

**LOW CARBON  
DEVELOPMENT  
STRATEGY UPDATE**



# Transforming Guyana's Economy While Combating Climate Change

March 2013

Office of the President,  
Republic of Guyana

## Introduction and Background

*“...we want to be part of a global coalition that stimulates innovation and creativity to enable us to leapfrog over the high carbon development path that today’s business-as-usual trajectory suggests we must follow... As part of our commitment, I believe that the people of this country might be willing to deploy almost our entire rainforest – which is larger than England – in the service of the world’s battle against climate change... providing this does not damage their legitimate development aspirations or impact on their sovereignty over our forest.”*

H.E. Bharrat Jagdeo, Former President of Guyana  
June 2009

In 2009, the former President of Guyana, Bharrat Jagdeo, set out a vision to forge a new low carbon economy in Guyana over the coming decade.

The vision was translated into a national strategy as outlined in Guyana’s Low Carbon Development Strategy (LCDS) - after over a year of review and consultation within Guyana, coupled with input from climate change negotiations at the United Nations.

The LCDS aims to achieve two goals:

- transform Guyana’s economy to deliver greater economic and social development for the people of Guyana by following a low carbon development path; and
- provide a model for the world of how climate change can be addressed through low carbon development in developing countries, if the international community takes the necessary collective actions, especially relating to REDD+.

This update to the LCDS provides a summary of progress against both of these goals, as of March 2013 – as well as an outline on the focus of LCDS implementation for the period 2013 to 2015.



# Transforming Guyana's economy while combating climate change

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## Foreword

In 2009, the people of Guyana set out to prove to the world that developing countries could lead the way towards a better future.

We knew then that climate change was a clear expression of the inequality and injustice that exist in our world – as a problem caused primarily by the rich, but whose negative impact is felt primarily by the poor. We recognised that failing to avert climate catastrophe would deepen this injustice and cause unprecedented suffering for the world's most vulnerable people. And we called on the world to act before it was too late.

But we also saw that it would be perverse if the solutions to climate change ended up creating a new wave of inequality and injustice – where the peoples and countries of the developing world had to stand on the sidelines while the rich world created a new global economy built on clean energy and sustainable land use. Not only would this be morally wrong, but it would make tackling climate change impossible as there is no solution to climate change that does not require the empowerment of billions of people across the developing world.

In 2009, Guyana said that if partnership for international action was forthcoming, we were ready to play our part in facing up to this global challenge.

Four years have now passed. Progress has not always been easy. Guyana's Government, private sector and society as a whole are implementing difficult reforms to build the long-term foundation for our low carbon economy. Alongside our international partners, we are facing the challenges involved in working with global bureaucracies that were designed for a different era. And we have to cope with an international climate change negotiation process that to date has failed to deliver the legally binding climate treaty that is essential to tackling climate change over the long term.

But 2013 is proving to be a pivotal year as money flows into our priority low carbon investments after years of hard work and perseverance. Thanks to the efforts of hundreds of Guyanese, and to the solidarity of international partners, we can see the contours of our new economy emerging.

We are maintaining 99.5% of our forest, and the world's lowest rate of deforestation. We are on track to be the world's number one user of clean energy by 2017. Over eleven thousand Amerindian homes now have electricity for the first time – and it is clean energy. Low carbon industries are growing fast – ecotourism in the Rupununi is growing by 20% a year, and our business process outsourcing sector has more than doubled employment in four years. We are on the cusp of becoming the world's most inclusive digital society, as 90,000 vulnerable households gain access to computers and training. We have started to provide targeted assistance for small businesses and vulnerable communities to stimulate the creation of 2,200 new low carbon jobs in the next three years.

Most of our Amerindian communities now have legal title to their land, and we have committed to completing the land titling process over the next three years, for all communities that request this to be done. 166 Amerindian villages, communities and settlements have produced impressive low carbon community development plans, and in 2013, 27 of those will start to be implemented –creating new low carbon opportunities in ecotourism, sustainable agriculture and manufacturing.

Our traditional sectors are still being nurtured. Agriculture and mining are growing the contribution they make to our economy and progressively improving their environmental performance. We have some of the strongest forestry laws in the world. And we are building upon national standards, by engaging with international bodies like the Extractive Industry Transparency Initiative and the European Union's Forest Law Enforcement Governance and Trade Initiative.

How are we doing this?

Through a combination of national commitment and international partnership - and I want to draw attention to three elements that created that combination since 2009.

The first element was finding a progressive developed world partner in Norway who shared our values of fairness and a belief in the capacity of the developing world to lead the way to climate solutions. Because of our partnership, the economic calculations around how we use forests are starting to change, as we sell our forest's climate services through the world's second largest Interim REDD+ partnership.

Secondly, we are keeping our eyes on the longer term. After the world failed to reach a global climate deal at Copenhagen in 2009, we continued to stay active in the international debate on climate change. In part, this is because the need for climate justice demands that we act as global citizens in creating a better world. But it is also because international engagement makes a real difference at home and as a Government, we will not shirk from this responsibility.

Finally, the bedrock of the LCDS is built from the commitment of the people of Guyana. Our people recognised that we can be active, energetic, knowledgeable participants in the global search for climate solutions. But this bedrock can be damaged, so I hope that the solidarity which gave rise to the LCDS can be sustained in the years ahead. In particular, I hope that politicians from all parties, and leaders from civil society and the private sector, will act responsibly as we work to create a better future for all.

Reforms with this scale of ambition are never without set-backs. We are building the first model of its kind in the world.

But we know that ambitious reform is difficult. We saw that when we strove to return our country to democracy, and when we worked to create a new Constitution and democratic institutions. We saw it as we restored our public finances to health. We see it as we build better education and health systems that are free for all Guyanese. And we see it as we encourage private sector development and investment to generate long-term jobs and prosperity for our country.

In all these areas, we have learned that when faced by set-backs, the wrong reaction is to be frightened or overwhelmed by them. The right reaction is to persevere, because Guyana's people benefit in the end. History will be on the side of those who stay the course.

This LCDS Update sets out where we are on our journey to a new economy – and how we hope to deliver on the ambitious agenda we put forward together as a people in 2009. I hope it helps all Guyanese to understand why we should stay the course - and how working together, we can create an even better Guyana. And I hope it helps us to redouble our efforts to show how developing countries like ours can work with the international community to create a fairer world. Together, we can take on - and defeat- those who would let climate change continue on its destructive path. This is the task of our generation, and I remain confident that the people of Guyana can meet the challenges it presents.

**Donald Ramotar**

President of the Republic of Guyana

## Executive Summary

In 2009, the Low Carbon Development Strategy (LCDS) set out the context for the development choices then facing Guyana, as the country reached a new stage in its national development. Over the previous two decades, Guyana had re-established a market-led economy within a multi-party democratic system. The economy had been restructured to support progressively increasing investment in social sectors and infrastructure, alongside private sector-driven economic growth. Economic growth since 2006 was consistently one of the highest of all countries in the Americas, national debt had been restored to sustainable levels, and most of the country's physical infrastructure had been newly built or upgraded.

As this first generation of reforms and infrastructural development neared completion, the LCDS (2009) stated how the Government was embarking on a new wave of reforms, coupled with further expansion of the country's strategic economic infrastructure. These aim to further stimulate investment, economic growth and job creation as well as to improve security and social services, protect vulnerable sections of society, and deal with increased climate change-induced flooding.

In 2009, the LCDS stated how this situation presented Guyana with a national development choice of global relevance. The country's natural resource base – including its forest, which covers about 85% of Guyana's territory – provides the potential to generate the finances needed for Guyana's next stage of development. History across the world suggests that this could be done through a “business-as-usual” development model where countries convert a very high portion of forested land for agriculture, mining and other uses to generate the private and public finances necessary for development.

However, avoiding this “business-as-usual” development model in the world's forest countries is essential to the future of the planet. Deforestation and forest degradation are major contributors to climate change. Greenhouse gas emissions from deforestation and forest degradation are greater than those of the entire European Union. As well as their climate services, forests help to regulate the planet's rainfall, contain vital biodiversity resources, and provide livelihoods for millions of people.

### Creating new economic incentives – the role of REDD+

Avoiding a business-as-usual development model will require shifts in economic calculations to make forests worth more alive than dead. Because of the global benefits from climate and other ecosystem services, those who benefit internationally need to contribute towards paying for these services.

Towards this end, since late 2006, the Government of Guyana has been calling for national-scale action by forest countries and international partners. At the same time, the Government - like most governments in the world - wants to see an international legally binding climate agreement where all countries accept their responsibilities for climate change action, including deep cuts in greenhouse gas emissions from historical polluters. Since 2007, the international community – through the United Nations Framework Convention on Climate Change (UNFCCC) - has agreed that this will include measures to promote reduced emissions from deforestation and forest degradation, alongside conservation and sustainable management of forests. The mechanism within the UNFCCC to achieve this objective is called REDD+.

Against this backdrop, in 2008, then President of Guyana, Bharrat Jagdeo spoke of how the people of Guyana were willing “not just to complain about climate change, but to do something about it” by creating a model for the world that showed how “low carbon, low deforestation, climate resilient development” can be possible and beneficial for forest countries. He stated a belief that if the right economic incentives were created, the people of Guyana would be willing to consider deploying most of Guyana's rainforest as part of the global response to climate change, provided that national

sovereignty and the rights and development aspirations of all Guyanese were not undermined. In 2008, he set out his vision of a new economy, which would enable Guyana to meet three inter-linked challenges:

- How to make forests worth more alive than dead:
- How to stimulate future growth using clean energy and non-deforesting economic activities:
- How to protect against climate change:

The LCDS (2009) resulted from this vision, and articulated Guyana's hopes that it could provide a "scalable, replicable model" for the world. It set out how the economic case for maximizing the conversion of forest for agriculture, mining and other uses is strong. A fact based analysis by McKinsey and Company showed how the economic value to the nation (referred to as EVN) of such uses could be the equivalent of a US\$580 million annuity, whereas the EVN of REDD+ at that time was zero. The challenge set by the then President was to create the economic incentives to increase the EVN of REDD+ so that it could start to make forests worth more alive than dead, while at the same time generating the necessary capital to invest in Guyana's low carbon economy.

The LCDS (2009) stated that an increase in the EVN of REDD+ could enable Guyana to continue to generate economic growth at, or in excess of, projected Latin American growth rates over a decade, while simultaneously reducing energy-related greenhouse gas emissions. This could be achieved by:

- Investing in strategic low carbon economic infrastructure, including a hydro-electricity plant at Amaila Falls; improved access to arable, non-forested land; and improved fibre optic bandwidth to facilitate the development of low carbon business activities.
- Nurturing investment in high-potential low carbon sectors, such as fruits and vegetables, aquaculture, business process outsourcing and ecotourism.
- Reforming existing forest-dependent sectors, including forestry and mining, where necessary, so that these sectors operate at the standards needed to sustainably maintain the forest.
- Expanding access to services, and creating new economic opportunities, for Amerindian communities through improved social services (including health and education), low carbon energy sources, clean water and employment which does not threaten the forest.
- Improving services to Guyanese, including improving and expanding job prospects, promoting private sector entrepreneurship, and improving social services with a particular focus on health and education.
- Protecting Guyana's people and productive land from changing weather patterns. Investments in priority climate adaptation infrastructure can reduce the 10 % of current GDP which is estimated to be lost each year as a result of flooding.

## Interim Finance for REDD+:

When the first draft of the LCDS was published in 2009, the international community expected that the necessary international climate treaty would be agreed by world leaders in Copenhagen in 2009. Following the failure of the international community at Copenhagen – and a subsequent agreement in Durban which makes it likely that a global deal will not be implemented before 2020 - it became clear that interim funding is needed for forest countries in the period before 2020.

However, to date, only three forest countries in the world - Guyana, Brazil and Indonesia - are able to access interim finance at a large scale, despite over US\$4.5 billion in pledges that have been made

by developed countries. Yet partly as a result of the existing pledged finance – although mainly through their own efforts – the three forest countries which have already started on Interim REDD+ pathways are showing that progress is possible. Brazil has reduced net deforestation by two thirds since 2004 - resulting in more avoided greenhouse emissions than all developed countries put together – and demonstrating how historically high deforesters can reduce deforestation. Guyana is maintaining 99.5% of its forest – through sustaining the lowest rate of deforestation in the world – and demonstrating how historically low deforesters can maintain low rates of deforestation.

## The Guyana-Norway Partnership:

Part of Guyana's efforts to prove to the world that progress is possible, and that problems can be solved, is grounded in the Guyana-Norway partnership. On November 9<sup>th</sup>, 2009, President Jagdeo and Norway's Minister of the Environment and International Development, Mr. Erik Solheim, signed a Memorandum of Understanding, agreeing that Norway would provide Guyana with result-based payments for forest climate services of up to US\$250 million by 2015, alongside co-operation between the two countries in the fight against climate change, the protection of biodiversity and the enhancement of sustainable development.

Despite initial teething problems in establishing the mechanism to intermediate funds between Norway and Guyana, to date Guyana has earned US\$115 million in payments for forest climate services through this partnership – making it the second largest Interim REDD+ arrangement in the world (Brazil's is larger at a total of just over US\$1 billion in payment commitments from Norway and Germany, but Guyana's is by far the world's largest per capita). Alongside Guyana's own financial investments and policy initiatives, these payments have started to enable Guyana's forests to be worth more alive than dead, by creating an Economic Value to the Nation (EVN) derived from Interim REDD+. In turn, this is generating the capital needed to invest in the new economy.

## 2009-2013: Starting the Transition to a New Economy

In 2009, the LCDS identified eight priorities that would be the early focus of Guyana's transition to a low carbon economy. As of March 2013, all of these priorities are starting to be delivered:

- **Renewable Energy:** The Amaila Falls Hydropower Project is the flagship of the early years of the LCDS, and will deliver a steady source of clean, renewable energy that is affordable and reliable. It will eliminate at least 92% of Guyana's energy related greenhouse gas emissions, and this will likely make Guyana the world's number one user of renewable energy by 2017. As of March 2013, work on the access road to the project site is nearing completion, the commencement of construction of the power plant will start later in the year, and the generation of clean energy is planned to commence in 2017.
- **Amerindian Development:**
  - o *Hinterland Renewable Energy:* To support the energy needs of households without access to the national electricity grid, the Government of Guyana has distributed solar power home systems to Amerindian and other hinterland households – and provided many of them with electricity for the first time. As of March 2013, over 11,000 home systems have been installed in almost 200 communities – with approximately 400 people, mainly Amerindians, trained in their operation, installation and maintenance. Furthermore, the Government of Guyana is investing in small-scale hydropower resources in the hinterland. The Government is currently in the process of developing a 330kw run-of-the-river hydropower facility near the Amerindian community of Kato that will provide renewable power to Amerindian communities'



education and medical facilities as well as provide a steady supply of water to support agricultural development opportunities in the communities.

- *Socio-Economic Development:* The Amerindian Development Fund is being capitalised to fund the socio-economic development of Amerindian communities, through the implementation of their Community Development Plans (CDPs), which identify the communities' own priorities to meet social and economic development objectives. As of March 2013, 166 Amerindian villages (including satellites), communities and settlements have produced CDPs, and in 2013, 27 villages will commence the implementation of their Community Development Plans<sup>1</sup>.
- **Amerindian Land Titling:** In excess of 14% of Guyana's territory is owned by Amerindians, up from about 6% in the early 1990s. The Government of Guyana has committed to completing the titling of all Amerindian lands (including the related processes of demarcation and extension) over the next three years –in accordance with the Amerindian Act which embodies the principle of free, prior and informed consent (FPIC) of the members of the communities. Since the LCDS was published, 2 villages and one extension have received land title and 7 have been demarcated. This means that as of March 2013, 12 communities have outstanding title requests, while 37 demarcation and 33 extension requests are yet to be processed. All outstanding requests will be addressed in the Amerindian Land Titling project (ALT) 2013-2016 to be funded by payments received from Norway. The ALT project includes the 6 titled villages that are engaged in land-related Court proceedings against the Government of Guyana - these villages, though titled, have not provided approval for demarcation which is a prerequisite for surveying to take place.
- **Expanding the Digital Economy and Avoiding a Digital Divide:** From 2009 to March 2013, the Government pursued three mutually supportive policy objectives:
  - *Fibre Optic Cable:* Alongside the new fibre optic cable operated by the private telecommunications utility, GT&T, the Government is also investing in enhancing broadband connectivity between the coast and the hinterland, as well as connections to Brazil's telecommunications network via the first phase of the Government's eGovernance initiative. As of March 2013, the main 560km overland fibre optic cable and repeater stations are nearing completion, and will provide the foundation for the next phase of work, which will include linkages to the hinterland, in particular the Rupununi.

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<sup>1</sup> The Amerindian Development Fund capitalized from the payments from Norway is not the same as the fund into which royalties are paid for Amerindian communities.

Guyana Geology and Mines Commission (GGMC) through the Ministry of Natural Resources and the Environment transfers 20 percent of the royalties from mining activities paid by small and medium-scale miners in hinterland communities. The transfer is in keeping with the 2006 Amerindian Act which stipulates that the GGMC shall transfer 20 percent of the royalties from mining activities to a fund designated by the Minister for the benefit of Amerindian villages. The Act further states that small and medium-scale miners shall pay to the Village Councils not less than seven percent of the value of any minerals obtained from village lands. The use of the funds will be guided by procedures that will benefit Amerindian villages that are not engaged in mining or fall within mining districts. The fund will allow the National Toshias Council (NTC) and other stakeholders to be involved in projects that will foster improvement in the living conditions and the economic status of Amerindians.

In March 2012, the Ministry of Amerindian Affairs received a cheque totalling over \$49M in royalties from the Guyana Geology and Mines Commission (GGMC) through the Ministry of Natural Resources and the Environment. The \$49M accounts for 20 percent of the royalties from mining activities paid to the GGMC for the period 2006 to 2011 by small and medium-scale miners in hinterland communities among which are Isseneru, Warrow, Jawalla, Chinese Landing and Campbelltown.

- *One Laptop per Family*: The One Laptop per Family Project is providing Internet-connected mobile computers to families throughout Guyana who otherwise might be excluded from the opportunities presented by modern Information Technology. Recipients pay for the computers through community service and provide training and other services for their communities. As of March 2013, 26,832 laptops have been distributed, with ongoing training in their use.
  - *Telecommunications Liberalisation*: The Government has presented a Telecommunications Bill to the National Assembly, which is currently awaiting its Second Reading. As of March 2013, discussions are ongoing between the Government and the two current major telecommunications providers in order to achieve consensus on achieving liberalization in the interests of Guyanese consumers and businesses.
- **Support for MSE and Vulnerable Groups Low Carbon Livelihoods**: US\$10 million has been allocated to enable low carbon economic opportunities for micro and small enterprise (MSE) sectors and vulnerable groups. As of March 2013, the first phase of the project is beginning with an allocation of US\$5 million. During this phase, it is estimated that 2,200 jobs will be created or sustained in low carbon sectors over three years.
  - **Centre for Bio-Diversity Research and Curriculum Development**:
    - *Curriculum Development*: Guyana may be the only country in the world where Low Carbon Development is being put on the primary school curriculum.
    - *Centre for Bio-diversity Research*: Work is starting to partner with national and international establishments to set up an international centre dedicated to researching (and where possible, deriving economic value from) Guyana's rich biodiversity.
  - **Climate Resilience and Adaptation**: 39% of Guyana's population and 43% of GDP are in regions exposed to significant flooding risk, and extreme weather events are increasing in frequency - in 2005 floods caused losses equivalent to 60% of Guyana's GDP. While over time, huge investment is needed to make Guyana more resilient to climate risks, in the period to March 2013, the first priority addressed was the rehabilitation of canals to improve the Government's ability to manage water resources in the East Demerara Water Conservancy.
  - **MRV and other LCDS Supporting Tasks**: After the December 2011 election, one of the first acts of the new Government was to establish a new Ministry of Natural Resources and Environment. As well as leading national efforts to develop key sectors sustainably, the Ministry is leading Guyana's engagement with international enforcement and trading initiatives, including those relating to forestry and mining. The Ministry is leading Guyana's commitments to the Extractive Industry Transparency Initiative (EITI), the European Union Forest Law Enforcement, Governance and Trade (EU-FLEGT) initiative, Independent Forest Monitoring (IFM) and the UN's Minamata Convention on Mercury. Since 2009, work has also been ongoing to strengthen the Office of Climate Change, the LCDS Project Management Office, and the Guyana Forestry Commission, who are implementing one of the most advanced REDD+ Monitoring Reporting and Verification Systems (MRVS) in the world.

The Government is also continuing its strong support for the rapid growth of low carbon economic sectors. Since 2009, the number of people employed in Guyana's business process outsourcing industry has more than doubled, while the hinterland eco-tourism sector has been growing at 20% per annum. Low carbon measures are being introduced into the country's broader legislative and taxation system, and the Government has promoted greater reliance on renewable sources of energy and the use of more energy efficient devices, including incentives through the reduction or removal of taxes.

The IMF has stated that the LCDS has the potential to add significantly to Guyana's economic growth.

## 2013 – 2015: The Next Stage in the Low Carbon Transition

During the period 2013- 2015, the 8 priority investments outlined above will all continue utilizing resources already allocated. In parallel, and subject to revenues from climate services and other sources continuing as planned, the Government of Guyana intends to address a further 5 priorities:

**Climate Resilience, Adaptation and Water Management:** Up to US\$100 million will be allocated for a once-in-a-generation effort to upgrade Guyana's ability to cope with climate change. The details of this will be determined through a Climate Resilience Strategy that will be completed by the first half of 2014, and will likely include some or all of the following measures:

- *Upgrading infrastructure and assets to protect against flooding through urgent, near-term measures.* This will include maintaining and upgrading Guyana's drainage and irrigation system, empoldering as well as dredging and de-silting major rivers, expansion of the use of mangroves as natural sea defenses, and significant upgrades to the East Demerara Water Conservancy (EDWC) to protect Georgetown, the East Bank and most of the East Coast.
- *Hinterland Adaptation:* This will include the development, reproduction and distribution of plant varieties and crop management techniques that are suitable for Hinterland communities, thereby ensuring the sustainability and further development of their livelihoods. In addition, all-weather roads and bridges and new drainage and irrigation systems will be constructed, with a focus on particularly vulnerable areas.
- *Adaptation Readiness Programme:* This could include significantly revamping Guyana's early warning system and improving the timely and accurate collection and dissemination of data and information on weather-related events and their impacts on the ground.

**Supporting High Potential Low Carbon Sectors:** Building on the priority diversification opportunities identified in Guyana's National Competitiveness Strategy (NCS), up to US\$30 million will be allocated to assist in the development of priority low carbon sectors. It is expected that the priorities to 2015 will be business process outsourcing, aquaculture, eco-tourism, and fruits and vegetables. In parallel, work to strengthen the sustainable forestry and mining sectors will continue.

**Hinterland and Amerindian Development:** Much of the work that started before March 2013 will continue up to 2015. Land titling efforts will continue with the goal of satisfactorily addressing all requests from communities who wish this to be done in accordance with the principles of free, prior and informed consent (FPIC). The Amerindian Development Fund will continue to be capitalized to provide financing for all Community Development Plans. Alongside the existing programmes, further measures will also receive investment. Up to US\$17 million will be invested in Hinterland Adaptation measures; US\$11 million will be allocated to improving ICT access and US\$6 million to facilitate Hinterland Distance Learning through ICT.

At the same time, the "Opt In" process will be advanced. Guyana is the first country in the world to propose a national scale "Opt In" process for whether and how indigenous peoples may choose to opt in to a REDD+ mechanism in the coming years. The principles of free, prior and informed consent will under-pin the opt-in process, and no deadline will be set for its completion. Since 2009, the "Opt In" process has been developed, mainly through discussions with Toshaos. At the August 2012 meeting of the National Toshaos' Council, the majority of Toshaos signed a resolution indicating that a draft "Opt-In" mechanism was ready for discussions by villages and that it conformed to the principles of FPIC. This approval paves the way for the "Opt-In" process to move to the next phase of a detailed implementation plan to be tested in a pilot community.

**Centre for Biodiversity:** As of March 2013, work is ongoing to design how investment from the Government, derived from payments from Norway, can be spent to develop a self-sustaining scientific research centre at the University of Guyana.

**Clean Transportation Programme:** Up to US\$2 million will be allocated for planning work to look at low carbon transportation options for Guyana, and to quantify how they can benefit the economy.

## A Global Model for REDD+

Since 2009, the LCDS has aimed to meet two complementary objectives – as described above, the first objective is to sustain Guyana’s development and prosperity through following a low carbon development trajectory. The second objective is to build a model for REDD+ that can provide the world with a functioning mechanism from which insights can be drawn.

Guyana is the first country in the world to implement national scale action on REDD+. Its core innovation is the country’s mechanism for the sale of forest climate services. Norway is the first contributor to pay for these services – and in the period to 2015, the Guyana-Norway partnership aims to highlight and solve a large number of globally relevant problems that will help the UNFCCC agree and implement a legally binding climate treaty.

In the absence of a detailed UNFCCC mechanism for REDD+, Guyana and Norway have worked together to create a mechanism, based on a number of building blocks. Each block uses “proxies” to model an eventual UNFCCC mechanism – with (i) a series of *monitoring proxies* determining how much money Guyana is paid for verifiable avoided greenhouse gas emissions, coupled with a set of governance indicators to verify adherence to agreed safeguards (ii) a multi-donor trust fund acting as the *proxy for a climate finance intermediation mechanism*, and (iii) the safeguards of a set of partner entities acting as the *proxies for eventual UNFCCC safeguards* to ensure agreed social and environmental objectives. In all cases, the proxies are analysed every year, with the intention of improving their effectiveness, so that by 2015, the building blocks can collectively be held up as a global model for REDD+.

The Government of Guyana believes that the model is compatible with global objectives to catalyse a reduction of about 50% in annual deforestation by 2020 across most of the world’s forest countries, compared with deforestation in 2005 – for a global cost of approximately US\$29 billion between 2013 and 2020. This amount would be well within the climate finance commitments made by the developed world for that period. Most importantly, success at this level would almost definitely be the single biggest climate mitigation action in the period – and probably the single biggest mitigation action to ever take place. Over 8 years, it could deliver more than 6GtCO<sub>2</sub> in reduced greenhouse gas emissions. By way of comparison, the European Union plans to reduce its emissions by less than 2 GtCO<sub>2</sub> relative to 1990 by 2020.

## Involving all Guyanese in the Low Carbon Transition

The long-term success of the LCDS is ultimately dependent not only on international partnerships, but also on broad-based, inclusive domestic support within Guyana. The LCDS was prepared through three drafting and consultative processes, under the oversight by a Multi-Stakeholder Steering Committee. All LCDS investments are incorporated into the National Budget, and are subject to the oversight of the National Assembly and its economic committees. Individual investments are subject to ongoing stakeholder engagement in a manner which is appropriate to the specific investment, for example within Amerindian villages. This approach to stakeholder involvement will continue as the new wave of investments proceeds. The MSSC will continue to provide overall guidance and strategic direction for the LCDS, while engagements on individual investments will be done through broad-based and transparent public processes.

# Chapter 1. Guyana's Low Carbon Development Strategy

## A new stage of economic development

In 2009, the LCDS set out the context for the development choices facing Guyana. As the country's first generation of reforms and infrastructure development was nearing completion, the Government had embarked on a new wave of reforms, coupled with further expansion of the country's strategic economic infrastructure. In the almost two decades up to 2009, Guyana had successfully transitioned to a multi-party democracy and market-based economy. Since 2001, far-reaching constitutional reform had included the establishment of six constitutional commissions and four parliamentary standing committees to promote greater inclusivity in national politics; the introduction of presidential term limits to prevent a President from being elected to more than two consecutive terms; and the restoration of parliamentary oversight to the National Budget process. An independent Office of the Auditor General reporting to the National assembly is charged with ensuring transparency of Government expenditures, and parliamentary participation in the police, teaching, public service and judicial appointment commissions has been enabled in law.

Since 2006, Guyana had been one of the strongest growing economies in South America and the Caribbean. Inflation has been kept under control, and monetary policy is implemented by an independent Central Bank. The Government's stock of debt has been reduced significantly. This has enabled considerable expansion in social sectors, most notably in education. The framework for private investment has been progressively modernized.

Strategic economic infrastructure has also been upgraded – including almost all of the national road network, the main international airport, and hinterland airstrips. Ogle Airport is now Guyana's first privately operated international airport, and the Berbice Bridge links some of the country's most productive land to Georgetown, as well as enabling closer linkages with Suriname. The bridge across the Takutu has provided Guyana with its first ever land border with its neighbours – linking Guyana to Brazil, and through Brazil, to the rest of South America.

In 2009, the LCDS set out how these foundations were enabling Guyana to seize the opportunities present in a changing global economic environment. This means continuing the modernization of the traditional economic sectors, which have generated Guyana's historical growth and employment, while simultaneously diversifying the economy into new sectors where Guyana possesses comparative advantage<sup>2</sup>. The National Competitiveness Strategy (NCS) prioritises the modernization of four traditional sectors: sugar, rice, forestry, and mining. It also identifies five additional sectors with the greatest opportunities for new growth and diversification: non-traditional agriculture, aquaculture, business process outsourcing/information technology, and tourism.

## Priorities for the next stage of development

The LCDS (2009) identified how considerable progress had been made in building domestic capability in several of the new sectors outlined in the NCS. Yet to fully realize the potential of each, the country also needed to invest in a second generation of reform and infrastructural development to stimulate investment, economic growth and job creation as well as to improve security and social services, protect vulnerable sections of society, and deal with increased climate change-induced flooding.

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<sup>2</sup> The policy framework to achieve these twin objectives is summarized in Guyana's National Competitiveness Strategy (NCS) – which was published in 2006. The NCS updates key aspects of the economic strategy first outlined in the National Development Strategy (NDS). Both the NDS and NCS were prepared after extensive consultations between the Government, private sector and other civil society stakeholders.

The LCDS (2009) articulated how these reforms and investments could address a number of challenges which include:

- Guyana's oil-dependent electricity supply is more expensive to end users than in neighboring countries (e.g. Suriname), and both cost and reliability concerns have led many major users to operate off the grid. This makes Guyana less attractive to industrial investors.
- Limited fibre optic capacity and sub-standard telecommunications infrastructure make the cost of bandwidth and other telecommunications services among the most expensive in the world, impairing Guyana's ability to develop its business process outsourcing enterprises.
- Much of Guyana's several hundred thousand hectares of non-forested land available for higher-value agricultural development requires either costly drainage and irrigation (e.g., the Canje Basin) or significant road and utility investments to provide access (e.g., the Intermediate Savannahs). This makes Guyana's non-forested land less attractive than available land in other countries such as Brazil.
- 90% the population and the majority of Guyana's economic activity exist at or below sea-level, and in-land flooding represents a significant and growing risk to investors. Major floods in 2005 caused damage equivalent to 60 % of GDP<sup>3</sup>.
- Guyana is not well known to major investors outside of its traditional industries. To be a catalyst for Guyana, leading international players require a business rationale to invest. Given the lack of awareness that exists, the corresponding higher perceived country-risk and the new investment required in industry-specific infrastructure, substantial incentives will be required to attract investors in these industries.

The LCDS emphasized how Guyana also needs to continue to invest in further improvements in its social sectors – for example, to increase access to quality healthcare and education; to help businesses and citizens improve their access to safe and affordable water and electricity; to enhance the security of all Guyana's citizens; to protect vulnerable sectors of society; to continue to provide targeted support for land tenure and development in Amerindian villages; and to alleviate poverty. Furthermore, Guyana must continue to develop the workforce which is required for a modern economy, and attract and retain skilled people – including skilled immigrants from other countries and members of Guyana's "Diaspora". Meeting these wide-ranging development challenges requires significant finances over many years.

## A Development Choice

In 2009, the LCDS stated how Guyana faced a national development choice of global relevance. The country's natural resource base – including the forest, which covers about 85% of Guyana's territory – provides the potential to generate the finances needed for Guyana's next stage of development. History across the world suggests that this could be done through a global "business-as-usual" development model where countries convert a very high portion of forested land for agriculture, mining and other uses to generate the private and public finances necessary to continue development.

However, avoiding this "business-as-usual" development model in the world's forest countries is essential to the future of the planet. Greenhouse gas emissions from deforestation and forest degradation are greater than those of the entire European Union, and greater than the global transport sector. As well as their climate services, these forests help to regulate the planet's rainfall,

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<sup>3</sup> See [www.eclac.org](http://www.eclac.org)

contain vital biodiversity resources, and they provide livelihoods for millions of people. Countries like Guyana contain the vast majority of the world's tropical forests.

## Towards sustainable national and global development

As the Government of Guyana and many other global stakeholders have pointed out for years, deforestation and forest degradation occurred due to land conversion and the clearance of forests – originally in today's developed world - to provide food, fuel, metals and minerals for centuries. These have been essential to local and global prosperity. As the world's population grows from 7 billion to 9 billion and becomes increasingly prosperous, the pressure on the world's forests will intensify, and these pressures need to be resisted. But at the same time, protecting forests without policies to expand global agricultural output, mining and other vital activities could cause unprecedented global food insecurity and far-reaching economic shocks. In both cases, the world's most vulnerable people would suffer the most.

Therefore, the world needs to enable a large-scale transformation in how land is used – to align the need for food, fuel and sustainable livelihoods with the need for climate security. This requires measures to enable new models of development in forest countries – which are now at the “frontier” for the sourcing of food and other resources as the developed world has already converted most of its forested land.

## Creating new economic incentives – the role of REDD+

In Guyana's case, the LCDS sets out how the economic case for maximizing the conversion of forest to agriculture, mining and other land uses is strong. A fact based assessment by McKinsey and Company showed how the most likely economic value to the nation (referred to as EVN) of such uses could be US\$5.8 billion, or equivalent to an annual annuity payment of US\$580 million<sup>4</sup>. By contrast the global economy did not value the eco-system services provided by Guyana's forests – whose EVN in 2009 was close to zero. Consequently, because forested land can generate greater economic value when put to other uses, individuals and companies face powerful incentives to exploit these opportunities to serve local and global demand for food, minerals and other commodities. Many of today's richest countries actively pursued deforestation and land conversion for agriculture for these reasons.

Avoiding a business-as-usual development model will require shifts in economic calculations to make forests worth more alive than dead – by increasing the EVN of climate (and other eco-system) services so that they can create durable incentives for maintaining forests, while simultaneously generating increasing amounts of capital to invest in the long term transition to low carbon, low deforestation economies.

Because of the global benefits from climate and other ecosystem services, those who benefit internationally need to contribute towards paying for the maintenance of these services.

Against this backdrop, in 2008, then President of Guyana, Bharrat Jagdeo spoke of how the people of Guyana were willing “not just to complain about climate change, but to do something about it” by creating a model for the world that showed how “low carbon, low deforestation, climate resilient development” can be possible and beneficial for forest countries. He stated a belief that if the right economic incentives were created, the people of Guyana would be willing to consider deploying most of Guyana's rainforest as part of the global response to climate change, provided that national sovereignty and the rights and development aspirations of all Guyanese were not undermined. In

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<sup>4</sup> See Appendices IV - VII

2008, he set out his vision of a new economy, which would enable Guyana to meet three inter-linked challenges:

- How to make forests worth more alive than dead:
- How to stimulate future growth using clean energy and non-deforesting economic activities:
- How to protect against climate change:

The LCDS seeks to meet these challenges, and states that an increase in the EVN of forest climate services could enable Guyana to continue to generate economic growth at, or in excess of, projected Latin American growth rates over a decade, while simultaneously reducing energy-related greenhouse gas emissions. This could be achieved by:

- Investing in strategic low carbon economic infrastructure, including a hydro-electricity plant at Amaila Falls; improved access to arable, non-forested land; and improved fibre optic bandwidth to facilitate the development of low carbon business activities.
- Nurturing investment in high-potential low carbon sectors, such as fruits and vegetables, aquaculture, business process outsourcing and ecotourism.
- Reforming existing forest-dependent sectors, including forestry and mining, where necessary, so that these sectors can operate at the standards necessary to sustainably protect Guyana's forest.
- Expanding access to services, and creating new economic opportunities for Amerindian communities through improved social services (including health and education), low carbon energy sources, clean water and employment which does not threaten the forest.
- Improving services to Guyanese, including improving and expanding job prospects, promoting private sector entrepreneurship, and improving social services with a particular focus on health and education.
- Protecting Guyana's people and productive land from changing weather patterns. Investments in priority climate adaptation infrastructure can reduce the 10 % of current GDP which is estimated to be lost each year as a result of flooding.

## Slow International Progress

If the international community is to be successful in meeting the climate change challenge, the Government of Guyana - like most governments in the world – believes that an international legally binding climate agreement is necessary, which creates the obligation for all countries to accept their responsibilities for climate change action, including deep cuts in greenhouse gas emissions from historical polluters.

Since 2007, the international community – through the United Nations Framework Convention on Climate Change (UNFCCC) - has agreed that this will include measures to promote reduced emissions from deforestation and forest degradation, alongside conservation and sustainable management of forests. The mechanism within the UNFCCC to achieve this objective is called REDD+. In the words of the Informal Working Group on Interim Financing for REDD+ - established after an April 2009 meeting of G20 leaders, Guyana, Norway and Gabon - *“Correcting the market failure that makes [forest loss] happen is the key to starting to address deforestation. It will take financial resources on a systemic, international scale to create the right economic incentives for governments, businesses and individuals in developing countries to protect standing forests, grow new ones where appropriate, and reduce emissions from deforestation and forest degradation.”*



The Government of Guyana supports international proposals to cut greenhouse gas emissions from deforestation and forest degradation in half (relative to 2010) by 2020, and to make the global forestry sector carbon neutral by 2030 – where emissions from deforestation and forest degradation are balanced by new forest growth. However, achieving this goal relies on international collective action within the UNFCCC.

When the first draft of the LCDS was published, in 2009 the international community expected that the necessary international climate treaty would be agreed by the world's leaders in Copenhagen in December 2009. This did not occur. Subsequently - in Cancun in 2010 and Durban in 2011 - the international community looked at how the failure at Copenhagen could be overcome. In Durban, all of the world's countries took the decision to agree the form of a global, legally binding agreement – including REDD+ - by 2015, and to ensure its implementation by 2020.

While the Government of Guyana welcomed the commitment of all countries to an agreement, waiting until 2020 for real action will be far too late. Given the climate risks and costs before then, it is essential that the international community delivers on the other commitments that were made between Copenhagen in 2009 and Durban in 2011 – especially the finance commitments to pay for adaptation and mitigation in the developing world before 2020, including REDD+.

### Interim Finance for REDD+:

Following the failure of the international community at Copenhagen, it became clear that interim funding is needed for forest countries in the period before a global climate treaty comes into force. Some elements of progress are visible:

- Despite the probable delay in implementing a legally binding treaty until 2020, the Cancun Agreements were adopted by the Parties to the UNFCCC, and committed the international community to:
  - Agreement to generate a total of US\$30 billion in Fast Start Funding for the period 2010-2012, to be invested in developing countries for forest-based mitigation, other mitigation solutions and adaptation
  - Agreement to generate an annual total of US\$100 billion in public and private climate financing by 2020. The Secretary General of the United Nations set up an expert panel to advise on how this target can be reached. Guyana's President Jagdeo, along with the British, Ethiopian and Norwegian Prime Ministers served on this panel following the invitation of the Secretary General. The panel concluded that it was "challenging but feasible" to generate the funds required.
- In April 2009, Guyana was one of three non-G20 countries invited to join the leaders of G20 countries at a meeting hosted by HRH the Prince of Wales on the sides of the G20 Summit in London. The leaders established the Informal Working Group on Interim Financing for REDD+ (IWG-IFR) which looked at how transitional funding could immediately start to slow and avoid deforestation, while supporting the longer-term emergence of an at-scale REDD+ mechanism. The group set out practical recommendations to achieve a 25% reduction in global deforestation by 2015 for a total cost of less than €25 billion.
- A consensus emerged for immediate, interim funding to begin to protect the world's rainforests. President Sarkozy of France and Prime Minister Stoltenberg of Norway started the "Paris-Oslo" process immediately after Copenhagen, with the aim of creating an "Interim REDD+ Partnership" involving most of the world's forest countries and many developed countries.

However, to date, only three forest countries in the world - Guyana, Brazil and Indonesia - are able to access interim finance at a large scale, despite over US\$4.5 billion in pledges that have been made by developed countries. Yet partly as a result of the existing pledged finance – although mainly through their own efforts – the three forest countries which have already started on Interim REDD+ pathways are showing that progress is possible. Brazil has reduced net deforestation by two thirds since 2004 - resulting in more avoided greenhouse emissions than all developed countries put together – and demonstrating how historically high deforesters can reduce deforestation. Guyana is maintaining 99.5% of its forest – through sustaining the lowest rate of deforestation in the world – and demonstrating how historically low deforesters can maintain low rates of deforestation. In both cases, the countries have combined environmental stewardship with achieving higher growth rates than the global average, and expanding the export of commodities and products that are essential to global food security, poverty alleviation and prosperity.

## The Guyana-Norway Partnership:

Part of Guyana's efforts to prove to the world that progress is possible, and that problems can be solved, is grounded in the Guyana-Norway partnership. On November 9<sup>th</sup>, 2009, President Jagdeo and Norway's Minister of the Environment and International Development, Mr Erik Solheim, signed a Memorandum of Understanding, agreeing that Norway would provide Guyana with result-based payments for forest climate services of up to US\$250 million by 2015, alongside co-operation between the two countries in the fight against climate change, the protection of biodiversity and the enhancement of sustainable development.

Despite initial teething problems in establishing the mechanism to intermediate funds between Norway and Guyana, to date Guyana has earned US\$115 million in payments for forest climate services through this partnership – making it the second largest Interim REDD+ arrangement in the world (Brazil's is larger at a total of just over US\$1 billion in payment commitments from Norway and Germany). Alongside Guyana's own financial investments and policy initiatives, these payments have started to enable Guyana's transition to the new economy by starting the process of creating an Economic Value to the Nation (EVN) derived from Interim REDD+. In turn, this is generating the capital needed to invest in the new economy.

## The Story So Far: Transitioning to a New Economy

It is now over four years since the LCDS was launched. The eight priorities identified for the early years of implementation are now progressing, through Government and private investment coupled with US\$115 million in Government investment derived from payments from Norway – and over the coming years, this investment is expected to improve the long-term prosperity and wellbeing of Guyanese.

The Government is also continuing its strong support for the rapid growth of low carbon economic sectors. Since 2009, the number of people employed in Guyana's business process outsourcing industry has more than doubled, while the hinterland eco-tourism sector has been growing at 20% per annum.

The IMF has stated that the LCDS has the potential to add significantly to Guyana's economic growth<sup>5</sup>.

Low carbon measures have also been introduced into the taxation system. The Government has removed applicable taxes on equipment used for generating electricity from non-traditional or

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<sup>5</sup> <http://www.imf.org/external/pubs/ft/scr/2011/cr11152.pdf>

renewable sources for both household and commercial purposes. These include solar panels, solar lamps, solar batteries, solar generators, solar water heaters, wind turbines, water turbines, power inverters, compact fluorescent lamps and light emitting diode (LED) lamps.

This LCDS Update informs on progress to date (March 2013) and builds on earlier versions of the Strategy and for which the starting point was Guyana's National Development Strategy (NDS) and National Competitiveness Strategy (NCS). As articulated in the LCDS in 2009, both of these strategies were written before the impact of climate change was fully understood, and the LCDS augmented them with an updated analysis on how some of the goals of the NDS and NCS could be achieved, focusing on a low carbon approach. The LCDS Update is organized as follows:

- Chapter 2 summarises progress on the eight priorities that were identified in the LCDS in 2009, as the initial focus for implementation in the early years of the transition to a low carbon economy.
- Chapter 3 outlines the extra priorities that will progress in the period 2013 to 2015, alongside a continuation of the eight priorities already in progress.
- Section 4 provides an update on progress of the Guyana-Norway partnership, and its objective to be a global model for an Interim REDD+ partnership.
- Section 5 provides updates on the national consultation which underpins the entire LCDS.

## Chapter 2. 2009 – 2013: Starting the transition to a low carbon economy

In 2009, the LCDS identified eight priorities that would be the early focus of Guyana's transition to a low carbon economy.

As of March 2013, all of these priorities are starting to deliver, through policy initiatives and investment from the Government of Guyana, combined with the payments generated from the Guyana-Norway Partnership (see Table 1).

**TABLE 1: INVESTMENTS FROM FUNDS DERIVED FROM SALE OF CLIMATE SERVICES**

	2009	2010	2011
<b>Earned Payments* ( US millions)</b>			
Performance Based Payments from Norway	30	40	45
<b>Allocation to LCDS Investments based on payments to date (as of March 2013)**</b>			
<i>Low carbon Economic Infrastructure</i>			
Amaila Falls	20	30	30
<b>High Potential Low Carbon Sectors</b>			
Micro and Small Enterprise		5	5
<b>Hinterland Development</b>			
Amerindian Development Fund	1	2	3
Amerindian Land Titling	2.5	2.5	2.5
<b>Human Capital</b>			
Bio-Diversity Research Centre			TBA***
Institutional Strengthening	6.5	0.5	
<b>Adaptation</b>			
Canal Rehabilitation Project			2
<b>Allocated Budget</b>	30	40	42.5
<p>* Note: the "Year" heading relates to the year when the payments were earned. As of March 2013, payments for the years up to end-December 2011 have been determined, while the payment for 2012 will be calculated and independently assessed during 2013.</p> <p>** Allocation to LCDS Investments: In all cases, LCDS investments relate to multi-year programmes. Although a GRIF allocation may take place in a given year, it is usual for the actual disbursement to take place over several years. This table shows when the allocation decisions were made – for further details on project status, see the GRIF website. The text which follows in this chapter provides an update as of March 2013.</p> <p>*** TBA – To Be Allocated total estimate US\$ 4 million, so will include projected allocation for 2012 performance</p>			

## Amaila Falls

The construction of the Amaila Falls hydro-electricity plant has long been a priority of successive Governments in Guyana, and is one of the flagships of the LCDS. It is the largest foreign investment and infrastructure project in the history of Guyana. The project involves the construction and development of (i) a hydropower plant at the confluence of the Amaila and Kuribrong rivers; (ii) an electrical interconnection facility, consisting of approximately 270km of high-voltage redundant transmissions lines and two sub-stations; and (iii) the upgrade and construction of an access road linking the project site to existing roads.

Once complete, the plant will provide a transformational change in the competitiveness of Guyanese businesses, eliminate a key barriers to direct foreign investment, and enable an unprecedented reduction in the cost of electricity for citizens and businesses, saving an estimated US\$3.5 billion for consumers over the twenty-year contract term.

Simultaneously, it will enable Guyana to switch from nearly 100% dependence on fossil fuel-based electricity generation to nearly 100% clean, renewable energy supplies – and will likely see Guyana become the world's largest user of renewable energy, as a percentage of the national energy mix, by 2017.

As of March 2013, work on the access road to the project site is nearing completion, the commencement of construction of the power plant will start later in the year, and the generation of clean energy is planned to commence in 2017.

The Project is structured as a model public-private partnership, and encapsulates a 20-year Build Own Operate Transfer (BOOT) arrangement under which the electricity utility, Guyana Power and Light (GPL), will purchase 100% of the capacity of the Project from the private project sponsor, Sithe Global Power LLC. Sithe Global has established a special purpose company in Guyana - Amaila Falls Hydro Inc (Project Company). The Project Company will execute the project and contract with GPL, the Government of Guyana (GoG), the financing parties and the contractor under a standard project finance arrangement. GoG may exercise the option to purchase 100% of the equity post commercial operation. Regardless of whether or not GoG exercises this option, at the end of the 20-year BOOT period, the Project Company will revert to 100% Government of Guyana ownership, although the Government at that time might choose to sell ownership to other parties.

The Government is investing US\$80 million as equity in the project – sourced from payments accumulated since 2009 under the Guyana-Norway partnership, and the project is also attracting over US\$800 million in private investment and related financing. Alongside equity contributions from the Government of Guyana and Sithe, the Project Company's debt structure includes lead financing by the Inter-American Development Bank (IADB) and the China Development Bank (CDB)

The project footprint on the rainforest will be less than 0.03% of Guyana's forest area, and supports Guyana's objective to maintain 99.5% of its forest. As part of Guyana's efforts to provide a model for high quality low carbon infrastructure development, the project is being developed in accordance with a series of international standards, including the operational procedures and safeguards of the Inter-American Development Bank. The Project has undergone extensive community consultations and will not lead to the involuntary resettlement of any Amerindian community. Further, the Project will see the development of a biodiversity offset of approximately 70,000 hectares to protect high-value biodiversity areas against any residual impacts of the development and operation of the Project. The Environmental and Social Impact Assessment was also subjected to a public consultation in accordance with Guyana and the IDB's operational procedures, and in 2012, the ESIA received the IDB's Senior Management sign off.

## Amerindian Titling, Demarcation and Extensions

Amerindians total approximately 9.1 % of Guyana's population and currently own in excess of 14% of Guyana's territory, up from about 6% in the early 1990s.

Despite significant progress on land titling since the early 1990s, cost was historically a major impediment to progress. However, in 2010, the Government committed to allocating sufficient payments from the Guyana-Norway partnership to complete the titling – by 2015 - of all Amerindian lands (including the related processes of demarcation and extension) – where two-thirds of the community request this to be done, in accordance with the principles of free, prior and informed consent.

Over the next three years, all outstanding requests will be processed through the Amerindian Land Titling Project, in partnership with the United Nations Development Programme. Appendix II provides more details, but in summary:

- *Titling:* Since the LCDS was launched, progress has continued towards this objective utilizing Government of Guyana resources. 2 new communities have received title – Rupanau and Riversview. This means that as of March 2013, 98 villages are titled – leaving a total of 12 communities across the country which remain untitled (Karaiko, Batavia, Tasserene, Kangaruma/Asura, Kamburu/Ominike, Tuseneng, 4 miles, Eclipse FallsTop, Karispuru,, Rockstone, Katoonarib/Sawariwau and Parabara). A further 19 settlements are likely to become eligible for title in the future.
- *Demarcation:* Since the LCDS was launched in 2009, the demarcation process has been completed for 7 villages. Of the 98 titled villages, 77 have been demarcated. 21 other demarcations are in progress, and the twelve currently outstanding title requests will also require demarcation – bringing the total to 37. This includes the 6 titled villages that are engaged in land-related Court proceedings against the Government of Guyana; these villages, though titled have not provided approval for demarcation which is a prerequisite for surveying to take place.
- *Extensions:* Since the LCDS was launched, one new village received title for extension. This means that to date, 8 villages have been granted titles for extensions with 33 extension requests being processed.

### **BOX 1: AMERINDIAN OWNERSHIP OF LAND**

Shortly after Guyana acquired independence in 1966, the Amerindian Lands Commission was established with the goal of recognizing Amerindians' right to communal land ownership. The Amerindian Lands Commission Report of 1969 offered a number of recommendations for granting land titles to identified communities that existed prior to 1966. In 1976, the 1951 Amerindian Act was amended to provide for the granting of titles to 64 Amerindian communities. In 1991, 10 other villages were titled, bringing the total of titled villages to 74, approximately 6% of Guyana's territory.

All 74 titled villages were mainly bound by natural boundaries, and the outcome of the initial titling efforts without demarcation did not provide closure on issues of Amerindian land claims. Furthermore, the Amerindian Act under which the lands were granted was considered to be defective because it provided the Minister and Chief Officer with extensive powers to reduce and confiscate lands granted and occupied by Amerindians.

To address this, from 1992, the Government sought to reform the constitutional and legislative framework for Amerindian land ownership, and in 1995, agreement was reached with the Amerindian Toshaos (village leaders), where-by a two-prong approach for addressing land claims was formulated:

- Demarcation of the existing 74 titled Amerindian villages
- Addressing the request for titles by communities without titled lands and examination of extensions requested by titled villages

This laid the basis for the development of a land titling, demarcation and extension programme. As a result, the total number of titled Amerindian villages is now 98 of which 77 are demarcated.

In parallel, the policy framework was reformed and culminated in the Amerindian Act # 6 of 2006 which was formulated out of extensive community consultations with Amerindian villages. This made provision for matters of land management, allocation, leasing, titling, demarcation and extension. Titles are now issued in different forms – Amerindian Villages, Amerindian Areas and Amerindian Districts. The Act provides the Village Council with functions to hold for the benefit and use of the village “all rights, titles and interest in or over village lands and to manage and regulate the use of and occupation of village lands.” Ownership of land is communal. Villages decide on how much land will be used for mining, forestry and hunting, and residential occupancy. The law also allows Village Councils to lease community lands up to 10% of the titled area owned. Each Village elects a Toshao to represent the village, all Toshaos meet together as part of a National Toshaos Council, and they elect a Chairperson to represent the Council.

## Amerindian Socio-Economic Development

Over the coming years, Amerindian communities will be able to exercise a choice as to whether or not to enter into Interim REDD+ or REDD+ arrangements. In the period to 2015, whether or not communities decide to “opt in”, Amerindian communities will continue to receive financial support from Guyana’s national Interim REDD+ arrangements, including the Guyana-Norway partnership. From 2009 to March 2013, the Government and Amerindian communities collaborated on three priorities. The first relates to land titling, demarcation and extension as described previously. The other two priorities are:

- **Hinterland Renewable Energy:** To support the energy needs of households without access to the national electricity grid, the Government of Guyana, through the Hinterland Electrification Unit at the Office of the Prime Minister, has distributed 11,000 solar power home systems to Amerindian and other hinterland households – thereby providing many of them with electricity for the first time. Approximately 400 people, mainly Amerindians from 188 hinterland communities were trained in the operation, installation and maintenance of the solar home systems.
- **Socio-Economic Development:** The Amerindian Development Fund<sup>6</sup> has been set up, and is being capitalised to provide funds for the socio-economic development of Amerindian communities, through the implementation of their Community Development Plans (CDPs). 166 Amerindian villages (including satellites), communities and settlements have produced CDPs, which identified their own priorities to meet social and economic development objectives.

In 2013, 27 villages and communities will commence the implementation of their Community Development Plans. In all cases, following a period of consultation, a Village General Meeting determined the most feasible projects, with the Village Council taking the lead in preparing proposals and budgets, drawing on guidance from technical officers at the Ministry of Amerindian Affairs and the United Nations Development Programme (UNDP). As a result, the proposed projects in CDPs vary in nature but can be categorized into seven broad sectors: Agriculture, Village Infrastructure, Tourism, Manufacturing, Village Business Enterprise, Mining and Transportation.

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<sup>6</sup> The Amerindian Development Fund, capitalized from the payments from Norway, is not the same as the fund into which royalties are paid for Amerindian communities.

Guyana Geology and Mines Commission (GGMC), through the Ministry of Natural Resources and the Environment, transfers 20 percent of the royalties from mining activities paid by small and medium-scale miners in hinterland communities. The transfer is in keeping with the 2006 Amerindian Act which stipulates that the GGMC shall transfer 20 percent of the royalties from mining activities to a fund designated by the Minister for the benefit of Amerindian villages. The Act further states that small and medium-scale miners shall pay to the Village Councils not less than seven percent of the value of any minerals obtained from village lands. The use of the funds will be guided by procedures that will benefit Amerindian villages that are not engaged in mining or fall within mining districts. The fund will allow the National Toshias Council (NTC) and other stakeholders to be involved in projects that will foster improvement in the living conditions and the economic status of Amerindians.

In March 2012, the Ministry of Amerindian Affairs received a cheque totalling over \$49M in royalties from the Guyana Geology and Mines Commission (GGMC) through the Ministry of Natural Resources and the Environment. The \$49M accounts for 20 percent of the royalties from mining activities paid to the GGMC for the period 2006 to 2011 by small and medium-scale miners in hinterland communities among which are Isseneru, Warrow, Jawalla, Chinese Landing and Campbelltown.



## Expanding the Digital Economy and Avoiding a Digital Divide

The LCDS highlighted the importance of enabling access to high quality ICT infrastructure in all parts of Guyana. Guyana aims to have one of the most inclusive digital societies in the world by 2015, where all citizens have access to IT and high-speed internet. Government policy focuses on enhanced connectivity and training for individuals and communities - with particular attention given to vulnerable groups and remote communities, who might otherwise be excluded.

The Government has also worked to support private sector investment in Guyana's business process outsourcing industry – identified in the LCDS as a key low carbon economic sector. In 2008, Accenture estimated that Guyana's outsourcing industry had the potential to more than double the number employed by 2013<sup>7</sup>. As described in Chapter 3, combined Government and private efforts enabled this target to be significantly exceeded.

From 2009 to March 2013, the Government pursued three mutually supportive policy objectives:

- *Fibre Optic Cable:* Up until 2010, Guyana's only international fibre optic link was the GT&T operated cable, linking Guyana to Suriname and French Guiana. Since 2008, the Government has supported GT&T's efforts to land a new submarine cable, connecting Guyana to Trinidad to link up with the rest of the world. In parallel, the Government is also investing in enhancing broadband connectivity between the coast and the hinterland, as well as connections to Brazil's telecommunications network via the first phase of the Government's eGovernance initiative. As of March 2013, the main 560km overland fibre optic cable and repeater stations are nearing completion, and will provide the foundation for the next phase of work, which will include linkages to the hinterland, in particular the Rupununi. Phases II and III will see expansion of telecoms services and the wireless broadband infrastructure network along the coast and into hinterland (including forest) villages and communities.
- *One Laptop per Family:* The One Laptop per Family Project is providing Internet-connected mobile computers to 90,000 families throughout Guyana who otherwise might be excluded from the opportunities presented by modern IT. The computers are paid for through community service by the recipients, where they provide training and other services that will benefit their communities. The One Laptop Per Family project aims to foster community and economic development, support computer education in primary and secondary schools and increase Guyanese technology awareness, knowledge and skills through a family focused community based project model to prepare individuals for ICT related work. As of March 2013, working in partnership with the Government of China, 26,832 laptops have been distributed, with ongoing training in their use.
- *Telecommunications Liberalisation:* A remaining barrier to sustaining industry growth in Guyana's rapidly growing outsourcing industry, and other sectors, has been the lack of competitively priced international telecommunications. To address this, the Government has presented a Telecommunications Bill to the National Assembly, which is currently awaiting its Second Reading. As of March 2013, discussions are ongoing between the Government and the two current major telecommunications providers in order to achieve consensus on achieving liberalization in the interests of Guyanese consumers and businesses.

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<sup>7</sup> Office of the President, Republic of Guyana. "Stimulating Growth in the Business Processing Outsourcing Sector"

## Support for Micro and Small Enterprise and Vulnerable Groups' Low Carbon Livelihoods

US\$10 million has been allocated to enable the creation of new low carbon economic opportunities for micro and small enterprise (MSE) sectors and vulnerable groups. As of March 2013, the first phase of the project is beginning with an allocation of US\$5 million. Over the next three years, it is estimated that 2,200 jobs will be created or sustained in low carbon sectors under the first phase of the programme, which will support: (i) access to finance, and (ii) improving technical and business skills.

Guyana's Small Business Act of 2004 established a Small Business Development Fund and a Small Business Council, which are responsible for the development of the MSE sector in Guyana. The secretariat of this Council, and the executing agency for the MSE project, is the Small Business Bureau, who will administer the programme as well as support other government sector specific initiatives to promote MSE's and vulnerable group participation in the emerging low carbon economy.

The Bureau will work closely with agencies responsible for building alternative livelihoods for vulnerable groups, such as the Women's Advisory Bureau, the Rural Women's Network and the Ministry of Agriculture. Monies in this component will be administered through the Small Business Development Fund and will be applied against two fundamental constraints: access to finance and technical and business skills development. The available financing will:

- Provide grants for essential equipment and marketing activities to small and micro businesses in key low carbon growth sectors and restructuring sectors: for example, fruit and vegetables, aquaculture, sustainable value-added forestry, eco-tourism, and sustainable-model mining;
- Address Guyana's long standing access to finance constraint for SMEs and vulnerable groups by launching a Low Carbon MSE Mutual Guarantee Fund. By assuming an adequate but not excessive amount of lending risk, this fund will address a long-term constraint to the development of MSEs and vulnerable groups in Guyana. Banks and lending associations are reluctant to finance this sector because of the associated risk. The fund will aid the development of MSEs and vulnerable groups in other low carbon sectors, such as energy efficient transportation, printing and publishing, arts and crafts, apiculture, internet and computer based services, low carbon manufacturing, entertainment, music and arts and retail and distribution;
- Provide targeted training in business development, technical skills and sustainability through a targeted system which will give MSEs and vulnerable groups the ability to obtain the relevant business and technical training conducive to their development. The system will ensure appropriate training by allowing low carbon sector MSEs and vulnerable groups to choose the training they require, within a pre-selected band, from organizations such as Empretec and the Institute for Private Enterprise Development; and
- Capacity building in agencies responsible for MSE development and building alternative livelihoods for vulnerable groups in low carbon sectors, including the Small Business Bureau. This will be in the management of the credit guarantee funds, grants, the targeted training system, and MSE and vulnerable group information systems.

## Centre for Bio-diversity Research and Curriculum Development

- *Centre for Bio-diversity Research:* The LCDS articulated how Guyana's rainforest has some of the richest bio-diversity in the world. Moreover, rainforests currently provide sources for 25% of today's medicines, representing a drugs market of close to US\$100 billion. Guyana will seek to partner with national and international educational, research and commercial establishments to set up an International Centre dedicated to researching (and where possible, deriving economic value from) Guyana's rich bio-diversity. As of March 2013, work is ongoing to design how investment from the Government, derived from payments from Norway, can invest in human resources, infrastructure, facilities and equipment to develop a self-sustaining scientific research centre at the University of Guyana.
- *Low Carbon Curriculum Development:* The LCDS stated that long-term buy-in for low carbon development and ongoing discussion and improvement of Guyana's ability to deliver a low carbon future will come about with the mainstreaming of these topics into the long term education system. Guyana may be the only country in the world where Low Carbon Development is being placed on the primary school curriculum.

## Climate Resilience and Adaptation: Canal Rehabilitation

The LCDS outlined Guyana's immense challenges in dealing with rising water levels and changing weather patterns. As well as major challenges in the Hinterland, much of the populated coastal zone - including Georgetown - lies below sea level. 39% of the country's population and 43% of GDP is in regions exposed to significant flooding risk, and extreme weather events are increasing in frequency - in 2005 floods caused losses equivalent to 60% of Guyana's GDP.

Climate Resilience and Adaptation will be a major focus of LCDS implementation in the period from 2013 onwards (see Chapter 3). However, in the period to March 2013, progress was made on initial priorities.

The Canal Rehabilitation Project will improve the Government of Guyana's ability to manage water resources in the East Demerara Water Conservancy (EDWC) by widening one of the Conservancy's high-impact connecting canals, and rehabilitating the canal's outlet structure. Rehabilitation of the canal will increase its discharge capacity and contribute to reducing the risks of the embankment overtopping and flooding areas along the East Bank of the Demerara. As of March 2013, the Conservancy Adaptation Project (CAP), which aims to reduce the vulnerability of catastrophic flooding on Guyana's East Coast, presented findings to guide a comprehensive upgrading program of the EDWC and lowland drainage system, aimed at increasing discharge capacity and improving water level management. Based on these findings, an investment decision will be made to rehabilitate a high impact EDWC drainage canal.

Alongside this work, the Government, with the support of the European Union, continued to invest in upgrading the coastal Sea Defenses.

## LCDS Supporting Tasks:

After the 2011 General Election, one of the first acts of the new Government was to establish a new Ministry of Natural Resources and the Environment (MNRE) - which now provides leadership on all matters relating to Guyana's sustainable development. The MNRE leads Guyana's efforts to sustainably develop the forestry and mining sectors, as well as leading Guyana's engagement with the relevant international enforcement and trading initiatives. This includes Guyana's commitments to

the Extractive Industry Transparency Initiative (EITI), the European Union Forest Law Enforcement, Governance and Trade (EU-FLEGT) programme, Independent Forest Monitoring (IFM) and the UN's Minamata Convention on Mercury. Additionally, the programme of work relating to Protected Areas is part of the MNRE's mandate (see Box 2).

In support of overall government policy on the LCDS, sustainable development and climate change, the Government is also investing US\$7 million in an Institutional Strengthening project, which is currently focusing on support for the Office of Climate Change, Project Management Office and Guyana Forestry Commission.

**Office of Climate Change** The OCC was established in June 2009, within the Office of the President (OP), to coordinate Guyana's climate initiatives. Its mandate includes: (i) to support work on climate adaptation, mitigation and forest conservation, working closely with the REDD-Secretariat in the GFC; (ii) to align the efforts of various government agencies around the issue of climate change; (iii) to serve as the secretariat for the Multi-Stakeholder Steering Committee of the LCDS; (iv) to coordinate the efforts of bilateral, multilateral and non-governmental organizations assisting Guyana's climate change agenda; and (v) to provide support to negotiations at appropriate global and regional forums.

**Low Carbon Strategy Project Management Office** Reporting directly to the President, the PMO was launched in 2009. Its focus is on coordinating public and private agencies to accelerate the implementation of a limited number of critical projects, including hydropower and priority adaptation measures, and working alongside the Guyana Office for Investment (GO-Invest), to attract sector-leading investments in low carbon economic sectors.

**Guyana Forestry Commission** Guyana is implementing the world's first national scale REDD+ MRV system, and started this work in 2010. This will provide the basis for reporting in accordance with the principles and procedures of estimation and reporting of carbon emissions and removals at the national level as specified by the IPCC Good Practice Guidelines and Guidance for Reporting on the international level. More details of the MRVS are given in Chapter 4. The GFC is also Guyana's focal point for dealing with the World Bank's FCPF process, which is the chosen multilateral route for preparing for REDD+. The delivery partner for Guyana's FCPF process is the Inter-American Development Bank. This includes progressing Guyana's Readiness Preparation Proposal (R-PP).

## **BOX 2: PROTECTED AREAS**

The LCDS outlined how Guyana intended to ensure that at least 10% of Guyana's land area would be under some form of protection. In the period to March 2013, this policy has been advanced further, and a key milestone was the passing in 2011 of the landmark Protected Areas Act. Today, Guyana's policy objective is to achieve the United Nations Convention on Biological Diversity (CBD) target of having at least 17 % of Guyana's land and inland water under some form of protection by 2020.

This represents the latest step in a long history stretching back to 1929 and the creation of the Kaieteur National Park, which was one of the first protected areas in the region.

Since then, Guyana has made steady progress in conservation and protected area development. Key accomplishments have been the establishment of the Iwokrama International Centre in 1996 and the creation of the community owned conservation area at Konashen in 2006. These achievements ultimately paved the way for the Protected Areas Act of 2011, which was a watershed moment for Protected Areas in Guyana. For the first time, Guyana has in place a national legislative framework that allows for the establishment, management and growth of an effective system of protected areas.

The passage of the Act was followed by the legal establishment of two new protected areas in the Kanuku Mountains and Shell Beach. These areas join the existing Kaieteur National Park and Iwokrama Rainforest Reserve, and the Community Owned Conservation Area at Konashen, which together account for approximately 8.6% of Guyana's landmass. The system also includes the National Park, Zoological Park and the Botanical Gardens.

With the Act in place, 2012 saw the appointment of the Protected Areas Commission (PAC) Board, recruitment of staff members, establishment of the PAC office and finally the opening the Commission in November of 2012. The initial focus was on operationalizing the legal and institutional framework, raising awareness in communities on the new legislation and the work of the PAC, and preparing management plans for the areas within the National Protected Areas System.

Progress was made possible in part through a number of long-standing partners for Guyana's protected areas – including Guyana's Environmental Protection Agency, the Government of Germany, Conservation International (CI), World Wildlife Fund for Nature (WWF), Flora and Fauna International (FFI) and the Guyana Marine Turtle Society (GMTCS). The PAC is now working to create new partnerships. One example saw the signing of an MoU with Panthera, which paves the way for future collaborations with the private sector and corporate groups.

In 2013, important areas of focus will be the rehabilitation of the National Park, Zoological Park and the Botanical Gardens under the Three Parks Initiative, facilitating the creation of the National Protected Areas Trust Fund, developing a strategic plan for the PAC, a systems plan for the protected areas system, management plans for individual protected areas, and establishing a field presence in these protected areas. Partnerships will also be strengthened with local communities, the private sector, NGOs and other important stakeholders in-country and overseas.

## Chapter 3. 2013-2015: The next stage in the low carbon transition

Chapter 2 outlined progress to date across the initial eight priorities identified in the LCDS. In the period to 2015, investment in all of these areas will continue as described in that chapter. In parallel, they will be augmented by five new priorities which will receive new focus and investment, from both Government of Guyana resources and from income derived from the sale of Guyana's climate services (see Table 3). This chapter summarises the next stage in Guyana's transition to a low carbon economy.

**TABLE 2: INVESTMENTS FROM FUNDS DERIVED FROM SALE OF CLIMATE SERVICES**

Sectors	2009-2011	2012	2013	2014
<b>Earned and Projected Payments* (US millions)</b>				
Projected Payments ( US millions) – low end	115	45	45	45
Projected Payments (US millions) – high end			74	74
<b>Allocation to LCDS Invesments**</b>				
<i>Low carbon Economic Infrastructure</i>				
Amaila Falls	80			
Low Carbon Transportation			1	1
<i>High Potential Low Carbon Sectors</i>				
Micro and Small Enterprise	10	5	5	5
Eco-Tourism Development		2	2	2
Aquaculture		3	3	3
<i>Hinterland Development</i>				
Amerindian Development Fund	6	5	5	5
Amerindian Land Titling	7.5			
ICT Hinterland Access Program		3	3	3
Hinterland Distance Learning through ICT		2	2	2
<i>Human Capital</i>				
Bio-Diversity Research Center	2.5	1.5	2.5	2.5
Institutional Strengthening	6.5	7	7	7
Curriculum Development	0.5			
<i>Adaptation</i>				
Canal Rehabilitation	2			
Hinterland Adaptation Measures				10
Coastal Infrastructure		15	12-40	7-36
Comprehensive Adaptation and Climate Resilience Program		0.5		

Strengthening of the Hydro-meteorological Service Monitoring System		1		
<b>TOTAL</b>	115	45	45-74	45-74
<p><i>* Note: the "Year" heading relates to the year when the payments were earned. As of March 2013, payments for the years up to end-December 2011 have been determined, while the payment for 2012 will be calculated and independently assessed during 2013.</i></p> <p><i>** Allocation to LCDS Investments: In all cases, LCDS investments relate to multi-year programmes. Although a GRIF allocation may take place in a given year, it is usual for the actual disbursement to take place over several years. This table shows when the allocation decisions were made – for further details on project status, see the GRIF website. The text which follows in this chapter provides an update as of March 2013.</i></p>				

## Adaptation and Climate Resilience

The LCDS described how Guyana had US\$1 billion in overall infrastructural development needs for adaptation, and about US\$300 million of priority requirements. In addition to these urgent near-term measures, an additional US\$500 million to \$600 million of long-term adaptation measures had been identified including: upgrading the Conservancy to recognized engineered standards (US\$410 million); expanding beyond the priority regions in upgrading the seawall (US\$15 million to \$60 million); and expanding the drainage and irrigation program (US\$30 million to \$119 million).

By 2030, the cumulative annual loss due to flooding in Guyana is projected to be US\$150 million. This at-risk value has been estimated by using flood maps that combine an assessment of flood risk, population density, and economic activity. Additionally, an extreme event similar to the serious flooding in 2005, which resulted in losses equivalent to 60 % of GDP, could result in some US\$0.8 billion in losses and harm to more than 320,000 people. Given these potential losses, investing in the most beneficial adaptation measures would significantly increase estimated national income in Guyana, and would likely be essential to attracting investors.

Focusing on Adaptation and Climate Resilience will be a major focus of the Government's work on the LCDS in the period to 2015. In the period from 2013 to 2015, up to US\$100 million will be allocated for a once-in-a-generation effort to upgrade Guyana's ability to cope with climate change. The details of this will be determined through a Climate Resilience Strategy that will be completed by the first half of 2014, and will likely include some of the following measures:

**Upgrading infrastructure and assets to protect against flooding through urgent, near-term measures.** This includes maintaining and upgrading the intricate drainage and irrigation system of Guyana and entails the construction and rehabilitation of sluices, kokers, revetments and embankments. It will also require empoldering as well as the continuous dredging and de-silting of Guyana's major rivers and creeks. Smaller but crucial rivers that protect major farming areas from flooding, such as the Mahaica, Mahaicony and Abary rivers will also benefit. In addition, the sea wall which protects most of the low-lying coastal areas from the Atlantic will be reinforced. Groynes to reduce siltation of outfalls will be constructed and additional drainage pumps will be installed in strategic locations across the coastline. The East Demerara Water Conservancy (EDWC) which protects Georgetown, the East Bank and most of the East Coast from excess water among other functions, will be upgraded in line with the recommendations coming out of the Conservancy Adaptation Pre-investment Study,

which focuses on the design of specific adaptation measures for the EDWC. Other conservancies around the country will also be strengthened.

***Hinterland Adaptation Measures.*** These initiatives include the development, reproduction and distribution of plant varieties and crop management techniques that are suitable for the Hinterland communities. In addition, all-weather roads and bridges which are crucial for the transport of agricultural inputs to markets will be constructed. Training and educational programmes and the introduction of additional drainage and irrigation equipment in particularly vulnerable areas will be provided in order to improve the capacity of hinterland communities to prepare for, and deal with, the impacts of more extreme weather events. Solar and wind power for water distribution, facilities for rain water harvesting, and the creation of systems that will guarantee access to safe drinking water during crisis situations will also be pursued. Measures to address environmental impacts from climate change will also need to be incorporated into building designs, particularly for clay, sandy and loam areas.

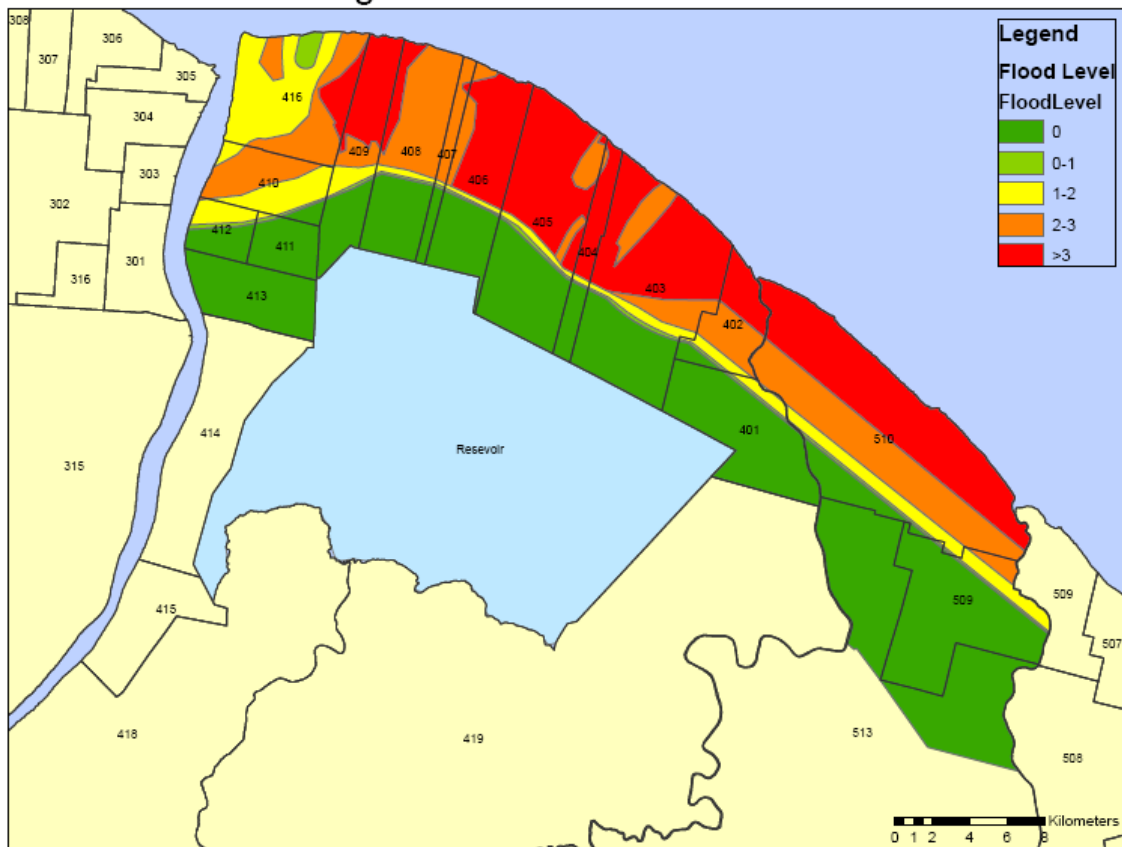
***Addressing systematic and behavioural concerns*** These initiatives include significantly revamping Guyana's early warning system and improving the timely and accurate of collection and dissemination of data and information on weather related events and their impacts on the ground. In addition, an emergency response system will need to be set up that will minimize the risks to public health, ensure that crucial civil structures such as the major infrastructure, safe drinking water systems and electricity and communications networks are maintained in a functioning state. Training and education campaigns of the wider population will also be provided.

***Developing innovative financial risk management and insurance measures to resiliency*** These initiatives will include the conceptualization and introduction of instruments suitable in the Guyana context, that will aim to introduce incentives to avoid and reduce all possible sources of risk ex ante while aiming to transfer risks that are outside of the control of individuals and firms to third parties, which will compensate the insured in the event of an extreme event ex-post. Significant investments will need to be channeled towards training, data collection and transmission systems, particularly in relation to vital weather and hydrological information.

***Switching to flood resistant crops*** These initiatives will include the funding of research to identify flood resistant crops that are applicable to the Guyana, the creating of flood- proof germplasm banks and the introduction of new technology that allows for cultivation of crops during prolonged flood conditions.



## Exhibit 1: Indicative flood map of Georgetown



## Amerindian and Hinterland Development

In the period to 2013, Guyana prioritized a series of programmes for Amerindian and Hinterland development as outlined in Chapter 2. All of these will continue, and in the period to 2015, will be augmented by:

- **the Hinterland Electrification Unit** will work with communities based on a needs assessment for the next phase of energy needs. A survey has already been carried out in Regions 1 and 7.
- **the Amerindian Development Fund** will continue to be capitalised from payments received from the sale of Guyana's forest climate services. The funds will then be invested in accordance with villages' own Community Development Plans.
- **Hinterland ICT Access:** As Guyana's new digital infrastructure (fibre optic cable and other related technologies – see Chapter 2) is completed, up to a further US\$17 million will be allocated to improving ICT access in Amerindian and other hinterland areas as part of the second and third phases of the Government's IT programme, and to facilitate Hinterland Distance Learning through ICT.

At the same time, the "Opt In" process will be advanced. Guyana is the first country in the world to propose a national scale "Opt In" process for whether and how indigenous peoples may choose to "opt in" to a REDD+ mechanism in the coming years. The principles of free, prior and informed

consent will under-pin the “opt-in” process, and no deadline will be set for its completion. Since 2009, the “Opt In” process has been developed, mainly through discussions with Toshaos. At the August 2012 meeting of the National Toshaos’ Council, the majority of Toshaos signed a resolution indicating that a draft Opt-In mechanism was ready for discussions by villages and that it conformed to the principles of FPIC. This approval paves the way for the Opt-In process to move to the next phase of a detailed implementation plan to be tested in a pilot community.

## Facilitating investment in high-potential low carbon sectors

The LCDS (2009) outlined how attracting large-scale catalytic investors to Guyana can require incentives to finance industry-specific infrastructure and overcome perceived country and feasibility investment risks. Building on the priority diversification opportunities outlined in the National Competitiveness Strategy, the LCDS identified six priority low carbon economic sectors: fruits and vegetables, aquaculture, sustainable forestry and wood processing, business process outsourcing, eco-tourism, and possibly bio-ethanol.

Most of these sectors are already making significant contributions to Guyana’s economy and the welfare of its people, with some new low carbon sectors starting to exhibit very strong growth, most notably eco-tourism and business process outsourcing.

In the period to 2015, up to US\$30 million will be allocated to build on this progress in up to four priority low carbon sectors. It is expected that the priorities up to 2015 will be business process outsourcing, aquaculture, eco-tourism, and fruits and vegetables. In each of these sectors, long-term market demand exists and Guyana has the essential natural resources to operate at scale.

**1. Ecotourism.** The LCDS identified that Guyana’s tourism industry has potential, particularly in the eco-tourism segment. It noted that the global ecotourism market is approximately \$50 billion (or 6 % of the \$860 billion general tourism market) and is growing rapidly (20-30 %per year). Development requires a gradual build-up of capabilities, infrastructure and brand over time.

Since 2009, working in partnership with the United States, and securing significant funding from USAID, Guyana’s Trade and Investment Support (GTIS) project has delivered impressive progress in the eco-tourism sector – and specifically the birding sector. Through partnership involving Government, the private sector and international partners, Guyana focused on attracting high-end ecotourists from North America and Europe in niche markets, initially to the Rupununi area. Over four years, tourism grew at an annual rate of 20% in the Rupununi, and Guyana went from 2 international tour operators booking trips to over 45 international operators booking trips. New investment in tourism lodges and other properties is taking place, and Carana Corporation has identified that it is possible to sustain annual growth at or above 20 % in the near to medium term.

In the period to 2015, it is likely that the birding niche market will be augmented by an increased focus on Catch and Release Sport fishing, in part based on the success GTIS and private operators have had in marketing Guyana internationally in this sector. This will enable the expansion of ecotourism to new areas of Guyana - including coastal ecotourism due to the availability of tarpon up and down the coast of Guyana. Beyond birding and Catch and Release Sport fishing, Guyana’s rich ecosystem allows for other niche markets in ecotourism including snakes, spiders and other animals or plants and trees. In collaboration with the United Kingdom, the Government will support private-sector led development across all of these markets.

**2. Aquaculture.** The LCDS set out how Guyana has an opportunity to provide fresh and frozen fish to its Caribbean neighbors and other importing nations. In the United States alone, the seafood demand deficit is forecast to be approximately 1 billion pounds by 2025. The LCDS concluded that increasing demand and attractive margins for fresh-water fish make this investment particularly attractive to Guyana. Guyana has 55,000 hectares of state-owned, uncultivated coastal lands and up

to 118,000 hectares in the intermediate savannahs. In addition, Guyana has hinterland areas that are suitable for production of fish or crustaceans, such as tilapia and shrimp. One hectare of land properly maintained can produce up to 23 tons of fish.

Since the LCDS was launched in 2009, Guyana's public and private sectors have worked in partnership with the United States to advance the sector through the GTIS project. The target market was refined to focus on high end tilapia that is traceable and internationally certifiable as a green product through the value chain for export as fresh fish into North American and European markets. GTIS focused on developing an economically viable model of tilapia development in Guyana, and concluded that buyers exist for Guyanese tilapia in North America and Europe but volume must increase to meet these markets. In the years to 2015, the Government will support the industry's expansion in order to meet the medium term objectives set out in the LCDS. This may require incentives to attract medium to large scale investors. It will also require investment in the facilitation of in-country technical specialists, research and development, as well as market development and capabilities to ensure stringent traceability to the standards demanded by the target markets.

**3. Business process outsourcing.** Guyana's educated, English-speaking population – coupled with a location in the same time zone as key markets - make Guyana an attractive outsourcing location. The LCDS stated that according to estimates by Accenture, Guyana's outsourcing industry had the potential to more than double the number employed by 2013 (compared with 2009). This target has been significantly exceeded, with 3,500 people now employed in call centres alone.

In 2009, industry stakeholders identified telecommunications infrastructure as a key barrier to sustaining industry growth – for example, the LCDS noted that Guyana was competitive in all inputs to cost per seat (the key industry metric) with the exception of the cost of telecommunications bandwidth.

As described in Chapter 2, this was one of the reasons the Government supported public and private investment in the expansion of the fibre optic network in Guyana. It is also why the Government is in the final stages of liberalization of the telecommunications sector to open up the international market to new entrants by ending the existing provider's monopoly which was awarded in the 1980s.

In the period to 2015, the Government will continue to support the expansion of the industry – however, the Government's role is likely to decrease as a result of the digital infrastructure and telecommunications policies put in place during the early years of LCDS implementation. As the industry increasingly matures, its expansion can be led by the private sector with the Government playing a supportive role.

**4. Fruits and Vegetables.** Guyana is well-positioned to increase exports of fruits and vegetables as it has major tracts of non-forested arable land that are potentially suitable for commercial agriculture – and the country is close to major fresh fruit and vegetable import markets in the Caribbean and the United States. To capture this opportunity, Guyana needs to attract several large-scale commercial agriculture operators to help it overcome current restraints such as lack of processing facilities, limited ability to comply with sanitary/phytosanitary standards, and weak links to key import markets. Guyana will need to provide significant financing incentives, offer a substantial land area to attract leading operators, and improve its investment support to new investors. Such “sector-leading investment” will be the basis of broader-based growth in this sector. In addition, due to the logistical requirements of the fresh fruit and vegetable supply chain, Guyana will need to continue to invest in optimizing the relevant export processes in order to achieve competitive standing with other investment destinations.

In the period to 2015, the Government will work with the industry to better identify the target markets for this sector, and to establish what Government interventions can help the sector to increase employment and expand economic value.

## Sustainably growing the extractive and forestry sectors

The LCDS highlighted the economic and social importance of Guyana's forestry and mining and minerals sub-sectors. They provide employment for tens of thousands of Guyanese citizens, income for tens of thousands of families, and generate significant Government revenue that is invested in public services. They also meet global demand for commodities that drive the international economy and global development. At the same time, the LCDS highlighted the importance of sustainably managing these sectors – and in particular, ensuring that they support Guyana's extremely low levels of deforestation and forest degradation.

In the period to March 2013, Guyana has invested significant financial resources, and implemented several major policy measures, to strengthen the foundation for these two key industry sectors to offer globally competitive, environmentally sustainable products.

In December 2011, the Government of Guyana created the Ministry of Natural Resources and the Environment.

The Ministry of Natural Resources and the Environment is the national authority performing functions of public policy making and statutory regulation in the field of the study, use, renewal, and conservation of natural resources, including the subsoil, water bodies, forests located in designated conservation areas, fauna and their habitat, in the field of hunting, hydrometeorology and related areas, environmental monitoring and pollution control, including radiation monitoring and control, and functions of public environmental policy making and implementation and statutory regulation, including issues of production and consumption waste management (hereinafter waste), conservation areas, and state environmental assessment.

The Ministry of Natural Resources and the Environment has organized and, within the limits of its authority, ensured compliance with the obligations arising from international agreements of the Government of Guyana on matters, which fall within the scope of activity of the Ministry.

Over the period to 2015, the Government will support the industries move from building this foundation to using it to increase employment and economic value. This will differ for each sector, and further information is laid out below.

**Forestry** Guyana's forestry sector accounts for approximately US\$45M to US\$60M in export value annually and employs over 20,000 persons. There are 29 large concessions in Guyana and 416 small concessions, all of which are leased to and operated by private individuals/companies. The State holds no equity or other management interest in any forest concession. The Government, through the Guyana Forestry Commission, monitors and regulates the activities of forest concessions to ensure that strict sustainable forest management rules and guidelines are implemented and that forest legislation is implemented effectively by operators. Logging companies have to complete comprehensive forest management and annual planning which includes pre-harvest forest inventory, and are required to comply with detailed control procedures and legality assurance measures and log tracking. These and other aspects of sustainable forest management are identified as priority areas in the Forest Act 2009.

The Government's policy is to support companies operating in Guyana to generate substantially more value from the limited portion of the forest where sustainable forest harvesting is appropriate. As much as \$300 million more in annual value could be realized from a shift to integrated primary and secondary processing and more efficient extraction within the existing stringent limits on logging. The global market for well-dimensioned processed lumber is large and growing rapidly, and prices for processed products are significantly higher than for raw logs. New investment in processing activities in Guyana would facilitate even greater production of higher-value wood products that meet international standards for export and could bring new capabilities in waste minimization and recovery, as well as market linkages to enhance export value of processed products. In addition,

Guyana will support local and international firms in increasing end-user demand for products from Guyanese species. The Government will not permit the conversion of primary forest to plantations.

In order to realize this extra value, the Government has prioritized building a foundation of strong regulation and standards enforcement, so that industry growth in the years ahead will be built from a base that can meet emerging global demand for high quality products. Since the LCDS was launched, significant work has already taken place towards the 2015 goal of aligning Guyana's already strong laws and practices with international best practice in this field.

Specifically, Guyana is investing heavily in supporting the forestry sector's ability to trade in the global market place through the provision of three key capabilities. Finishing the development of these capabilities will be a focus to 2015:

- REDD+ Monitoring Reporting and Verification System
- EU-FLEGT VPA Agreement
- Independent Forest Measurement (IFM)

**Monitoring Reporting and Verification System (MRVS):** As well as providing support for operators in the forestry sector, this is supporting the sustainable development of all land based economic sectors, including mining, See Chapter 4 for more information.

**EU-FLEGT.** The Government of Guyana sought to align domestic standards in the forestry sector with those of a global body to support the long term development of trade in sustainable forest products. This will enable all parties who trade with Guyana to know that all forest products that originate from Guyana meet high internationally recognised governance and sustainability standards.

Although a number of standards exist internationally, the Government chose to align with the European Union's Forest Law Enforcement Governance and Trade (EU-FLEGT) initiative. In a joint statement issued by the Government of Guyana and the EU in June 2012, the Parties agreed to commence formal negotiations by the end of 2012, with the objective of concluding negotiations on a Voluntary Partnership Agreement (VPA) by September 2015, according to an agreed Roadmap to be developed jointly. The Parties agreed that the agreement should have clear objectives of adding value to forest governance, forest industry development and sustainability of the forestry sector.

In September 2012, through a multi stakeholder process, Guyana collaborated with international experts from Ghana (who started the EU-FLEGT process before Guyana) to develop the Guyana EU FLEGT Roadmap. This effort saw the participation of various stakeholder representatives from the private sector, civil society, NGOs, Amerindian representatives, Government and other groups, to shape the Roadmap. The Roadmap is guiding the negotiation process, and contains both activities that Guyana will itself undertake in the process, as well as those aspects that will be jointly undertaken by Guyana and EU.

The first formal Guyana-EU negotiations were held in December 2012. In announcing its decision to commence formal negotiations with the EU on a FLEGT VPA, Guyana noted the benefits of EU FLEGT such as stimulating markets, enabling Guyana's exporters to retain markets, and expanding reporting requirements and existing systems in the chain of custody management. The VPA Secretariat is located within the Guyana Forestry Commission, and supported by a multi stakeholder steering body for the VPA negotiation and implementation efforts (called the National Technical Working Group or NTWG).

As of March 2013, among the priority technical activities being addressed are the legality assurance system for Guyana, as well as integrated aspects of the definition of forest legality and the wood tracking system. So far, based on initial assessments conducted as well as existing programmes being implemented in Guyana - including but not limited to Independent Forest Monitoring, Verified Legal Origin (VLO) certification at company level, and the development of a framework for legality assurance - the NTWG has expressed confidence that Guyana's existing systems for forest management and legality, including its log tracking and chain of custody management systems in place since 2001, are robust enough to serve as a solid foundation for the VPA. Guyana intends to develop an interim definition of legality for the EU FLEGT VPA by the end of July 2013.

On a related note, the formal effective date of the European Union Timber Regulations (EUTR) was in early March 2013, and Guyana outlined plans to expand its communication efforts to local and international stakeholders, to share details on the efforts made so far in the EU FLEGT VPA process, as well as details on existing system on which the FLEGT VPA will build that, in its views, will fulfil the requirement of the EUTR through Guyana current system of forest legality.

Although Government policy is to ensure the practice of national sustainable forest management and legality standards for the forestry sector, the Government is also supportive of other international forest accreditation processes, including those involving private firms within Guyana. For example, the Government has supported Barama's efforts to meet the Rainforest Alliance's standards for VLO. The accreditation of Barama's operations in Guyana by Rainforest Alliance represents the largest single block of tropical forest in the world to be accredited under a VLO type of scheme.

**Independent Forest Monitoring** Independent Forest Monitoring is the use of an independent third party that, by agreement with state authorities, provides an assessment of legal compliance, and observation of and guidance on official forest law enforcement systems, based on agreed principles.

As of March 2013, Guyana has advanced its programme of work on implementing national level Independent Forest Monitoring (IFM). This activity provided an initial scoping, conducted by an experience Independent Forest Monitoring firm. This was executed in the last half of 2011, in preparation for a first audit planned for July 2012. The Scoping Mission allowed for a transparent, independent, third party verification of legal compliance, and observation of forest law enforcement systems, based on a list of agreed principles, criteria and indicators<sup>8</sup>. Additional support activities through the IFM programme of work included training exercises organized by the GFC in collaboration with the Independent Monitor. In mid 2012, the contracted independent Auditor, conducted their official first year audit of the legality systems in place within Guyana's Forest sector. This audit provided a number of outputs including: (i) a detailed (draft) report of the complete checks made of the system against a fixed set of criteria; (ii) a detailed look at the critical areas to be strengthened within the system which need to be addressed; (iii) an opportunity for the overall legality system to be further strengthened. The draft report for the audit is expected to be finalized in the first half of 2013.

Over time, it is anticipated that the measures outlined in IFM may be incorporated into the EU-FLEGT initiative.

**Mining** The mining and quarrying industry contributes 10% of Guyana's Gross Domestic Product. In 2012, the value of mineral production was estimated to be G\$175.8 billion, representing an increase of 28.9% from the value of G\$136.4 billion reported in 2011. Contribution to exports and foreign

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<sup>8</sup> The full Scoping Report has been published on the GFC's website ([www.forestry.gov.gy](http://www.forestry.gov.gy)).

currency receipts is even more significant: the value of exports from mining and quarrying was estimated to increase from US\$662.3 million, or 58.7 % of the total of US\$1,128.8 million in 2011 to US\$795 million or 61.6 % of the total of US\$1,291.1 million in 2012.

The increase in the overall value of mineral production was due to continued outstanding performance and high prices in the gold and bauxite sub-sectors, as well as increases in output for sand and loam.

Gold production accounted for approximately 78% of the industry's contribution to GDP (equivalent to 8% of Guyana's GDP), all of which was contributed by the Small and Medium Scale gold miners.

Diamond, bauxite and quarry products were budgeted to account for the remaining 22% of the Mineral Industry's contribution to the GDP.

In 2012, the Mining Industry directly employed approximately 16,500 persons. If indirect and induced jobs are added in, a total of approximately 20,000 persons were employed in the Mining and Quarrying Industry. In addition, several hundred persons were employed by companies involved in exploration activities.

In the coming years, significant new investments in the sector include two major gold exploration projects, Guyana Goldfields Inc. and ETK Inc/Sandspring Resources Ltd, both of which are at the resource assessment stage. Guyana Goldfields Inc. announced positive feasibility study results for its Aurora Gold Project in Guyana with the total investment expected to amount to US\$600 million and seeing 250 jobs created during development phase and 200 created during mine operation. In the case of the Toroparu mine being developed by ETK Inc/Sandspring Resources Ltd., the total investment is projected at US\$400 million, and 300 jobs will be created during development while another 200 jobs will be created during mining.

Because of its extremely high Economic Value to the Nation (EVN) and contribution to employment and socio-economic development, mining activities are not required to cease under the LCDS. Instead, a balanced approach to land use is being pursued where mining, forestry and Interim REDD+ collectively create a set of economic incentives that optimize the creation of jobs and economic value from each sector while minimising deforestation and forest degradation impacts, and simultaneously safeguarding the rights and livelihoods of workers and Guyanese citizens who live near mining activity.

For these reasons, like forestry and all other extractive industries, mining is required to adhere to laws and regulations governing this sector and to operate in accordance with international standards. The Mining Act and environmental regulations for mining predate the LCDS but since the LCDS was launched, the Government has redoubled efforts to ensure that mining practices are continually improved and aligned with international best practice over time.

The existing mining regulations were developed by a multi-stakeholder committee that included representatives from GGMC, EPA and the Guyana Gold and Diamond Miners' Association, and after they came into force education and awareness programmes were carried out in the Mining Districts for small and medium scale gold and diamond miners. Throughout the LCDS process, there have been direct engagements with the mining sector with the involvement of small and medium scale miners to provide a better understanding of the LCDS and its implications for the sector.

At the same time, the Government has prioritized stronger enforcement and sustainability standards to prevent mining from causing environmental degradation and excessive forest loss. A Special Land Use Committee was established in January 2012 to co-ordinate cross-sectoral planning on sustainable land use, and to give guidance for harmonizing mining and forestry in the context of the

LCDS. Prospecting before mining by small and medium scale gold and diamond miners was one of the Special Land Use Committee's recommendations, and the SLUC is progressing five specific projects: (i) Strengthening Land Use Planning and Coordination among natural resource agencies; (ii) Sustainable Land Management in the mining and forestry sectors; (iii) Enhanced Land Reclamation; (iv) Improved Infrastructure in Mining Districts, and (v) Amendments to Mining Act and Regulations.

In May 2012, the Government of Guyana and the Extractive Industries Transparency Initiative (EITI) signed an MOU, and an EITI scoping study started subsequent to this. Guyana intends to submit an application to EITI after this study, and progress towards this is being steered by a multi-stakeholder group which was set up by the Ministry in December 2012, and held its first meeting in January 2013. Timing of the application to EITI will be determined in partnership with industry stakeholders, but the Government of Guyana hopes that this can be facilitated with assistance for the World Bank and IDB after the scoping study is completed in 2013.

In parallel, GGMC is progressing efforts aimed at addressing forest degradation, and advancing several Codes of Practice. The GGMC has increased its monitoring and enforcement in the field as well as support to miners through technical assistance and guidance, alongside the establishing of miners' committees to facilitate the process. It has also employed additional field staff to focus on enforcement of regulations – 19 extra mining inspectors have been hired to date. The GGMC is starting to make the newly developed codes of practice a part of the toolkit of every mine operator. Work has commenced on the new mining school, which will be accredited by Guyana's Ministry of Education, and affiliated with two Canadian institutions.

In March 2013, the Ministry of Natural Resources and the Environment launched an initial draft of its strategic plan setting out how it intends to sustain high standards of environmental stewardship, and the strategy is currently undergoing stakeholder consultation.

## Low Carbon Transportation

In the period to 2013, Guyana's priorities in transitioning to a low carbon economy focused on the contributions that could be made from the sale of forest climate services, the potential for Guyana to transition to low carbon energy, the opportunities for low carbon employment and economic growth in traditional and new economic sectors, and investment needed for adaptation and climate resilience – all within a framework of sustaining strong economic growth and focusing investment on both strategic infrastructure and support for vulnerable groups. While this focus will continue in the years to 2015, work will also start to look at low carbon transportation options for Guyana. Up to US\$2 million will be allocated for planning work to look at how the transportation infrastructure can continue to be upgraded and benefit the economy, particularly in light of the huge expansion in housing development since 2006. The programme will aim to identify ways to make transportation costs cheaper as well as reducing the carbon intensity of Guyana's transportation sector.



## 4. A Global Model for REDD+

Guyana is the first country in the world to implement national scale action on REDD+. In doing this, it is building a model for REDD+, which it hopes can be helpful for other forest countries and the international community. It aims to help resolve many of the technical issues that currently make progress difficult – including the challenges involved in ensuring governance, financial and technical standards that meet both sovereign, domestic standards and global comparability of standards.

The Government of Guyana believes that the model is compatible with global objectives to catalyse a reduction of about 50% in annual deforestation by 2020 across most of the world's forest countries, compared with deforestation in 2005 – for a global cost of approximately US\$29 billion between 2013 and 2020. This amount would be well within the climate finance commitments made by the developed world for that period. Most importantly, success at this level would almost definitely be the single biggest climate mitigation action in the period – and probably the single biggest mitigation action to ever take place. Over 8 years, it could deliver more than 6GtCO<sub>2</sub> in reduced greenhouse gas emissions. By way of comparison, the European Union plans to reduce its emissions by less than 2 GtCO<sub>2</sub> relative to 1990 by 2020.

A core innovation is Guyana's mechanism for the sale of forest climate services. Norway is the first contributor to pay for these services, and the two countries are working to define a methodology which may provide useful lessons for how REDD+ can be designed. It is hoped that by 2015, the Guyana-Norway partnership will have highlighted and solved globally relevant problems, and will have built a global model for REDD+ that can help to inform the UNFCCC negotiations.

### Interim REDD+: Key Elements of Guyana's Forest Climate Services Mechanism

The Governments of Guyana and Norway support:

- The definition of REDD+ agreed in 2008: *“policy approaches and positive incentives on issues relating to reduced emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest stocks in developing countries.”*
- The creation of interim payment for performance mechanisms where forest countries are paid for verifiable avoided greenhouse gas emissions, pending the agreement of an international REDD+ mechanism.
- Measures to promote social and environmental objectives – including what many refer to as “safeguards” - within REDD+ and payment for performance mechanisms.

Based on this shared understanding – and in the absence of a detailed UNFCCC mechanism for REDD+ - Guyana and Norway are creating an Interim REDD+ mechanism. This is detailed in the Joint Concept Note, originally released by the two countries in November 2009, and upgraded at regular intervals since then. Appendix I includes the December 2012 version of the JCN.

## The use of proxies

Because there is no agreed UNFCCC REDD+ mechanism, the Guyana Interim REDD+ mechanism has been built from 9 key building blocks, which seek to model a likely REDD+ mechanism. By 2015, Guyana aims to evolve each building block to a level of quality which, cumulatively, creates the elements of an expected REDD+ mechanism. In the absence of UNFCCC guidance, over the years to 2015, “proxies” are used for each of the key building blocks. Figure 2 shows the 9 key building blocks, and their proxies, which together fulfill three core functions:

- A. **Earning Payments.** Guyana is paid based on independently verified delivery of forest climate services, against two sets of proxy indicators:
- *REDD-plus Performance Indicators:* Guyana is paid US\$5t/CO<sub>2</sub> for avoided greenhouse gas emissions, relative to a reference level that seeks to be compatible with a global halving of deforestation by 2020, and which seeks to provide an incentive for historically low deforesting countries (see Box 3 for a more detailed explanation).
  - *Indicators of Enabling Activities:* Recognising the need to embed social and broader environmental objectives into the sale of forest carbon, the two countries set out a series of enabling indicators to act as proxies for UNFCCC safeguards.

As of March 2013, payments from Norway have reached US\$115 million which Guyana has earned under this process. However, Guyana is now actually generating more services than it is being paid for – for example, in 2011, Guyana was eligible for US\$74 million from its performance. From the start of the Guyana-Norway partnership, it was recognised that Norway would never pay all the money due to Guyana, and now that the Interim REDD+ mechanism is operational, Guyana intends to start the process of ensuring that in future years it is paid the full amount that is earned.

- B. **Managing Payments** Pending the creation of an international climate finance mechanism for REDD+ payments, the Guyana REDD+ Investment Fund (GRIF) is acting as the proxy for a REDD+ financial intermediary function. The GRIF is channelling REDD-plus payments from Norway and other potential contributors to the implementation of Guyana’s LCDS.

The GRIF represents an effort to create an innovative climate finance mechanism which balances national sovereignty over investment priorities with ensuring that REDD+ funds adhere to globally accepted financial, environmental and social safeguards. It is an interim solution - designed for the Guyana-Norway Partnership up to 2015 - pending the transfer of payment intermediation, and associated processes, to Guyana’s national systems. This will be done when it is possible to specify how independent verification of Guyana’s adherence to globally accepted financial, environmental and social safeguards can be implemented. This will draw on UNFCCC and other relevant guidance. In 2010, the Governments of Guyana and Norway invited the World Bank to act as the Trustee of the GRIF.

It took longer than expected to make the GRIF operational, and in 2011, the two Governments stated that the facility was not “fit-for-purpose”. In 2012, the two Governments identified – in collaboration with international institutions – possible reforms to improve the GRIF. As of March 2013, most funds are now allocated to investments and being disbursed in accordance with the disbursement schedule of those investments.

However, Guyana and Norway have stated that more improvements are needed, with the December 2012 JCN stating that “the two Governments recognize the need for

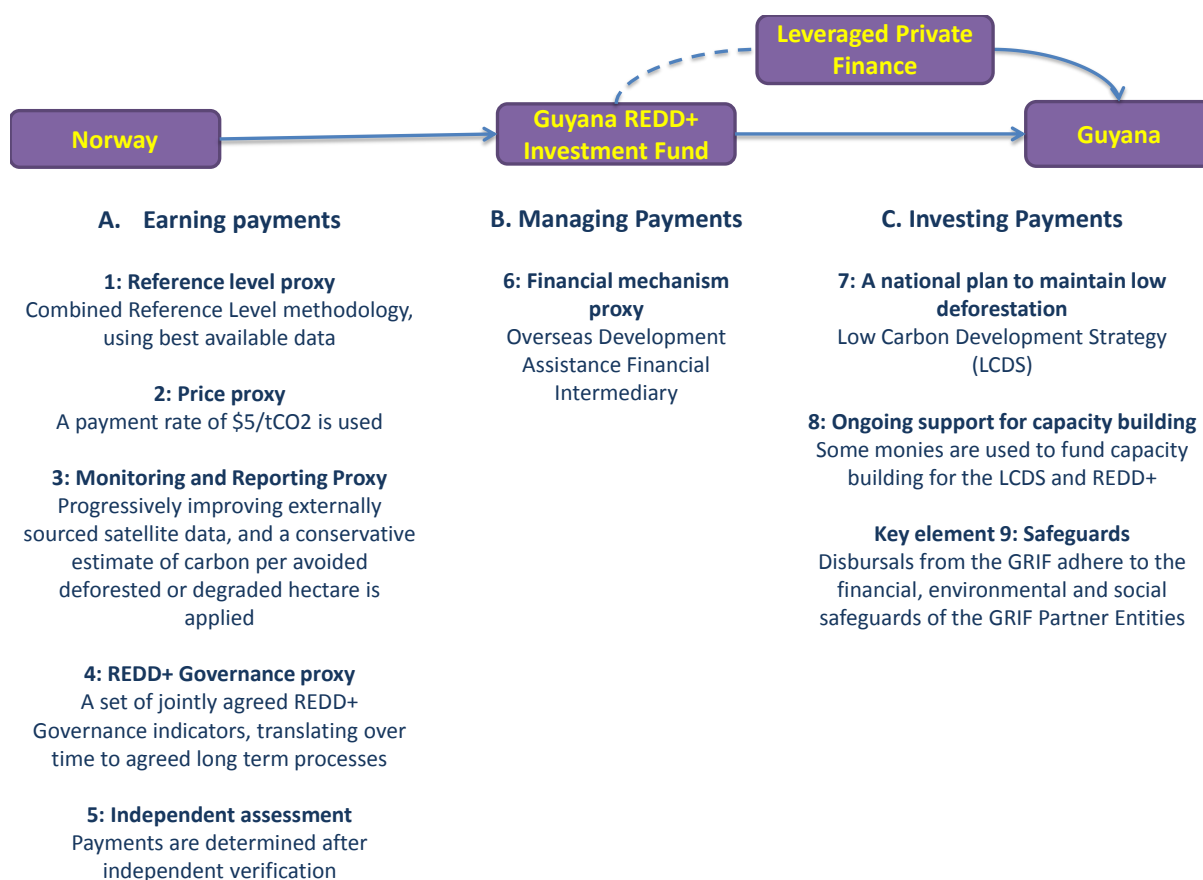
disbursements from the GRIF into Guyana’s economy and relevant LCDS and REDD+ investments to strengthen the effectiveness of REDD+ as an intrinsic part of Guyana’s sustainable development. As such, work is being undertaken to allow for a more flexible, fit-for-purpose financial mechanism that would ensure the application of internationally recognized safeguards while allowing for stronger Guyanese ownership. As part of this, a pilot for an IDB role as Financial and Safeguards Intermediary is being developed, with the goal of it being operational in the first half of 2013.”

**C. Investing Payments:** The Trustee of the GRIF (i) receives payments for forest climate services provided by Guyana; and (ii) transfers these payments and any investment income earned on these payments, net of any administrative costs, to GRIF *Partner Entities*.

Partner Entities act as the proxy for UNFCCC-compliant national systems to address the issue of safeguards for the investment of money (as distinct from safeguards relating to the earning of money). The Partner Entities provide operational services for the approved LCDS investments, and apply their own globally accepted operational procedures and safeguards. As of March 2013, Guyana and Norway have approved as Partner Entities the Inter-American Development Bank (IDB), the World Bank and the United Nations Development Group.

Appendix II provides more information about the use of proxies within Guyana’s Climate Services mechanism, and how they have evolved since 2009.

FIGURE 2: BUILDING BOX PROXIES IN GUYANA’S FOREST CLIMATE SERVICES MECHANISM



### **BOX 3: THE COMBINED REFERENCE LEVEL**

Setting a national reference level is a key decision – as a country's reference level is the metric against which future REDD+ payments are to be made. International REDD+ proposals have included setting this reference level through the use of historical baselines, stock/average emissions baselines, and projected baselines. In December 2008, Guyana published a paper which put forward the view that setting reference levels should be driven by analysis that assumes rational behavior by countries seeking to maximize economic opportunities for their citizens. A country's national "economically rational" rate of deforestation will be different depending on historical circumstances, and so REDD+ must create sufficient incentives for all major forest countries – including those with historically low deforestation rates (sometimes referred to as High Forest Low Deforestation, or HFLD, countries).

There is a broad-based international consensus on the need to incentivize low deforesting countries through reference levels which measure avoided deforestation against a global deforestation baseline. As stated in the UK's Eliasch Review: "Baselines that take account of the global average deforestation can incentivize action to retain or enhance standing forests. Credits for avoided deforestation would represent payment for a global service, especially as successful action in high-deforesting countries may increase pressure to deforest in nations where deforestation rates are currently low. In order to meet the above criteria, baselines should take account of a country's historical emissions rate and the global average deforestation rate. This will ensure that emissions reductions in the forest sector are additional while acting against international leakage by being inclusive."

The JCN between Guyana and Norway speaks to the same point: "For a global REDD+ mechanism to be effective it must incentivize both: (i) reductions in deforestation in countries with high levels of deforestation; (ii) maintenance of low deforestation rates in countries that have maintained their forest cover. If only countries with high deforestation rates are compensated, deforestation pressures will move to countries with currently low deforestation, like Guyana, and the overall emissions reduction will be diluted or lost... Therefore, Norway and Guyana have – pending the finalization of a UNFCCC reference level methodology – decided to use the "combined reference level" methodology to set a provisional reference level 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 countries, and ensures that emissions from deforestation and forest degradation are reduced cumulatively at a global level.

Further details about the calculation method, and its use of proxies, is found in the JCN between Guyana and Norway – see Appendix I.

#### **BOX 4: Guyana's Monitoring Reporting and Verification System**

As of March 2013, Guyana is securing significant Economic Value to the Nation from the Mining, Forestry and Forest Climate Services (Interim REDD+) sectors.

A key capability to enable the careful development of all three sectors in accordance with high standards is Guyana's Monitoring Reporting and Verification System (MRVS). The LCDS and the JCN between Guyana and Norway identify a stepwise and progressive development of the system. Since 2009, the JCN has been underpinned by a MRVS Roadmap which details the steps towards a full MRVS being implemented by building national capacities- to establish a comprehensive, national system to monitor, report and verify forest carbon emissions resulting from deforestation and forest degradation in Guyana. Interim measures and performance indicators act as proxies until such time as the MRVS is capable of supporting a full forest carbon accounting system.

As of March 2013, significant progress has been made towards that goal. The second Interim Measures Report on REDD+ Interim Indicators was completed in 2012, which enabled the reporting of gross deforestation for the 2011 period, using 5M RapidEye imagery instead of Satellite Imagery at 20-30m resolution. This has allowed for more detailed and precise mapping of forest area change. As well, significant progress was made in mapping forest degradation. The area of degradation as measured by direct interpretation (based on a degradation study) of the 5 m RapidEye satellite imagery is 5,460 ha. Interpretation of the change areas for the Year 2 period identifies Mining and mining infrastructure, as the main driver of forest change (94% of the change). The results of this Report were subject to Independent Accuracy Assessment and Third Party Verification.

Work has also progressed in the area of forest carbon stock assessment and in the design of the forest carbon monitoring system. In this area, the GFC is working with international experts in executing the main activities. To date, a number of aspects of this system have already either commenced or have been completed, including the design of the Forest Carbon Monitoring System, data collection for: biomass measurements, destructive sampling, logging impact assessment and re-growth assessment, forest carbon mapping and stratification, standard Operating Procedures design; carbon conversion and expansion factors for Guyana developed, and extensive training and capacity building.

Other activities that will be done include design of a long term monitoring plan for forest carbon and assessment of drivers/processes affecting carbon impact, emission factors and key category analyses. Additionally, work also advanced in the area of REDD+ demonstration project, with the launch of a Community MRVS project. This is a collaborative project with civil society and donor partners, working with the GFC. Further technical assessments have been completed in the area of reference level setting with an aim of submitting such an assessment in the form of a national position at the UNFCCC, exploration of ecosystem services within the MRVS, and forest degradation.

Forest change of forest to non-forest excluding degradation between October 2010 and December 2011 (15 months) was estimated at 9 796 hectares. Over the Year 2 reporting period under the Guyana-Norway partnership, this equates to a total deforestation rate of 0.054% (Year 1 was reported at 0.056% for 12 months). This rate of change is lower than the Year 1 - October 2009 to September 2011 (12 months). At the end of the Year 2 period, the area of forest is estimated at 18.3881 million ha.

## 5. Involving all Guyanese in the Low Carbon Transition

In 2009, the LCDS stated that “the long-term success of Guyana’s Low Carbon Development Strategy is dependent not only on... international partnership... but also on broad-based, inclusive domestic support within Guyana.”

The preparation of the LCDS involved one of the most extensive consultations of its kind in the world. An initial framing document was launched by President Jagdeo in December 2008. At that time, the overall principles of the LCDS were articulated, and the need for broad-based national consultation was emphasized. The first draft of the LCDS itself was published in May 2009, and drew on input from previous consultations on climate change, indigenous peoples’ rights and national development.

Consultation on the first draft took place in June, July, August and September 2009, along with awareness and outreach activities utilizing the local media and internet. The consultation was overseen by a Multi-Stakeholder Steering Committee. At the request of the Government of Guyana, the Government of Norway engaged the International Institute for Environment and Development (IIED) to provide independent advice on the consultation process. According to the IIED: “The Independent Monitoring Team finds that the process of multi-stakeholder consultation surrounding Guyana’s LCDS has broadly followed principles derived from international best practice and has met these criteria. It is the opinion of this team that the consultative process, to the extent that its findings inform a revised LCDS, can be considered credible, transparent and inclusive.”

In October and November 2009, the second draft of the LCDS was prepared, to incorporate (i) input from the national consultation; (ii) details of the Guyana-Norway partnership; (iii) updates from international processes. This draft was then subject to a further three-month review period, with the Multi-Stakeholder Steering Committee and the National Assembly initiating this review in the first half of December 2009. The third and final draft was published in May 2010, and incorporated the outcome of earlier reviews, coupled with the outcome of the Copenhagen meeting of the UNFCCC and other international processes.

Oversight of the implementation of the LCDS continues. Since its inception, all LCDS investments are incorporated into the National Budget, and are subject to the oversight of the National Assembly and its economic committees. Each individual LCDS investment is subject to ongoing consultation among impacted stakeholder groups. For example, the scoping of the Amalia Falls Hydro Power Project involved 121 community-based interviews and 14 community consultation meetings - all were carried out in accordance with the operational procedures of the IDB. Similarly, while the Amerindian Development Fund was being developed, the Government collaborated with villages on the creation of 166 Community Development Plans, in accordance with the consultation procedures of the United Nations Development Programme (UNDP).

In the period from 2013, this approach to stakeholder engagement will continue as the new wave of investments proceeds. The over-arching approach is documented in the Conceptual Framework which is periodically updated by the Office of Climate Change, and three tracks of activity form the basis for ongoing engagement:

**The Multi-stakeholder Steering Committee (MSSC):** The MSSC will continue to provide overall guidance and strategic direction for consultations on the LCDS, while consultations on individual investments will be done through broad-based and transparent public processes. The MSSC is a forum for high-level, participatory dialogue, and continues to play a pivotal role in all aspects of the LCDS. It provides an opportunity for Government-Civil Society engagement at the highest levels, and enables Civil Society leaders to address issues of concerns with the President and other Government Ministers. MSSC meetings take place monthly – see Box 5 for a list of its members, who are leaders of organisations which represent a very large proportion and cross-section of Guyana’s population.

**Long term embedding of LCDS knowledge building:** A programme to support long-term knowledge about the LCDS and climate change has begun – through embedding them as topics in the primary school curriculum. Furthermore, the One Laptop per Family project and the implementation of new fibre optic cables will form the backbone of a future eGovernance capability which will connect citizens and communities to the LCDS (and other Government programmes). The OLPF project will also provide IT training to assist spread access to the internet.

**General communication and awareness raising:**

- Members of the MSSC, including national and international NGOs, will continue to conduct field awareness and outreach to both hinterland and coastal communities across Guyana. All consultations are done in line with the GoG Conceptual Process Framework for stakeholder consultation, and in adherence to the principles of free prior informed consent.
- The National Toshias Council – which consists of representatives of all the democratically elected Toshias of Amerindian villages - reviews progress on the LCDS and related matters at their meetings. The Chairperson of the NTC is on the MSSC, individual Toshias participate in all village-based consultations, and the NTC is represented on several other related fora, for example the Conservation Trust Fund and MRVS Steering Committee.
- The Government employs a number of different methods in order to disseminate information on the LCDS including documentaries, public service announcements on TV and radio, and hosting events and exhibitions. Information on the activities is also made available online.
- The GoG plans to implement an extensive “*Stakeholder Awareness and Engagement Plan*”, which includes extensive community outreach and engagement with hinterland and interior villages.

**Specific Consultations:** As in the period to March 2013, consultation for GRIF expenditure will be carried out in accordance with the operational procedures of the GRIF Partner Entities – the World Bank, UNDP and IDB. In support of these specific consultations, three parallel tracks will also be followed.

## BOX 5: THE MULTISTAKEHOLDER STEERING COMMITTEE

The members comprise representatives from the Government, Indigenous NGO's, the Private Sector, Labour, Forestry, Mining, Youth and Women organisations, Academia, NGO's and civil society. The Office of Climate Change coordinates the work of the MSSC which is chaired by H.E. President Donald Ramotar. The Members of the MSSC are as follows:

His Excellency President Donald Ramotar	
Former President Dr. Bharrat Jagdeo	Individual Capacity
Dr. Roger Luncheon	Office of the President
Minister Leslie Ramsammy	Ministry of Agriculture
Minister Pauline Sukhai	Ministry of Amerindian Affairs
Minister Ashni Singh	Ministry of Finance
Minister Robert Persaud	Ministry of Natural Resources and Environment
Shyam Nokta	Office of the President
Andrew Bishop	Office of the President
Kapil Mohabir	Office of the President
Shereeda Yusuf	Office of the President
Alfred King	Ministry of Culture
James Singh	Guyana Forestry Commission
Pradeepa Bholanath	Guyana Forestry Commission
Indarjit Ramdass	Environmental Protection Agency
Rickford Vieira	Guyana Geology and Mines Commission
George Jarvis	Ministry of Agriculture
Derrick John	National Toshias Council (NTC)
Yvonne Pearson	National Toshias Council (NTC)
Peter Persaud	The Amerindian Action Movement of Guyana (TAAMOG)
Pamela English	The Amerindian Action Movement of Guyana (TAAMOG)
Ashton Simon	The National Amerindian Development Foundation (NADF)
Rommel Simon	The National Amerindian Development Foundation (NADF)
Colin Klautky	Guyana Organisation of Indigenous People (GOIP)
George Norton	Guyana Organisation of Indigenous People (GOIP)
Michael Williams	North Rupununi Development Board (NRDDB)
Bertie Xavier	North Rupununi Development Board (NRDDB)
Hilbertus Cort	Forest Producers Association (FPA)
Edward Shields	Guyana Gold and Diamond Miners Association (GGDMA)
Ronald D. Webster	Private Sector Commission (PSC)
Gillian Burton	Trade Unions Congress (TUC)
Carvil Duncan	Federation of Independent Trade Unions of (FITUG)
Paulette Bynoe	University of Guyana (UG)
Hymawattie Lagan	Women's Affairs Bureau
David Singh	Conservation International (CI)
Charles Hutchinson	World Wildlife Fund (WWF)
Dane Gobin	Iwokrama International Centre for Rain Forest Conservation and Development
Joseph Singh	Individual Capacity
David James	Individual Capacity
Raquel Thomas-Caesar	Individual Capacity
Annette Arjoon-Martin	Individual Capacity

*\* Guyana's other Amerindian NGO – the Amerindian Peoples' Association - has been invited since 2009 to join the MSSC and provide input to the development of the LCDS. They have chosen not to do so, but membership of the MSSC is still open to them if they wish to join.*



# Appendices

Appendix I – The start of international partnership: the Guyana-Norway Partnership

Appendix II – Status of Amerindian Lands

Appendix III – The Use of Proxies

Appendix IV – The Economic Value to the Nation Methodology: Background

Appendix V - The EVN – EVW Methodology applied to Guyana

Appendix VI - The EVN Methodology Assumptions

Appendix VII – Forest Valuation Studies using 10 percent discount rate

# Appendix I: The start of international partnership:

## The Guyana-Norway Memorandum of Understanding and Joint Concept Note

See [www.lcds.gov.gy](http://www.lcds.gov.gy) for copy of original Memorandum of Understanding and previous Joint Concept Notes

The following pages contain:

- Press Statement after November 9<sup>th</sup> signing of Memorandum of Understanding between Guyana and Norway
- Memorandum of Understanding
- Joint Concept Note as of December 2012

## Press Statement

### Joint Press Statement: Guyana and Norway enter into partnership to protect Guyana's tropical forests

FAIRVIEW, GUYANA November 9, 2009

*President Bharrat Jagdeo of Guyana and Norway's Minister of the Environment and International Development Erik Solheim today signed a Memorandum of Understanding declaring the two countries' determination to work together to provide the world with a working example of how partnerships between developed and developing countries can save the world's tropical forests.*

"It will be impossible to defeat climate change if we don't significantly reduce tropical deforestation", President Jagdeo emphasized. "We said several years ago that the people of Guyana stood ready to play our part in determining how this can be done. We are delighted to work alongside Norway in searching for solutions that align the development aspirations of our people with the urgent need to protect the world's tropical forests."

"Through this partnership, we are building a bridge between developed and developing countries," stated Mr Solheim. "We are giving the world a workable model for climate change collaboration between North and South. It's not perfect, but it's good, and it will be improved upon as we learn and develop together."

Under the partnership, Guyana will accelerate its efforts to limit forest-based greenhouse gas emissions, and protect its rich rainforest as an asset for the world. Norway will provide financial support to Guyana at a level based on Guyana's success in limiting emissions. This will enable Guyana to start implementing its low carbon development strategy (LCDS) at scale. In the words of President Jagdeo, "We want to avoid the high-carbon development trajectory that today's developed world followed." The LCDS sets out how Guyana can limit forest-based emissions, convert almost its entire energy sector to clean energy, accelerate the development of low-carbon economic sectors and address the huge challenges the country is facing in adapting to climate change. As an illustration, 90% of Guyana's productive land is threatened by changing weather patterns, and in 2005, floods wiped out the equivalent of 60% of GDP.

Financial support from Norway will be channeled through a new fund, the Guyana REDD+ Investment Fund (GRIF). Guyana's Ministry of Finance will be responsible for the GRIF's operations, and a reputable international financial institution to be selected by Norway and Guyana will act as manager of the fund. The mechanism will ensure full national and international oversight of financial flows."

"Saving the world's remaining tropical forests is a crucial element in the battle against climate change, and we are proud to support Guyana's contributions in that effort", said Mr Solheim. "We are committed to contributing 30 million dollars to support the Guyana REDD+ Investment Fund in 2010. Provided that the expected results are achieved and that other elements of the partnership fall into place, our support for the years up to 2015 could add up to as much as USD 250 million."

President Jagdeo said, "Addressing climate change can no longer be just about campaigning for action. It must also be about designing solutions and delivering results. This will not happen as long as developing countries are treated as passive recipients of aid. Instead, we need to be equal partners in the search for solutions. When we find solution-oriented partners like Norway, we will not be found unwilling. And this is not just about Guyana and Norway. The Informal Working Group on Interim Finance for REDD+ has set out a frame-work for others to join us in achieving a 25% reduction in global deforestation and forest degradation by 2015 for less than 25 billion euro. If successful, this would be the single biggest contribution to combating climate change during this period."

Three years ago President Jagdeo said that Guyana might be willing to place its entire rainforest under long-term protection “to help in the world’s fight against climate change, providing our peoples’ sovereignty is respected.” At the signing of the MOU, which took place in the indigenous community of Fairview, the President said “that goal just came closer.”

## Memorandum of Understanding

### **Memorandum of Understanding between the Government of the Cooperative Republic of Guyana and the Government of the Kingdom of Norway regarding Cooperation on Issues related to the Fight against Climate Change, the Protection of Biodiversity and the Enhancement of Sustainable Development**

The Government of the Cooperative Republic of Guyana (Guyana) and the Government of the Kingdom of Norway (Norway), (hereinafter referred to as the "Participants"):

*bearing in mind* that climate change is among the greatest challenges facing the world today;

*recognizing* that cooperation on climate change issues can be instrumental in reducing greenhouse gas emissions globally and has a positive impact on the socio-economic development of developing countries and their communities;

*recalling* that Guyana and Norway are Parties to the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Convention on Biological Diversity; and are signatories to the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP);

*considering* that the Preamble to the UNFCCC acknowledges that the global nature of climate change calls for the widest possible cooperation between all countries, and their participation in an effective and appropriate international response in accordance with their common but differentiated responsibilities and respective capabilities and their social and economic conditions, and that commitments in this regard are specified in Article 4 of the UNFCCC;

*recognizing* the relevance of Guyana's National Development Strategy (NDS) and National Competitiveness Strategy (NCS) as the overall policy framework for Guyana's development plans, and Guyana's Low Carbon Development Strategy (LCDS) as an integral part of this overall policy framework;

*noting* that the LCDS includes a strong commitment to reducing emissions from deforestation and forest degradation, including conservation, sustainable management of forests and enhancement of forest carbon stocks (REDD-plus<sup>9</sup>) and the significant contribution that this can make to the global effort to mitigate climate change;

*expressing* a willingness to 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;

*declaring* that financial support from Norway for results achieved by Guyana in reducing emissions from deforestation and forest degradation will be used in full to support activities and investments within the framework of Guyana's LCDS;

*declaring* that nothing in this Memorandum of Understanding (MoU) will be considered to prejudice the Participants' views on the mechanism through which developing countries should be paid for REDD-plus under a future UNFCCC REDD-plus arrangement. When such an arrangement is defined under the UNFCCC, it will define reference levels – or the methodology to set these – and the amount of

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<sup>9</sup> As defined in the Bali Action Plan (2/CP.13).

results-based financial support for which developing forest countries will be eligible will be derived from the reference levels. Norwegian financial support and Guyana's obligations will be reassessed accordingly;

*expressing* the political will to develop a lasting process of cooperation on matters relating to global climate change, including REDD-plus, the protection of biodiversity and the rights and livelihoods of indigenous peoples and local forest communities;

have reached the following understanding:

### *Objective*

1. The objective of this MoU is to foster partnership between Guyana and Norway on issues of climate change, biodiversity and sustainable, low carbon development. Of particular importance is the establishment of a comprehensive political and policy dialogue on these issues, and close cooperation regarding Guyana's REDD-plus efforts, including the establishment of a framework for result-based Norwegian financial support to Guyana's REDD-plus efforts.

### **PILLARS OF COOPERATION**

2. To further the objective laid out in paragraph 1 of this MoU, the Participants decide to enter into broad cooperation based on three main pillars:
  - a) *A regular, systematic policy and political dialogue to facilitate a constructive exchange of views on global climate change and relevant environmental issues such as biodiversity.* The overarching goal of this cooperation will be to contribute to the establishment of a new, global climate change regime and the further improvement of this regime over time. In particular, the Participants intend to contribute to the creation of a robust mechanism for the inclusion of REDD-plus in a global climate regime. The Participants agree that Norway's submission to the UNFCCC on REDD-plus and the work of the Informal Working Group on Interim Financing for REDD+ provide an appropriate starting point for such efforts.
  - b) *Collaboration, knowledge building, and sharing of lessons learned within the field of sustainable, low-carbon development, with REDD-plus as the key component of this.* Sustainable, low-carbon development is essential if global warming is to not increase by more than 2<sup>0</sup>C above pre-industrial levels. Given the significant contribution of emissions from deforestation and forest degradation to climate change, and the real risk of increased pressure on forests in currently low-deforesting countries as rates in currently high-deforesting countries are decreased, the Participants consider it crucial that all tropical forest countries, both high- and low-deforesting countries, are given incentives to reduce and avoid emissions from deforestation and forest degradation.
  - c) *Collaboration on REDD-plus, including establishing a framework for financial support from Norway into a Guyana REDD-plus Investment Fund.* Financial support will be linked to Guyana's success in limiting greenhouse gas emissions from deforestation and forest degradation and establishing institutions and practices to strengthen Guyana's ability to reduce deforestation and forest degradation through the adoption and implementation of a REDD-plus governance development plan (RGDP). As a UNFCCC compliance grade capability for monitoring, reporting and verifying (MRV) emissions is established in Guyana, these results will be measured objectively in accordance with the rules and policies of the UNFCCC. Until these rules and policies are in place, attainment of initial REDD standards will enable financial support. The level of financial support will be based on interim arrangements to estimate and verify results in limiting greenhouse gas emissions from deforestation and degradation. Guyana's LCDS Multi-Stakeholder Steering Committee and other arrangements

to ensure systematic and transparent multi-stakeholder consultations will continue and evolve, and enable the participation of all affected and interested stakeholders at all stages of the REDD-plus/LCDS process; protect the rights of indigenous peoples; ensure environmental integrity and protect biodiversity; ensure continual improvements in forest governance; and provide transparent, accountable oversight and governance of the financial support received.

#### **FINANCIAL MECHANISM**

3. It is the Participants' intention to establish a Guyana REDD-plus Investment Fund (GRIF). The GRIF will be a multi-contributor financial mechanism run by a reputable international organization. It will be designed to channel results-based REDD-plus funds from Norway and other potential contributors to the implementation of Guyana's LCDS. Safeguards as well as fiduciary and operational policies of the organization selected will apply as appropriate to all activities to be financed by GRIF. The mechanism will also ensure full national and international oversight of financial flows. The Participants will encourage other developed countries to contribute to the Fund as part of their efforts to combat climate change. The GRIF could over time evolve to cover all types of climate change mitigation and adaptation funding, including if appropriate funding received under the UNFCCC.

#### **AN EVOLVING PARTNERSHIP**

4. The details of this partnership are further described in a *Joint Concept Note on REDD-plus cooperation between Guyana and Norway* developed by the Participants. This note constitutes the basis for the work of the Participants. While Guyana and Norway consider that this Joint Concept Note clearly lays out their agreed positions as of November 2009, they are also aware that REDD-plus is a new concept, and that this partnership is in the forefront of developments, and are prepared to revise and further develop its content to reflect increased insights as the Partnership, and other related international efforts, move forward and lessons are learned.

*Focal Points*

5. To contribute to efficient cooperation, each of the Participants will designate a Focal Point to facilitate the implementation of paragraph 2 of this MoU in their respective countries through means to be decided.
6. The Focal Points may prepare and facilitate the policy and political dialogue described under paragraph 2a) of this Memorandum of Understanding, whenever necessary exchanging information relevant to its implementation. In particular, they may also hold and/or facilitate meetings in preparation for sessions of the UNFCCC as well as in the margins of meetings in that body or of the sessions of its subsidiary bodies.

Done in Fairview Village, Guyana, on 9 November 2009, in duplicate and in English, both texts being equally authentic.

FROM ORIGINAL MOU:

Done in Fairview Village, Guyana, on 9 November 2009, in duplicate and in English, both texts being equally authentic.

 On behalf of the Government of the Cooperative Republic of Guyana	 On behalf of the Government of the Kingdom of Norway
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# Joint Concept Note

## Background

On November 9<sup>th</sup>, 2009, Guyana and Norway signed a Memorandum of Understanding (MoU) regarding cooperation on issues related to the fight against climate change, in particular those concerning reducing emissions from deforestation and forest degradation in developing countries (REDD-plus<sup>10</sup>), the protection of biodiversity, and enhancement of sustainable, low carbon development.

An accompanying Joint Concept Note (JCN) set out the framework for taking the Guyana-Norway co-operation forward. It set out how Norway would provide Guyana with financial support for REDD-plus results, and formed the basis for the first payment from Norway to Guyana. An update of the Joint Concept Note was finalized in March 2011 and has guided the partnership until December 2012.

Since the first Joint Concept Note was published, considerable progress has been made in the Guyana-Norway cooperation.

This current version of the Joint Concept Note replaces the concept note of March 31 2011.

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<sup>10</sup> As defined in the Bali Action Plan (2/CP.13).

## Section 1: Introduction

This Joint Concept Note constitutes the overarching framework for taking the Guyana-Norway cooperation forward. Specifically, it addresses Paragraphs 2 (c), 3 and 4 of the MoU signed between Guyana and Norway on November 9<sup>th</sup>, 2009. The Joint Concept Note sets out how Norway is providing, and will continue to provide, financial support to Guyana, based on Guyana's delivery of results as measured, and independently verified or assessed, against two sets of indicators:

- *REDD-plus Performance Indicators:* A set of forest-based greenhouse gas emissions-related indicators, as described in more detail in section 3 below. Results against these indicators will be independently verified according to the established practice of the partnership. These indicators will gradually be substituted as a system for monitoring, reporting and verifying (MRV) emissions from deforestation and forest degradation in Guyana is established. The development of the MRV system is guided by the MRV roadmap.<sup>11</sup>
- *Indicators of Enabling Activities:* Indicators are identified that can be independently assessed<sup>12</sup> through publicly available information on progress regarding a set of policies and safeguards to ensure that REDD-plus contributes to the achievement of the goals set out in Paragraph 2(c) of the MoU signed between Guyana and Norway on November 9<sup>th</sup>, 2009, namely "that Guyana's LCDS Multi-Stakeholder Steering Committee and other arrangements to ensure systematic and transparent multi-stakeholder consultations will continue and evolve, and enable the participation of all affected and interested stakeholders at all stages of the REDD-plus/LCDS process; protect the rights of indigenous peoples; ensure environmental integrity and protect biodiversity; ensure continual improvements in forest governance; and provide transparent, accountable oversight and governance of the financial support received." The enablers are described in more detail in Section 2 and table 1 below.

Norwegian financial support is being channeled through a multi-contributor financial mechanism – the Guyana REDD-plus Investment Fund (GRIF). The support is financing two sets of activities:

- The implementation of Guyana's Low Carbon Development Strategy (LCDS)
- Guyana's efforts in building capacity to improve overall REDD+ and LCDS efforts.

Section 4 sets out how the financial mechanism operates.

The first payment to the GRIF was made in October, 2010 and the second payment in March 2011 for results achieved between October 1, 2009 and September 30, 2010. The third contribution was announced in December 2012 for forestry results from January 1<sup>st</sup> to December 31<sup>st</sup> 2011 and for results on indicators of Enabling Activities from October 1<sup>st</sup> 2010 to December 21<sup>st</sup> 2012.

The contents of this concept note have been updated to include the longer term goals of the partnership towards its end in 2015. The annual progress in developing the MRV system and in

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<sup>11</sup> [http://www.forestry.gov.gy/Downloads/Terms\\_of\\_%20Reference\\_for\\_Guyana's\\_MRVS\\_Draft.pdf](http://www.forestry.gov.gy/Downloads/Terms_of_%20Reference_for_Guyana's_MRVS_Draft.pdf)

<sup>12</sup> Up until now the enabling activities have been 'verified', this has been a challenging exercise since qualitative and subjective views highly influence the understanding and verification of the indicators. The Governments of Guyana and Norway have therefore chosen to change the language from 'verified' to 'independently assessed' in order to accommodate for the qualitative nature of these indicators.

strengthening the quality of REDD-plus-related forest governance will be defined as steps towards reaching these goals. The Government of Guyana is responsible for making publicly available the necessary data for assessing performance against the given indicators.

## **Section 2: Enabling Activities**

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The continuation of result-based financial support from Norway to Guyana will depend on publicly observable progress on forest governance, as outlined below.

### **Section 2.1 Indicators of Enabling Activities**

Performance in enabling activities will be measured against progress on six key categories of activities:

#### **Strategic framework:**

All aspects of Guyana's planned efforts to reduce deforestation and forest degradation, including forest conservation, sustainable management of forests and enhancement of forest carbon stocks ("REDD-plus"), are being developed in a consistent manner, through an internationally recognized framework for developing a REDD-plus programme, and will continue to evolve over time. Guyana is developing its REDD-plus efforts under the Forest Carbon Partnership Facility (FCPF), managed by the World Bank. Furthermore, all REDD-plus efforts will, at all stages, be fully integrated with Guyana's Low Carbon Development Strategy (LCDS). The contributions to Guyana's LCDS from Norway and other contributors, including the FCPF, will be administered in a transparent manner. Information concerning all expenditures, both planned and implemented, will be publicly available on the relevant website of the Government of Guyana, and through national systems of public disclosure, including to the National Assembly.

Guyana has chosen the Forest Carbon Partnership Facility (FCPF) as the strategic framework for its REDD+ efforts. The Readiness Preparation Proposal (RPP) will be finalized during 2012 with IDB as the delivery partner.

#### *Goal of the partnership*

Guyana and Norway support the relevant decisions of the UNFCCC COPs in Cancun, Durban and Doha, and in particular the decision to agree a new, global climate agreement by 2015, for implementation from 2020 at the latest. The Governments believe that the partnership between the two countries can provide many useful lessons for the crafting of the new agreement, as well as influencing the effective functioning of other multilateral processes, e.g. the FCPF. This could include lessons on creating effective climate finance mechanisms, setting REDD+ reference levels, and providing practical lessons on the implementation of safeguards. By the end of 2014, the Governments will make one or more joint submissions to the UNFCCC, covering each area where there the Governments believe that there are shared lessons that will help the global multilateral process. As well, the Government of Guyana's Readiness Package ("R-package") will be prepared and assessed by the FCPF's Participants Committee (PC) in the fall meeting 2014, contingent on financial resources from FCPF, or other resources, being available in time to do so.

## Improved Financial Intermediation

Subject to IDB decision-making processes, the IDB Financial and Safeguards Intermediary role will be operational in the first half of 2013.

By the end of 2013, an outline strategy will be prepared setting out how the interim financial mechanisms could in the future be transitioned into national systems once mutually agreed benchmarks for independent assessment of financial, social and environmental safeguards are met. This could form part of a submission into the UNFCCC process, as a contribution to global efforts to design effective REDD+ finance mechanisms.

## **Continuous multi-stakeholder consultation process:**

The LCDS, including the REDD-plus strategy and prioritized LCDS funding needs, is subject to an institutionalized, systematic and transparent process of multi-stakeholder consultation, enabling the participation of all potentially affected and interested stakeholders at all stages of the REDD-plus/LCDS process. This process will continue to evolve over time. Particular attention will be given to the full and effective participation of indigenous peoples and other forest-dependent communities.

### *Goals of the partnership*

- Monthly meetings of the Multi Stakeholder Steering Committee (MSSC), with comprehensive minutes of every meeting made publicly available immediately upon approval from the following MSSC meeting.
- Information and consultation program in place by June 2013, leading to a sustainable intensification of outreach activities both in the hinterland and elsewhere, including:
  - o From January 2013 keeping the GRIF and LCDS web pages updated with relevant information about the progress of ongoing processes.
  - o Initiating in January 2013 a responsible body for communication, information and consultations - located either in the Office of Climate Change (OCC), the Project Management Office (PMO) or REDD Secretariat. The body will be established in January 2013 and, subject to timely availability of GRIF resources, will be fully operational by the end of 2013, with the ability to lead the development and sustain the implementation of the elements identified below.
  - o The establishment of information and consultation routines tailored specifically to the needs of Amerindian communities, including non-internet based channels of communication like in-person meetings, information folders, and traditional media.
  - o Coordinated information flows related to the different parts of LCDS implementation, including but not limited to LCDS progress, IFM, EITI, FLEGT, FCPF and GRIF projects.
  - o Collaboration with the National Toshias Council (NTC) and MSSC members to strengthen their capabilities to function as agents of information sharing.
  - o Develop annual stakeholder engagement and awareness plans consistent with the conceptual process framework developed, to be implemented starting in early 2014.

## **Governance:**

A transparent, rules-based, inclusive forest governance, accountability and enforcement system for forest governance in Guyana is being progressively strengthened, in accordance with Guyana's outline REDD-plus Governance Development Plan (RGDP) and the enabling activities for 2012, as outlined in table 1.

### *Goals of the partnership*

- Application for EITI Candidacy presented to the EITI board by May 2013, application for EITI compliance at the last EITI board meeting in 2015.
- Commencement of formal negotiations with the EU by the end of 2012, with the aim of agreeing to a Voluntary Partnership Agreement (VPA) under the EU FLEGT Action Plan, by March 2015. Ratification of the VPA by Guyana by September 2015. Development of a plan for the implementation of the VPA to be completed by the end of 2015.
- Continued implementation of Independent Forest Monitoring (IFM), with the first IFM assessment due by the end of 2013; In keeping with Section 4 of the agreed Terms of Reference for IFM, the next IFM assessments will be conducted at 2 years intervals thereafter, the next one taking place in December 2015
- Enforcement and implementation of activities outlined by the Special Land Use Committee (SLUC) – and communicated publicly – will continue in 2013.
- The fifth national report submitted by 31 March 2014 to the CBD, including to the extent possible a description of the synergies between the protection of biodiversity, REDD+ and the LCDS.
- Implementation of a GoG (MNRE) programme, with actions focused on specific efforts to manage degradation from extractive activities where this needs to be done, including, for example: the start up of an enhanced miners' environmental knowledge programme through a mining extension service initiative and enhanced dialogue with the sectors and relevant stakeholders towards ensuring that sectoral best practices are applied and sustained thereafter.

## **The rights of indigenous peoples and other local forest communities as regards REDD-plus:**

The Constitution of Guyana guarantees the rights of indigenous peoples and other Guyanese to participation, engagement and decision making in all matters affecting their well-being. These rights will be respected and protected throughout Guyana's REDD-plus and LCDS efforts. There shall be a mechanism to enable the effective participation of indigenous peoples and other local forest communities in planning and implementation of REDD-Plus strategy and activities.

Guyana's policy is to enable indigenous communities to choose whether and how to opt in to the REDD-plus/LCDS process. This will take place only when communities wish to do so with their titled lands, in accordance with Guyana's policy of respecting the free, prior and informed consent of these communities.

### *Goals of the partnership*

- GRIF funding made available to enable the achievement of the Government of Guyana's policy objective of completion of land titling for all eligible Amerindian communities by 2015, with progress measured relative to a publicly available timeline.
- GRIF funding made available for all CDPs through the Amerindian Development Fund.
- Opt In mechanism designed based among other things on evaluation of the piloting experience of the mechanism, and implemented starting in July 2015.
- Implementation starting by June 2013 of the part of the outreach program under the multi-stakeholder indicator which is tailored and targeted towards the needs of Amerindian communities.

### **Integrated land-use planning and management:**

Several aspects of REDD+ relates to the development of a system for environmentally sustainable and climate smart area planning and management. Several of the current interim performance indicators and enabling activities are directly relevant in this context. To ensure sustained positive impact from our combined efforts, the long term goal should be for these indicators and activities to result in a formalized system for area planning and management:

#### *Goals of the partnership*

- By September 2015, Guyana has a formal system in place for holistic area planning and management.
- A key element of this system should be a publicly available map of area use (including, but not limited to, full transparency regarding existing and planned concession and reconnaissance areas for forestry and mining, titled lands for Amerindian communities, areas planned and concessioned for industrial agriculture etc.)
- In the process of developing the system for area planning and management and the area use map, formal status of varying degrees of protection should be awarded to a significant part of the areas identified as Intact Forest Landscapes and priority areas for biodiversity, This will gradually replace the Intact Forest Landscapes interim performance indicator. The measures taken will as a whole be in line with Guyana's stated goal of maintaining 99,5 per cent of its forest for the duration of the partnership and stay on a similar trend after 2015, though the degree of forest protection will depend on various factors, including the availability of international climate finance.

### **Monitoring, reporting and verification:**

Guyana has progressed far in developing a national MRV system. Guyana has established a deforestation baseline and performed two forest area assessments for the years 2009-10 and 2010-11.

#### *Goals of the partnership*

- Guyana has implemented the MRV-roadmap and reached a reporting level incorporating several Tier 3 elements by the end of 2015. These Tier 3 elements include, but are not necessarily limited to, the use of high resolution data at national level that allows for disaggregation, the use of methods that provide estimates of greater certainty than lower tiers for key carbon pools, the use of comprehensive field sampling that is linked to GIS based systems which integrates land use and management activity data, and is subject to quality checks, and validations. Further, other areas relevant to Tier 3 reporting, will be further explored as stated in the MRV Roadmap.
- Guyana will conclude technical analyses that inform a reference level that is to be submitted to the UNFCCC. The reference level will reflect the core elements of the reference level agreed by the GoG and the GoN, and also make provisions that the reference level be reassessed at regular intervals as/if global rates decrease. The aim is to submit the reference level to the UNFCCC by mid 2014, if this is technically feasible. If this goal proves impossible to meet due to technical challenges, the deadline can be extended after written agreement by both parties

### **Section 2.2 Assessing Progress Against Enabling Indicators**

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Table 1 below sets out how progress will be measured regarding enabling indicators going forward. These indicators are informed by the long term goals of the partnership as agreed in section 2.1 above, and thereafter updated in accordance with the long term goals.

Guyana and Norway have agreed that the necessary information to assess Guyana's delivery on these indicators will be easily accessible in the public space. Independent assessment of the information thus accessible determines to what degree, the REDD-plus enablers have been met.

### **Section 3: REDD-plus performance indicators**

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Guyana is being paid for its performance through an incentive structure which rewards keeping deforestation below an agreed reference level, as well as avoiding increased forest degradation.

The Governments of Guyana and Norway strongly endorse the establishment of such an incentive structure under the United Nations Framework Convention on Climate Change (UNFCCC). To help facilitate such an agreement, the Governments have decided to pilot such an incentive structure on a national scale and in a pragmatic, gradually evolving, workable and hopefully replicable manner. Once an international regime is in place, the Guyana-Norway partnership will be adjusted accordingly. Section 3.1 sets out the incentive structure, while Section 3.2 outlines how performance is to be assessed.

#### **Section 3.1 REDD+ incentive structure**

The payments due to Guyana for a given year are paid post facto. They are calculated as follows:

1. Measure avoided deforestation by subtracting Guyana's observed deforestation rate against the agreed *reference level*. See Section 3.1.1
2. Determine avoided greenhouse gas emissions by applying a set of *carbon-density proxies* to:
  - (i) convert the observed avoided deforestation rate into avoided greenhouse gas emissions;
  - (ii) subtract increased emissions from forest degradation based on agreed indicators and their reference levels as set out in table 2.See Section 3.1.2.
3. Apply an interim carbon price of US\$5 per tonne of avoided emissions, providing Guyana does not exceed an agreed level of deforestation within the context of the Guyana-Norway partnership – see Section 3.1.3. If the deforestation rate is above the levels stipulated in section 3.1.3, payments will be reduced and ultimately cease.

#### **Section 3.1.1 – Measuring Avoided Deforestation and Forest Degradation**

##### *Setting a Deforestation Reference Level*

For a global REDD+ mechanism to be effective it must incentivize both (i) reductions in deforestation in countries with high levels of deforestation and (ii) maintenance of low deforestation rates in countries that have maintained their forest cover. If only countries with high deforestation rates are compensated for improving their forest protection under an international climate regime, deforestation pressures will move to countries with currently low deforestation, like Guyana, and the overall emissions reduction effect will be diluted or lost.

On the other hand, if a global incentive structure does not ensure global additionality, the international community will be paying for “hot air” and there will be no mitigation impact.

This point is broadly accepted within the UNFCCC negotiations, and there is general agreement that a REDD-mechanism must provide genuine incentives for forest conservation in low deforestation countries, as well as ensure global additionality.

Therefore, Norway and Guyana have – pending the finalization of a UNFCCC reference level methodology – decided to use the “combined reference level” methodology to set a provisional reference level, 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.

In setting a historical deforestation baseline for Guyana under the Guyana-Norway REDD+ partnership, the mean value for the 2000-2009 period is used; 0.03% (see box 1 for background). This adheres to the principles used for setting the historical deforestation baseline in the Brazilian Amazon Fund.

The “global average deforestation rate” is calculated<sup>13</sup> across 85 developing forested countries by dividing the sum of reported forest area loss in only those countries which lost forest by the starting area of forest across all countries. Data on forest loss is taken from FAOs Forest Resources Assessment 2010 (FRA 2010). For the period 2005-2010 the “global average deforestation rate” was 0.52%. This figure will be subject to revision given new data from future FAO FRA’s or from the IPCC.

The reference level for Guyana is the mean value of these two measures, that is, 0.275%.

#### *Setting Reference Levels for forest degradation indicators.*

In the first two years of the partnership, Guyana’s MRVS was not sufficiently developed to enable an analysis of forest degradation in Guyana that would enable a facts- based reference level to be established for all degradation indicators. Guyana has made substantial progress in improving the knowledge base for degradation indicators, and the current set of indicators and their associated reference levels are described in table 2.

### **Section 3.1.2 Converting to Avoided Greenhouse Gas Emissions**

Guyana is working to implement an IPCC-compliant MRV-system for emissions or removals of carbon from Guyana’s forest sector. Until such a system is in place, a set of basic interim (proxy) indicators will be used to assess Guyana’s performance. As a more sophisticated forest carbon accounting-system is implemented, these basic indicators will be gradually phased out. The set of interim performance indicators is based on the following assumptions:

- They provide justification and prioritization for near-term implementation of REDD-plus efforts.
- They are based on conservative estimates while encouraging the development of a more accurate MRV system over time through building national capacities.
- They will contribute towards the development of a national MRV-system, based on internationally accepted methodologies and following the IPCC reporting principles of completeness, consistency, transparency, uncertainty, comparability, and encourage independent international review of results.

When calculating reduced emissions from avoided deforestation, an interim default value of 100 tons of Carbon is applied. This interim carbon figure corresponds to 367 tons of CO<sub>2</sub>. When calculating emissions caused by forest degradation, a default value of 400 tons per hectare is applied, this corresponds to 1468 tons of CO<sub>2</sub>. These conservative carbon values help to ensure that emission reductions from deforestation are not over-estimated and emissions from forest degradation are not under-estimated.

The interim indicators are described in table 2 below.

### **Section 3.1.3 Calculating Payment**

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<sup>13</sup>The open source Osiris database was used for these calculations ([www.conservation.org/osiris](http://www.conservation.org/osiris)). Note that this is an underestimate because it does not include deforestation that occurred within countries that had a net gain in forest, nor does it account for all deforestation in countries that lost forest as some countries' reported forest area loss are net values.



Payments due to Guyana will be calculated by applying an interim carbon price of US\$5/ton CO<sub>2</sub>, as established in Brazil's Amazon Fund.

However, this price will only be applied if Guyana's observed deforestation rate is below the agreed level. This is explained in the following section.

#### *Agreed maximum level of Deforestation*

If designed for maximum effectiveness and efficiency, a future global incentive system could allow for significant variations in individual countries' deforestation rates while still ensuring global additionality.

However, in the absence of a global system, such an approach alone would imply that Guyana would be eligible for significant payments even if it were to increase its deforestation along a business-as-usual trajectory towards the agreed reference level of 0.275%.

However, neither Norway nor Guyana wishes to see such an increase in deforestation, and in November 2009 the Joint Concept Note clearly stated that:

*"(...) the Participants agree that Norwegian financial support from 2011 onwards is also dependent on no national-level increase in deforestation over an agreed level that should be as close to historical levels as is reasonable in light of expanded knowledge of these historical rates and the quality of that knowledge. Such a level can only be set when more robust data is available concerning current and historic deforestation."*

At the same time, Guyana's national development requires limited but strategic use of forest assets to enable (i) a limited amount of economic activity to take place within the forest, where the economic value to the nation of such activity is very valuable; (ii) a limited amount of essential national infrastructure to be constructed where this is in line with critical development goals; (iii) support for the sustainable development of forest villages. Guyana is reaching a stage of economic development where experience from other countries suggests that enabling these objectives brings further deforestation pressures.

Therefore, pending the introduction of a global incentive system, it would defeat the purpose of making REDD+ an attractive development option for forest countries if this REDD+ agreement meant that no increases at all be allowed in Guyana's historically low deforestation rates. First, the rates are so small that the margin of error of measurements in itself could yield significant annual variations (as measured in per cent). Second, insisting on such strict limitations would probably yield an insufficient incentive structure for the people of Guyana to stick to a low-deforestation development path, as the economic downsides would be disproportionate to the incentive offered. Third, the relevance of historical trends when deforestation rates are extremely low is not as useful a predictor of future pressures on the forest as it is in countries with higher historic rates of deforestation.

There is no given mathematically correct answer to how these concerns should best be balanced. Guyana and Norway have chosen a model that on the one hand enables Guyana to exercise careful, strategic use of limited forest areas for high value economic activity, the construction of essential national infrastructure and sustainable development of forest villages. On the other hand, the model puts in place incentives that would quickly penalize an upward trend in deforestation, see box 2.

The essence of this approach has two implications:

- (i) One-off predictable and controllable deforestation events will be allowed for critical national infrastructure that is part of Guyana's transition to a low carbon development path.<sup>14</sup>

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<sup>14</sup> The exception is only from the 'agreed maximum level of deforestation' provision. The emissions resulting from such activities would still be part of the total deducted from the reference level to determine total payments due to Guyana. I.e., emissions from Amaila would still count as deduction in total amount due to Guyana in the years when Amaila was established.

During the duration of the current Guyana-Norway partnership, the only such event will be the construction of the Amaila Falls hydro-electricity plant. This plant is the flagship of Guyana's Low Carbon Development Strategy, and is expected to eliminate over 92% of the country's energy-related emissions, after the emissions associated with its construction are accounted for<sup>15</sup>. It will only go ahead after Guyana and Norway have agreed that the necessary Environmental and Social safeguards have been met, and an independent verification agreed by Guyana and Norway confirms the overall beneficial effects of the project from a climate change perspective.

- (ii) Economic activities will be permitted within the forest, within a ceiling on deforestation of 0.056 per annum, without any financial penalty apart from the reduction in compensation caused by a smaller margin between the reference level and the verified deforestation level. For any deforestation rate up to this level, Guyana will be eligible for payments equaling the full margin between the reference level and the verified deforestation level.

**Box 2:**

**Mechanism for reducing results based payments if deforestation rate exceeds the agreed maximum level (0,056%)**

Deforestation rates (%)	Up to 0.056	0.057-0.062	0.063-0.080	0.081-0.090	0.091-0.1
Reduced compensation (% per 0.0015 increased deforestation)	0	1,5	2,0	2,5	3,0

**Examples of reductions in compensation at levels above agreed maximum level:**

Deforestation rate (%)	Up to 0.056	0.07	0.08	0.09	0.1
Reduced compensation (%)		25	45	70	100

For deforestation rates between 0,056 per cent and 0,1 per cent (unless they relate to the Amaila Falls project as described above), eligibility for payments would be calculated as a gradually decreasing percentage of the payments that would be due if only the margin between the reference level and the verified deforestation level were taken into account, as set out below. At deforestation rates at or above 0,1 per cent, no payments would be due to Guyana for that given year.

This approach is compatible with the Government of Guyana's declared long-term strategy to maintain the maximum amount of forest cover in Guyana, if an appropriate incentive structure is in place to make this strategy viable. This is being done through a balanced mix of maintaining forests under full protection (areas where only small-scale subsistence farming by forest dependent

<sup>15</sup> The January 2011 ESIA for the Amaila Falls project can be found at <http://amailahydropower.com/latest-news/key-project-documents>. Section 5 details how a 92% reduction in net greenhouse gas emissions is calculated.

communities is allowed) and sustainable commercial forest management (where existing forestry concessions can operate within the terms of their licenses and the GFC's sustainable forest management guidelines).

In sum, this means:

- a) that a ceiling on the level of deforestation that can take place before 2015 with any incentives still flowing, has been set at only around 35 per cent of the level of deforestation that the reference level would imply;
- b) the accommodation of limited annual upward variations to ensure that the incentive structure still makes REDD+ a positive development choice for Guyana; and
- c) that Guyana is incentivized to maintain more than 99.5 per cent of its forest cover for the duration of the partnership.

See box 3 for a summary description of how performance based payments will be calculated.

Norwegian support to GRIF – alone or in combination with other contributors – will not exceed the sum calculated on the basis of the above described methodology.

It is also likely that while support from Norway will be sufficient to provide majority funding for results delivered by Guyana, in a given year, it is unlikely to equal the total sum owed to Guyana. Therefore, to ensure that the incentives which underpin the partnership are fully in place, Guyana and Norway will work together to seek to get other Participants to join the partnership.

Once other Participants are in place with sufficient commitments to the Partnership, this will enable Norwegian (and other Participants') contributions to vary directly with performance, i.e. a reduction in estimated emissions will lead to relatively higher contributions, increases to relatively lower contributions.

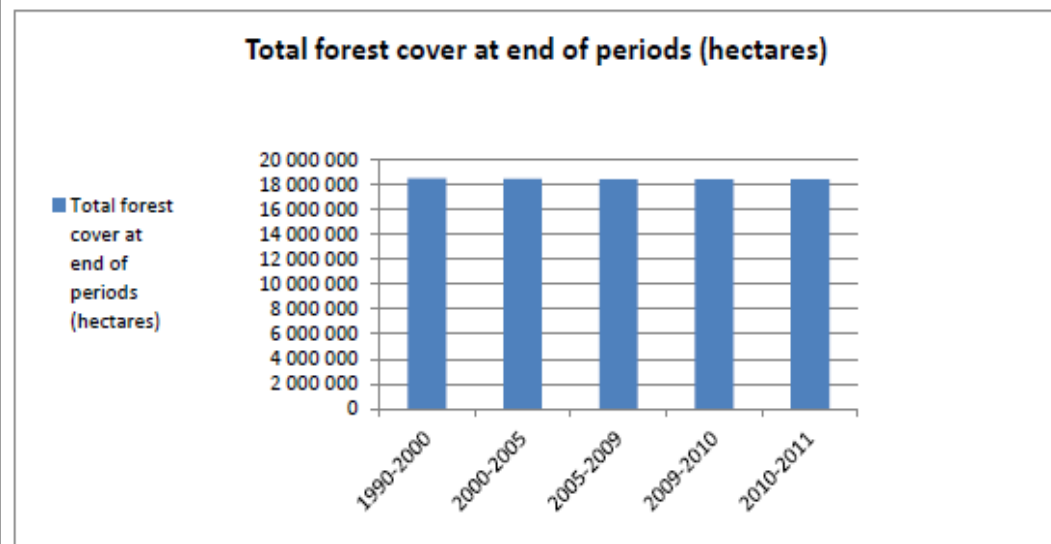
**Box 1:**

To improve knowledge on historical deforestation rates in Guyana, an analysis of forest area change since 1990 to September 2009 has been undertaken, using archived Landsat-type satellite data that met the IPCC Good Practice Guidelines for Land Use, Land Use Change and Forestry (LULCF). The analysis was conducted by Pöyry-New Zealand, upon assignment by the Guyana Forestry Commission. The report was subsequently subject to independent verification by Det Norske Veritas (DNV). The reports can be downloaded at [www.regjeringen.no/guyana](http://www.regjeringen.no/guyana) or [www.forestry.gov.gy](http://www.forestry.gov.gy)

Driver	Historical period				
				Year 1	Year 2
	1990 - 2000	2001 - 2005	2006 - 2009	2009 - 2010	2010 - 2011 (15 months)
	Area (ha)				
Forestry	6094	8420	4784	294	234
Agriculture	2030	2852	1797	513	72
Mining	10843	21438	12624	9384	9205
Infrastructure	590	1304	195	64	149
Fire	1708	235		32	136
Area deforested	21267	34249	19400	10287	9796
Total forest area of Guyana	18 473 394	18 425 127	18 417 878	18 398 478	18 388 190
Total forest area of Guyana remaining	18 452 127	18 417 878	18 398 478	18 388 190	18 378 394
Deforestation %	0,01 %	0,04 %	0,02 %	0,06 %	0,05 %

The estimates include all forest to non-forest change, i.e. detected mining, road infrastructure, agricultural conversion and fire events that result in deforestation. They do not include degradation caused by selective harvesting, fire or shifting agriculture. It should be noted that the numbers for the historical analysis are annualized, but that firm enough data to establish actual rates for any given year are not available. Insights gathered from countries where such data exist, indicate that there is most probably a fairly significant year-on-year variation.

A key conclusion to be drawn from the study is that forest cover in Guyana has remained relatively stable over the 20 year benchmark period, as illustrated below:



**Box 3:**  
**How will results based payments be calculated?**

To calculate the results based payments due to Guyana based on the results in any given year, the following steps will be followed:

1. Subtracting Guyana's reported and verified deforestation rate from the agreed interim reference level of 0.275%;
2. Calculating the carbon emission reductions achieved through avoided deforestation (as compared to the agreed reference level) by applying an interim and conservatively set estimate of carbon loss of 100tC/ha. This value will be replaced once a functional MRV system is in place. The interim carbon loss figure corresponds to 367tCO<sub>2</sub>/ha.
3. Subtracting from that number changes in emissions – on a ton-by-ton basis – from forest degradation as measured against agreed indicators and their reference levels, as specified in Table 2.
4. In calculating the carbon effects of forest degradation, an interim and conservatively set carbon density of 400 tC/ha will be applied. Upon agreement under the UNFCCC on how to estimate and account for emissions from degradation, this approach will be adjusted accordingly;
5. The tons of "avoided emissions" is then multiplied with an interim carbon price of US\$ 5/ton CO<sub>2</sub>, as established in Brazil's Amazon Fund.
6. If the deforestation rate in a given rate exceeds 0,056, the payments will be gradually reduced as a proportion of the sum derived through step 1-4 above, or cease (if at or exceeding 0,1 per cent), as stipulated in section 3.1.3, box 2.

**Section 3.2 Monitoring Progress Against reducing emissions and enhancing removals of carbon in Guyana's forests**

Progress against reducing emissions and enhancing removals of carbon in Guyana's Forests will in time be measured through the MRV system that is being put in place as set out in the MRV-system Road-map<sup>16</sup>.

Pending the implementation of the MRV-system, Table 2 sets out the interim REDD+ performance indicators described above. Guyana and Norway agree that these indicators will evolve as more scientific and methodological certainty is gathered concerning the means of verification for each indicator, in particular the capability of the MRV system at different stages of development.

A roadmap for the establishment of a national MRV system and accompanying Terms of Reference for the system have been developed to provide a framework for verifiable, performance monitoring, set against international best practice and nationally appropriate circumstances. In years 1, 2 and 3 (2009-2011), implementation has also commenced in a number of administrative and technical areas. Broad based MRV-system Steering and Technical Committees have been established and initial technical work has commenced and advanced in forest area and forest carbon stock assessment and monitoring. The framework has been created for annual reporting on deforestation and forest

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<sup>16</sup>[http://www.forestry.gov.gy/Downloads/Terms\\_of\\_20Reference\\_for\\_Guyana's\\_MRVS\\_Draft.pdf](http://www.forestry.gov.gy/Downloads/Terms_of_20Reference_for_Guyana's_MRVS_Draft.pdf)

degradation in accordance with interim REDD+ Performance Indicator that will evolve into a full MRV system. The first product has been the completion of historic reporting on forest/non forest cover and deforestation by driver, over the period 1990 to 2009, accompanied by annual reporting of forest/non forest cover and deforestation and forest degradation results in accordance with REDD+ Interim indicators set out in the JCN. Concurrently, work is also proceeding for field based assessments of forest carbon stock assessment and monitoring, the establishment of demonstration activities, and detailed technical studies on reference level setting and forest degradation, as well as other areas.

During 2009-2011, significant improvements to Guyana's ability to measure deforestation indicators were made. In particular, it was determined (and independently verified) that deforestation rates were extremely low.

Progress has also been made to gain a greater understanding of how degradation is to be measured, and this leading to further work in 2013 and onwards, when new scientifically-based knowledge will enable progress on refining the reporting on indicators to assess degradation, including that from mining and infrastructure (currently the dominant drivers of degradation).

Guyana and Norway have agreed that annual independent verification of REDD+ performance indicators will be conducted by one or more neutral expert organizations, to be appointed jointly by the Participants. The assessment determines what results Guyana has delivered according to the established indicators for REDD-plus performance. For the first and second reporting periods, the measurement of progress was carried out by Poyry and Indufor in collaboration with the Guyana Forestry Commission, and independent verification was carried out by DNV. DNV was selected on the basis of an international tender process in accordance with Norwegian procurement regulations.

#### **Section 4: Financial mechanism:**

The Guyana REDD+ Investment Fund (GRIF) is channeling REDD-plus financial support from Norway and other potential contributors to the implementation of Guyana's LCDS.

Pending the creation of an international REDD+ mechanism, the Guyana REDD+ Investment Fund (GRIF) represents an effort to create an innovative climate finance mechanism which balances national sovereignty over investment priorities with ensuring that REDD+ funds adhere to globally accepted financial, environmental and social safeguards.

The GRIF is an interim solution for channelling climate finance to Guyana - designed for the Guyana-Norway Partnership up to 2015 - pending the transfer of payment intermediation, and associated processes, to Guyana's national systems. This will be done when it is possible to specify how independent verification of Guyana's adherence globally accepted financial, environmental and social safeguards can be implemented. This will draw on UNFCCC and other relevant guidance.

Until such time as national systems can be used, the World Bank's International Development Association (IDA) was invited by Guyana and Norway to act as Trustee and is responsible for providing financial intermediary services to the GRIF.

The Trustee (i) receives payments for forest climate services provided by Guyana; and (ii) transfers these payments and any investment income earned on these payments, net of any administrative costs, to Partner Entities, for projects and activities that support the implementation of Guyana's LCDS. Transfer of funds takes place on approval by the GRIF Steering Committee, which consists of Guyana and Norway, with observers from Partner Entities, as well as Guyanese and Norwegian civil society.

Partner Entities provide operational services for the approved LCDS investments, and apply their own globally accepted operational procedures and safeguards. As of December 2012, Guyana and Norway have approved as Partner Entities the Inter-American Development Bank (IDB), the World Bank and the United Nations Development Group.

More information on the operation of the GRIF is set out in the Administration Agreement between the Government of Norway and the World Bank.<sup>17</sup>

### **Improved Financial Intermediation**

The Guyana REDD+ Investment Fund (GRIF) has experienced significantly slower than anticipated progress, although important lessons have been learned. The two Governments recognize the need for disbursements from the GRIF into Guyana's economy and relevant LCDS and REDD+ investments to strengthen the effectiveness of REDD+ as an intrinsic part of Guyana's sustainable development. As such, work is being undertaken to allow for a more flexible, fit-for-purpose financial mechanism that would ensure the application of internationally recognized safeguards while allowing for stronger Guyanese ownership. As part of this, a pilot for an IDB role as Financial and Safeguards Intermediary is being developed, with the goal of it being operational in the first half of 2013.

#### *Goal of the partnership*

The proposed role for the IDB as Fiduciary Safeguards Intermediary will ensure compliance with IDB's fiduciary, environmental and social safeguards for simpler projects. If proven suitable for the implementation of a range of GoG-activities it can also be useful to the further development of Guyana's domestic institutional capability.

It is hoped that by 2015, the financial mechanisms of the partnership can be used as examples of interim flexible climate financing instruments, which allow for rapid approval of projects and stronger national ownership, while at the same time applying internationally recognized (in this case IDB) standards for fiduciary, environmental and social safeguards.

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<sup>17</sup><http://lcds.gov.gy/guyana-redd-investment-fund-grif.html>

**Table 1- Key REDD+ Efforts in 2012/13 (from 21 December 2012 to 15 June 2013):**

### *Improved REDD+ Governance*

Through 2012, the Government of Guyana continued to improve governance standards within the REDD+-related forest dependent sectors. These efforts to improve REDD+ -related governance, will continue in 2013 and onwards. The information necessary to assess Guyana's completion of the actions below will be easily accessible in the public space.<sup>18</sup>Based on the goals of the partnership presented in section 2 the following actions will take place between December 21<sup>st</sup> 2012 and June 15<sup>th</sup> 2013:

#### Strategic framework

- Continued engagement between the IDB and the GFC with the aim of advancing an agreement on the FCPF, contingent on the completion of IDB's internal processes of approval of Guyana's FCPF programme.
- Guyana will publish its LCDS Addendum which will highlight its updated REDD+ strategy, including learnings to date from the Guyana-Norway partnership and an outline plan for advancement on the FCPF programme.

#### Continuous multi-stakeholder consultation process

- Monthly meetings of the MSSC, with comprehensive minutes of every meeting made publicly available immediately upon approval from the following MSSC meeting.
- Establishment of a Communications and Outreach team within the OCC, PMO or REDD+ secretariat, in anticipation of GRIF resources for its operations (see next point).
- With reference to the long term goals: Information and consultation project concept note presented to GRIF SC. The project will be addressing general information concerning Climate change and REDD+, LCDS and the Norway Guyana partnership, specific information on Amerindian land titling, the opt-in mechanism, FLEGT, EITI, IFM, GRIF projects and other relevant information. The project will recognize the need of tailored and non-internet based information to indigenous groups and others without stable internet access.
- Regular updates of the GRIF and LCDS webpages.

#### Governance

- Application for EITI Candidacy at EITI board meeting in May 2013.
- Develop an interim definition of legality for the EU FLEGT VPA for Guyana by end of June 2013.
- Outline in 2013 a GoG (MNRE) programme, with a particular focus on specific efforts to manage degradation from extractive activities where this needs to be done, including, for example: an enhanced miners' environmental knowledge programme through a mining extension service initiative and enhanced dialogue with the sectors and relevant stake holders towards ensuring sectoral best practices are applied and sustained thereafter, where necessary

#### The rights of indigenous peoples and other local forest communities as regards REDD+

- Present the Amerindian Land Titling project to the GRIF steering committee, after the normal GRIF public hearing period for new project notes is concluded
- Opt-in concept note ready and pilot community for opt-in mechanism selected.

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<sup>18</sup><http://www.lcds.gov.gy/> and <http://www.regjeringen.no/nb/dep/md/tema/klima/klimaogskogprosjektet/norge-og-guyana-avtale-om-a-bevare-guyan.html?id=592318>



- Strategy and development of tailored information and consultations for hinterland communities addressed in the outreach program.
- Initiating implementation of Community Development Plans through the Amerindian Development Fund.

#### Integrated land-use planning and management

- Strategic Approach to land use planning publicly communicated by March 2013.
- Establish a plan, timeline and responsible agency for the development of a map of area use (including, but not limited to: existing and planned concession and reconnaissance areas for forestry and mining, titled lands for Amerindian communities, areas planned and concessioned for industrial agriculture etc.)
- Based on the evolving area use map, determine a roadmap by June 2013 to codify the formal status of varying degrees of protection for the areas identified as Intact Forest Landscapes and priority areas for biodiversity. This will gradually replace the Intact Forest Landscapes interim performance indicator.

**Table 2: Interim Indicators for REDD+ performance in Guyana**<sup>19</sup>

Source of emissions or removals	Justification	Interim performance indicator	Monitoring and estimation	IPCC LULUCF reporting
Deforestation indicator:				
Gross deforestation	Emissions from the loss of forests are among the largest per unit emissions from terrestrial carbon loss.	<p>Rate of conversion of forest area as compared to agreed reference level.</p> <p>Forest area as defined by Guyana in accordance with the Marrakech accords:</p> <ul style="list-style-type: none"> <li>• Minimum 30% tree cover</li> <li>• At a minimum height of 5 meter</li> <li>• Over a minimum area of 1 ha.</li> </ul> <p>Conversion of natural forests to tree plantations shall count as deforestation with full carbon loss.</p> <p>Forest area converted to new infrastructure including logging roads, shall count as full carbon loss, unless otherwise informed by field study that identifies</p>	<p>Forest cover as of September 2009 will be used as baseline for monitoring gross deforestation.</p> <p>Reporting to be based on medium and high resolution satellite imagery and in-situ observations where necessary.</p> <p>Monitoring shall detect and report on expansion of human infrastructure (eg. new roads, settlements, pipelines, mining/agriculture activities etc.)</p>	Activity data on change in forest land

<sup>19</sup>The Participants agree that these indicators will evolve as more scientific and methodological certainty is gathered concerning the means of verification for each indicator, in particular the capability of the MRV system at different stages of development. Based on experiences from the first and second reporting and verification exercise, some adjustments have been made in this table. However, the process has identified a need to develop further detail on the operationalisation of the indicators. Significant improved ability to operationalise the indicators has already been achieved, and this process will continue over the duration of the partnership.

		an alternative carbon loss level.		
Degradation indicators:				
Loss of intact forest landscapes <sup>20</sup>	Degradation of intact forest through human activities will produce a net loss of carbon and is often the pre-cursor to further processes causing long-term decreases in carbon stocks.  Furthermore, preserving intact forests will contribute to the protection of biodiversity.	The total area of intact forest landscapes within the country should remain constant. Any loss of intact forest landscapes area <sup>21</sup> shall be accounted as deforestation with full carbon loss. The IFL Baseline map developed in the first reporting period will be used to assess changes. Note that this indicator will be subject to review as stipulated in section 2.1. <sup>22</sup>	Using similar methods as for forest area change estimation.	Changes in carbon stocks in forests remaining as forests
Forest management (i.e. selective logging) activities in natural or semi-natural forests	Forest management should work towards sustainable management of forest with net zero emissions or positive carbon balance in the long-term.	All areas under forest management should be rigorously monitored and activities documented (i.e. concession activities, harvest estimates, timber imports/exports).  Increases in total	Data on extracted volumes is collected by the Forestry Commission.  Independent forest monitoring will act as an additional data source on forest management to complement this information.  Accounting of this	Changes in carbon stocks in forests remaining as forests

<sup>20</sup>Intact Forest Landscape (IFL) is defined as a territory within today's global extent of forest cover which contains forest and non-forest ecosystems minimally influenced by human economic activity, with an area of at least 500 km<sup>2</sup> (50,000 ha) and a minimal width of 10 km (measured as the diameter of a circle that is entirely inscribed within the boundaries of the territory)." (See [www.intactforests.org](http://www.intactforests.org))

<sup>21</sup>When assessing loss of IFL, the established elimination criteria will be applied:

- Settlements (including a buffer of 1 km);
- Infrastructure used for transportation between settlements or for industrial development of natural resources, including roads (except unpaved trails), railways, navigable waterways (including seashore), pipelines and power transmission lines (including a buffer of 1 km on each side);
- Areas used for agriculture and timber production;
- Areas affected by industrial activities during the last 30-70 years, such as logging, mining, oil and gas exploration and extraction, peat extraction, etc.

The threshold values for IFL-patches (500 km<sup>2</sup>, min. width 10 kms) will not be applied in assessing IFL loss.

<sup>22</sup> The analysis of loss of IFL area during the second reporting period was conducted after the verification process had ended. The result reported under this indicator for the second reporting period will therefore be verified in relation to the year 3 verification.

		<p>extracted volume, expressed in tons of CO<sub>2</sub>, (as compared to mean volume 2003 – 2008) will be accounted as increased forest carbon emissions<sup>23</sup> unless otherwise can be documented using the gain-loss or stock difference methods as described by the IPCC for forests remaining as forests. In addition to the harvested volume, an appropriate expansion factor of 25 % (applied to the whole population of trees under forest management, i.e. harvested + remnant trees) shall be used to take account of carbon loss caused by collateral damage, etc, unless it is documented that this has already been reflected in the recorded extracted volume.</p>	<p>indicator should be done in terms of carbon units referred as close as possible to extraction of biomass from the above ground carbon pool.</p>	
Carbon loss as indirect effect of new infrastructure.	The establishment of new infrastructure in forest areas often contributes to forest carbon loss outside the areas directly affected by constructions.	High resolution satellite imagery and/or field observations shall be used to detect degradation in a 100m buffer surrounding new infrastructure (incl. mining sites, roads, pipelines,	Medium and high resolution satellite to be used for detecting human infrastructure (i.e. small scale mining) and related degradation.	Changes in carbon stocks in forests remaining as forests

<sup>23</sup> The participants agree on the need to create incentives for net-zero or carbon positive forest management practices in Guyana. This will require a sophisticated MRV system to assess the carbon effects of forestry activities. This will be an objective of the MRV system under development. In the interim period, focus will be on incentives for avoiding increased emissions from forest management activities.

		<p>reservoirs etc.).</p> <p>As the benchmark for this indicator, the annualized number of the mapped degraded area from the second reporting period will be used (4368 ha)<sup>24</sup>. Any degradation above this benchmark in subsequent reporting years will result in reduced compensation.</p> <p>Unless other emission factors can be documented through the MRVS, these areas shall be accounted with a 50 % annual carbon loss, i.e. areas mapped in one year will be accounted with a further 50 % carbon loss in subsequent reporting periods.</p>		
Emissions resulting from subsistence forestry, land use and shifting cultivation lands (i.e. slash and burn agriculture).	Emissions resulting from communities to meet their local needs may increase as result of <i>inter alia</i> shorter fallow cycle or area expansion.	Not considered relevant in the interim period before a proper MRV-system is in place.		Changes in carbon stocks in forests remaining as forests

<sup>24</sup>For the second reporting period, Guyana made use of a new and significantly improved method for mapping infrastructure related degradation. A historical proxy analysis of areas affected by degradation from infrastructure was conducted for the period 2000-2010. The total area of a 100m buffer surrounding all new infrastructure was calculated for the historical period, as well as for the year 2 reporting period. This analysis indicated that the area affected by new infrastructure in the year 2 reporting period was comparable to the historical period. This exercise will be verified in the next verification of the interim performance indicators.

As a benchmark for infrastructure related degradation in future reporting periods, the area mapped as degraded in the second reporting period will be used. This area equaled 5460 ha, but as the second reporting period had a length of 15 months, and subsequent reporting periods will be 12 months, this number was annualized. The new benchmark is therefore 4368 ha.

<p>Emissions resulting from illegal logging activities</p>	<p>Illegal logging results in unsustainable use of forest resources while undermining national and international climate change mitigation policies</p>	<p>Areas and processes of illegal logging should be monitored and documented as far as practicable.</p>	<p>The monitoring of illegal logging is within the main objectives of the GFC's forest monitoring system, and is informed by an illegal logging database. In addition to reporting on illegal logging via the database, Independent Forest Monitoring will support performance monitoring of forest legality through the IFM framework. Should IFM detect potentially significant challenges with the established forest monitoring system, this indicator will be reassessed.</p> <p>In the absence of hard data on volumes of illegally harvested wood, a default factor of 15% (as compared to the legally harvested volume) will be used. This factor can be adjusted up and downwards pending documentation on illegally harvested volumes, inter alia from Independent Forest Monitoring. Medium resolution satellite to be used for detecting human infrastructure and targeted sampling of high-resolution satellite for selected sites.</p> <p>Accounting of this indicator should be done in terms of carbon units referred as close as possible to extraction of biomass from the above ground carbon</p>	<p>Changes in carbon stocks in forests remaining as forests</p>
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Emissions resulting from anthropogenically caused forest fires	Forest fires result in direct emissions of several greenhouse gases	Area of forest burnt each year should decrease compared to current amount	pool. Coarse-resolution satellite active fire and burnt area data products in combination with medium resolution satellite data used for forest area changes	Emissions from biomass burning
<b>Indicator on increased carbon removals:</b>				
Encouragement of increasing carbon sink capacity of non-forest and forest land	Changes from non-forest land to forest (i.e. through plantations, land use change) or within forest land (sustainable forest management, enrichment planting) can increase the sequestration of atmospheric carbon.	Not considered relevant in the interim period before a proper MRV-system is in place but any dedicated activities should be documented as far as practicable.  In accordance with Guyanese policy, an environmental impact assessment will be conducted where appropriate as basis for any decision on initiation of afforestation, reforestation and carbon stock enhancement projects.		Activity data on change to forest land and changes in carbon stocks in forests remaining as forests

# Appendix II: Status of Amerindian Lands

## Communities Awaiting Title + Titled Amerindian Villages

REGION	Community / Village for Communal Land Title	TITLED (Absolute Grant)	DEMARCATED (Certificate of Title)	EXTENDED (Absolute Grant)	EXTENSION DEMARCATED (Certificate of Title)
1	Arukamai	YES	YES	N/A	N/A
1	Assakata	YES	YES	N/A	N/A
1	Baramita	YES	PART OF ALT PROJECT	N/A	N/A
1	Barima Koriabo	YES	YES	N/A	N/A
1	Bumbury Hill	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
1	Chinese Landing	YES	YES	N/A	N/A
1	Eclipse Falls	PART OF ALT PROJECT	PART OF ALT PROJECT	PART OF ALT PROJECT	PART OF ALT PROJECT
1	Four Miles	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
1	Hobodia	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
1	Hotoquai	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
1	Kamwatta	YES	YES	YES	YES
1	Kokerite	YES	YES	N/A	N/A
1	Kariako	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
1	Kwebanna	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
1	Manawarin	YES	PART OF ALT PROJECT	PART OF ALT PROJECT	PART OF ALT PROJECT
1	Red Hill	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
1	Santa Cruz	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
1	Santa Rosa	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT



1	Sebai	YES	YES	N/A	N/A
1	Three Brothers	YES	YES	N/A	N/A
1	Tobago	YES	YES	N/A	N/A
1	Waikrebi	YES	YES	N/A	N/A
1	Waramuri	YES	PART OF ALT PROJECT	N/A	N/A
1	Warapoka	YES	YES	YES	YES
1	Whitewater	YES	YES	N/A	N/A
1	Yarakita	YES	YES	N/A	N/A
2	Akawini	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
2	Bethany	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
2	Capoey	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
2	Kabakaburi	YES	YES	N/A	N/A
2	Mainstay/Whyaka	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
2	Mashabo	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
2	Tapakuma	YES	YES	N/A	N/A
2	St. Monica incl. Karawab	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
2	Wakapoa	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
3	Santa Aratak	YES	YES	N/A	N/A
4	St. Cuthberts Mission	YES	YES	N/A	N/A
5	Moraikobai	YES	YES	N/A	N/A
6	Orealla/Siparuta	YES	YES	N/A	N/A
7	Batavia	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
7	Kambaru	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
7	Tassarene	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
7	Kangaruma	PART OF ALT PROJECT	PART OF ALT PROJECT	PART OF ALT PROJECT	PART OF ALT PROJECT
7	Karrau	YES	YES	PART OF ALT	PART OF ALT PROJECT

				PROJECT	
7	Kaburi	YES	YES	N/A	N/A
7	Isseneru	YES	YES	N/A	N/A
7	Jawalla (incl. Qwebanang)	YES	PART OF ALT PROJECT	N/A	N/A
7	Kurutuku	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
7	Arau	YES	PART OF ALT PROJECT	PART OF ALT PROJECT	PART OF ALT PROJECT
7	Kaikan	YES	PART OF ALT PROJECT	N/A	N/A
7	Paruima	YES	PART OF ALT PROJECT	N/A	N/A
7	Waramadong	YES	PART OF ALT PROJECT	N/A	N/A
7	Warawatta/Kamara ng	YES	PART OF ALT PROJECT	N/A	N/A
7	Kako	YES	PART OF ALT PROJECT	N/A	N/A
7	Phillipai	YES	PART OF ALT PROJECT	N/A	N/A
7	Chinoweing	YES	PART OF ALT PROJECT	N/A	N/A
8	Chenapou	YES	PART OF ALT PROJECT	N/A	N/A
8	Kopinang	YES	YES	N/A	N/A
8	Waipa	YES	YES	N/A	N/A
8	Kaibarupai	YES	YES	N/A	N/A
8	Kamana	YES	PART OF ALT PROJECT	N/A	N/A
8	Kurukabaru	YES	PART OF ALT PROJECT	N/A	N/A
8	Tuseneng	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
8	Karisparu	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
8	Itabac	YES	YES	N/A	N/A
8	Kanapang	YES	YES	N/A	N/A
8	Kato incl. Chieung Mouth	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
8	Paramakatoi (incl. Bamboo Creek and Mt. Foot)	YES	PART OF ALT PROJECT	N/A	N/A
8	Monkey Mountain	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
8	Taruka	YES	PART OF ALT PROJECT	PART OF ALT PROJECT	PART OF ALT PROJECT

8	Fairview	YES	YES	N/A	N/A
8	Campbelltown	YES	YES	N/A	N/A
8	Micobie	YES	YES	N/A	N/A
9	Annai	YES	YES	YES	YES
9	Apoteri	YES	YES	N/A	N/A
9	Crashwater	YES	YES	N/A	N/A
9	Toka	YES	YES	N/A	N/A
9	Yakarinta	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Massara – Tract A	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Massara – Tract C	N/A	N/A	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Rewa	YES	YES	N/A	N/A
9	Yupukari	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Katoka	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Nappi	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	St. Ignatius	YES	YES	N/A	N/A
9	Moco Moco	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Parikwarunau	YES	YES	N/A	N/A
9	Potarinau	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Schulinab	YES	YES	N/A	N/A
9	Sawariwau	YES	PART OF ALT PROJECT	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Rupanau	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
9	Sand Creek	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Katoonarib	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
9	Shea	YES	YES	N/A	N/A
9	Awarewaunau	YES	YES	PART OF ALT	PART OF ALT PROJECT

				PROJECT	
9	Maruranau	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Aishalton	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Karaudaranau	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Achawib (incl. Bashanzon)	YES	YES	N/A	N/A
9	Konashen	YES	PART OF ALT PROJECT	N/A	N/A
9	Karasabai	YES	YES	PART OF ALT PROJECT	PART OF ALT PROJECT
9	Parabara	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A
10	Hururu	YES	YES	N/A	N/A
10	Wikki/Calcuni	YES	YES	N/A	N/A
10	Wiruni	YES	YES	N/A	N/A
10	Great Falls(#58)	YES	YES	N/A	N/A
10	Malali	YES	YES	N/A	N/A
10	Muritaro	YES	YES	N/A	N/A
10	Riversview	YES	PART OF ALT PROJECT	N/A	N/A
10	Rockstone	PART OF ALT PROJECT	PART OF ALT PROJECT	N/A	N/A

## Satellite Villages

Village	Location
Kumaka/Rincon	Moruca Reg. 1
Koko	Moruca Reg. 1
Kamwatta	Moruca Reg. 1
Parakese	Moruca Reg. 1
Karaburi	Moruca Reg. 1
Santa Rosa/Islands	Moruca Reg. 1
Mora	Moruca Reg. 1
Huradiah	Moruca Reg. 1
Haimacabra	MorucaReg.1
Karawad	Reg # 2
Aratak	Reg # 3
Siparuta	Region #6
Quebenang	Reg # 7
Wax Creek	Reg # 7
Chiung Mouth	Reg # 8
Bamboo Creek	Reg # 8
Mountain Foot	Reg # 8
Annai Central	Reg #9
Surama	Reg # 9
Wowetta	Reg # 9
Rupertee	Reg # 9
Kwatamang	Reg # 9
FlyHill	Reg # 9
Kaicumbay	Reg # 9
Quatata	Reg # 9
Semonie	Reg # 9
Kumu	Reg # 9
Quarrie	Reg # 9
Parishara	Reg # 9
Haiwa	Reg # 9
Katuur	Reg # 9
Baitoon	Reg # 9
Shiriri	Reg # 9
Quiko	Reg # 9
Meriwau	Reg # 9
Bashauzon	Reg # 9
Churikadnau	Reg # 9
Paipang	Reg # 9
Tiperu	Reg # 9
Taushida	Reg # 9
Tiger Pond	Reg # 9
Rukumuta	Reg # 9
Yurongparu	Reg # 9

Wichabai	Reg # 9
Cra Crana	Reg # 9
Curicock	Reg # 9
Jawari	Reg # 9
Mahoe	Reg # 9
Kwaimatta	Reg # 9

## Amerindian Settlements

Settlement	Location
Tassawini	Moruca Sub Region Regon # 1
Five Star	Moruca Sub Region , Reg. # 1
Almond Beach	Moruca Sub Region, Reg # 1
Barbina	Mabaruma Sub Region, Region # 1
Powai-kuru	Mabaruma Sub Region, Region # 1
Black Water/Lower Barima	Mabaruma Sub Region, Region 1
Imboterio	Mabaruma Sub Region
Koberimo	Mabaruma Sub Region
Father's Beach	Mabaruma Sub Region
Lower Koriabo	Mabaruma Sub Region
Aruau	Mabaruma Sub Region
Kamwatta (Eyelash)	Mabaruma Sub Region
Canal Bank	Martakai Sub Region, Region # 1
Big Creek	Martakai Sub Region
White Creek	Martakai Sub Region
Dogg Point \	Lower Mazaruni Region # 7
Agatash	Lower Mazaruni Region # 7
Princeville	Region # 8
El Passo / Tumatumari	Region # 8
Saxacalli	

# Appendix III: Use of Proxies

Because there is no agreed UNFCCC REDD+ mechanism, the Guyana Interim REDD+ mechanism has been built from 9 key building blocks, which seek to model a likely REDD+ mechanism. By 2015, Guyana aims to evolve each building block to a level of quality which, cumulatively, creates the elements of an expected REDD+ mechanism. In the absence of UNFCCC guidance, over the years to 2015, “proxies” are used for each of the key building blocks. This Appendix shows how the 9 key building blocks, and their proxies, are evolving.

**TABLE 3A - PROXIES USED AS PART OF REDD+ MODEL: EARNING PAYMENTS**

*This table summarises the 9 building blocks which Guyana believes will be in an eventual UNFCCC REDD+ mechanism. To learn lessons which may be of benefit to others, Guyana is progressively evolving each block. This is done through the use of proxies, with the goal of evolving each proxy, based on lessons learned, over a number of years. For some elements, the 2015 goal has already been achieved as of March 2013 - whereas for others, further work is needed. In all cases, the temporary indicators and proxies are updated in the JCN every year.*

	Key Element	Proxy	2009 Status	March 2013 Status	2015 Goal	
<b>EARNING PAYMENTS</b>	<b>1. Reference Level</b> 1.1 Deforestation Reference Level	Combined Reference Level Methodology	Combined Reference Level Methodology	Combined Reference Level Methodology	Use of Combined Reference Level Methodology until 2015 UNFCCC Reference Level Proposal will be submitted, drawing on lessons from 2009-2015 period	
		Methodology	Best available data, until MRVS fully developed	FAO Data	Since 2010, more accurate data from satellite imagery, followed in 2011 by 5M RapidEye imagery	Measured by MRVS
	Forest Area	Best available data, until MRVS fully developed	FAO Data	FAO Data	Since 2010, more accurate data from satellite imagery, followed in 2011 by 5M RapidEye imagery	Measured by MRVS
		Deforestation Rate	Interim Indicators as set out in JCN, until MRVS fully developed	Interim Indicators as set out in JCN	In the first two years of the Interim REDD+ partnership, Guyana's MRVS was developed to provide some of the world's first contributions to a knowledge base for degradation indicators. These are informing the next stage of evolution of these indicators during 2013.	Measured by MRVS
	<b>3. Carbon Price</b>	US\$5/tC	US\$5/tC	US\$5/tC	US\$5/tC	Future carbon pricing for post-2015 will be based on global developments, coupled with enhanced quality of Guyana's REDD+ capabilities
	<b>4. Emissions Monitoring and Reporting</b> 2.1 Deforestation Rate	Best available data, until MRVS fully developed	FAO Data	FAO Data	Since 2010, more accurate data from satellite imagery	Measured by MRVS
		Interim Indicators as set out in JCN, until MRVS fully developed	Interim Indicators as set out in JCN	Interim Indicators as set out in JCN	In the first two years of the Interim REDD+ partnership, Guyana's MRVS was developed to provide some of the world's first contributions to a knowledge base for degradation indicators. These are informing the next stage of evolution of these indicators during 2013.	Measured by MRVS
	2.2 Degradation Rate	100t C/ha for standing forest and deforestation; 400 t C/ha for degradation	100t C/ha for standing forest and deforestation; 400 t C/ha for degradation	100t C/ha for standing forest and deforestation; 400 t C/ha for degradation	100t C/ha for standing forest and deforestation; 400 t C/ha for degradation	Measured by MRVS
	2.3 Carbon Stocks	100t C/ha for standing forest and deforestation; 400 t C/ha for degradation	100t C/ha for standing forest and deforestation; 400 t C/ha for degradation	100t C/ha for standing forest and deforestation; 400 t C/ha for degradation	100t C/ha for standing forest and deforestation; 400 t C/ha for degradation	Measured by MRVS



	Key Element	Proxy	2009 Status	March 2013 Status	2015 Goal
<b>EARNING PAYMENTS</b>	<b>4. REDD+ Governance</b>	FCPF	FCPF	FCPF	Compatibility with all relevant decisions of the UNFCCC
	4.1 Strategic Framework	Overall Stakeholder Engagement and Awareness consistent with the conceptual framework	As set out in Conceptual Framework. Main focus on national consultation and MSSC.	As set out in Conceptual Framework. Monthly meetings of the MSSC	As set out in Conceptual Framework. Monthly meetings of the MSSC
	4.2 Multi-stakeholder consultation process			Targeted consultations on individual LCDS investments	Targeted consultations on individual LCDS investments
	4.3 Governance	Interim Indicators set out in JCN	Interim Indicators set out in JCN	As needed collaboration involving Government, NTC and MSSC - limited by funding constraints	Formalised collaboration between Government, NTC and MSSC, and coordination of information sharing with Amerindian communities
	4.4 Rights of indigenous peoples and other local forest communities and safeguards for REDD+ participation	Interim Indicators set out in JCN	Interim Indicators set out in JCN	Start of EITI Negotiation Start of EU-FLEGT Negotiation IFM/Audit Establishment of SLUC Commencement of MoNRE Strategic Plan preparation	Application for EITI Compliance Ratification of EU-FLEGT VPA Continued implementation of IFM Implementation of activities outlined by SLUC Implementation of MNRE Strategic Plan Submission of fifth national report to the CBD
	Land Tiling and Related Processes	No proxy	Tiling Complete for 96 villages. All outstanding tiling, demarcation and extensions - where two thirds of village request this to be done in accordance with Free, Prior and Informed Consent (FPIC) - set out in LCDS Appendix	All outstanding tiling, demarcation and extensions - where two thirds of village request this to be done in accordance with FPIC - detailed in Amerindian Land Tiling project, to be carried out in partnership with UNDP, utilising funds from early years of Guyana-Norway partnership	Achievement of the Government of Guyana's policy objective of completion of all land tiling for all eligible Amerindian communities by 2015, where two thirds of the village request this to be done in accordance with the principles of Free, Prior and Informed Consent (FPIC)
	Benefit Sharing	Amerindian Development Fund	Specific Allocation of Interim REDD+ Funds to all Amerindian communities via Amerindian Development Fund and other programmes.	Amerindian Development Fund starting. Xxx Community Development Plans produced by communities. all will commence implementation in next three years, 27 to commence implementation in 2013	Once the Opt In Mechanism (see below) starts to be implemented, in accordance with principles of Free, Prior and Informed Consent (FPIC), this will include a benefit sharing mechanism.
	FPIC	Opt in process	Opt in design initiated	Discussed at NTC meeting	Opt In Mechanism designed and implementation commenced, in accordance with principles of Free, Prior and Informed Consent (FPIC). No deadline will be imposed.
	4.5 Integrated land use planning and management	Interim Indicators set out in JCN	Interim Indicators set out in JCN	Interim Indicators set out in JCN	Formal System in Place for Area Planning and Management, including formalisation of various degrees of protection of priority areas
	<b>5. Independent Assessment</b>	No proxy	Carried out by external providers	Carried out by external providers	Carried out by external providers
5.1 Emissions Reductions	No proxy	Carried out by external providers	Carried out by external providers	Carried out by external providers	
5.2 REDD+ Governance		Carried out by external providers	Carried out by external providers	Carried out by external providers	

**TABLE 3B - PROXIES USED AS PART OF REDD+ MODEL: MANAGING AND INVESTING PAYMENTS**

*This table summarises the 9 building blocks which Guyana believes will be in an eventual UNFCCC REDD+ mechanism. To learn lessons which may be of benefit to others, Guyana is progressively evolving each block. This is done through the use of proxies, with the goal of evolving each proxy, based on lessons learned, over a number of years. For some elements, the 2015 goal has already been achieved as of March 2013 - whereas for others, further work is needed. In all cases, the temporary indicators and proxies are updated in the JCN every year.*

	Key Element	Proxy	2009 Status	March 2013 Status	2015 Goal
<b>MANAGING PAYMENTS</b>	<b>6. Financial Mechanism</b>	ODA Financial Intermediary	No mechanism in place	Since 2010, Guyana REDD+ Investment Fund (GRIF) has been in place as Trust Fund at World Bank. In 2013, reforms being implemented to include a fee-for-service mechanism to provide environmental, social and financial safeguards as well as an improved and more streamlined intermediation process for the GRIF	Transition Plan in place showing how the financial mechanism can be transitioned into national systems with standards in place allowing for independent assessment of financial, social and environmental safeguards. This could form part of a submission into the UNFCCC process, as a contribution to global efforts to design effective REDD+ finance mechanisms.
<b>INVESTING PAYMENTS</b>	<b>7. National Plan for low deforestation development</b>	LCDS (2010-2015) As required	LCDS (2010-2015) As required	LCDS (2010-2015) As required	LCDS (2015-2020) As required
	<b>8. Ongoing Support for Capacity Building</b>	Safeguards of Partner Entities as mutually agreed between Guyana and Norway	Safeguards of UNDP, IDB or World Bank	Safeguards of UNDP, IDB or World Bank	Safeguards of UNDP, IDB or World Bank, unless superseded by UNFCCC safeguards.
	<b>9. Safeguards for Investment of REDD+ income</b>				

# Appendix IV: Economic Value to the Nation (EVN) Methodology - Background

In 2008, the Office of the President of Guyana conducted a theoretical analysis of what the total cost of eliminating deforestation in Guyana would be. This Economic Value to the Nation (EVN) was calculated as the “opportunity cost” for the activities which would have been foregone in a zero deforestation scenario, and was estimated to have a most likely value the equivalent of a US\$580 million annuity.

At the time, the EVN of Guyana’s forest climate services was zero, so this did not impact on the calculation. However, today, Guyana’s forest is worth more alive than dead – and with this increase in the value of the EVN of REDD+, it is changing the economic calculations around the use of the forest. As the EVN of REDD+ increases, it is possible to simultaneously out-compete many possible uses of the forest while at the same time generating the capital to invest in future low carbon or low deforestation activities, as well as monitoring and enforcement capabilities.

The following three Appendices detail the original 2008 calculation of EVN.

# Appendix V: The EVN-EVW methodology applied to Guyana

## EVN and EVW: The solution space for avoiding deforestation

There are powerful, rational incentives for forested countries to deforest even though this causes massive negative consequences for the world. Two concepts explain this misalignment of current incentives: deforestation’s economic value to the nation (EVN) and forests’ economic value to the world (EVW).

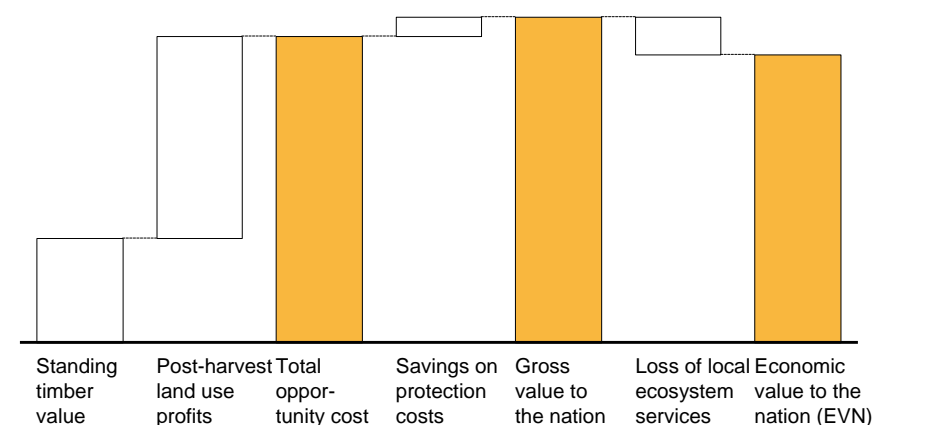
### Deforestation’s economic value to the nation (EVN)

National and local policymakers have a responsibility to their home constituencies to promote social and economic development. Because forested land can generate greater economic value when put to other uses, individuals and companies in developing countries face powerful incentives to exploit these opportunities. In turn, national and local governments will face political pressure to permit or even encourage deforestation. Today’s richest countries, such as the United States, actively pursued deforestation and land conversion to agriculture in early phases of development for exactly these reasons.

Land conversion can create significant ‘economic value to the nation’ (EVN) – which is intuitively obvious judging by the high rates of deforestation typically associated with economic development. The EVN from deforestation has four principal components: standing timber value, post-harvest land use profits, savings on forest protection costs, and loss of local ecosystem services.<sup>25</sup>

#### Exhibit 8

#### FOUR COMPONENTS OF EVN



<sup>25</sup> For technical assumptions on EVN as applied in Guyana see Appendix II.

**1. Standing timber value.** Forests contain valuable wood that can be harvested and sold for multiple uses, such as sawnwood, pulp, and fuelwood. While some of this value can be tapped through sustainable management practices, unsustainable extraction is typically more economically attractive, as it generates higher timber volumes and earlier cash flow. Early cash flow is particularly important in developing countries, which have huge developmental objectives which require funding to lay the foundation for future economic growth.

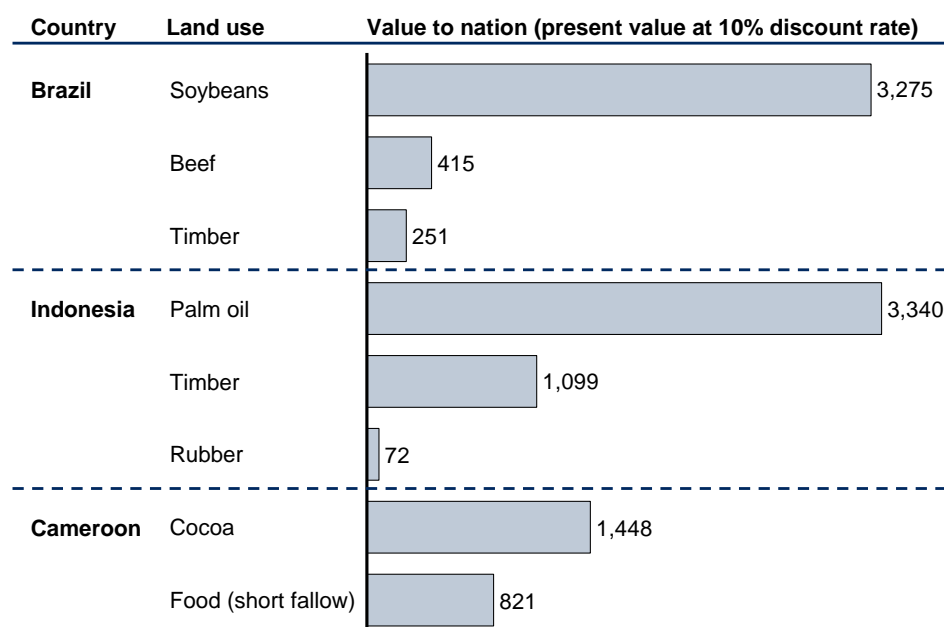
**2. Post-harvest land use value.** Post-harvest uses such as commercial agriculture, plantation forestry, ranching, and mining can generate attractive ongoing cash flow after trees are cleared from the land. The value from post-harvest land use is typically even greater than the value of the standing timber and will drive deforestation even where forest resources are not themselves commercially valuable.

**3. Avoided protection costs.** Tropical governments spend significant amounts on forestry personnel and equipment to monitor and protect their forests. These costs could be avoided if countries choose to relax levels of forest protection, thereby leading to increased deforestation.

**4. Loss of local ecosystem services.** Standing forests generate significant local ecosystem services – those services whose economic benefits accrue primarily to local stakeholders – that are lost when forests are cleared. These services include, among others, flood control, the provision of non-timber forest products, and eco-tourism.<sup>26</sup>

## Exhibit 9

### 'ECONOMICALLY RATIONAL' USE OF LAND GENERATES PROFITS... AND DEFORESTATION



Source: Grieg-Gran (2008), Eliasch Review

<sup>26</sup> Local ecosystem services exclude the local element of 'global' ecosystem services that will be lost or impaired as a consequence of global climate change, as it is not possible to attribute these impacts to land use emissions relative to other existing and historical sources of greenhouse gas emissions.

## Defining forests' economic value to the world (EVW)

Standing forests provide tremendous global economic value in the form of ecosystem services, including carbon storage, climate regulation, and biodiversity conservation. However, there are no commodity prices or traded markets for most of these services, making it difficult to estimate their value and impossible for forested countries to generate income from them. Deforestation destroys these services and imposes significant costs on the world; the recent Eliasch Review reports that the world loses \$1.8-\$4.2 trillion (€1.35-€3.1 trillion) in ecosystem services each year due to deforestation. The size of this number reflects the very significant values that standing forests provide, which some researchers estimate to be as high as \$25,000 per hectare in net present value terms.<sup>27</sup>

The services provided by forests produce 'economic value to the world' (EVW), a concept that captures the true economic value of the ecosystem services that forests provide. However, in practical terms, there is only one market of real importance for an environmental commodity: the carbon market. Since abatement of carbon emissions is the only ecosystem service that the world is currently willing to pay for at meaningful scale, the carbon price is a reasonable proxy for the world's willingness to pay for ecosystem services despite carbon market fragmentation across geographies and incomplete scope (they largely exclude abatement opportunities in the forestry sector today).

The value of avoided carbon emissions from deforestation therefore serves as a proxy for the economic value to the world that forests provide (hereafter denoted as  $EVW_C$ ). Since a ton of carbon emissions avoided from reducing deforestation provides essentially the same ecosystem services as a ton of carbon emissions abated by other means, its economic value to the world is the same, and the world's theoretical willingness to pay should be the same. Just as Certified Emissions Reductions (CERs) receive the same prices regardless of their source, tons of carbon abatement from avoided deforestation should be roughly equivalent in value to tons from other abatement levers, potentially discounted as appropriate to account for permanence risk and other methodological challenges.

Valued at today's CER price of approximately \$20/ton and assuming crediting for carbon stored only in above-ground biomass,  $EVW_C$  from avoided deforestation would range from \$6,500 to \$7,000 per hectare in Guyana.<sup>28</sup> Valued at projected global marginal abatement costs of \$60 to \$80 per ton in 2030,  $EVW_C$  could eventually exceed \$20,000 per hectare of forest protected from deforestation.<sup>29</sup> These values vastly exceed most alternative land uses and suggest that the world has a very strong interest in preventing deforestation. Other ecosystem services are valuable, but currently irrelevant to decision-makers given the absence of institutional mechanisms for compensation.

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<sup>27</sup> Government of the United Kingdom. Climate Change: Financing Global Forests: The Eliasch Review, page 30. United Kingdom: 2008. (Citing Braat and Ten Brink (2008).)

<sup>28</sup> Assumption is loss of above-ground biomass only, at 342.78 tCO<sub>2</sub>e per hectare, from FAO Forest Resources Assessment 2005

<sup>29</sup> Based on 2030 marginal abatement cost from McKinsey & Company. "A Cost Curve for Greenhouse Gas Reduction," *McKinsey Quarterly*, 2007 Number 1

## Exhibit 10

### EVW, $EVW_C$ , AND EVN PROVIDE BOUNDARY CONDITIONS FOR A DEAL

\$US, present value per hectare of forest

Measure of value	Order of magnitude	Description
Economic value to the world (EVW)	\$25,000+	<ul style="list-style-type: none"> <li>Rough estimate of value of ecosystem services forests provide to the world</li> <li>Large, but value cannot be captured due to lack of traded markets</li> </ul>
Economic value to the world – carbon ( $EVW_C$ )	\$6500 - \$20,000+	<ul style="list-style-type: none"> <li>Estimate of the CO<sub>2</sub> abatement value that avoiding deforestation on one hectare provides</li> <li>Driven by global marginal abatement cost and estimate of carbon stocks</li> </ul>
Economic value to the nation – (EVN)	\$300 - \$3500+	<ul style="list-style-type: none"> <li>Estimate of the economic value a hectare of forest could generate if exploited in an economically rational but unsustainable way</li> <li>Driven by timber values, rents from alternative land use, avoided protection costs and loss of local ecosystem services</li> </ul>

### Boundary conditions for aligning incentives

Halting deforestation requires aligning the interests of forest countries and the broader community of nations. In turn, alignment would require remuneration for forest ecosystem services that lies between EVN and  $EVW_C$ , with EVN the 'floor' and  $EVW_C$  the ceiling in this range of values. Incentives that lie between EVN and  $EVW_C$  will align national and global interests; values below EVN or above  $EVW_C$  will not. If support falls below EVN, deforestation will continue as stakeholders in forested nations act in their own rational economic interest, making forest protection progressively more difficult. If the cost of forest protection exceeds  $EVW_C$ , the world will forgo conservation from avoided deforestation and seek carbon abatement elsewhere.

In this range of values, forested countries will find economic value from forest conservation that exceeds the economic value to the nation from deforestation, and the world will continue to receive valuable ecosystem services at a cost less than or equal to their full value to the world. All parties will be better off as the world enables forested countries to diversify their economies away from activities that drive deforestation while continuing to grow.

The following section outlines a methodology for estimating EVN and applies it to the Republic of Guyana in an illustrative case study.

### How to measure EVN: The case of Guyana

Measuring EVN involves three steps: assessing the value of each component of EVN for each unit of land in a country; charting an economically rational deforestation path; and developing reasonable

probabilistic estimates of the EVN. This section explains this approach in greater detail by application to the Republic of Guyana, a developing country with a large tropical rainforest.

## Estimating EVN in Guyana

Guyana faces many of the challenges and opportunities faced by all forested countries seeking to reduce deforestation. The country has a strong track record of sustainable forestry practices, with FAO statistics demonstrating no net loss of forest cover between 1990 and 2005.<sup>30</sup> However, economic pressures to increase value from forest resources in Guyana are growing. The great majority of Guyana's forests are suitable for timber extraction, there are large sub-surface mineral deposits within the forest, and rising agricultural commodity prices increase the potential returns to alternative forms of land use, all increasing the opportunity cost of leaving the forest alone. These challenges will intensify as infrastructure links between Northern Brazil and Guyana advance, increasing development opportunities in the interior of Guyana.

Guyana also faces potentially massive climate change adaptation costs given the need to protect low-lying areas from the risk of flooding (~90 percent of Guyana's population and all of its economic base lives on a narrow strip of coastal land that lies below sea level, rendering it vulnerable to sea-level rise and inland flooding). Moreover, its citizens expect continuously better social and economic services as the country develops. If long-term economic incentives to protect the forest are weak, future Governments may find it necessary to meet these needs using revenues from unsustainable resource extraction. These pressures bring into sharp focus the need to create meaningful incentives for forest conservation, and make Guyana an important case study in the economics of deforestation.

The Office of the President has estimated EVN in Guyana using a baseline scenario in which Guyana aggressively pursues economically rational land use opportunities. A high-level probabilistic analysis indicates a value that is likely to lie between \$4.3 billion and \$23.4 billion depending on movement of commodity prices, with a most likely estimate of \$5.8 billion.<sup>31</sup> These estimates are equivalent to an annuity of between \$430 million and \$2.3 billion at a 10 percent discount rate, suggesting that Guyana forgoes an amount roughly equal to its current GDP of \$1,100 per capita in preventing extraction from its forests.<sup>32</sup> Conservative carbon stock estimates and the 'economically rational' baseline deforestation rate suggest a marginal abatement cost of \$2 to \$11 /tCO<sub>2</sub>e.

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<sup>30</sup> Food and Agriculture Organization of the United Nations. Forest Resources Assessment 2005. Rome: 2005

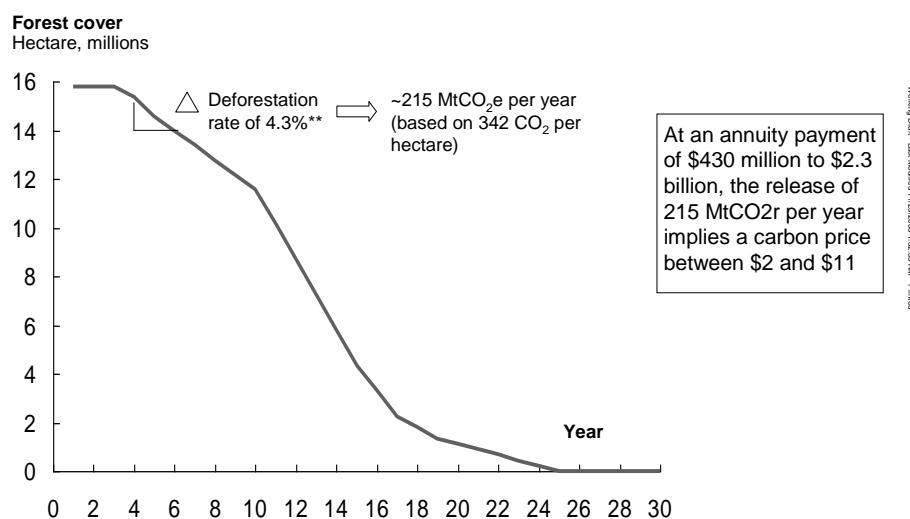
<sup>31</sup> 80 percent confidence interval

<sup>32</sup> 10 percent discount rate is standard in forest valuation literature. See Appendix III for reference to other forest valuation studies using a 10 percent discount rate.



## Exhibit 11

### Calculation of marginal carbon abatement cost for avoided deforestation in Guyana



Source: FAO 2005 Forestry Assessment; team analysis

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The Office of the President assessed EVN through a bottom-up analysis of its land use opportunities and the 'economically rational' rate of deforestation. In the following section, the steps used to generate this estimate are described in greater detail, both in general terms and with specific reference to the case of Guyana.

**EVN Step 1: Assessing value of each component of EVN.** This step involved gathering data for forested lands to estimate each of the four elements of EVN.

- **Standing timber value.** Valuation of timber stands is routine for timber investors and involves assessing likely yields of marketable species, extraction costs, and projected prices. Despite historical price volatility, mean price growth and variance assumptions can be extrapolated from past data and future market trends. However, many tropical countries lack robust timber inventories and their forests contain large numbers of lesser-known species for which the timber market lacks reliable price data.

To date, very strict sustainable forestry rules in Guyana have limited extraction to less than 20 m<sup>3</sup> of timber per hectare over cycles as long as 60 years (implying an allowable cut of 0.33 m<sup>3</sup> per hectare per year), but current forest inventories suggest that substantially greater quantities (60-70 m<sup>3</sup> of valuable hardwood species such as greenheart, locust and mora could profitably be extracted.<sup>33</sup>) This analysis assumes that loggers could extract 40m<sup>3</sup> of commercially marketable species from each hectare of forest under a more permissive regulatory regime, and that the resulting timber could be exported at prices roughly comparable to those facing Guyana today.<sup>34</sup> By applying existing structures for government revenue, including export levies, acreage fees and taxes on an unconstrained harvest, Guyana could generate substantially greater value from its timber resources than it does today, albeit at a major cost to the world in terms of lost carbon storage, habitat destruction and biodiversity loss. To make the standing timber value truly incremental, the

<sup>33</sup> Guyana Forestry Commission; company data

<sup>34</sup> This is a partial equilibrium assumption that excludes from consideration the price impacts of other countries' decisions. Timber prices from International Tropical Timber Organization (ITTO)

projected value of continuing extraction under a sustainable harvesting regime is subtracted from this estimate.

- **Post-harvest land use value.** Data on soil quality, topography, and sub-soil mineral resources were used to identify plausible alternative land uses for forested land. Based on an informed assessment of alternative land uses and assumptions about future yields and prices, returns from alternative land uses were estimated for each region or geographical sub-unit in the country.

The soil beneath tropical forests tends to be thin and poor, and Guyana is no exception. However, Guyana's forests cover a variety of soil types, including some areas with rich soils and mineral deposits that could be exploited within two years of forest extraction. Agronomists suggest that by targeting the limited range of areas with 'Class 1' and 'Class 2' soils for agriculture, Guyana can prepare 2.9 million hectares of land for rice, fruit production, and other agricultural efforts as soon as two years after deforestation.<sup>35</sup> On other land areas, palm oil, softwood pulp or hardwood tree plantations – which are ecologically poorer and store less carbon than natural forests – could be planted to generate post-harvest economic value. Similarly, through investments in gold mining equipment, local experts suggest that Guyana could extract at least 9.2 million ounces of identified gold deposits within 30 years.<sup>36</sup> These alternative land uses are, by construction, hypothetical, but they are plausible. Such alternative uses are common in comparable countries, and the Government of Guyana has received – and declined – numerous approaches from investors seeking to develop agricultural, ranching and mining projects in forested areas.

- **Avoided protection costs.** By allowing unconstrained forest extraction, Guyana would avoid a cost of US\$2/ha for forest monitoring and protection.<sup>37</sup> This is lower than cross-national estimates of US\$4-9/ha from the Stern and Eliasch Reviews but represent the best available cost estimates for forest protection in Guyana.
- **Loss of local ecosystem services.** This is the most uncertain of the four elements of EVN for two reasons: the absence of a traded market for most ecosystem services, and limitations in scientific understanding of these services. A range of approaches were used to estimate potential locally realized losses from deforestation. Deforestation would eliminate a range of ecosystem services from forests, including natural watershed protection and revenue from non-timber forest products.<sup>38</sup> This analysis considers three of the most economically important ecosystem services forests provide in Guyana: flood management, non-timber forest products, and eco-tourism.
  - **Flood management.** Management of floods is one of the most important services forests provide in Guyana because the country's low-lying coastal regions are highly vulnerable to inland flooding. A simple estimate of the impact of deforestation on flood risk involves multiplying an estimate of the incremental flood risk associated with deforestation and the economic impact of flooding in Guyana. Recent research estimates that a 1 percent loss in forest cover will result in a 0.4 percent to 2.8 percent

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<sup>35</sup> Guyana Lands and Surveys Commission

<sup>36</sup> Metals Economics Group database

<sup>37</sup> Estimate based on the cost of forest protection in Iwokrama, an international program area in Guyana focusing on sustainable rainforest use and conservation

<sup>38</sup> Ecotourism is not included in lost ecosystem services because all of Guyana's current planned ecotourism activity takes place in the ~1.5 million hectares of forest it has or plans to place under protection as national parks or wildlife preserves.

increase in frequency of a catastrophic flood.<sup>39</sup> An external assessment by the United Nations ECLAC of a catastrophic flood in 2005 (that cost Guyana 59 percent of its 2005 GDP) estimates approximately US\$450 million in GDP loss from such a flood. These estimates generate a ranged stream of expected incremental losses from flooding as forest cover declines.

- **Non-timber forest products.** Many Guyanese citizens obtain value from non-timber forest products (NTFPs), such as wattles and manicoles (hearts of palm). Guyana currently exports US\$0.23/ha. of non-timber forest products harvested from standing natural forests.<sup>40</sup> Deforestation will deprive the country of the value of these products.
- **Eco-tourism.** Eco-tourism is not a major driver of value today. Though this could change in the future, we assume that protecting 10 percent of the country's most attractive forest assets (e.g., Kaieteur Falls) to comply with protected area obligations under the Convention on Biological Diversity will sustain an ongoing opportunity to develop Guyana's eco-tourism sector.

These categories are not exhaustive; deforestation obviously impairs other valuable services that standing forests provide, such as prevention of soil erosion and maintenance of water quality. In some specific areas (and regions of the world), the loss of local ecosystem services will be greater than estimated here. However, mitigating measures can be taken (e.g., prohibitions on deforestation near streambeds) to reduce these risks, and many alternative land uses involving plantation of new trees (e.g., palm oil or tree plantations) will partially mitigate loss of these services even where their negative impact on global ecosystem benefits such as biodiversity conservation or carbon storage is immense.

Using price and yield data from international sources and local topographic and geological information from Guyana's Lands and Surveys Commission, estimates were developed for each component of EVN for each hectare by region. The next step is to chart an economically rational deforestation path over time to project cash flows to the nation. (See Appendix I for data sources.)

**EVN Step 2: Charting an 'economically rational' deforestation path.** The present value of each component of EVN depends on the speed and sequence of deforestation, so estimating EVN requires charting a path that describes the trajectory of deforestation across geography and across time. While deforestation might not in practice follow a predictable path, it is possible to project a profit-maximizing path equivalent to the strategy a central planner might pursue in seeking to optimize returns to the country from deforestation and post-harvest land use. Because it is a value-maximizing strategy, this economically rational path yields the maximum return from forest exploitation, and therefore suggests an 'economically rational' rate of deforestation that can be used to estimate EVN.

Charting the economically rational path begins with drawing on the assessment of alternative land use developed in Step One. The planner generates a profit-maximizing harvesting path, where countries begin harvesting trees in regions with existing infrastructure and road access, thus creating a stream of income to be used in developing infrastructure in areas that are less accessible today.

In the economically rational deforestation path, harvest occurs at the maximum rate consistent with the constraints of technical feasibility, market dynamics, and legal commitments. Technical feasibility constrains the rate of harvest because significant infrastructure development, labor movement and land preparation would be needed to execute the strategy. Additionally, anticipated production of

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<sup>39</sup> Bradshaw, Corey et al. 2007. "Global evidence that deforestation amplifies flood risk and severity in the developing world." *Global Change Biology*. Estimates probability of catastrophic flood in Guyana is twice in 10 years based on 1990 to 2000 data.

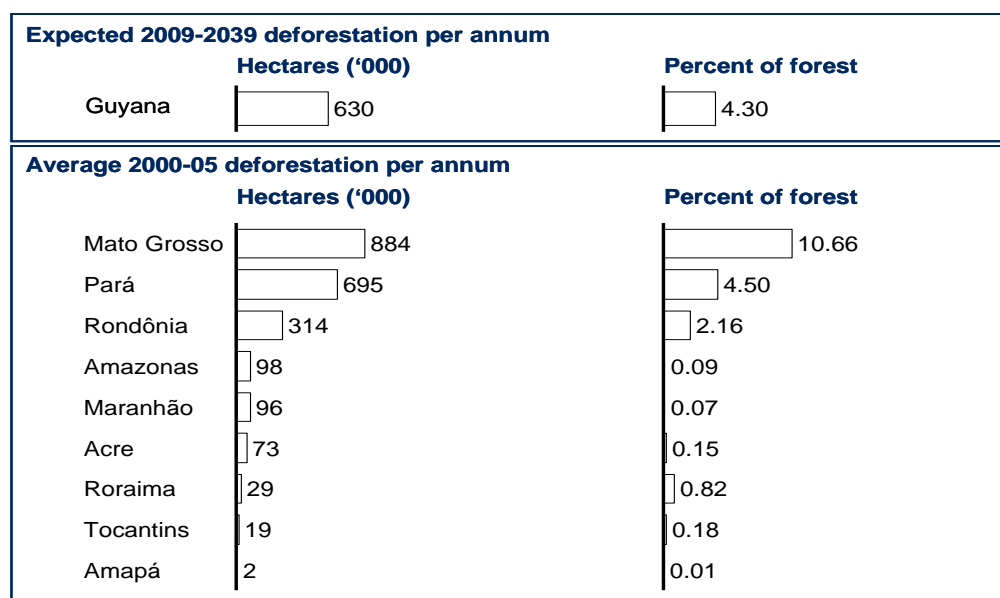
<sup>40</sup> Guyana Forestry Commission

commodities must not violate reasonable assumptions of market demand for increased timber, agriculture, and mineral commodities in any given year to avoid the risk of market flooding and price collapses. Lastly, international laws on forest protection (e.g., the Convention on Biological Diversity) and national agreements with indigenous communities are assumed to be honored.

In Guyana, we chart an 'economically rational' deforestation path that involves reducing forest cover by approximately 4.3 percent (~630,000 ha) per annum over the course of 25 years, leaving intact as protected areas the 10 percent of Guyana's forests with the highest conservation value. This rate of deforestation is comparable to deforestation in the nearby Brazilian states of Pará and Mato Grosso, which experienced even faster declines in forest cover between 2000 and 2005.<sup>41</sup> This deforestation trajectory is pursued on lands currently under the jurisdiction of the national government, excluding ~1.7 million hectares of forest under the jurisdiction of Amerindian communities.<sup>42</sup> The timing and sequence of deforestation across regions are influenced by distance to required infrastructure and major population centers.

## Exhibit 12

### GUYANA'S PROJECTED DEFORESTATION VS. BRAZILIAN STATES



Technical, economic and legal factors place an upper limit on how quickly and extensively to pursue a deforestation strategy. However, the path described is technically feasible, creates economic value, and is consistent with Guyana's international and national legal obligations.

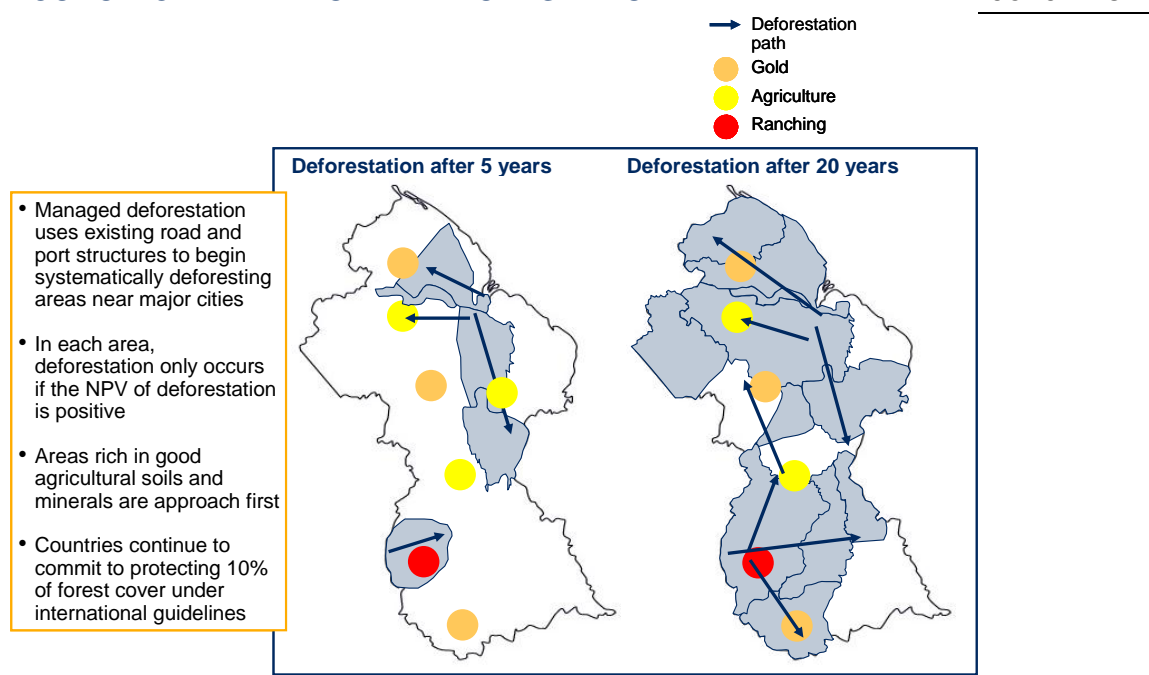
<sup>41</sup> Brazil National Institute for Space Research (INPE) Project PRODES

<sup>42</sup> This analysis excludes land, which is under the jurisdiction of Amerindian communities, plus land, which is planned to be placed under Amerindian jurisdiction. However, it is likely that Amerindian communities would elect to participate in REDD mechanisms - in these circumstances overall EVN, EVW and EVWc from within Guyana would increase.

## Exhibit 13

### ECONOMICALLY RATIONAL DEFORESTATION PATH

CONCEPTUAL



**EVN Step 3: Developing probabilistic estimates of the EVN.** Since future prices and yields driving cash flows are uncertain, Guyana's EVN is better represented as a probability distribution than as a point estimate. Statistical analysis suggests that Guyana's EVN is highly likely to fall between \$4.3 billion and \$23.4 billion (with a most likely estimate of \$5.8 billion, equivalent to a \$580 million annuity payment at a 10 percent real discount rate).<sup>43</sup> In other words, by protecting its forests, Guyana forgoes economically rational opportunities that could net it the equivalent of \$430 million to \$2.3 billion in additional value per year.

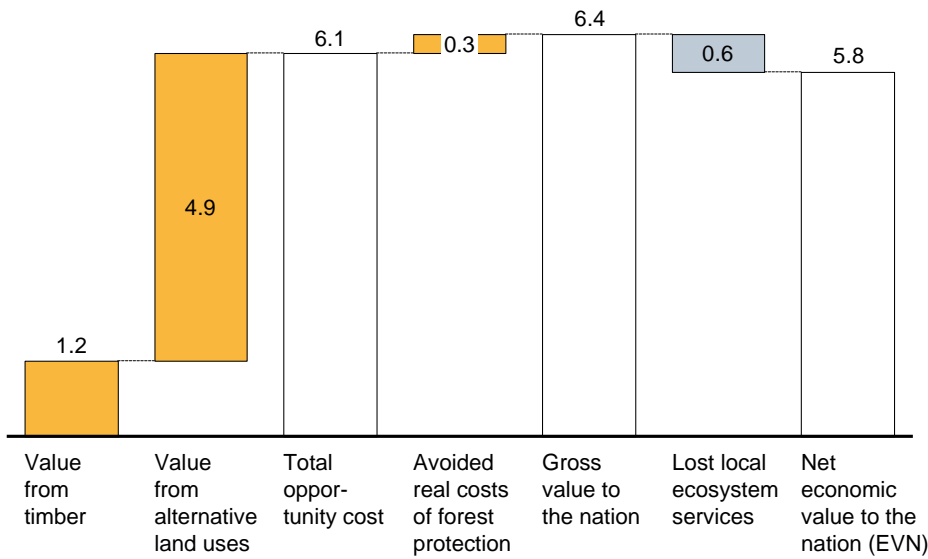
Most of this value comes from forgone opportunities to use land in more intensive ways, though a significant amount comes from the value of Guyana's standing timber. To give a sense of magnitude, the most likely estimate of EVN (\$5.8 billion in present value terms) is driven primarily by value from timber extraction (\$1.2 billion) and from post-harvest land use (\$4.9 billion), with a contribution from avoided costs of protection (\$0.3 billion) and a downward adjustment for the loss of local ecosystem services (\$0.6 billion).<sup>44</sup>

<sup>43</sup> Median 80 percent of simulated values

<sup>44</sup> These values assume that Guyana's conversion of land to alternative uses does not impact global commodity prices, as Guyana will remain a "price-taker" in these markets (See appendix III on timber values). Whilst an argument exists that if all forested nations pursued a deforestation strategy, prices would fall (reducing EVN), the current economic pressures on the forest combined with the likely growing demand driven by population increases, may act to offset these.

**Exhibit 14**

**GUYANA'S EVN IS DRIVEN LARGELY BY POST-HARVEST LAND USE**



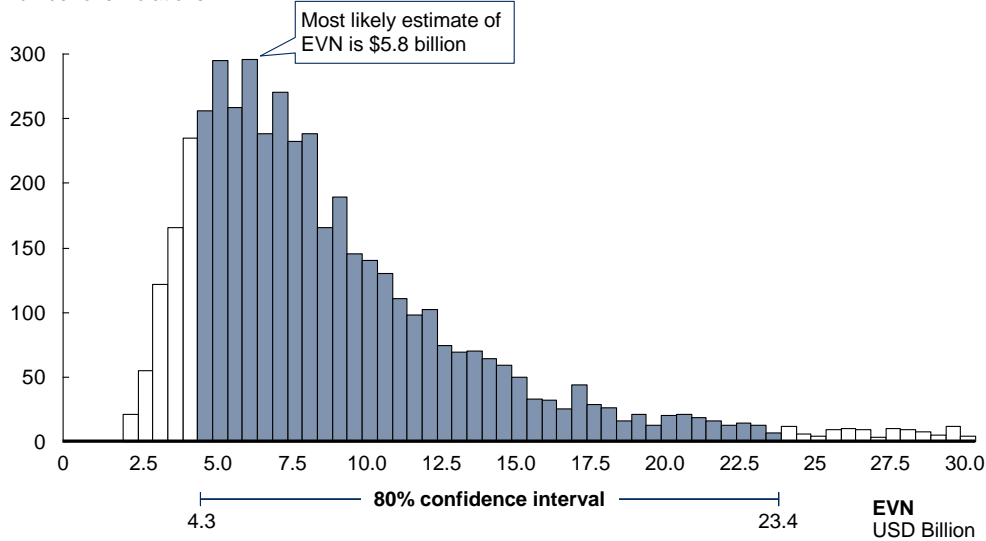
EVN's range of between \$4.3 billion and \$20.4 billion reflects variability driven by fluctuating prices for commodities such as logs, palm oil, and rice. Under favorable circumstances (such as a commodity price boom) the EVN could be even higher in the future, increasing pressure to deforest.

**Exhibit 15**

**EVN IS LIKELY TO FALL BETWEEN \$4.3 AND \$23.4 BILLION**

**Frequency histogram of economic value to Guyana from deforestation**

Number of simulations



# Appendix VI: Economic Value to the Nation (EVN) Methodology

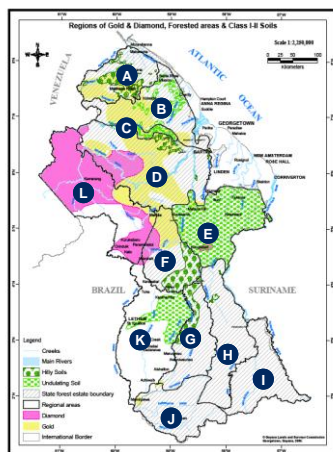
This appendix outlines the calculations and key assumptions for the Economic Value to the Nation (EVN) calculation, including macro assumptions, standing timber value, post-harvest land-use profits, savings on protection costs, and loss of local ecosystem services.

## Macro assumptions

- Inflation will continue at the historical average of 4.58 percent per annum seen from 2000-2007 despite high levels of fluctuations in some years.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008
Inflation	6.15	2.63	5.34	5.98	4.67	6.24	5.86	3.85	4.22

- The assumed real discount rate is 10.0 percent based on a review of existing forest valuation literature (see Appendix III).
- We assume Guyana's forest contain 342.78 tCO<sub>2</sub>e per hectare based on the total carbon sequestration estimate from the 2005 FAO Forestry Assessment.
- Guyana's forest was divided into 12 regions (marked A-L on map below) based on wood types, access, value of post-harvesting after-uses (e.g., based on soil quality and mineral deposits), and ownership.



## Standing timber value

To determine the standing value of timber we base the assumptions on data secured from both within and outside of Guyana for forest regions, wood types, production costs, and government fees.

## Forest regions

- 20 percent of Guyana's forest is non-productive, according to current estimates by the Guyana Forestry Commission, due to inaccessible mountain areas, streams, and other natural obstructions.
- Guyana can extract 40m<sup>3</sup> per hectare from productive forest areas based on inventories from leading concessionaires indicating marketable species may be as high as 69-79m<sup>3</sup> per hectare.
- Deforestation will not begin until Year 4 when regions D and E would be deforested and subsequent regions added based on infrastructure accessibility and value. Regions are deforested at a rate of 150,000 to 200,000 hectares per annum.

<b>Region</b>	<b>Start year</b>	<b>End year</b>
A	2020	2025
B	2014	2022
C	2014	2014
D	2013	2027
E	2013	2023
F	2020	2023
G	2020	2025
H	2026	2033
I	2024	2024
J	2020	2025
K	Amerindian	Amerindian
L	Amerindian	Amerindian

## Wood types

- Guyana's current ratio of wood types will remain constant throughout its managed deforestation plan.

<b>Wood type</b>	<b>Share of timber input</b>
Logs	67%
Sawnwood	15
Roundwood	4
Splitwood	1
Fuelwood	5
Plywood	8

- Recovery rates for each wood type would remain the same as current rates.

<b>Wood type</b>	<b>Recovery rate</b>
Logs	100%
Sawnwood	40
Roundwood	100
Splitwood	33
Fuelwood	100
Plywood	50



- Domestic consumption of each product would remain at current absolute levels (~270,000 m<sup>3</sup>), growing with population at 0.24 percent per annum, resulting in negligible domestic consumption compared to exports.
- Current average domestic and export prices as of June 2008 from the ITTO Guyana submissions are assumed as base prices.
- Export and domestic prices grow at the same rate based on the maximum likelihood estimate of the best fit statistical model for real price growth from 1961 to 2005, adjusting using the United States CPI.

Wood type	Real price growth	Statistical fit model
Logs	0.79%	Log Logistic ( $\lambda=-0.37$ , $\alpha=0.36$ , $\beta=5.46$ )
Sawnwood	0.88	Wald ( $\mu=0.44$ , $\lambda=11.91$ ) Shift=-0.44
Roundwood	-0.22	Log Logistic ( $\lambda=-0.37$ , $\alpha=0.36$ , $\beta=5.46$ )
Splitwood	0.88	Log Normal ( $\mu=0.49$ , $\sigma=0.11$ ) Shift=-0.50
Fuelwood	1.62	Gumbel (location=-0.047, scale=0.11)
Plywood	-1.74	Gamma ( $\alpha=47.73$ , $\beta=0.013$ ) Shift=-0.64

- Guyana would lose sustainable forestry value for each type of wood if it were to continue its current practices into perpetuity, growing at the above real prices.

Wood type	2007 sustainable forestry
Logs	\$20,847,246
Sawnwood	\$21,862,299
Roundwood	\$2,899,341
Splitwood	\$1,725,224
Fuelwood	~\$0
Plywood	\$8,877,001

## Production costs

- Capital investments are incurred one year in advance of timber harvesting to begin construction.
- Costs are broken down by function based on current operators in Guyana:

Cost description	Cost (USD/m <sup>3</sup> )	Cost type
Fixed management cost (overhead)	\$21.41	In-year
Road construction – primary	\$0.83	CapEx
Road construction – secondary	\$1.65	CapEx
Road maintenance – primary	\$0.10	In-year
Road maintenance – secondary	\$0.21	In-year
Harvesting cost to roadside	\$34.46	In-year
Log transport to mill	\$15.26	In-year
Sawmilling cost (inc. loader)	\$32.07	In-year
Sawmill licensing Fee	\$0.00	In-year
Sawmill Operating Fee	\$0.00	In-year
Kiln drying cost (inc. fork-lift)	\$25.70	In-year
Planer/moulder	\$14.60	In-year
Depreciation on mill equip.	\$1.14	CapEx

Transport to Georgetown	\$40.12	In-year
Storage and handling - Georgetown	\$5.80	In-year
Finance costs on capital	\$35.58	CapEx

- Road and transport costs are multiplied by a factor to account for more expensive infrastructure requirements deeper in the forest:

Region	Transport cost factor
A	3x
B	2x
C	2x
D	3x
E	2x
F	2x
G	3x
H	4x
I	4x
J	4x
K	2x
L	4x

## Government fees

- Government of Guyana will continue to receive royalties on timber production and export commissions on timber sales at 2009 schedules:

Wood type	Royalties (USD/m <sup>3</sup> )	Export commission
Logs	1.65	10%
Sawnwood	7.29	2
Roundwood	0.33	2
Splitwood	0	2
Fuelwood	0.15	2
Plywood	0	2

- Government revenue on foreign companies will continue to come from acreage fees (US\$0.37/ha.), licensing fees (US\$0.04/ha.), and corporate tax (35 percent).
- 70 percent of companies are expected to be foreign-owned, maintaining the current ratio of foreign to domestic companies.
- Government of Guyana will need to continue to spend US\$4,490 per employee for monitoring and collecting fees at a rate of 0.13 employees per 10,000 hectares.

## Post-harvest land-use profits

Assumptions made for agriculture, ranching, and mining are based on the factors of available land or deposits, costs and productivity, and forecasted prices.

## Agriculture

### ■ Available land

- Existing soil assessment maps indicate significant amounts of 'rich' arable soils in most regions of Guyana's forest.

Region	Class 1 undulating soil (ha.)	Class 1/2 hilly soil (ha.)
A	-	191,574
B	183,224	-
C	92,023	-
D	-	104,809
E	1,911,516	-
F	-	198,042
G	-	251,287
H	-	14,795
I	-	-
J	-	-
K	Amerindian	Amerindian
L	Amerindian	Amerindian

- Rice is the most productive and likely product to be grown on Class 1 undulating soils given Guyana's history of rice production and growing demand for rice products in the world.
  - Class 1/2 hilly soils are equally divided between palm oil plantations and small-scale farming for high-end vegetables as the most likely positive NPV crops for Guyana to grow on these soils. Coffee and cocoa were tested but resulted in a negative NPV.
- ### ■ Costs and productivity
- Yields for all products are based on historical averages reported by the FAO. For palm oil, average yields in other palm oil producing countries is used given there has been no palm oil production in Guyana to date.
  - Capital expenditure and land preparation costs are based on historical estimates for rice in Guyana according to current rice producers and the Guyana Rice Development Board. For all other products, 2007 Brazilian capital expenditure costs are drawn from the Agriannual survey.
  - Capital investments would need to take place on average 2 years prior to crop cultivation.
  - Operating profit margins are similarly based on historical margins for current rice producers and Brazilian producers for all other products according to the Agriannual survey.

Product	Yield (Mt/ha.)	Capex (USD)	Operating profit margin
Sugar	76.92	\$2,000	N/A
Rice	4.14	\$600	19.64%
Palm oil	4.00	\$498	18.75
Cocoa	0.26	\$3,978	39.59
Coffee	0.43	\$7,561	21.22
Vegetables	6.19	\$330	37.00

- Forecasted prices

- Prices for 2009 to 2018 are based on FAPRI 10-year market price projections by product.
- Real price growth after 2018 is based on average real price growth from 1960 to 2007 according FAO market prices, adjusted for inflation with the United States CPI.

Product	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Sugar	\$262	\$276	\$269	\$270	\$273	\$277	\$280	\$281	\$283	\$285
Rice	\$463	\$479	\$486	\$499	\$510	\$515	\$517	\$520	\$521	\$531
Palm oil	\$1,004	\$1,026	\$1,057	\$1,081	\$1,110	\$1,146	\$1,185	\$1,229	\$1,275	\$1,319
Cocoa	\$1,551	\$1,632	\$1,716	\$1,805	\$1,899	\$1,998	\$2,102	\$2,211	\$2,326	\$2,447
Coffee	\$2,032	\$2,018	\$2,004	\$1,991	\$1,977	\$1,964	\$1,950	\$1,937	\$1,924	\$1,911
Vegetables	\$163	\$166	\$168	\$171	\$174	\$177	\$179	\$182	\$185	\$188

Product	Real price growth	Statistical fit model
Sugar	2.66%	Logistic ( $\alpha=0.027, \beta=0.11$ )
Rice	0.22	Log Logistic ( $\lambda=-0.47, \alpha=0.45, \beta=5.44$ )
Palm oil	2.29	Gumbel (location=-0.098, scale=0.21)
Cocoa	5.19	Beta ( $\alpha_1=2.40, \alpha_2=10.08, \min=-0.36, \max=1.80$ )
Coffee	-0.68	Beta ( $\alpha_1=0.33, \alpha_2=0.34, \min=-0.32, \max=0.32$ )
Vegetables	1.61	Gumbel (location=-0.078)

## Ranching

- Available land

- There are no lands available on state forest for ranching.

- Cost and productivity

- Beef cattle yields are based on historical averages reported by the FAO.
- Capital expenditure and land preparation costs are unavailable.
- Capital investments would need to take place on average two years prior to cattle ranching.
- Operating profit margins are based on historical margins for Brazilian ranchers.

Product	Yield (Mt/ha.)	Capex (USD)	Operating profit margin
Cattle beef	0.001423	N/A	30.0%

- Forecasted prices

- Prices for 2009 to 2018 are based on FAPRI 10-year market price projections for beef.
- Real price growth after 2018 is based on average real price growth of beef from 1960 to 2007 according FAO market prices, adjusted for inflation with the United States CPI.

Product	2009	2010	2011	2012	2013
Beef	\$2,075	\$2,027	\$2,000	\$1,979	\$1,971
	2014	2015	2016	2017	2018
	\$1,987	\$2,017	\$2,053	\$2,096	\$2,138

Product	Real price growth	Statistical fit model
Beef	0.18%	Normal ( $\mu=0.0018$ , $\sigma=0.095$ )

## Mining

- Available minerals
  - Mineral Economics Group (MEG) data indicates that 9.2 million ounces of gold have been identified for extraction in the forested lands.

Region	Land with gold (Ha.)	Identified gold (Ounces)
A	463,480	513,000
B	526,229	470,000
C	-	-
D	1,338,909	4,500,000
E	34,948	592,000
F	303,378	1,297,000
G	5,747	1,748,000
H	-	-
I	-	-
J	30,903	48,000
K	-	-
L	-	-

- Deposits of other minerals are not known with any certainty and are thus excluded.
- Costs and productivity
  - Capital expenditure costs are assumed at \$74.77 per ounce based on investments made for other small-scale mining operations in Guyana.
  - The MEG database indicates that operating costs in Guyana are \$260.00 per ounce.
  - We assume two years are required to put capital investments in place prior to mining.
- Forecasted prices
  - Gold prices have fluctuated significantly throughout history with a dramatic rise recently. We take 2009, 2010, and long-term consensus on gold price for 14 analysts. We assume the long-term price will be achieved by 2015 and will remain constant in real terms thereafter.

Product	2009	2010	2011	2012	2013
Gold	\$750	\$883	\$838	\$796	\$756
	2014	2015	2016	2017	2018
	\$717	\$681	\$681	\$681	\$681

<b>Product</b>	<b>Long-term price</b>	<b>Statistical fit model</b>
Gold	\$681	Normal ( $\mu=681, \sigma=55.80$ )

## Savings from protection costs

- Interviews with Iwokrama, an international rainforest conservancy, indicate that under optimal circumstances, they would require US\$2 per hectare for protection of their wildlife preserve. Iwokrama is an internationally recognized conservation research concession offered to the world by Guyana as an area to study sustainable forest management and ecosystem services.
- The US\$2 is conservative compared to the cost of administration of payment for ecosystem services schemes in other countries, ranging from US\$4 to \$9 according to Grieg-Gran for the Eliasch Review (2008).

## Loss of local ecosystem services

- Flood risk is estimated based on analysis conducted by Bradshaw, et. al. (2007) based on a review of catastrophic floods around the world. They find that a 10 percent decrease in forest cover results in a 3.5 to 28 percent increase in flood frequency when controlling for steepness and precipitation.
- For Guyana, Bradshaw indicates that two major floods occurred between 1990 and 2000, implying a 20 percent baseline probability of flooding in any given year.
- We assume an average relationship of 15.8 percent increase in flood frequency for every 10 percent decline in forest cover.
- A study by the United Nations Economic Commission for Latin America and the Caribbean indicated in 2005 that a catastrophic flood destroyed much of the coastal area near Georgetown, resulting in a loss of US\$452 million, or 60 percent of Guyana's GDP.
- We assume this economic damage keeps pace with inflation as the potential damage from a catastrophic flood.

## Data sources used in modeling assumptions

### Soil quality and crop feasibility:

- Soil quality data and crop feasibility assumptions from Guyana Lands and Surveys Commission using FAO classifications.

### Timber value:

- Historical export prices for raw logs, sawnwood, roundwood piles, and plywood from FAOSTAT World Export Prices
- Domestic prices for raw logs, sawnwood, roundwood piles, and plywood from Guyana Forestry Commission submission to ITTO

## Post-harvest alternative land use:

- Historical export prices for rice, coffee, fruits and vegetables, cocoa, palm oil from FAOSTAT World Export Prices
- Historical yield levels for Guyanese products from FAOSTAT Production database and non-Guyanese products from Brazil Agriannual 2007.

# Appendix VII: Forest valuation studies using 10 percent discount rate

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