and share experiences with other countries that are involved in this initiative and will work closely with local and international partners to facilitate the smooth and successful development, implementation and maintenance of the activities outlined above.

Guyana continues to actively pursue as well as promote efforts and opportunities towards building local capacity, targeting technical personnel that will be actively involved in the various aspects of REDD+ implementation, not only at the level of Government agencies, but also at the level of civil society groups and the private sector and committees such as the MRVS Steering Committee & NMSSC. It is intended that that within the implementation period, the basic capacities and institutional capabilities to implement the various technical components of REDD+ will be developed. More advanced capacity building will be a long term, a continued effort that is not expected to be completed within the next three years.

9. Products

The main products expected are:

- Interim & Final Reports on:
  - Development of National Reference Level
  - National Consultation & Outreach Activities on Development of the National MRVS
  - Exploration of Co-benefits under the MRVS
  - Development of a National REDD+ Strategy
- Consultation and outreach materials.

10. Sustainability

The sustainability of this project is important as it contributes to the development of an integral aspect of REDD+ in Guyana, the MRVS. The MRVS will in essence be the performance measurement tool for Guyana's involvement in REDD+ initiatives. Sustainability of the Project will be ensured by the following:

- Full support of the project by the GFC & the GoG, as the proposed activities are consistent with policies, plans and programmes that promote efforts to mitigate the effects of climate change ;
- Strengthening of the technical capacity of the GFC to manage all components related to REDD+ implementation, including key components of the national MRVS for REDD+. This will in turn help leverage longer term support for Guyana's LCDS and meet reporting requirements under bilateral and multilateral agreements;
- Empower communities by ensuring that sufficient awareness and capacity is built into communities targeted by the outreach/training activities;

The sustainability of this project is linked to capacity building activities as discussed in Section 8; capacity building is an ongoing process, targeting various levels of national stakeholders involved in the implementation of REDD+ and more specifically, the MRVS. Amerindian and other forest-dependent communities are key stakeholders in the process, as they have an important and direct role to play in ensuring the successful implementation of both of the REDD+ and the MRVS. It is foreseen that overall, their roles in REDD+ lay in participation in the design of alternative economic opportunities; providing local knowledge of the forest and its past uses; training in forest policy & field based technical work, data collection & monitoring; and information sharing and dissemination.

With the implementation of projects related to REDD+ and its related components, communities have direct and meaningful role to play. This is so not only in terms of them providing feedback through the consultation and outreach sessions, but also in playing an active role in the development and field testing of field methodologies as well as potential REDD+ Strategy options. As in the case of the Community MRV Project which is currently being implemented by the communities of the North Rupununi District Development Board (NRDDB) in collaboration with the Iwokrama International Centre, the Global Canopy Programme and the Guyana Forestry Commission, communities will have direct say in the development of the REDD+ Strategy options as proposed in this project.

11. Implementation Plan

PROGRAMME COMPONENTS	OUTPUTS	OUTCOMES	BASELINE	INDICATORS	MILESTONES / TARGETS	TIME FRAME (WKLY,MTHLY, QRTHLY)	PERSON(S) RESPONSIBLE
National Reference Levels Developed	○ Development of scenarios for which reference levels will be established for comparison; ○ Reference Level developed in keeping with Guyana's national circumstances as well as in conformance with UNFCCC guidance;	○ Establishment of a historic reference level ○ Development of a projected reference level ○ Three (3) specific scenarios established for reference levels for Guyana	Pending the determination of a UNFCCC reference level methodology – under the MoU between Guyana and Norway, it has been decided to use the "combined reference level" methodology to set a provisional reference level. This is based on an equal weighting of Guyana's mean 2000- 2009 deforestation rate and the mean 2005 – 2009 rate in developing countries with deforestation. The "combined reference level" methodology provides incentives for all categories of forest countries, and ensures that emissions from deforestation and forest degradation are reduced cumulatively at a global level.	○ Acquisition of relevant & appropriate satellite images; ○ Documented stakeholder feedback throughout the process ○ Number of reviews completed by independent Experts and local experts.	○ Various scenarios for reference level setting explored ○ Reference levels established for the scenarios explored	10 months	Project Management Team & Consultants
National Consultation & Outreach Activities on development of the National MRVS	○ Targeted stakeholder sessions held on REDD+ & the MRVS; ○ Educational materials such as brochures/handouts developed and distributed to targeted	○ Improved understanding of the concept of REDD+ and the MRVS, the roles that different stakeholders will play, as well as the benefits, risks and challenges that arise from	While a number of initial awareness sessions were conducted for REDD+, due to funding constraints, the GFC was not able to fully continue these activities. Hence, while communities are aware of REDD+ implementation, there needs to be a continuation of this process with emphasis placed on the	○ Reports from consultations documenting communities' inputs & feedback ○ Reports from Consultations available online for public access ○ Final Reports on consultation and	○ Incorporation of the needs and expectations of all relevant stakeholders into the National REDD + Framework & MRVS ○ Engagement of the Guyanese	14 months	Project Management Team & Consultants

	communities ○ Stakeholder feedback mechanism developed	the development and implementation of a REDD+ Strategy & the MRVS ; ○ Continued active involvement of stakeholders in REDD+ & MRVS process	MRVS.	outreach activities available online for public access	society in the REDD+ Dialogue and development of the national MRVS		
Co-benefits under the MRVS explored	○ Key relevant stakeholders engaged to inform framework for exploration of co-benefits Capacity building activities targeting key technical areas developed to monitor both carbon and non-carbon benefits	○ The GFC's capacity to measure and monitor the effects of deforestation and forest degradation with considerations for both carbon and non-carbon components of the forest is sustained through capacity building and development	To date, the emphasis on REDD+ has been on carbon. Year 2 of the MRVS Road Map, outlines for the exploration of the non carbon ecosystem services and the feasibility of incorporating these within the national MRVS.	○ Reports from workshops and other forms of stakeholder dialogue on co-benefits ○ Technical reports required for exploration of co-benefits ○ Evaluations on PES & other non-carbon benefits of the forest ○ Key relevant personnel and stakeholders trained	○ Non carbon ecosystem services and the feasibility of these within the national MRVS explored.	10 months	Project Management Team & Consultants
National REDD+ Strategy developed	○ Special studies, consultations, demonstration projects and community programmes conducted to develop a list of potential REDD+ candidate activities	○ A list of potential REDD+ Strategies that is reflective of thorough preliminary demonstration activities that are feasible for implementation in Guyana	The majority of Guyana's rainforest is suitable for timber extraction and post-harvest agriculture, and significant mineral deposits exist below its surface. While utilizing this resource would prove to be economically rational for Guyana, unsustainable use would have significant negative	○ List of potential, feasible REDD+ candidate activities ○ Number of specific special studies outlined & conducted ○ Documented stakeholder feedback ○ Reports on	○ Maintenance of rates of deforestation and degradation below the agreed threshold ○ Continued promotion of SFM, ○ Conversation and enhancement of	12 months	Project Management Team & Consultants

	○ Active involvement of key, relevant stakeholders in the development of REDD+ strategies		consequences for the world.	outcomes of demonstration activities	forest carbon stocks		

12. Budget

12.1 Overall Budget for Guyana's MRVS (All monetary units in the budget are expressed in USD.)

Main Activity	Sub-Activity	Estimated Cost (in US$)				
		Year 1	Year 2	Year 3	Year 4	Total
Establish data and information framework	Gather and integrate information & fill data gaps for national REDD + opportunities, scoping and policy development	450,000	200,000	200,000	100,000	950,000
Develop key capacities to execute MRV	Develop capacities, conduct historical monitoring, and implement a (minimum) IPCC Tier 2 national forest carbon monitoring, establish the reference level and report on interim performance	950,000	500,000	50000	30000	1,530,000
Execute MRV on routine basis	Monitor Other Benefits	50,000	50,000	40000		140,000
	Establish consistent and continuous MRV supporting national REDD + actions and international IPCC GPG-based reporting and verification		450,000	500,000	140,000	1,090,000
Total		1,450,000	1,200,000	790,000	270,000	3,710,000

The Table above outlines the total cost for the development and implementation of the MRVS. A number of sources of funding have been identified to conduct the activities outlined above, including through the Guyana REDD+ Investment Fund (GRIF).

12.2 Budget for Project Implementation

Outputs	Budget Line Items	Amount Requested (Donor)	Applicant Counterpart		Other Sources (i.e. donors, community)		Total Project Cost (USD)
			Cash (USD)	In-kind	Cash	In-kind	
National Reference Levels developed	Consultants	60,000					60,000
	Purchasing of Satellite imagery	55,000					55,000
	Travel & Field Work	15,000		6,000			21,000
	Consumables						
	Printing and Publication	8,500		2,000			10,500
	Office Supplies	7,300		2,000			9,300
	Raw Materials	4,200		2,500			6,700
	Sub-Total	**150,000**		**12,500**			**162,500**
National Consultation & Outreach Activities on development of the National MRVS	Preparation of Consultation & Outreach Material	15,000		7,000			22,000
	Consultants	50,000					50,000
	Dissemination of materials for consultations through various media	25,000					25,000
	Travel for Consultations (specify which regions)	30,000					30,000
	Consumables						
	Printing and Publication	15,000		3,500			18,500
	Office Supplies	3,000		1,000			4,000
	Raw Materials	2,000		1,000			3,000
	Sub-Total	140,000		12,500			152,500
Co-benefits under the MRVS explored	Consultants	50,000					50,000
	National workshops	2,500					2,500
	Travel	15,000		5,000			20,000
	Consumables						
	Printing and Publication	14,000		3,500			17,500
	Office Supplies	3,000		2,000			5,000
	Raw Materials	3,000		2,000			5,000
	Sub-Total	**87,500**		**12,500**			**100,000**
National REDD+ Strategy developed	Consultants	40,000					40,000
	Travel & Field Work	50,000		5,000			55,000
	National workshops	2,500					2,500
	Consumables						
	Printing and Publication	11,800		4,500			16,300
	Office Supplies	4,000		1,000			5,000

	Raw Materials	4,200		1,000			5,200
	Sub-Total	**112,500**		**11,500**			**124,000**
	Total	**490,000**		**49,000**			**539,000**

Budget Table Notes

Consultants - Owing to the technical nature of the activities proposed under the Components specialised services in the form consultants (local and international) will need to be procured. These services will include:

- Forest Biometrics;
- Carbon modelling;
- Natural Resources Management;
- GIS and Remote Sensing and Reference Level Setting;
- Forestry /Forest Management;

Further, in the execution of works related to REDD+, there would need to be a strong emphasis on quantitative analysis and modelling, forest carbon stock assessment as well as GIS/RS. Specific Terms of Reference will be developed for these posts by the GFC.

Purchasing of Satellite Imagery- the purchasing of satellite images will be used for multiple purposes, including:

- the establishment of a national reference level specific to Guyana's circumstances;
- support for forest area change assessment;
- exploration of mapping of ecosystem services, building on the outcomes of the GSI;

In the past, images were used from a number of providers including Landsat, Disaster Management Constellation (DMC) satellites, MODIS, SPOT as well as RADAR images.

The Guyana and Norway agreement outlines a framework that establishes the pathway of REDD+ implementation. Under this framework several forest-based interim measures have been agreed on for annual reporting whilst the MRVS is under development. The intention is that these interim measures will be phased out as the Monitoring Reporting and Verification System (MRVS) is established. The basis for comparison of the area-based interim measures is the 30 September 2009 benchmark map. The first reporting period (termed Year 1) is set from 1 October 2009 to 30 September 2010. The reporting is expected to be carried out until 2015. This annual reporting requires the acquisition of satellite imagery as well as the implementation of a comprehensive forest area change assessment on a yearly basis.

For historic assessment 1990- Sep 2009, as is recommended by IPCC and GOFC GOLD, medium resolution freely available imagery was utilized for the forest area assessment. This was necessary since the options of satellite imagery for Guyana, as may be the case for other countries as well, is quite limited as tasking a satellite for the provision of historic imagery is not an option. In the experience gained so far by Guyana in using medium resolution (30 m) satellite imagery, effective forest area change was enabled.

As forest area change assessment continues in upcoming periods following 2009, the GFC has been working with higher resolution imagery options such as RapidEye (5 m). As identified in MRVS roadmap for Guyana, refining and improving on forest area change is part of a continuous process, for example, for the recently completed assessment period, Oct 1 2010 - Dec 31, 2011, for close to 75% of land area in Guyana, RapidEye imagery was tasked and this was used to complement and support other imagery that were available as well as previous forest area change assessments with keen attention on achieving efficiency to prevent duplication of efforts.

Travel & Field Work- Travel and the related expenses are necessary to achieve the targets set under the respective components. Owing to the remoteness of some communities and unavailability of commercial travel it would be necessary to charter aircraft and boats to visit areas for "ground truthing" and consultations.

13. Annual Work Plan

Expected outputs *And baseline, indicators including annual targets*	Planned activities *List activity results and associated actions*	Timeframe / Quarters								Responsible Party	Planned budget		
		Q 1 June – Sept 2012	Q 2 Oct – Dec 2012	Q 3 Jan – Mar 2013	Q 4 Apr – Jun 2013	Q1 Jul – Sept 2013	Q2 Oct – Dec 2013	Q3 Jan – Mar 2014	Q4 Apr – May 2014		Funding Source	Budget Description	Amount
Component 1: National Reference Level developed **Baseline:** Pending the determination of a UNFCCC reference level methodology – under the MoU between Guyana and Norway, it has been decided to use the "combined reference level" methodology to set a provisional reference level. This is based on an equal weighting of Guyana's mean 2000- 2009 deforestation rate and the mean 2005 – 2009 rate in developing countries with deforestation. The "combined reference level" methodology provides incentives for all categories of forest countries, and ensures that emissions from deforestation and forest degradation are reduced cumulatively at a global level **Indicator:** ○ Acquisition of relevant & appropriate satellite images; ○ Documented stakeholder feedback throughout the process **Annual targets:** ○ Various scenarios for reference level setting explored ○ Reference levels explored for the scenarios identified	**Activity Result:** National Reference Level developed I. Assessment of data available on forest area, land cover change and carbon density and carbon stock. II. Development of historical trend reference scenario for looking at land cover change, forest carbon density and deforestation and forest degradation. III. Complete reference scenario modelling for: development plan, trends and macroeconomic trends forecasting following compilation of data on these areas. This will also include an analysis of bottlenecks/constraints to rational economic development in the key sectors (why large scale projects that may take place in the future did not take place in the past, and why do they become possible today, e.g. availability of financial resources, investors confidence, inaccessibility, soil fertility, technology progress, etc.). This will serve to make the projection-based scenario more robust) IV. Steps 1, 2 and 3 will include technical workshops and consultations through the Consultation and Participation plan (Component 1b) to ensure stakeholders feedback in the process									GFC	GSF	Consultants	60,000
												Purchasing of Satellite imagery	55,000
												Travel & Field Work	15,000
												Consumables	20,000

	V. Integration of MRVS data and results into Reference Scenario Modelling VI. Review by independent expert.												
	TOTAL COMPONENT 1												**150,000**
Component 2: National Consultation & Outreach Activities on development of the National MRVS **Baseline:** While a number of initial awareness sessions were conducted for REDD+, due to funding constraints, the GFC was not able to fully continue these activities. Hence, while communities are aware of REDD+ implementation, there needs to be a continuation of this process with emphasis placed on the MRVS. **Indicator:** o Reports from consultations documenting communities' inputs & feedback **Annual targets:** O Final Report on consultation and outreach activities available.	**Activity Result:** Conducting of National Consultation & Outreach Activities on development of the National MRVS I. Consultation and awareness sessions planned will be executed in collaboration with the Office of Climate Change and the GFC. The National Toshaos Council (NTC) will also liaise closely with the OCC and the GFC in conducting consultations/awareness sessions. Further, the NTC will be provided with technical guidance from both the OCC & GFC on the more technical aspects of REDD+ implementation, prior to their commencement of their series of REDD+ consultations; II. A Consultation & Outreach Plan will be developed from initial consultations conducted III. Consultations will be conducted at the village and community, regional and national levels; Reports from consultations will be sent back to stakeholders in a timely manner and feedback will be sought on the content of the reports.									GFC	GSF	Preparation of Consultation & Outreach Material	15,000
												Consultants	50,000
												Dissemination of materials for consultations through various media	25,000
												Travel & Field Work	30,000
												Consumables	20,000
	TOTAL COMPONENT 2												**140,000**
Component 3: Co-benefits under the MRVS explored **Baseline:** To date, the emphasis on REDD+ has been on carbon. Year 2 of the MRVS Road Map, outlines for the exploration of the non carbon ecosystem services and the feasibility of incorporating these within the national MRVS.	**Activity Result:** Exploration of Co-benefits under the MRVS I. Identify non-carbon schemes pertinent to REDD implementation and assess the feasibility of incorporating these into the MRVS II. Assessment of the requirements of a monitoring system for carbon as well									GFC	GSF	Consultants	50,000
												National workshops	2,500
												Travel	15,000
												Consumables	20,000

Indicator: ○ Technical reports required for exploration of co-benefits **Annual targets:** ○ Non carbon ecosystem services and the feasibility of these within the national MRVS explored.	as non carbon variables. III. Develop a timeframe for the incorporation and long term monitoring of each variable and the key outcomes expected												
	TOTAL COMPONENT 3												**87,500**
Component 4: National REDD+ Strategy developed **Baseline:** The objective of Guyana's REDD+ strategy is to maintain the already low rate of deforestation and forest degradation in Guyana by implementing related policy, procedures and programmes as well as by robust monitoring and enforcement. These will be aimed at addressing the drivers of deforestation and sources of degradation and will be conducted in the context and in support of the national priorities for sustainable development. **Indicator:** ○ List of potential, feasible REDD+ candidate activities **Annual targets:** ○ Maintenance of rates of deforestation and degradation below the agreed threshold ○ Continued promotion of SFM	**Activity Result:** Development of a National REDD+ Strategy I. Assess the feasibility of the potential REDD+ Strategy options through analysis of the environmental and socio-economic risks for the proposed options. II. Conduct Analysis of each REDD+ candidate activity									GFC	GSF	Consultants	40,000
												Purchasing of Satellite imagery	50,000
												Travel & Field Work	2,500
												Consumables	20,000
	TOTAL COMPONENT 4												**112,500**
GRAND TOTAL													**490,000**

13.1 Disbursement Schedule and Proposed Type of Transfer

The proposed disbursement mechanism for this project is by direct transfer in accordance with the Disbursement Schedule as outlined below:

Deliverables	Planned Start and Completion Date	Timeline for Disbursement	Disbursement Amount Requested by this Timeline US$
National Reference Level Developed	October 2012 – March 2013	September 1, 2012	US$150,000
National Consultation and Outreach Activities on Development of the National MRV System	June 2012 to May 2014	June 15, 2012	US$140,000
Co benefits under the MRVS Explored	April 2013 – December 2013	February 1, 2013	US$87,500
National REDD+ Strategy Developed	July 2013 – March 2012	June 1, 2013	US$112,500

14. Monitoring & Evaluation Framework

The monitoring of this project will be carried out by the GFC Project Team. Quarterly progress reports will be prepared and presented to the GSF secretariat and the National Steering Committee to support monitoring responsibilities. As execution agency the GFC will have the technical and fiduciary responsibility for this project. The activities as described above will be overseen by the Project Management Team, with the Project Coordinator being responsible for project coordination and administration. The activities at community level will be supported by the GFC regional offices, through which the GFC is represented in all ten regions of the country, as well as through the GFC's mobile units.

The execution agency will prepare: (i) an initial work plan with a detailed schedule of activities; (ii) quarterly progress reports, detailing the activities completed compared to targets, challenges, lessons learnt, capacity development activities undertaken, and demonstrate how gender concerns have been integrated into project, and a plan of activities for the next quarter; and (iii) a final narrative and financial report.

Stakeholders will be able to make inputs into the project at the level of the National Multi Stakeholder Steering Committee. All results and outputs of the project will be made available to stakeholders though implementation (in the case of stakeholders which are beneficiaries, such as communities in the training exercises), and at the end of the project as appropriate.

15. Intellectual Property Rights

In accordance with the Operational Guidelines of the GSF, matters concerning research, data, as well as results from conducted and associated research and intellectual property rights and other related matters, will be specified in the work plans, and respect national laws and regulations governing such work.

Annex

Table 1: Capacity gap assessment for international requirements (following IPCC GPG for LULUCF)

Focus	Analysis of Existing observations and data records (i.e. satellite data, aerial photos, surveys) and information (estimates, rates, factors etc.)	Proposed activities to fill data and capacity gaps for measurement and monitoring
Deforestation	○ No consistent historical record of forest area changes ○ Preliminary assessment for 2007/08 using Landsat data ○ Some data of activities (processes) with governmental agencies - Data on areas affected (concessions, leases) need to be integrated on national level	○ Implement a comprehensive forest area change assessment based on archived satellite data and using existing national datasets ○ Develop sustained capacities to conduct regular and consistent forest area change monitoring using remote sensing and GIS
Reforestation	○ No consistent historical record of forest area changes ○ Reforestation not a major issue in Guyana	See above with emphasis to detect forest regrowth (note: not a significant process currently in Guyana)
Land use change (aboveground)	○ No consistent national forest inventory ○ No data on actual carbon stocks, emission factors - current use of IPCC default data for carbon stocks and conversions ○ Suitable national forest stratification for forest carbon densities? ○ Some initial biomass monitoring permanent sample plots have been established recently	○ Establish capacities and implement a systematic national forest carbon measurement and monitoring system, i.e. through permanent sample plots, including: - A suitable national carbon density stratification - Acquisition of key measurements in situ - Allometric data (for biomass conversion and expansion factors) - Carbon fraction values considering country-specific stratification ○ Sub-national measurement programme to monitor key activities
Forest Degradation & increases in C-stocks (aboveground)	○ No consistent national forest inventory and information and forest degradation ○ Logging concession areas and harvest estimates ○ No data on actual carbon stocks and emission factors ○ Some initial permanent sample plots have been established recently	○ Suitable carbon conversion procedures for existing data ○ Sub-national measurement program to monitor key REDD activities ○ Long-term measurement efforts to quantify emission factors and net-carbon

			changes for different degradation processes ○ Regular monitoring of activities causing forest degradation
	Other pools (i.e. soils)	○ Soil carbon may be key category (1/3 of current estimates of terrestrial carbon pool) ○ Impacts from deforestation and forest degradation unknown ○ No consistent national data?	○ Identification of national carbon stock key categories ○ Include all pools initially in fieldwork to understand key categories
Biomass burning	Emissions of several GHG	○ No consistent national data on areas effected and carbon impact	○ Understanding of natural fire regime and expected changes with climate change ○ Include satellite observations of fire and in forest area change associated will fieldwork
Spatial data infrastructure	Drivers & factors of forest changes, Centralized database	○ National coverage of GIS data is available for number of baseline datasets: - SRTM 90 m DEM - Landsat 2006 – 2009 – national coverage - PALSAR 2009 (hotspots coverage) - CBERS 2009 (hotspot coverage) ○ Consistent national database and transparent data exchange for integrating relevant data is not in place	○ Establish national mechanism to gather relevant data on national level ○ Build a spatial data infrastructure integrating all IPCC relevant data for reporting

Table 2: Capacity gap assessment for national needs (forest change processes)

Processes that effect forest carbon stocks	Who is responsible for the execution of the activity?	Effects on the forest (carbon effect per ha): sink or source	How important is the process nationally (area affected)?	Importance (carbon impact)	Current responsibilities & data/monitoring activities and capacities	Suggested activity to fill data gap in the near term
Forest land conversion for agriculture (Livestock, crops, and aquaculture	Investors	Source - Large	Large	Very high	GL&SC GFC – in the case of the quick assessment report Some data on area change and non on carbon emissions	1. Gather/integrate existing data on the national level 2. Remote sensing based, area / land use change assessment 3. In situ carbon stock measurements & conversion of inventory data
Forest land conversion for mining	Local miners and companies	Source – large, low to medium if rehabilitation to improve carbon stock in the future	Large	High	GGMC GFC - in the case of the quick assessment report Some data on area change and non on carbon emissions	1. Gather/integrate existing data on the national level 2. Remote sensing based area / land use change assessment 3. In situ carbon stock measurements & conversion of inventory data
Logging activities	Holders of Forest Leases	Source – medium to low (depending on level of sustainability and long term regeneration)	Large	High	GFC-concessions Some data on area affected and harvest estimates (non on carbon emissions and long term effects)	1. Gather data on national level and evaluate data with remote sensing assessment 2. Conversion of existing harvest estimates into carbon 3. Additional field measurements 4. Study long-term effects
Forest land conversion for roads	Government agencies Forest Lease holders Miners Developers	Source - large	Large	Very high	Ministry of Public Works GFC EPA Some data on area change and non on carbon emissions	1. Gather/integrate existing data on the national level 2. Remote sensing based area / land use change assessment 3. In situ carbon stock measurements & conversion of inventory data
Forest land conversion for urban development (housing)	Government agencies Forest Lease holders Miners Developers	Source - large	Medium	High	Ministry of Housing Forest Lease Holders Mine Lease Holders And Developers Some data on area change and non on carbon emissions	1. Gather/integrate existing data on the national level 2. Remote sensing based area / land use change assessment 3. In situ carbon stock measurements & conversion of inventory data

Forest land conversion for energy development	Investors Multilateral institutions Government agencies	Source - large	Medium	High	GEA Office of PM EPA Some data on area change and non on carbon emissions	1. Gather/integrate existing data on the national level 2. Remote sensing based area / land use change assessment 3. In situ carbon stock measurements & conversion of inventory data
Fires (agricultural fires and accidental burning of forest)	Local communities Villages Farmers Hunters	Source - medium	Small	Medium	GFC Local communities Villages Limited data on area affected and non on carbon emissions	1. Gather data on national level and evaluate data with remote sensing assessment 2. Targeted ground surveys to assess carbon impact
Issue of subsistence farming (incl. Fire)	Local communities Villages	Source - zero to medium (depending on fate of land, maybe carbon neutral in the long term	Small	Low	Local communities Villages Community based NGOs No data on area change and non on carbon impact	1. Engage communities/NGO in monitoring 2. Gather data on national level and evaluate data with remote sensing assessment 3. Targeted ground surveys to assess carbon impact
Forest Protection	NGOs GFC EPA Local communities Villages Large concessionaires	Overall carbon Neutral but large if counted as avoided source	Large	High	EPA NGOs(National and International) GFC National Parks Commission Ministry of Amerindian Affairs Some data on area change and limited on carbon stocks	1. Gather data on national level 2. In situ carbon stock measurements & conversion of inventory data
Forest land conversion for local agricultural economies in transition	Local communities Villages	Source - large	Small	Medium	Ministry of Agriculture Ministry of Finance through GOINVEST Limited data on area change and non on carbon emissions	**1.** Gather/integrate existing data on the national level **2.** Remote sensing based area / land use change assessment **3.** In situ carbon stock measurements & conversion of inventory data
Mangrove improvement for sea defence purposes	GFC Sea Defence Department EPA	Sink - medium	Small	Low	Sea Defence GFC EPA Some data on area change and non on carbon sequestration	1. Gather data on national level and evaluate data with remote sensing assessment 2. Targeted ground surveys and in situ for carbon sequestration

Table 3: MRV road map – objectives and expected key results for different phase

	National strategy (2010/11) ➔	Country readiness (2011/12) ➔	Implementation (post 2012)➔
Objectives	**Gather and integrate information & fill data gaps for national REDD opportunities, scoping and policy development**	**Develop capacities, conduct historical monitoring, and implement a (minimum) IPCC Tier 2 national forest carbon monitoring, establish the reference level and report on interim performance**	**Establish consistent and continuous MRV supporting national REDD+ actions and international IPCC GPG-based reporting and verification**
Key results and national capacities developed	1. Comprehensive MRV roadmap developed and national MRV steering body operational 2. Improved national capacities on LCDS, REDD, IPCC-LULUCF, and carbon dynamics 3. Framework and capacities to demonstrate REDD implementation and interim performance 4. All data available and accessible (including acquisition of new forest carbon data) on drivers and processes needed for developing a national REDD policy and interim implementation plan 5. Established communication and participation mechanism to involve relevant stakeholders nationally and internationally 6. Approaches for setting reference levels, linking MRV and policy, and MRV co-benefits and synergies are explored and defined	1. Capacities in place for consistent and continuous acquisition and analysis of key data for Tier 2 nationally and Tier 3 for demonstration/activity sites including international reporting using IPCC LULUCF; uncertainty assessment MRV improvement plan developed 2. Reference level established based on historical data, and future developments using internationally accepted methods 3. All data available and accessible for an updated national REDD implementation plan 4. Regular reporting on REDD demonstrations and interim performance 5. Continued engagement with key national stakeholders for REDD implementation and assuring long-term sustainability of MRV capacities (i.e. universities) 6. Monitoring system explored to cover key variables for other ecosystem services	1. IPCC key category analysis and assessment for Tier 3 approaches completed and implemented (if desired) 2. Independent international review of full MRV system completed 3. Capacity in place and implementation to deliver verification and compliance assessment for REDD results-based compensation 4. National data infrastructure of forest greenhouse gas inventory and assessment in place for regular reporting 5. Implementation plan to use new and proven technologies to reduce uncertainties and increase efficiency of MRV system 6. Framework developed that links REDD into LCDS monitoring, reporting and verification system

Table 4: MRV road map – specification of activities for gap filling

	National strategy ➔	Country readiness ➔	Implementation ➔
Objectives	**Gather and integrate information & fill data gaps for national REDD opportunities scoping and policy development**	**Develop capacities, conduct historical monitoring, and implement a (minimum) IPCC Tier 2 national forest carbon monitoring, establish the reference level and report on interim performance**	**Establish consistent and continuous MRV supporting national REDD+ actions and international IPCC GPG-based reporting and verification**
Data gap filling	• Gather, evaluate and integrate existing data sources on the national level • Acquire additional data (if needed) to analyze (the carbon impact) of all relevant historical forest change processes and drivers (i.e. using satellite data, initial carbon stock assessments and ancillary information) • Assessment of historical and current processes of forest carbon change for formulating national REDD policy strategy and related MRV priorities, and respond to an initial set of interim performance indicators	• Establish mechanisms and partnerships with relevant data sources (i.e. satellite data) to facilitate availability to Guyana in a consistent and continuous way • Data gathering and analysis of drivers and factors of forest carbon change to support an assessment of future driver activities and related/projected forest carbon changes • Collect data for a first comprehensive uncertainty assessment of the different measurement and monitoring components	• Conduct an IPCC key category analysis • Assess opportunities and data gaps to move towards Tier 3 on the national or sub-national (if desired) • Foster and support REDD activity-based monitoring by different actors as part of national framework
Eligibility gap filling	• Develop a national REDD strategy • Involvement of all relevant stakeholders at the national and sub-national level – set up a sustained two-way communication mechanism • Participation in international REDD and REDD readiness processes • Scope a framework for immediate demonstration actions and interim performance indicators that will respond to an international REDD mechanism	• Continued involvement of all relevant stakeholders at the national and sub-national level • Provide an assessment of carbon emissions (and removals) as historical reference level and expectations/forecasting future development • Develop a national implementation plan and related policies to encourage REDD actions by relevant stakeholders • Implement and evaluate REDD implementation activities, and report performance for interim indicators	• Implement an international review of the MRV system • Prepare regular interactions and reporting on REDD implementation activities and on the IPCC LULUCF inventory • Verification and compliance assessment comparing performance against the reference level
Capacity and institutional gap filling	• Complete an comprehensive assessment of existing data and capacities considering international and national MRV requirements • Set up a national MRV coordination mechanism to steer the capacity development and assign roles and responsibilities • Develop capacities to monitor given a set of interim	• Build sustained capacities to conduct regular and consistent forest and forest area change monitoring using remote sensing and GIS • Establish capacities and implement a systematic national forest carbon measurement and monitoring system, i.e. through permanent sample plots. • Scope and evaluate a sub-national, activity-based	• Continuous training and improvement for institutions and activities providing data and analysis for the REDD MRV system, • Build a national spatial data infrastructure for IPCC LULUCF reporting and REDD implementation • Develop additional monitoring capacities (if

	performance indicators • Engage in general capacity building on REDD, IPCC-LULUCF, terrestrial carbon dynamics and key standard methods • Interaction with local actors and key implementation bodies on their role for MRV	measurement program, to monitor key REDD implementation actions • Training and implementation of reporting (IPCC LULUCF) including an institutional framework • Develop and implement an uncertainty assessment and a long-term improvement plan for the MRV system • Scope the involvement of national/regional higher-education institutions	needed, to go for Tier 3) • Build a system for verifying REDD actions on the national level using MRV data and other information, link MRV of transactions • Develop and implement an uncertainty assessment and a long-term improvement plan for the MRV system • Implement capacities in higher-education institutions on REDD MRV for university curricula
Methodo-logical gap filling	• Interaction and partnership with national and international research organizations on key issues • Exploration of methods and approaches for establishing reference levels • Evaluate concepts for linking MRV, REDD policy and implementations • Explore potential co-benefits and synergies of the carbon measurements with other monitoring needs	• Interaction and partnership with national and international research organizations on key issues • Develop frameworks for interlinked implementing REDD policies and MRV and linking MRV of actions and MRV of transactions • Exploration of evolving technologies for REDD MRV • Assess the requirements of monitoring carbon variables and relevant information for other ecosystem services	• Foster activities to reduce uncertainties and increase efficiency of MRV system • Implement evolving technologies into regular REDD MRV activities • Finalize exploration of REDD MRV and implementation including broader ecosystem services and environmental accounting procedures and make recommendations.

Guyana's Monitoring Reporting & Verification System

Development of a Roadmap for the Development of Guyana's MRVS

The MRVS Roadmap was developed locally through a participatory process involving the inputs from a number of local and international experts. This was achieved through two major workshops as follows:

- **Methodological and Organization Design of a Future REDD+ MRV System in Guyana, September 14-15, 2009**: During this workshop, a group of thirty-one Guyanese and international forestry, climate change, and spatial and remote sensing data experts from the Government of Norway's Climate and Forest Initiative, United Nations Development Programme and Food and Agriculture Organization, William J. Clinton Foundation, United States Forest Service and (former) Canadian Forest Service, World Resources Institute, ESRI and Winrock International, joined individuals from the Guyana Forestry Commission and Guyana Lands and Surveys Commission to offer their advice to the Government of Guyana.

- **Preparing Guyana's REDD+ participation: Developing capacities for monitoring, reporting and verification, October 27-29, 2009:** this workshop involved the inputs of the local stakeholders and experts from both government and non-government organisations, and involved a series of consultations with relevant agencies were in efforts to prepare Guyana's participation in REDD+ mechanisms. Key technical expert, Dr. Martin Herold of the GOFC GOLD Office facilitated the workshop.

The inputs from these workshops lead to the development of the MRVS Roadmap, which forms the national framework for the MRVS. This Roadmap outlines progressive steps over a 3 year period that will build towards a full MRVS being implemented. The overall aim of the MRVS is to establish a comprehensive, national system to monitor, report and verify forest carbon emissions resulting from deforestation and forest degradation in Guyana. Following the development of the MRV Roadmap and progress made to date, the GFC has undertaken the lead role in the further development of the MRV as well as implementation. This level of national ownership allows for local stakeholders to be involved in the MRV and therefore ensures the sustainability of the MRV initiative. The GFC has built local capacity in MRVS Roadmap implementation and continues to do so.

Objectives of Guyana's MRVS

The development of the road map considered several aspects that have been elaborated in the facilitation process and for preparing Terms of Reference for developing an REDD MRV system:

b) Requirements for the MRV system:

- The accepted principles and procedures of estimation and reporting of carbon emissions and removals at the national level should meet criteria specified by the IPCC Good Practice Guidelines and Guidance for reporting on the international level;
- The particulars of the national REDD-plus implementation strategy that have been selected, since different activities have different MRV implications;

c) Bridging the capacity gap through a detailed plan to establish sustained MRV capacities within the country:

- Capacity gap assessment based on the state of the existing national forest monitoring technical capabilities and the requirements for the MRV system;
- Develop a road map and foster its implementation through a sustained and efficient institutional framework including competence in measuring and monitoring at different levels, support of national policies and REDD+ actions, international reporting and verification, and linking MRV of actions and MRV of transactions.

The outcomes of the initiative, as outlined in the MRV capacity development roadmap, are as follows:

- The overall goal is a capacity development process to establish a sustained MRV for implementing REDD policies and results-based compensation for such activities in the long-term

as a contribution to Guyana's low carbon development pathway and support for the sustainable development of natural resources;
- The development of a national REDD+ MRV system uses a phased approach along a roadmap that specifies near-term priorities & long-term targets; builds upon existing capacities and data; and international requirements and national needs; and has the objective to support annual estimation; reporting and verification of forest-related carbon emissions and removals at the national level,
- The MRV system evolution is directly linked with REDD+ policy development and implementation and contains a systematic national monitoring, reporting and verification system and a sub-national program to support MRV for local REDD+ activities;
- A strong institutional base and the establishment and maintenance of partnership and cooperation at all levels as enabling framework.

Seven specific areas were identified where activities are recommended for the first phase and should start as soon as possible:
- Develop and implement a national mechanism and institutional framework
- Implement a comprehensive forest area change assessment for historical periods
- Build carbon stock measurement and monitoring capacities
- Develop MRV for a set of sub-national REDD demonstration activities
- Engagement with the international community
- Sustain an internal and national communication mechanisms
- Conduct and support research on key issues

Capacity Gap Assessment

The evaluation of Guyana's capacities and REDD specific characteristics provide the basis to specify the recommendations and next steps for developing capacities for the implementation of an MRVS for Guyana. Starting with an assessment of current capacities, additional information on country-specific characteristics and requirements for REDD were analyzed and discussed. The capacity gap assessment was performed for both international requirements (IPCC GPG, Table 1, Annex 1)) and national needs (through an assessment of current forest change processes, Table 2, Annex 2). A synthesis of the capacity gap assessment, the national MRV development principles defined seven key action areas as immediate activities for starting the capacity development process for Guyana:

1. Develop and implement a national mechanism and institutional framework:
   - Steering body for the MRV system development (Office of Climate Change in the Office of the President, as coordinator of activities)
   - Coordination and integration of national datasets through a high-level national technical committee accompanied by a related legislative reform and development of a national data management system and infrastructure
   - Participation, scientific advice and international partnering, i.e. through the establishment of a technical and scientific advisory group
2. Conduct a comprehensive forest area change assessment for a historical period:
   - Processing and interpretation of historical archived satellite datasets at national level for forest area change, benchmark forest map and exploration of the monitoring of forest degradation
   - Capacity building component included from the beginning
3. Build carbon stock measurement capacities:
   - Design a national and sub-national stratification
   - Design protocols and implement measurements in all carbon pools
   - Targeted sampling and surveys to establish national conversions/expansion factors
4. Develop MRV for a set of REDD-plus demonstration activities

- Focus on key drivers/processes and engagement with implementation actors (i.e. land owners, communities)
- Conduct detailed monitoring at demonstration sites

5. Engagement with international community:
   - Explore the possibility of the GEO Task to help in satellite data acquisition from 2009 onwards
   - Partner with international organizations and research partners
   - Seek further advise/coordination with international activities
6. Sustained internal communication mechanism on MRV:
   - Development communication plan and outreach materials
   - Conduct a series of regional workshops and consultation to inform about REDD and MRV
7. Conduct/support research on key issues
   - Scoping exercise for linking policy and MRV (actions, transactions)
   - Detailed national driver assessment and methods for reference level projection
   - Co-benefits of MRV (i.e. to support LCDS) and tools for decision-support in the context of integrated natural resources management

The execution of the work will be centralized at the Guyana Forestry Commission and this agency will be the focal agency for coordinating all aspects of data collection, analysis, research execution and assessments and for routine continuous monitoring of the system. This agency will work with all consultants, data providers and suppliers, and stakeholders of the MRVS.

Road Map for MRV System Development

The development of a road map for the establishment of a system for measurement, reporting, and verification (MRV) as an initial investment to participate in any REDD mechanism requires the consideration of a number of necessary steps and different types of gaps to be addressed in different phases. The road map lists expected outcomes and capacity improvements for these different phases (Table 3, Annex 3), as well as, a set of specific activities to fill four different types of gaps (Table 4, Annex 3).

Most importantly, REDD policy should drive MRV activities and vice versa, and this interaction needs to be established from the beginning. One of the fundamental questions initially is whether sufficient data are existing for the country to explore REDD opportunities and formulate a national REDD policy strategy and scope, and demonstrate implementation activities. This issue is targeted in the first phase and should be tackled right away, also considering opportunities for early REDD+ implementation and demonstrations. The seven priority action areas from the workshop discussions provided in the previous section will be used as baseline to specify efforts for the first phase.

Activities include the establishment of missing institutional arrangements and filling some existing gaps to first derive initial datasets (data gap filling). The results should provide a thorough understanding on the activities of drivers and processes and their forest carbon impact, and how policies can be defined and implemented to affect them. In this phase, Guyana will also be aiming to build basic capacities to report on a set of interim performance indicators that will respond to an international REDD mechanism, focused on area based changes.

The co-evolution of the MRV system and the national policy mechanisms to support the positive impact of REDD+ actions continues in the readiness phase where the development of technical capacities, institutional arrangements and policies will result in the establishment of the reference level. This process will help provide the foundations for the eligibility to participate in REDD results-based crediting mechanisms. In both the readiness and the implementation phase the large emphasis on measurements and monitoring will be extended to reporting and verification, i.e. through the establishment capacities to apply the IPCC GPG for international reporting.

The implementation process may also include an effort to fill a methodological gap. Initial measurement and monitoring activities will use readily available (historical) data and methods that may be limited in achieving, for example, accuracy and completeness in national forest carbon monitoring and the GHG inventory. Furthermore, a consolidated national REDD implementation strategy and an analysis of IPCC key categories will result in a prioritization of what needs to monitored, reported and verified in the long-term with the main objective being to contribute to efforts in the key areas and processes designated with respect to REDD implementation actions.

The current road map is associated with a timeline of 2010/11 for phase 1, 2011/12 for phase 2 and post 2012/13 for the implementation phase. This timing reflects the current planning and maybe accelerated if desired, i.e. the need to move towards a full Tier 3 system for participating in new REDD compensation instruments.

Assessing Drivers of Deforestation

In Guyana, as part of its Readiness Preparation Proposal to the World Bank's Forest Carbon Partnership Facility, initial, national level quick assessments were done on the drivers of deforestation and forest degradation: a qualitative assessment based on national sectoral analysis, and a quantitative assessment based on GIS and Remote Sensing Data.

The current understanding of processes affecting forest carbon is not adequate for defining and implementing REDD+ actions. An assessment needs to be conducted, using these initial assessments, on the drivers of deforestation and forest degradation and will include the following key areas:

- Assessing drivers of deforestation
- Identifying causes of forest degradation
- Identifying the likely impacts on carbon stocks from both deforestation and forest degradation
- Assessing areas of forest subject to logging
- Quantifying degradation of carbon stocks by forest fire

Monitoring Forests and Forest Area Change

Activity Data - Approaches

One of the initial activities involves the assessment of forest area change. IPCC GPG suggested Approach 2 for reporting activity data involves tracking of land conversions between categories. Both approaches 1 and 2 provide "net" area changes. Approach 3 extends Approach 2 by using spatially explicit land conversion information; thus allowing for an estimation of both "gross" and "net" changes. Thus, Approach 3 allows the spatial tracking of land change trajectories is the suggested practical approach for REDD implementation.[2] The MRVS is expected to adopt an Approach 3 method, in assessing activity data.

Initial work on emission factors will commence in the first phase of the initiative. This will begin by utilizing existing and newly collected data on carbon stocks, and will be informed by processes of destructive sampling and targeted sampling. The emission factors are derived from assessments of the changes in carbon stocks in the various carbon pools of a forest. Carbon stock information can be obtained at different Tier levels: Tier 1 uses IPCC default values (i.e. biomass in different forest biomes, carbon fraction etc.); Tier 2 requires some country-specific carbon data (i.e. from field inventories, permanent plots), and Tier 3 national inventory-type data of carbon stocks in different pools and assessment of any change in pools through repeated measurements or modelling. Moving from Tier 1 to Tier 3 increases the accuracy and precision of the estimates, but also increases the complexity and the costs of monitoring. The MRVS for Guyana will commence with a Tier 2 approach for the readiness phase with accuracy and precision assessments conducted, and cost of monitoring tabulated. Capacities will be built progressively in the system for movement to a Tier 3 approach.

Monitoring Forest Carbon Stocks

Field Data

As outlined in the Roadmap, the activities that will be undertaken in the initial stage will include the design and implementation of a national carbon measurement system. This will involve the designing of national and sub-national stratification, the development of sample design and the conducting of required statistical analyses and the development of protocols for measurement of all carbon pools. Initial work has commenced in designing field inventories.

The GFC and the REDD Secretariat established to lead technical unit on REDD activities; have been trained in the establishment of plots and in destructive sampling for soil, necromass (both above-and below-ground) and to a lesser extent roots and bole destructive sampling. The GFC currently houses a basic set of equipment for this purpose, including an oven, scales, and other such equipment. Pilot activities has started in the setting up of a network of permanent plots, covering all forest types in Guyana including high forest, scrub forest, savannah margins and woodland mosaics, montane forests. Associated with this monitoring system will be data collection to establish coefficients and allometric

[2] GOFC-GOLD Sourcebook, p. 12

functions for the major biomass pools: Tree boles, crowns and roots, lianas and epiphytes, understorey shrubs and herbaceous plants, standing and fallen deadwood, litter and soil carbon.

Stratification

There is a requirement for stratification to be done by forest type. Carbon stocks in various geographic locations will be measured and the degree of disturbances will be assessed. A detailed forest type map exists (referred to as Vegetation Map and to be linked with the benchmark forest map) in Guyana and can be reviewed for accuracy and precision. A grouped/simplified map has also been generated and may be considered as well. Following assessment of these existing sources, the land cover maps can be improved to reflect acceptable levels of accuracy and precision. Using available information, and informed by field data, a national carbon stocks map will be created. Guyana is seeking several types of stratification that reflect carbon densities of forests, specific areas of sub-national REDD implementation, and areas of rapid change. The stratifications should help to include both a systematic national monitoring and a sub-national measurement plan with areas of most change and REDD implementation activities.

Estimation of Carbon Stocks of Forest Undergoing Change

Carbon measurements pools will be defined: this will include an assessment of above ground tree biomass, below ground tree biomass, and an assessment of the relative importance of additional carbon pools. Existing data collection by the GFC will be assessed in this regard. Certain pools such as soil carbon or even dead material tend to be quite variable and can be relatively time consuming and costly to measure. The decision to include these pools in the operational monitoring would therefore be made based on whether they represent a key category and available financial resources. For forests on mineral soils with high organic carbon content, as much as 30% of the total soil organic matter stock will be lost in the top 30 cm or so during the first 5 years. Dead wood is a key category in old growth forest where it can represent more than 10% of total biomass.

Currently, it is envisaged that investigation will be made into all sources and all pools through initial assessments and decisions taken following this, as to which pools to exclude. There is required to be consistency on the application of such inclusion/exclusion in reference case and monitoring of forest carbon stocks. In estimating carbon stocks, identification of the strata where carbon stock assessment is necessary, will be conducted. This will take focus on a sub classification of the key carbon pools. Some carbon pools may not need to be monitored routinely. However, some categories that are relevant to old growth forest will have to be included, such as deadwood which is a key category to monitor for forests with such characteristics as it reportedly represents more than 10% of total biomass.

The System will utilize Approach A (upfront stratification) whereby a forest carbon stock assessment will be done for every strata where there is a history or future likelihood of deforestation or forest degradation. Existing data will be identified and will include forest inventory data. A variety of both stock and stand tables are available for these inventory datasets. The results presented in this section will be used as a starting point for the assessment and are required to be subject to an assessment of suitability and relevance. The data gathered will be used to estimate growing stock volume and biomass conversion and expansion factors. Any missing data will be identified and assessed.

Reference Levels

Establishing the reference level for Guyana will be based on the stock based approach. This approach has been determined to be the most appropriate for Guyana's national circumstances. This method will be applied given that Guyana is a country that has had and continues to have high forest cover and a low rate of deforestation (HFLD). Currently technical negotiations at the level of the UNFCCC have so far continued to take into consideration the important factor of national circumstances. These negotiations have supported the use of reference levels, as opposed to reference emissions levels, for HFLD countries like Guyana. Through using this approach, forest carbon financing payments will be based on stocks rather than emissions levels. These reference levels should represent the historical rate of deforestation and forest degradation in "forested land" at the national scale. Given the rather low rate of

deforestation in Guyana, the method of establishing the reference level will likely use a future projected approach.

Approach to Establishing Reference Level

The LULUCF Guidelines recommend either a stock-difference method or a gain-loss method for estimating the annual carbon stock change in biomass and dead organic matter (DOM) in "Forests Remaining Forests" (the land-use subcategory that encompasses forest degradation). In general, the gain loss method is applicable for all tiers, while the stock-difference method is more suited to Tiers 2 and 3 assuming its application involves accurate and complete forest inventories based on sample plots.
The stock based approach as well as the gain loss approach will be assessed for applicability. It is recognized that the sock based approach requires estimates in both mineral and organic soil. Whether this is assessed as possible during the carbon stock assessment process will determine the suitability of this process. The Gain Loss Method requires for biomass growth rates to be collected. In the Tier 2 method, a combination of methods can be used to assess some carbon pools, e.g. soil. The method that is used however must be consistently and uniformed applied and will be IPCC compliant.

Reporting

The main principles of transparency, consistency, comparability, completeness and accuracy will be the key to an effective reporting framework. The reporting framework will be IPCC compliant. Although the reporting framework has not yet been decided at the level of the Conference of Parties, until such time that they are designed, the existing GHG inventory reporting format will be referred to as a guide to this process.
Reporting tables include classification of initial and final land use categories, identification and measurement of activity data, emissions factors, and total change on carbon stock. Relevant explanations and notations should also be provided in reporting formats. Reporting will also be done in the initial phases prior to the MRVS being completed, along the interim performance indicators (mainly area based indicators) that Guyana will be required to report on as part of a financing mechanism.

Verification

Quality assurance and quality control procedures will be required to be developed. Accuracy assessments will be used to provide a check for bias and of confidence in predictions through testing the system in a range of circumstances to check whether any inaccuracies in the results are biased toward over or underestimation in a national inventory. MRV systems are a long-term proposition and should be allowed to evolve over time. There will therefore be a need for continuous improvement in the system. Using the verifications and accuracy assessments efforts can be made to progressively improve models over time.
Uncertainty assessment will also be required to assess the confidence that can be placed in the overall result of the model application at the reporting scale. Accuracy assessments are an important part of testing for any bias in inventory results. Validation and verification are also required and this will be done by an independent 3rd Party expert.

Progress to Date

In March 2011, a revised Joint Concept Note (JCN) under the Guyana/Norway Agreement was issued. It replaced the JCN of 2009. The revised JCN updated on progress in key areas of work including on the MRVS. REDD+ Interim Indicators and reporting requirements, as had been outlined in the 2009 JCN, were maintained with some amount of refinement, drawing mainly on results from the first year assessment. One notable adjustment, as reflected in the revised JCN, is the revision of the reporting period for the second year assessment to cover October 1, 2010 to December 31, 2011. This was done for more effective monitoring, using remote sensing.
In 2010, the first annual assessment was completed and includes historic assessment of forest area assessment and change monitoring by different drivers and activities causing deforestation. Further, reporting was also completed on the agreed REDD+ Interim Indicators as set out in the JCN and includes

the establishment of several benchmark levels for the various REDD+ Interim Indicators that will be used as the basis for future reporting references. This assessment concluded on areas such as forest/non forest cover for four time periods, including the annual assessment period ending September 2010. The completed assessment was conducted by a consultant, and integrated key capacity building aspects as part of the process of building institutional capability, for the conducting similar work in the future. The Interim Measures Report which summarizes the approach, method, and results for the historic and annual assessment by drivers, was subject to independent accuracy assessment and independent third party verification.

Among the main results of the Interim Measures Report, Accuracy Assessment and Independent Verification, several recommendations were tabled for incorporation in the second reporting period. These have been identified as priority actions for continuous development of the MRVS in upcoming reporting periods, beginning with the immediate next period. National capacity building commenced during the execution of the first assessment period and will progressively build in the future assessment periods. This process has been identified to remain as a priority in follow up reporting periods.

Funding for the Development of the MRVS

The Government of Guyana is working through other donors through specific project related and bilateral donors to acquire other funding for the RPP implementation. At present, the GoG and Government of Norway have signed a Memorandum of Understanding to foster a partnership related to issues of climate change, biodiversity and sustainable, low carbon development. This support will assist in the setting up of a MRVS.

In the implementation of activities under the MRVS, the following has been completed, still being implemented or will commence shortly:

- Year 1 Forest Area Change Assessment (completed)
- Development of a National Forest Carbon Monitoring System (being implemented)
- Year 2 Forest Area Change Assessment (has commenced)
- REDD+ Demonstration Activities (Community MRVS) (to commence shortly)

To date, funding for the development of components outlined in the MRVS Road Map has been received through the following sources:

- The Guyana Norway MoU-
- A Conservation International (CI)/ German Development Bank (KfW) Initiative
- The Iwokrama International Centre for Rainforest Conservation and Development (Iwokrama), Global Canopy Programme (GCP) through funding from NORAD

In order to ensure that there is coordination of all efforts with regards to donor funding and support, while avoiding overlaps, is the task of the GFC, RS and the OCC. Through collaboration by these key bodies for REDD+ implementation, with the guidance of key documents as the LCDS, RPP and MRVS Road Map, decisions are made with regards to accessing of funding as well as allocation of funding / support received outside of GRIF funding.