



# PROJECT COMPLETION REPORT

(1<sup>st</sup> September 2010 to 21<sup>st</sup> October, 2011)

**Project Title:** Strengthening Guyana's Capacity to Manage Forest Resources and Environmental Services through Resources Assessment and Monitoring Changes in Deforestation and Forest Degradation

**Project Number:** RED-PD 005/09 Rev.2 (F)

**Required Submission Date:** 21<sup>st</sup> October, 2011

## A. Project Identification

**Title:** Strengthening Guyana's Capacity to Manage Forest Resources and Environmental Services through Resources Assessment and Monitoring Changes in Deforestation and Forest Degradation

**Serial no:** RED-PD 005/09 Rev.2 (F)

**Starting Date:** 1<sup>st</sup> September 2010

**Duration (months):** 12 months

**Project Cost (US\$):** US\$400,680

**Project Report Type:** Project Completion Report 1

**Implementing Agency:** Guyana Forestry Commission  
1 Water Street, Kingston, Georgetown, Guyana  
Tele No: 592 226 7271/4, Fax: 592 226 8956  
Email: [project.coordinator@forestry.gov.gy](mailto:project.coordinator@forestry.gov.gy)

**Place and Date of Issue:** Georgetown, Guyana. 21<sup>st</sup> October, 2011

## *Executive Summary*

Guyana's pristine forest covers over 85% of the country. The great majority of Guyana's forests are suitable for timber extraction and currently approximately 50% of the forest is allocated to some form of production. At the conceptualization of the project, there was an identified need for more support at the national level to assess forest resources and environmental services in Guyana. This need has impacted on effective evaluation and planning for natural resources utilization in Guyana. Additionally, the lack of capacity and resources, in some cases, at the community level affects the ability of implement sustainable forest management and reduce deforestation and degradation. This project sought to address two main areas: conducting, at a demonstration level, an assessment of forest resources and environmental services, including the completion of a feasibility assessment of targeting remuneration systems for environmental services; and secondly, by supporting sustainable forest management and resources utilization at the community level to maintain forest resources and prevent deforestation and degradation. The project was executed over the period September 2010 to September 2011 and was effective in meeting all set deliverables and outputs. The project was completed on schedule and within budget. The **outcome of the project** was successful in strengthening of Guyana's capacity to manage forest resources and environmental services through resources assessment and monitoring changes in deforestation and degradation. This has allowed for planning and management of these resources to be significantly enhanced as well as the management of deforestation and forest degradation.

The project has significant **potential for scaling up**. The forest area assessment work that was done in the area of the State Forest Estate as part of the forest resources valuation analysis can easily be extended to other parts of the forest areas of Guyana and any country. The Model that has been developed to conduct valuation, given certain parameter inputs relevant to each unique case, can be applied in a similar way to generate results, as that in the Guyana model. The training manual which was developed for this model, will allow for the use of the model to be extended and scaled up as desired.

The **sustainability of the project** is assured through several targeted interventions that have been made as part of the project strategy. Among these are: the full support of the project by the GFC and the GoG, as the outputs achieved are consistent with policies, plans and programmes that promote the mitigation activities against climate change; the strengthened capacity of Guyana Forestry Commission to improve the monitoring and enforcement of regulations and its GIS capabilities; the capabilities established at the level of the Guyana Forestry Commission in REDD+ and environmental services; and sufficient awareness and capacity built at the level of communities through adequate outreach/training activities.

# 1. Project Identification

## 1.1 Context

The Project was formulated in compliance with the ITTO's Thematic Programme on Reducing Deforestation and Forest Degradation and Enhancing Environmental Services (REDDES) in tropical forests. This project worked in tandem with the core problem which this thematic programme addresses, that of inadequate capacity of ITTO member countries to maintain and enhance environmental services of tropical forests by preventing and reducing deforestation and degradation.

This planned activities and approach of this project were guided by the current thrust of the climate change agenda of the Government of Guyana and sustainable forest management thrust of the forestry sector development plans. The Government of Guyana has advanced its efforts to target a carbon financing mechanism that focuses on maintenance of forest carbon stock whilst allowing sustainable natural resources utilization to continue (including agriculture, mining and forestry). The Low Carbon Development Strategy sets out a development growth path of economically rational scenarios that have a low carbon characteristic and that support development of livelihoods and welfare.

Additionally, over the past 7 years, several interventions have been made in Guyana, many of which have been supported by the ITTO, in areas of forest landscape restoration, forest fire management, forest law enforcement, governance and trade, and reduced impact logging. These projects provided important recommendations and results that have been drawn upon in this proposed initiative.

This project is closely linked to the work that Guyana has commenced under the World Bank's Forest Carbon Partnership Facility. Guyana's Readiness Preparation Proposal submitted under the FCPF outlines a series of readiness preparation initiatives that will be undertaken over a three year period to enable Guyana to access a forest carbon financing mechanism. Readiness preparation in Guyana submission to the FCPF, is based on a REDD+ mechanism that includes sustainable forest management as the key elements. Planning for resources utilization through assessment of forest and environmental services will lead to this desired goal of the Guyana's readiness activities, which is the overall sustainable development of forest resources. Additionally, the Road Map which has been developed for Guyana's MRVS, identifies for initiatives to be undertaken that focus on ecosystem services integration into the readiness planning framework. The outputs of this project, specifically with regards to the assessment of forest and environmental services, were targeted to contribute to informing this activity in a significant way.

**Environmental Issues** – Sustainable forest management has been recognized as essential to enhancing the growth and development of Guyana’s forest resources as well as to promote the successful implementation and continuation of REDD in Guyana. It is through this process that Guyana has been able to maintain its forest cover and low rate of deforestation, and will enable this currently existing low rate of deforestation and forest degradation to be maintained. Education, awareness and training are viewed as integral to maintaining environmental balance and sustainability within forest ecosystems.

With regards to environmental services, while Guyana is aware of the potential of the intact forest to allow for Guyana to enter markets regarding to such, Guyana is now exploring the feasibility of this option. It is therefore necessary for assessments in this regard to be conducted. Such information will allow for better land use planning and management by the natural resources management agencies of Guyana.

For this project a combination of remotely sensed data and ground surveys were used to assist GFC in formulating appropriate management strategies to assess the impact of various land uses and drivers of deforestation and degradation, including mining, forestry and agricultural activities. Once the resource assessment of forest and environmental services, location and the extent of these areas became known, GFC and other agencies are better positioned to manage the expansion of such activities and formulate policies to mitigate negative impacts whilst maintaining sustainable forest management.

The project also provided guidance on the targeting of remuneration systems for compensating environmental services. This was done through an assessment of the potential and feasibility of available systems in Guyana’s context.

**Socio Economic** – much focus has been placed on the harvesting practices at the concession level. However, more and more it is becoming evident that a significant number of persons are being employed in the value added processing aspect of the forest industry, especially with regards to Indigenous and other forest dependent communities. Training and sensitization in the relevant forestry areas, which has enhanced their understanding of key concepts of the implementation of sustainable forest management and REDD.

With the assessment of environmental services on titled indigenous lands, the introduction of payments for environmental services would be a means through which community incomes would be supplemented without having more persons entering the forestry sector. This would thus serve as a means by which rates of deforestation and forest degradation can be maintained at a low level.

Currently more and more persons and communities are entering the forestry sector for employment but lack the required training or skills needed for the implementation of SFM practices. It is therefore essential that training and sensitization be done in the relevant forestry areas so that the current low rate of reforestation and degradation is maintained.

**Institutional Issues** – the GFC is the governmental agency that is responsible for managing the State Forest. Enhancing capacity at the level of the Commission will better enable staff to carry out the mandate of the GFC in a more effective manner, both in appropriate forestry practices as well as in the principles and implementation of REDD+.

With Guyana being a global example of having to apply a new methodology for countries that have relatively low historical deforestation and degradation rates in an effort to quantify the forest carbon stock, it is imperative that training be done at the level of the Commission. This will ensure that the Stakeholders are provided with the best possible support and advice that can be offered, supporting the successful implementation of REDD+ and investigation into the value of environmental services.

**Sustainability** - of the Project was ensured by the following:

- Full support of the project by the GFC and the GoG, as the proposed activities are consistent with policies, plans and programmes that promote the mitigation activities against climate change.
- Strengthened capacity of Guyana Forestry Commission to improve the monitoring and enforcement of regulations and its GIS capabilities;
- Enhanced capabilities of the Guyana Forestry Commission in REDD and environmental services
- Sufficient awareness and capacity being built at the level of communities through adequate outreach/training activities;

### **Project Location**

The demonstration activity of this project was conducted using 11,000,000 hectares which represents 80% of the State Forest Estate.

In Guyana, a number of forest based communities have formed Community Forestry Organizations to access State Forest, utilize and execute forestry activities in a collaborative manner allowing for sharing of resources and skills.

The project has a focus on community demonstration assessments and training with the following communities identified for this project:

<b>Community Forest Associations</b>	<b>Size of Area (ha)</b>
Orealla/Siparuta	7,963
Aroaima Forest Association	10,753
Ituni Small Loggers Association	48,391
Kuru Kuru Wai a Kabra	5,868
Region 10, Forest Producers Association	31,750
Upper Berbice Forest Producers Association	35,714

### **Sectoral Policies**

This project conforms to the National Forest Policy, National Forest Plan which govern the operations of the forest sector and the Readiness Preparation Proposal of Guyana which focuses on the preparedness and capacity building for Guyana on REDD. The National Forest Policy, published in 1997, is designed to serve and protect Guyana's forests, ensuring that harvesting is carried out in a responsible, efficient and environmentally sustainable manner. The Policy requires the development of a new forest legislation, a National Forest Plan and a Code of Practice, which are all currently in place to guide and regulate forest management.

The National Forest Plan reflects the obligations imposed by Guyana's National Forest Policy and provides a practical framework for the industry to comply with the law. It provides the framework and identifies programs and activities that need to be accomplished to ensure implementation of the policy. The National Forest Plan also identifies responsibilities for monitoring and providing feedback to the policy and planning process.

The Low Carbon Development Strategy (LCDS) launched on 8<sup>th</sup> June, 2009 in Guyana identified a development growth trajectory for Guyana along a series of low carbon initiatives whilst at the same time enabling sustainable forest resources utilization.

The Readiness Preparation Proposal (RPP) which is one of components of the LCDS was prepared in accordance with the guidelines of the World Bank's Forest Carbon Partnership Facility (FCPF) and outlines the work to be implemented over a three year period. The RPP is seen as the national framework for implementation of REDD in Guyana and the objectives of this proposal are in accordance with those of the RPP and is designed in conformance with achieving the objectives of the RPP.

The Project was designed to work in conformity with the above mentioned policies and frameworks to achieve its objectives. The main tenants of the Policies of Guyana Forest sector as outlined above can be summarized as including: sustainable forest management, encouraging multiple use functions of the forest as well as effective utilization of forest resource. These have been targeted as priority areas under the proposed project.

## **1.2 Origin and Problem**

At the conceptualization stage, there was an identified need for a resources assessment of forest and environmental services at the national level and SFM capacity at the community level. This problem was brought about by key data requirements, assessments and technical capacities not being at the level required, including ground based assessments, GIS analyses, and human resources capability in communities, to fully execute SFM practices in all respects. This in turn affected evaluation and planning for natural resources utilization in Guyana. Additionally, the lack of capacity and resources, in some cases, especially at the community level, affected the ability to fully implement sustainable forest management and reduce deforestation and degradation.

This project sought to address two main areas: conducting, at a demonstration level, an assessment of forest resources and environmental services including the completion of a feasibility of targeting remuneration systems for environmental services; and secondly, by supporting sustainable forest management and resources utilization at the community level to maintain forest resources and prevent deforestation and degradation.

### **Addressing the Problem**

The outcome of the project was the strengthening of Guyana's capacity to manage forest resources and environmental services through resources assessment and monitoring changes in deforestation and degradation. This allowed for planning and management of these resources to be significantly enhanced as will management of deforestation and forest degradation. Also, capacity building exercise saw improved management of forest and environmental resources by target communities and stronger compliance with sustainable forest management practices. These immediate benefits of these were the enhanced ability at the national and community level to manage forest and environmental services in Guyana.



## 2. Project Objective and Implementation Strategy

### 2.1 Project Rationale, Development Objective and Specific Objective

#### **Partners to Project, Degree of Coordination and Role**

The Guyana Forestry Commission is the key agency responsible for the management of the State Forest Estate. In 2008, the REDD Secretariat was established to execute activities focused on conducting a forest carbon stock assessment and advise on issues relating to deforestation and degradation in Guyana. The GFC was the executing agency for this project. The REDD Secretariat; other natural resources agencies, and forest based communities were partners to the GFC under Project.

#### **Relevance of Project to Institutional and Organisational Needs**

The GFC's mandate is focused on ensuring sustainable forestry practices in the State Forest Estate. It executes this function through planning, managing and monitoring forest resources utilization, and includes a focus as well on maintenance of forest ecosystems as a whole. This Project has better enabled the GFC to plan forest resources utilization and ecosystem management by being able to conduct resources assessment, as demonstrated by this project. This allowed for a stronger level of sustainable forest management and an overall maintenance of a low rate of deforestation and degradation owing to more effective planning and management of resources. At the community level, the GFC worked with community forestry associations in implementing sustainable forest management practices which assisted in maintaining deforestation and degradation at a low rate. Additionally, the outputs of the assessment of forest resources and environmental services were done for identified communities. This initiative is therefore very relevant to the GFC's work in areas of community forestry, sustainable forest management and planning.

Sustainable forest management training is already a part of the GFC's training programme and this was extended to communities through this project. Capacity building is therefore a key output of this project and integrates the dissemination of the results to communities. This demonstration initiative allowed for capacity to be built within the GFC to conduct such resources assessment in the future and at the national level. The GFC and REDD Secretariat are now better able to integrate the results of such assessment in monitoring forest remaining forest as well as to track activity data and inform a data bank for an IPCC Approach 3 type system. This in the future is expected to be linked to the work planned activities under the World Bank's FCPF and Guyana's RPP with regards to readiness preparation for a forest carbon financing mechanism. This will allow for the future sustainability of the project.

### ***Development objective and impact indicators***

**Objective:** To strengthen the Guyana Forestry Commission's ability to maintain the current levels of deforestation and forest degradation, through sustainable forest management and develop Guyana's capacity to engage in ecosystem services.

#### **Impact Indicator**

1. GFC's ability to maintain current low levels of deforestation and forest degradation in the State Forest Estate.

### ***Specific objective and outcome indicator***

**Objective:** To enable more effective planning and management of forest resources and environmental services in the State Forest Estate, resulting in enhanced monitoring of deforestation and forest degradation.

#### **Impact Indicator**

1. Forest planning and management improved at the national and community levels using outputs such as feasibility assessment and resources assessment.
2. Forest practices at the community level are in keeping with SFM and planning techniques.

## **2.2 Project Implementation Strategy**

This project sought to utilize remote sensing images to demonstrate the execution of a resources assessment with the aim to strengthen capacity to improve sustainable forest management and planning thereby maintain deforestation and degradation at a low rates. It incorporated wide stakeholder participation into the process through training sessions aimed at improvement in sustainable forestry management practices will directly benefit the primary stakeholders (GFC and community members). A Feasibility Assessment was done to evaluate forest and environmental services as well as means through which Guyana can access these markets. The demonstration activity of this project was conducted using 11,000,000 hectares which represents 80% of the State Forest Estate. All assessments and analysis were done at the Guyana Forestry Commission's head office in Georgetown. However, several sessions of ground truthing and aerial surveys were conducted to verify results of remotely sensed data.

For this project a combination of remotely sensed data and ground surveys were used to assist GFC in formulating appropriate management strategies to assess the impact of various land uses and drivers of deforestation and degradation, including mining, forestry and agricultural activities. Once the resource assessment of forest and environmental services, location and the extent of

these areas are known, GFC and other agencies are in a better position to manage the expansion of such activities and formulate policies to mitigate negative impacts whilst maintaining sustainable forest management.

## 2.3 Assumptions and Risks

### Assumptions and risks

<b>Assumption</b>	<b>Risk</b>	<b>Mitigation Measure</b>
There is full commitment on the part of the GoG & the GFC to mitigate against the impacts of climate change	The priorities of the government and the regulatory agencies may change	The regulatory agency in Guyana (GFC) was in full support of the project as the activities are consistent with policies, plans and programmes that promote the mitigation activities against climate change. Further, there was no change in priorities in the immediate future.
Forest conservation and sustainable forest management are recognised in the replacement to the Kyoto Protocol for carbon storage and offset.	Forests are not recognized as a storage and offset mechanism in the replacement Protocol.	Guyana has been representing and will continue to represent for the recognition of standing timber to be part of the new offset/carbon storage mechanism.
The approach and activities are applicable to other REDDES Scheme	If the approach taken is not applicable to other REDDES scheme this may lead to inconsistencies.	Other existing REDDES schemes were reflected in executing the project and the approaches used so as to prevent possible inconsistencies.
Ground truthing is possible for identified areas based on assess and terrain.	Verification many not be possible if terrain and access prevents ground truthing from occurring.	Background checks were done using GFC's roads and rivers map to identify areas suitable for ground truthing.  Communities were involved in selecting areas for ground truthing as they are most familiar with hinterland areas.
Relevant and appropriate scheme is not available for Guyana, or limited possibility only exists.	Guyana is not able to benefits from environmental services given available options.	Guyana considered all possibilities and even consider a model approach which many not have been tried before.
Communities respond positively to the awareness and outreach campaign	Low level of interest and participation by local communities	The benefits of the project were be adequately and appropriately presented to the communities in order to stimulate their interest and participation.
Selected communities are	Inadequate collaboration	There already exists a good

interested in collaborating with the GFC	between communities & the GFC	working relationship between the GFC and the selected communities. Projects such as this serve only to strengthen the ties between the two.
Full participation from selected project areas	Low level of interest and participation by local communities	The benefits of the project were adequately and appropriately presented to the communities in order to stimulate their interest and participation.

### 3. Project Performance

#### 3.1 (a) Specific Objective

The project **specific objective** was successfully achieved.

The GFC as well as community forest operators targeted under this project are now better able to execute more effective planning and management of forest resources and environmental services in the State Forest Estate, resulting in enhanced monitoring of deforestation and forest degradation using the Model as developed under this project.

The broadening of the range of targeted environmental services (additional to forest carbon) by Guyana under its REDD+ initiative allows for inclusion in readiness planning as well as for potential financing to consider the inclusion of aspects on other ecosystem services.

#### 3.1 (b) Outputs and Related Activities

The following activities were implemented during project implementation:

##### ***Output 1 – Demonstrate the execution of a resources assessment of forest and environmental services in selected forested areas of Guyana***

###### ***Activities:***

- 1.1 Acquire remote sensing images and conduct imagery analysis of selected forest areas
- 1.2 Assess existing forest inventory data to evaluate forest and environmental services and conduct ground truthing and aerial surveys to verify results of remote sensing and forest inventory data
- 1.3 Complete evaluation on forest and environmental services in selected areas
- 1.4 Acquire images for identification of areas for hotspot monitoring and assess compliance with legality and deforestation & degradation from analysis of images

**Output 2 - Assess the potential and feasibility of market based and other remuneration systems for compensating environmental services**

**Activities:**

- 2.1 Assess available market mechanisms, incentives programmes and remuneration systems for environmental services
- 2.2 Evaluate the requirements that are necessary to access identified markets and remuneration systems

**Output 3 - Support SFM at the community level to help maintain low level of deforestation and forest degradation**

**Activities:**

- 3.1 Conduct sensitization workshop to share information on resources assessment.
- 3.2 Conduct workshops aimed at improving enforcement of regulations of sustainable forestry management (SFM) practices.

No activities were added or omitted during implementation.

**Output 1**

From 1<sup>st</sup> September 2010 to 28<sup>th</sup> February 2011, the Remote Sensing and GIS Consultant and the Environmental Services Specialist, as approved by ITTO following GFC's request for no objection, were contracted.

A Contract was also issued to the provider of medium resolution images (DMC) as approved by ITTO for an area size of approximately 11M hectares, based on GFC's request for no objection. For the high resolution image provision, the GFC also finalized a contract with the RapidEye as per approved request, for an area approximately. These contracts have been completed and all images have been acquired as requested from both providers. The Mapping Report attached and a summary provided below).

Dataset used	Provider	Sensor	Spectral Range	Date of Acquisition	Pixel size (m)	Area (ha)	% of Guyana
CBERS_2B_HRC	INPE	CBERS HRC	Pan	Aug-Oct 2009	2.7	869,596	4.12
IKONOS Geo	GeoEye	IKONOS	MS	June-Dec 2009	4	575,032	2.72
RapidEye	RapidEye	RapidEye constellation	MS	Dec 2010 -Jan 2011	5	1,753,306	8.30

CBERS_2B_HRC	INPE	CBERS HRC	Pan	Aug-Oct 2009	2.7	869,596	4.12
DMC	DMC International	DMC MS	MS	Aug-Dec 2010	22-32	10,992,522	52.02
SPOT	SPOT Image	SPOT XS HRV	MS	2006-2009	20	3,443,997	16.30
ASTER	JAXA	VNIR	MS	June 2010	15	389,177	1.84

*Note: Gray Shading represent ITTO funded satellite images.*

Images have been analyzed for both deforestation and forest degradation changes and detecting process outlined. This fulfilled Activity 1.1 and 1.4. Plans have started for ground truthing exercises and a combination of access ways/routes have already been identified.

Over the period March to May 2011, the draft layout of the full model was completed, along with the Report on the Model created for the assessment along with the results, and the User Manual accompanying the model report.

The Model Report that examines the assessment methods covers the following areas:

1. Introduction and Background to the Model and Assessment
2. Methodology and Database structure
3. Model Assumptions
  - a. Spatial Inputs
  - b. Physical Inputs
  - c. Financial Inputs
4. Model Output
5. Spatial Data Model Description
6. Imagery Acquisition Strategy
7. Community Forest Area Analysis

The User manual covers the following areas:

1. Introduction to the Model
2. Overview of the GIS Structure
3. Process for Updating Attributes
4. Methodology for cost and path distance analysis
5. Defining Transportation network
6. Decision Criteria and Assigning of Cost Values to Network Components
7. Determining Least Cost Path and Distance

8. Distance to Sawmills and Lumberyards
9. Vegetation Stratification
10. Modifying Inputs
11. Review Forest Estate Model Output
12. Import Results
13. Analysis of Community Areas

Over the period May 2011 to August 2011, the Model Report as well as the User Manual, were finalized and these were informed from extensive ground truthing exercises. This concludes Activity 1.2 and 1.3. The Final Model Report and Manual are attached.

Ground surveys were done to identify each cause of deforestation and forest degradation. Vegetation type was used in the selection of areas for verification. Each vegetation type in the area covered by the medium resolution assessment, was verified through 5-10 hectares of ground truthing. For areas that was included in high resolution data coverage, 1 hectare per vegetation type was subject to ground truthing.

Ground truthing was carried out by field assessments, with teams of 5 persons including a GIS officer, tree spotter, forest ranger, and forest planning officer. The following list of activities was carried out in this process:

- o Identify main data classes based on remote sensing assessment for vegetation types, species classes (to the extent of details possible), and driver of deforestation and forest degradation.
- o Cross check classification based on field assessment with results generated from remotely sensed data.
- o Revise and update remote sensing classification to reflect findings and field assessment.
- o Document classification variations based on finding from remote sensing data as opposed to field assessments.
- o Remote Sensing Imagery Analysis has been finalised and presented in this report.
- o Ground based assessment for the areas ground checked were completed

Additionally, pilot assessment completed with at least 6 communities, to enable access to environmental services benefits with an aim of reducing poverty in these communities. These assessments are outlined in the Model Report and were subject to verification by remote sensing imagery analysis and ground truthing.

## **Output 2**

A desk review was completed which outlines the sections for the first report. This Report covers an assessment of available market mechanisms for environmental services including assessment of suitability as well as relevant incentives programmes and remuneration systems for environmental services for Guyana. This Report provides specific focus on the Guyana context, the climate change problematic and rationale for Payment for Environmental Services (PES), describes the different PES and provide information on the environmental benefits, market players, sum of money available, conditionalities, etc. This Report that assesses the suitability of various market mechanisms for environmental services in Guyana's context has been completed. The full Report (Guyana's Forest Resources and Environmental Services) is attached and a summary of the areas of focus of the report summarized below:

### **SECTION 1 INTRODUCTION AND BACKGROUND**

The Consultancy and Format of the Report

Introducing Guyana

Setting the Context: Climate Change and the Forest Debate

Guyana's Low Carbon Response to Climate Change and the Issue of Financing

Standing Forests

### **SECTION 2 SUSTAINABLE FOREST MANAGEMENT AND ENVIRONMENTAL SERVICES**

Sustainable Forest Management

An Overview of Payment for Ecosystem Services (PES)/Environmental Services

Types of Environmental Services

PES Typology

Purpose of Environmental Services

Preconditions for PES Markets to be Developed

### **SECTION 3 PAYMENTS FOR ENVIRONMENTAL SERVICES MECHANISMS**

Carbon Markets

The Watershed Services Market

Biodiversity Services Markets

Typology of Markets

### **SECTION 4 ASSESSMENT OF MECHANISMS/MARKETS**

Introduction

Assessment of PES Markets

Findings



General Conclusions

## **SECTION 5 RECOMMENDATIONS AND NEXT STEPS**

Recommendations

Next Steps

This Report fulfills activity 2.1.

Over the period March to May 2011, to inform the evaluation of the requirements for markets and remuneration systems, and to commence the process of training of trainers for Output 3, a stakeholder engagement session in the form of a workshop was held. Workshop materials were prepared in the form of a Manual and presentations were delivered by the consultants. These documents are attached in the Annex.

The Manual presents information in the following areas:

1. Defining payments for environmental services and mechanism
2. Economics of a Payment for Environmental Services (PES) Scheme
3. Criteria for PES Selection and Creating an Enabling Environment for PES scheme, addressing Gaps and opportunities
4. Case Studies

This workshop was attended by key agencies in natural resources management in Guyana.

Activity 2.2 was completed at end of August 2011 and for which the main deliverable was the report on Evaluation of Requirements for Environmental Services. The outline for the Report on "Evaluation of the Requirements that are necessary to access identified markets and remuneration systems" is presented below:

### **Areas that the Report covered are:**

1. Introduction
2. Background: The environmental services of forests
3. The Rationale for Market
4. Types of Markets and Payment Mechanisms
  - a. Self-organised private deals
  - b. Open trading schemes
  - c. Public payment schemes

5. The process of developing markets and instruments for services
6. Key Requirements to access identified markets for Guyana (based on interviews, literature review and Consultants' opinions)
  - a. What environmental services are provided?
  - b. What is the economic value of the environmental service?
  - c. What is the cultural, legal and regulatory context?
  - d. What are the rights and responsibilities of stakeholders?
  - e. Who are the potential buyers and sellers and why?
  - f. What is the current national capacity to measure and monitor PES?
  - g. What support services are required to enable the market?
  - h. Who benefits?
7. Making Progress and Agreements
  - a. Public Policy and Legislation
  - b. Access to knowledge and information
  - c. Building Institutions and regulations
  - d. Agreements/Deals
  - e. Transparency: Monitoring and Evaluation
8. Conclusion and Way Forward (Output 4: The Road Map)

This Report is attached.

Additionally, a Roadmap was created that addresses an overall framework approach to community involvement in a REDDES Scheme. This Roadmap is entitled "A generic Community Assessment Framework and Action Plan to Support the Development of Forest Ecosystem Services Payments". This Roadmap is attached. The Action Plans were applied in Output 3 as part of the training exercise and were found to be applicable in each case.

### **Output 3**

Sensitization workshop and workshop aimed at enforcement of regulations on sustainable forest management were conducted. This training targeted the six community areas identified under this project for special focus. Community level training for output three in divided into two main areas Resources Assessment – Activity 3.1 and Sustainable Forest Management – Activity 3.2. The presentations are attached in the Annex. Also, the full training report is attached.

**As part of training on PES, a training session was conducted at the GFC's head office with Policy makers and natural resources management officials on the following areas:**

- Interactive writing was used produce the training materials

- Case studies were be cited, where possible
- The workshop methodology was a combination of lectures, small group discussions, plenary and simulation exercises.
- An evaluation of the workshop was held on the last day of the workshop

**The Learning Objectives/Outcomes were:**

At the end of the training workshop participants were able to:

1. Define PES
2. Identify and describe different PES mechanisms
3. List factors that support successful PES schemes
4. Discuss the economics of PES (market related issues)
5. Evaluate the suitability of PES mechanisms for Guyana
6. Identify gaps in and opportunities for the creation of an enabling environment for successful PES schemes in Guyana
7. Agree on an action plan for consultation with stakeholders on a developing a PES scheme in Guyana.
8. Discuss forest resources and environmental services assessment, methods and results.
9. Discuss implications for planning and sustainable forest management.

**The Outline of Course was:**

1. Introduction including the learning objectives of the training workshop.
2. Defining PES
3. PES Mechanisms
4. Factors that determine successful PES schemes
5. The Economics of PES schemes
6. Criteria for PES selection
7. Creating an Enabling Environment for PES Schemes: gaps and opportunities
8. Forest Resources and Environmental Services Assessment
9. A summary and references for further reading on successful case studies of PES schemes in other countries e.g. Costa Rica, Australia etc.

Over the period March 2011 to May 2011, a working session was planned and executed on training in resource assessment and environmental services. This session was executed on 19-20 May, 2011. The agenda, materials and presentations delivered at this session are attached in the Annex.

As part of the workshop, several group discussion sessions were held and key areas/approaches of training and sensitization were examined.

### **3.1 (c) Schedule**

The project commenced on time. The duration of the project was 12 month. The project was completed within schedule. The main reason for the project being on time is owing to the timely execution and in some cases early delivery of outputs by consultants. Also, satellite images required for the project were secured early in the project implementation.

### **3.1 (d) Total amount of expenditure; analysis of applied inputs**

The total amount of expenditure under the project was US\$540,880 (this includes ITTO and GFC contribution).

This was adequate to meet all expenses.

## **4. Project Outcome, Target Beneficiaries Involvement**

4.1 The project **specific objective** was successfully achieved. The GFC as well as community forest operators targeted under this project are now better able to execute more effective planning and management of forest resources and environmental services in the State Forest Estate, resulting in enhanced monitoring of deforestation and forest degradation. The broadening of the range of targeted environmental services (additional to forest carbon) by Guyana under its REDD+ initiative allows for inclusion in readiness planning as well as possible financing, to include aspects on other ecosystem services.

4.2 The **situation existing before the project** was one in which there was a lack of a resources assessment of forest and environmental services at the national level and SFM capacity at the community level. This problem was brought about by key data requirements, assessments and technical capacities not being in place to enable this to be done, including ground based assessments, GIS analyses, and human resources capability in communities to execute SFM practices.

**The project has been able to provide** to the GFC, an archive of remote sensing images for monitoring and referencing of forest activities within specific areas. Through this, the GFC as well as other natural resources management agencies can monitor and measure changes within the forests from forest related activities such as logging, mining and agriculture.

Additionally, there is increased capacity in monitoring and management of the State Forest by the GFC, using remote sensing imagery. The GFC is now able to utilize these images to increase the capacity of the GIS Unit to plan for and monitor the activities on the ground, as well as to better enforce legislation relevant to the forestry sector to ensure the deforestation and degradation remain at low rates.

Through demonstration to the target communities, the approach to conducting resource assessment of forest and environmental services in identified project area are now extended to local actors. The assessments conducted have provided the GFC, as well as the GoG, with knowledge of how to conduct a resources assessment of forest and environmental services, as well as how markets can be accessed for payments for ecosystem services. Overall, the communities targeted are now better positioned to improved SFM practices.

The **sector policies and programmes** that are currently being implemented in Guyana and also those planned for the future have been impacted by this project. Prior to the project, there was a lack of national level capability to conduct forest resources assessment or ecosystem services analysis as part of a REDDES scheme. The National Forest Plan reflects the focal areas outlined by Guyana's National Forest Policy and provides a practical framework for the industry to comply with the law. It provides the framework and identifies programs and activities that need to be accomplished to ensure implementation of the policy. The National Forest Plan also identifies responsibilities for monitoring and providing feedback to the policy and planning process. The Low Carbon Development Strategy (LCDS) launched on 8<sup>th</sup> June, 2009 in Guyana identified a development growth trajectory for Guyana along a series of low carbon initiatives whilst at the same time enabling sustainable forest resources utilization. The Readiness Preparation Proposal (RPP) which is one of components of the LCDS was prepared in accordance with the guidelines of the World Bank's Forest Carbon Partnership Facility (FCPF) and outlines the work to be implemented over a three year period. The Project was able to successfully contribute to the further advancement of national planning and sustainable forest management efforts which supports the implementation of the National Forest Plan and Policy Statement; additionally, the LCDS of Guyana is further advanced through ecosystem services being explored in a more detailed way, thereby expanding information available from forest carbon to additional areas; in terms of REDD readiness as a whole, Guyana is able to identify in Readiness Preparation Proposal, aspects of the deliverables under this project to detail its plans in a more robust and comprehensive way.

Following project implementation, the project completion, the outputs were achieved with no negative impacts on the **physical environment**. In the medium terms, there is expected to be have positive impacts that would not have prevailed prior to project commencement. Specifically, these are expected to be realized in the areas of greater capability in forest resources planning

and management, broader inclusion of ecosystem services in REDDES and overall strengthened sustainable forest management at the community level.

4.3 **Target beneficiaries** have been included in the project in a very participatory and inclusive manner. The main beneficiaries which are the government (the GFC) and forest dependent communities have benefitted from the development of a model that will assist in valuation of forest resources, and the output of assessment of ecosystem services inclusion in forest management under REDDES. The project has been able to provide to the GFC, an archive of remote sensing images for monitoring and referencing of forest activities within specific areas. Through this, the GFC as well as other natural resources management agencies can monitor and measure changes within the forests from forest related activities such as logging, mining and agriculture.

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4.4 The **sustainability of the project** is assured through several targeted interventions that have been made as part of the project strategy. The following main aspects have contributed to the ensuring of the sustainability of project initiative:

- Full support of the project by the GFC and the GoG, as the proposed activities are consistent with policies, plans and programmes that promote the mitigation activities against climate change.
- Strengthened capacity of Guyana Forestry Commission to improve the monitoring and enforcement of regulations and its GIS capabilities;
- Enhanced capabilities of the Guyana Forestry Commission in REDD and environmental services
- Sufficient awareness and capacity being built at the level of communities through adequate outreach/training activities;

## 5. Assessment and Analysis

**5.1** The **project rationale and identification process** were adequately defined in the project conceptualization stage. The rationale of establishing a model for resources assessment at the national and community level has allowed for a broader assessment to be developed as well as a more refined model that can be applied in any instance. Also, the studies on ecosystem services can be applied to Guyana's Low Carbon Development Strategy and REDD+ readiness activities to inform the potential inclusion of an additional service to forest carbon. Additionally, the training aspect has allowed for the forest to be continually utilized in a sustainable way thereby maintaining a low rate of deforestation and forest degradation in Guyana. The rationale therefore was effective in broadening GFC's capacity to plan and manage the forest resources for sustainability goals can be realized. The rationale and identification of the project targeted these specifically in the identification process. **Stakeholder participation** in the project formulation process was found to be adequate as evidenced by several examples: the involvement of community areas in the areas targeted for analysis; the involvement of key stakeholders in the training and testing aspect of the model; and the continued leading role that stakeholders (Government and community actors) will play in the operationalising of the model and the practice of SFM.

**5.2** The **problem, objective and implementation strategy** were adequately defined as a result of the identification process. The main problem of there being a lack of a resources assessment of forest and environmental services at the national level and SFM full capacity at the community level, was identified. This problem was brought about by key data requirements, assessments and technical capacities not being in place to enable this to be done, including ground based assessments, GIS analyses, and human resources capability in communities to execute SFM practices. Having identified that a problem existed in absence of a model to conduct resource assessment and analysis of ecosystem services in Guyana, the objective that was set and the implementation strategy was geared towards addressing the two identified aspects from a conceptual perspective – within the scope of REDDES. This has enabled for the individual issues to be addressed whilst at the same time, linking these to the development agenda of Guyana and community involvement.

**5.3 and 5.4** There was no **critical differences** seen in either budget or time scheduling as the project was on budget and on time.

From a budgetary perspective, the budgetary requirements were the same as all deliverables were met. The budget was adequate for project implementation.

All inputs were adequate for project formulation and implementation.

From a budgetary perspective, although there was no variance, other projects can ideally also make provision for lead time as it may not always be the case that data inputs such as satellite imagery may be ready upon demand.

**5.5** The project was able to anticipate **external influences** and to mitigate against risks and took account of assumptions effectively. The assumptions taken at the conceptual stage of the project are valid and were favourably met. There is full commitment by all relevant Government agencies involved specifically the Guyana Forestry Commission and the Ministry of Agriculture, as well as the Office of Climate Change in this are related work on climate change and REDD+. There are active steps being taken at the Conference of Parties as recent as Cancun to have REDD+ which includes sustainable forest management, to be a part of the new or replacement climate change mitigation mechanism in the future. The approaches and activities that are being developed and used in the project are also analyzed for applicability to a range of schemes to allow for a dynamic approach to be taken. Ground truthing exercises have been completed and a combination of access ways/routes were available. Guyana has been progressing with its current bilateral partnership with the Government of Norway and the deliverables from this project will assist in the further development of similar programmes that may include environmental services. The positive fulfillment of the assumptions of communities responding positively to sessions to be held, and the interest being present as well as full participation, has so far been encouraging, as all communities that were involved in training, have show effective participation and commitment in the training sessions. All plans that are being made take keen cognizance of these in the planning stages.

**5.6 Project beneficiaries** have benefitted and will continue to benefit in the future from the project. The main beneficiaries which are the government (the GFC) and forest dependent communities have benefitted from the development of a model that will assist in valuation of forest resources, the output of assessment of ecosystem services inclusion in forest management under REDDES. The project has been able to provide to the GFC, an archive of remote sensing images for monitoring and referencing of forest activities within specific areas. Through this, the GFC as well as other natural resources management agencies can monitor and measure changes within the forests from forest related activities such as logging, mining and agriculture. Additionally, there is increased capacity in monitoring and management of the State Forest by the GFC, using remote sensing imagery. The GFC is now able to utilize these images to increase the capacity of the GIS Unit to plan for and monitor the activities on the ground, as well as to better enforce legislation relevant to the forestry sector to ensure the deforestation and degradation remain at low rates.



Through demonstration to the target communities, the approach to conducting resource assessment of forest and environmental services in identified project area are now extended to local actors. The assessments conducted have provided the GFC, as well as the GoG, with knowledge of how to conduct a resources assessment of forest and environmental services, as well as how markets can be accessed for payments for ecosystem services. Overall, the communities targeted are now better positioned to improved SFM practices.

**5.7** The project is foreseen to be **sustainable** in the future for the reasons and justifications provided in section 4.4.

**5.8** The roles identified for the **institutions involved** in the project were thought to be most appropriate. The inclusion of the Government as well as community operators have allowed for a more holistic approach to be taken in project implementation. The model that has been created by the national and community level assessment, as well as the analytical work on ecosystem services along with training in SFM, have allowed for each stakeholders' role to be fully realized.

### 5.9 Compliance with ITTO REDDES Monitoring Protocol

Specific Objective	Output	Output Indicator	Target Value	Means of Verification
Strengthen capacity of Guyana to: <ul style="list-style-type: none"> <li>- Reduce unplanned deforestation by conducting forest resource assessment.</li> <li>- Reduce forest degradation by providing training to forest users</li> <li>- Maintain and enhance climate change mitigation by conduct assessment</li> </ul>	Contribute to avoided deforestation and combating deforestation and forest degradation.  Integration of climate change mitigation and other Environmental Services into SFM, and valuation of managed forest areas.  Create the framework which will allow for the next steps to be taken with regards to income generation for Environmental	Forest valuation system created.  Feasibility for accessing Environmental Services conducted.  Initiative on avoided deforestation.  Increased awareness.	Guyana included as target country  Valuation completed for 6 communities.  Baseline information created for whole of Guyana on forest value.	Training Manual  Forest model on valuation  Workshops sessions  Community involvement  Feasibility and Assessment on accessing Environmental.

<p>of Environmental Services.</p> <p>- Contribute to social and economic sustainability by creating the foundation for accessing value for Environmental Services.</p>	<p>Services. (Assessment of feasibility completed and roadmap will be developed)</p> <p>Increased recognition of value of tropical forests.</p> <p>Capacity building</p> <p>Information sharing</p>			
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## 6. Lessons Learned

The main lessons learned from the project are summarized below:

### ***Project Identification, Design and Implementation***

- The project identification was appropriately and adequately carried out the areas of forest under community management and state forest concession utilization identified for inclusion. These are the areas experiencing the most dynamics in terms of use and pressures.
- To effectively allow for the wide ranging dynamics of tropical forest to be adequately considered, a large area of analysis is necessitated. In this design, the model extended over 11 million hectares of Guyana. This allow for the model to be comprehensive and robust.
- The main aspect of the project design that contributed to the success of the project is the joint approach of including national level assessment as well as community level involvement. This has allowed for areas that are being modeled under the valuation assessment to be refined through community levels assessments.
- The main action that could have been implemented, is a closer consideration non forest area within the state forest estate. It would be important to also map the dynamics of these areas as they can also impact on ecosystem services provision although not as extensive on forest carbon.
- The factor that will most likely affect project sustainability is the continued need for assessment of this type by state and community actors. Once the demand continues to be the further development of ecosystem goods and services, this model will be continually used and demanded in the future.

### **Operational Matters:**

- Project management and organization for the conceptualizing stage is effectively done by Governmental agency as this allows for a more holistic approach to be taken. Project management nevertheless needs to include community forest actors and representative of the sub industry that the project targets.
- The request for advances need to be made well in advance providing the necessary justifications, including scheduling and budgetary information, to allow for all purchases to be made within scheduled time and as required.
- In project where multiple stakeholders groups are involved in the overall coordination, as well as implementation, clear distinction of roles and responsibilities is critical. In this project, the GFC's lead role in project implementation was made clear from the outset and the community role in actual implementation of sustainable forest management was clearly outlined.
- Progress reports developed under this project have been instrumental in continuously tracking project activity implementation, project progress and financial status. The ITTO Online Monitoring System (ITTO OLMS) was essential as a mechanism for project reporting monitoring.
- Regular monitoring and evaluation by the ITTO as well as the project execution team were important in the time and budgetary management. This allowed for continuous oversight to be achieved at every stage of project implementation.
- The foreseen tasking time for images procurement, processing, etc should be taken into account in project planning;

## 7. Conclusion and Recommendations

### **7.1 The following main conclusions and recommendations from this project:**

#### **Identification**

*Conclusion:* The project identification was appropriately and adequately carried out the areas of forest under community management and state forest concession utilization identified for inclusion. These are the areas experiencing the most dynamics in terms of use and pressures.

*Recommendation:* For future project of a similar type, the inclusion of such priority areas is recommended.

## **Design**

*Conclusion:* To effectively allow for the wide ranging dynamics of tropical forest to be adequately considered, a large area of analysis is necessitated. In this design, the model extended over 11 million hectares of Guyana. This allow for the model to be comprehensive and robust.

*Recommendation:* In areas of analysis that are heterogeneous like tropical forest, it is important to include a sizable expanse for assessment.

## **Implementation**

*Conclusion:* As in the case of project identification, stakeholder involvement in project implementation is a priority, especially when these stakeholders would have a pivotal role in the future operation of activities.

*Recommendation:* Resources should be dedicated to allow for effective stakeholder participation to be enable and for it to be effective.

## **Organization**

*Conclusion:* The organization of the project was effectively done through the GFC. This allowed for a holistic approach to be taken to the organizing of all activities under the project.

*Recommendation:* The overall organization of the project is best executed by an agency that has cross cutting mandate overall all stakeholders and beneficiaries.

## **Management**

*Conclusion:* The time set for activity implementation was sufficient for project implementation. It is advisable to allow some slack time in the event of unforeseen circumstances.

*Recommendation:* Project implementation time should include buffer allowance for unforeseen circumstances.

## **7.2 Potential for Replication and Scaling Up**

The project has significant **potential for scaling up**. The forest area assessment work that was done in the area of the State Forest Estate as part of the forest resources valuation analysis can easily be extended to other parts of the forest areas of Guyana and any country. The Model that has been developed to conduct valuation, given certain parameter inputs relevant to each unique case, can be applied in a similar way to generate results, as that in the Guyana model. The training manual which was developed for this model, will allow for the use of the model to be extended and scaled up as desired.

Practical examples often serve as the best way to show that a model is easy to apply and that it can work in a number of diverse situations. The project implemented in Guyana allows for an example to be shown to other stakeholders that this can also be done in any scale and for any forest area. There is thus, good opportunity for both replication and scaling up.

**Responsible for the Report**

**Name:** Pradeepa Bholanath

**Position held:** Head, Planning and Development Division,  
Guyana Forestry Commission

**Date:** 21<sup>st</sup> October, 2011