SECOND DRAFT FOR CONSULTATION

A LOW CARBON DEVELOPMENT STRATEGY

Transforming Guyana's Economy While Combating Climate Change

Frequently Asked Questions

July 2012

Office of the President,
Republic of Guyana

Acronyms

AAUs	Assigned Amount Units
AOSIS	Alliance of Small Island States
BAU	Business As Usual
CER	Certified Emission Reduction
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
COP	Conference of the Parties to the UNFCCC
CDM	Clean Development Mechanism
EIT	Economies in Transition
ETS	Emission Trading Scheme
EVN	Economic Value to the Nation
EVW	Economic Value to the World
FCPF	Forest Carbon Partnership Facility of the World Bank
FIP	Forest Investment Programme
GHG	Greenhouse Gas
GRIF	Guyana REDD+ Investment Fund
ha	Hectare
HFLD	High-Forest-Low-Deforestation countries
IDB	Inter American Development Bank
IPCC	Intergovernmental Panel on Climate Change
IWG-IFR	International Working Group – Interim Finance for REDD
JI	Joint Implementation
KP	Kyoto Protocol
MMT	Million Metric Tonnes
MRV	Monitoring, Reporting, and Verification
NAMAs	National Appropriate Mitigation Actions
NGO	Nongovernmental Organisation
ppm	Parts per million
QELRC	Quantified Emission Limitation and Reduction Commitment
REDD	Reducing Emissions from Deforestation and Forest Degradation
REDD+	REDD, as well as sustainable forest management, forest conservation and the enhancement of forest carbon stocks
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries

Introduction

Guyana launched its Low Carbon Development Strategy on 8 June 2009. The Strategy outlines Guyana's approach to promoting economic development while at the same time combating climate change.

A key part of the strategy involves deploying Guyana's tropical forests towards addressing global climate change. Over a 4 month period, from the launch, there was nation-wide information dissemination, awareness raising and consultation aimed at familiarizing the populace of the LCDS as well as to seek perspectives.

This revised FAQ booklet seeks to provide responses to a number of frequently asked questions which came out of the awareness and consultation process as well as the MoU with Norway.

In addition, the Office of Climate Change within the Office of the President is available to provide additional information and to receive comments, queries, questions and suggestions.

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1. What is the Low Carbon Development Strategy?

The Earth's surface has been warming rapidly over the last century compared with thousands of years before. This is due to the amount of carbon dioxide that has been emitted into the air from the use of petroleum fuels in industry, transportation, our homes etc. If we do not stop this warming trend, then globally we face sea level rise of 3 – 6 feet higher than the present. This will increase flooding, droughts, loss of crops, famine and disease worldwide. It will be virtual catastrophe.

Guyana, like most low-lying coastal states is vulnerable to climate change. Our low lying coastlands and its entire infrastructure, settlements and agriculture stand to be destroyed by sea level rise and extreme weather events if global warming continues.

One of the major contributors to global warming is tropical deforestation where globally over 20% of greenhouse gases come from deforestation. Addressing the issue of tropical deforestation is now one of the global priorities for combating climate change.

While most forest countries have high rates of deforestation with their forest areas on the decline, Guyana has over 80% of its land area covered in forest, approximately 16 million hectares. As a developing country we can choose to utilize our forests and to extract its resources to obtain revenue which we need for growth and development as a nation. The question that we face is '*can we avoid deforestation and still generate the resources we need to implement our national development priorities*?'

The Government of Guyana believes that we can protect and maintain our forests in the effort to reduce global carbon emissions and at the same time attract resources for our country to grow and develop. In order to do this effectively in the long term, we need a clear vision and a plan how to get there. This vision and plan is called our Low Carbon Development Strategy, which is grounded in the National Development Strategy and National Competitiveness Strategy.

The Low Carbon Development Strategy has three main components:

i. Investment in low carbon economic infrastructure

This will include the development of hydropower to reduce reliance on petroleum based fuels, the upgrading of our sea defences to protect against current and future impacts of sea level rise, improved roads, drainage and irrigation to unused, non-forested lands such as the Canje river lands and the intermediate savannahs, and improved hi-tech telecommunications facilities to facilitate the development of low carbon businesses such as call centres.

ii. **Investment and employment in low carbon economic sectors**

This will target investment in commercial production of fruits and vegetables, particularly in areas such as the intermediate savannahs; aquaculture and the export of fresh and frozen seafood; sustainable forestry utilizing the high internationally accepted standards of sustainable yield harvesting; and wood processing to produce high value products.

iii. Investment in Communities and Human capital

This will ensure that our indigenous and other hinterland communities, as well as our other citizens including the urban poor, will have expanded access to improved social services such as health, education/vocational training, low carbon electricity and clean water, and employment that does not threaten the sustainability of the forest resources.

2. What does a low carbon economy mean?

A low carbon economy is one where economic activities are geared to reduce the amount of carbon dioxide that would otherwise go into the air; and also where other activities and lifestyles seek to minimize the effects of climate change. For example, a Government may decide to develop wind power and solar power to reduce the amount of diesel-generated electricity we use. Production of cars that run on biofuels or electricity will similarly reduce the use of gasoline and carbon dioxide emissions. Governments may also encourage people to be less extravagant in their consumption, recycle containers, use public transit rather than individual cars, use energy efficient bulbs etc., to reduce the overall level of carbon dioxide emissions.

3. What is the value of Guyana's forest?

The value of our forest is not simply the value of the timber in it. Government has been able, through international experts, to calculate how much revenue can be obtained not only for the timber, but for use of the forested land for crops, ranching, mining, ecotourism, etc. This has been estimated at almost US$580 million per year.

4. What is the nature of the agreement with Norway?

On 9 November 2009, President Jagdeo and Minister of the Environment and International Development of Norway, Honourable Erik Solheim, signed a Memorandum of Understanding (MoU), which seeks to

foster cooperation with the two countries on issues related to the fight against climate change. Specifically, the MoU addresses matters relating reducing emissions from deforestation and forest degradation in developing countries (REDD+), the protection of biodiversity and the enhancement of sustainable, low carbon development. A Joint Concept Note, which complemented the MoU, outlined the basis of the work to be undertaken between Guyana and Norway. Since the Joint Concept Note was initially published, considerable progress has been made in the Guyana-Norway cooperation and in other related efforts. On March 31, 2011 a revised Joint Concept Note sets out how Norway is providing, and will continue to provide, financial support to Guyana, and how Guyana and Norway are seeking to create a global model for the intermediation of this financial support through the Guyana REDD+ Investment Fund (GRIF).

The level of support from Norway depends on Guyana's continuing delivery of results as measured against indicators of enabling activities (making sure that policies and safeguards are put into place) and indicators of REDD+ performance (indicating the reduction in emissions).

5. What are the key elements of the Memorandum of Understanding (MoU) with Norway?

The MoU with Norway has several key components. These are as follows:

- Norway has committed to providing Guyana up to US$250M to 2015, depending on Guyana's delivery of results as measured against two sets of indicators: those of enabling activities, and REDD-plus Performance Indicators.
- Guyana will not obtain compensation if it increases deforestation to more than 0.275%, which is the new reference level set under the Guyana-Norway REDD+ partnership.
- Guyana is being paid for its performance through an incentive structure that 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 an incentive structure. Once an international regime is in place, the Guyana-Norway partnership will be adjusted accordingly. Until then, payments are calculated based on Guyana's delivery of results as measured, and independently verified, against two sets of indicators:

  i) Indicators of Enabling Activities: A set of policies and safeguards to ensure that REDD-plus contributes to the achievement of the goals set out in Paragraph2(c) of the MoU signed between Guyana and Norway on November 9th, 2009. The way these indicators will be used in 2011 are set out in Table 1 of the JCN, and informed by the draft REDD+ Governance Plan (RGDP) which will be finalized in 2011. For the period to September 30, 2010, the independent assessment of Guyana's progress on enabling activities was carried out by Rainforest Alliance, following an international tender process in accordance with Norwegian procurement regulations.

  ii) REDD-plus Performance Indicators: A set of forest-based greenhouse gas emissions-related indicators. These indicators are set out in Table 2 of the JCN, and will gradually be substituted as an IPCC-compliant system for monitoring, reporting and verifying (MRV) emissions from deforestation and forest degradation in Guyana is established. For the period to September 30, 2010, the initial measurement of progress was carried out by Poyry on behalf of 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.

- The commitment from Norway does not correspond to the maximum funding that Guyana expects to receive as forest payments, or Economic Value to the Nation. As indicated in the LCDS, the financial transfers accruing to the country are expected to scale up until the EVN is reached, but this cannot be done immediately of course and with the help of only one country.

6. What is a reference level?

For a performance based system to work, a reference level is established towards which performance can be measured. The difference between the reference level and the reported deforestation rate in a given year constitutes the basis for determining the magnitude of payments.

7. In the MoU, why is a reference level required?

The combined reference level methodology balances the need to create incentives both for high deforesters and low deforesters to both access incentives to play their part in reducing global deforestation and forest degradation. High deforesters get rewarded for reductions against past emissions, low deforesters get mainly rewarded for avoiding emissions that would have occurred under a business-as-usual emissions trajectory.

When REDD+ has global coverage, this will mean that countries with low rates of deforestation, such as Guyana will have incentives to keep as low as possible below the reference level, and the setting of reference levels would ensure that increases in one country are more than balanced by decreases somewhere else.

In the short-term, the lack of global coverage for REDD+ means that Guyana and Norway will agree on how to balance the need to keep deforestation as low as possible with the reality that low deforesting countries need to develop and cannot decrease from an already low base in a short period of time. The means to do this is outlined in the LCDS, and will be complete by October 2010. It is necessary to wait until then because technical work to assess the exact status of deforestation and degradation in Guyana needs several months to take place.

8. How is the new reference level set?

Under the Guyana-Norway REDD+ partnership, the reference level is set as the mean value between Guyanas 2000-2009 annual average rate of 0.03% and a "global average deforestation rate[1]" of 0.52%. Hence, the reference level is 0.275%. The interim reference level, set based on best existing estimates, was 0.45%. In other words, the reference level has been cut by almost forty per cent based on the revised historical deforestation data.

9. Why set a reference level that is higher than historical deforestation rates in Guyana?

About 20% of the world's remaining tropical forests are found in countries with high forest cover and low deforestation rates. For a future global REDD+ mechanism to work, it must ensure that these countries receive sufficient economic incentives to make forest conservation an attractive alternative to more destructive uses of the forest lands. If REDD+ fails to deliver such incentives, there is a real and

[1] The "global average deforestation rate" is calculated[1] 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). The open source Osiris database was used for these calculations (www.conservation.org/osiris).

significant risk that deforestation will "leak" to these low deforesting countries as the historical "high deforesters" improve their forest management, and as global demand for food, fuel and fiber continues to raise in the face of global population growth and increasing living standards. As a result, the climate mitigation effect of reduced deforestation in one country would be reduced or nullified by increased deforestation elsewhere.

Since the historical deforestation rates of these countries are so low – in Guyana's case exceptionally low – using only historical rates to set the reference level would not yield much of an incentive. There is ample historical evidence that at some point in their history, countries' deforestation rates tend to increase drastically, leading to significant loss of original forest cover, before leveling out again. Common to 'low deforestation, high forest cover' (HFLD) countries like Guyana is that they have yet to reach that phase in their development. Once they get there, however, historical rates are a very poor guide to future developments.

Because of these realities, reference levels for HFLDs need to be set significantly above historical levels to provide a genuine incentive to maintain their low deforestation rates. A number of options have been suggested for establishing REDD+ incentives for the "high forest cover, low deforestation"-countries. The option that combines national and "global average" rates was chosen because it provides reasonable incentives to HFLD countries and would, if globally applied, reduce emissions cumulatively. It is not the only model, however, and Guyana and Norway have agreed that when there is agreement on (a) reference level(s) (methodology) under the UN climate change negotiations, Guyana's reference level will be adjusted accordingly.

10. Why was there a need for new data on deforestation rates in Guyana?

When Norway and Guyana entered into the REDD+ partnership in November 2009, estimates of deforestation rates in Guyana varied significantly. Most estimates were in the range of 0.1 to 0.4 percent annual deforestation. For a performance based payment scheme to work, it was realized that more precise data on current and historical deforestation rates was needed.

After an international tender process, the company Pöyry Forest Industries from New Zealand was contracted to analyze archived satellite images of Guyana's forests. Images dating back to 1990 were collected and analyzed, and yielded important and positively surprising data on the changes in Guyana's forest cover over the last two decades. The full report by Pöyry and the Guyana Forestry Commission (GFC) can be downloaded at www.regjeringen.no/guyana.

All the findings reported by Pöyry and the GFC were subsequently subject to independent verification by DNV (Det Norske Veritas). DNVs verification report is also available at www.regjeringen.no/guyana.

11. What are the key findings of the Pöyry Report?

The key findings are:

- In 1990, Guyana's forests covered 18.47 million hectares
- In September 2009, the Guyana forest covered 18.4 million hectares.
- This represents an annual average deforestation rate of 0.022% over the last twenty years.
- For the ten year period 2000-2009, the annual average deforestation rate was 0.03 %.
- In the first reporting period (Oct. 2009 – Sept. 2010) 10 280 hectares were deforested, giving an annual deforestation rate of 0,056%.
- The key driver of deforestation in Guyana has been, and continues to be, mining activities.

In other words, the analysis of satellite images revealed that deforestation rates in Guyana are only a fraction of what was reported in previously available estimates. To put the figure in perspective, the mean deforestation in South American countries in the period 2005-10 is estimated at 0,41%. The comparable rate in Guyana is thus less than 10% of this regional average.

12. Has deforestation in Guyana tripled in the first year of the partnership?

No. As we only have mean values for historical deforestation, it is not possible say if the increase has happened from one year to another. However, the first results report (the Poyry/GFC-report) indicate a significant increase in deforestation in the first reporting period (0,056%) as compared to the historical mean.

The following points should be noted:

- By any means of comparison, the deforestation rate in Guyana remains extremely low, and this deserves international recognition.
- At deforestation rates as low as those observed in Guyana, even very small deforestation events will cause significant percentual changes in the deforestation rate.
- The results report indicates an increase from the 2000-09 mean of 0.03% to 0.056%. This can be interpreted either as an 87% increase or, more positively, as an upward variation smaller than 0.3 per thousand points. As to climate change effects, the latter perspective is arguably the more relevant one.
- Not all deforestation is easily controllable. The enforcement involved in avoiding even (in absolute numbers) very small variations in deforestation is complex and expensive. While Guyana is strengthening its enforcement capabilities, and will increase its efforts to control even such small variations, the trade-off will remain real.

13. Why is there exception from the 0.1% ceiling on deforestation for the Amaila Falls hydropower project?

The Amaila Falls hydropower plant is estimated to eliminate more than 92% of Guyana's energy related emissions, after emissions related to its construction are accounted for. Funding for the project from the Guyana REDD+ Investment Fund (GRIF) will only go ahead upon the Inter-American Development Bank guaranteeing that the necessary Environmental, Social, and Financial safeguards have been met. This will include an independent verification to confirm the overall beneficial climate change effects of the project, as outlined in the Amaila Falls hydropower project Environmental and Social Impact Assessment (see: www.amailahydropower.com).

The project is estimated to imply the deforestation of less than 4 500 hectares of forest, which if reported in a single year would yield around 0.025% deforestation, given Guyana's current forest cover. In other words, the project in itself would cause deforestation above the agreed ceiling on deforestation. To avoid the undesirable situation where Norwegian climate change mitigation funding would cease to flow as a result of the development of a project with significant net benefits to the global climate, the partners have agreed not to apply the 0.1% ceiling on deforestation directly related to the eventual construction of the Amaila Falls hydropower plant, given the caveats sketched above.

The deforestation caused by the Amaila Falls construction would, of course, be monitored and reported and result in reduced payments on a ton by ton basis.

14. Will Guyana be allowed to increase deforestation and still receive Norwegian funding?

Partly yes, but a strong incentive structure to the contrary has been put in place. In the absence of a global deal which sets reference levels for all other countries, to avoid the reference level methodology yielding a perverse incentive for Guyana to gradually increase its deforestation rates while continuing to receive payments from Norway, the partners have agreed the following: a) if the deforestation rate in any given year is above 0.1%, Guyana will not be eligible for any funding for that year; b) if the deforestation rate is above 0,056 (the rate reported in the first result period, Oct 09 – Sept 10) but below 0,1 the payment will gradually be reduced as an increasing percentage of the payments that would be due if only the differential between the reference level and verified annual deforestation was taken into account. See examples below:

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%

As an example, this approach would imply that given a verified deforestation rate of 0,08 per cent in the future, the ceiling on payments Guyana was eligible to receive would be only 55 per cent of the payment that would follow if only the differential between the reference level and the verified deforestation was taken into account, in other words 36.2 rather than 63.8 million USD for that given year.

In other words: While this approach does allow Guyana to increase deforestation compared to the historical average levels and still receive some payments from Norway, three points should be kept in mind:

- First, the absolute numbers are very low, and the financial penalties for an increasing trend kick in very rapidly from this perspective.
- Second, for countries with exceptionally low levels of deforestation, historical trends are – as explained above – not as indicative of future trends as for countries where large-scale deforestation is underway. The economic downsides of insisting on no flexibility relative to historical rates would effectively rule out REDD+ as an attractive developing option for Guyana by hindering it from realizing activities of high value economic and minor environmental impact.
- Third, given the extremely low historical deforestation rates in Guyana, insisting on a model where payments would cease completely if deforestation is above the historical mean, would be unreasonable. After all, a mean value implies that the true annual values have fluctuated above and below the mean. Unfortunately, we do not have data on annual deforestation rates in Guyana in the past, only mean values for the periods 1990-2000 (0,012%), 2001-2005 (0,037%) and 2006 – 2009 (0,022%).

The agreed model strikes a necessary balance: It provides incentives that would quickly penalize a trend towards higher annual deforestation rates, while also enabling Guyana to exercise careful, strategic use of limited forest areas for high value economic activities, the construction of essential national infrastructure and sustainable development of forest villages.

15. How do you know that there will be additionality with this model, i.e. that developments in Guyana under this partnership differ significantly from what they would otherwise have been?

Demonstrating and quantifying additionality is a challenge in all issues involving climate change mitigation. It is *de facto* impossible to know with complete certainty that deforestation in Guyana would have been higher in the absence of the REDD+ partnership with Norway. There are, however, many strong reasons to expect an increased pressure on Guyana's forests in the coming years, which will challenge Guyanese authorities' ability to maintain deforestation level as low as required under this partnership:

- Historically, countries turn towards a high-deforestation path at some point in their development. The same economic benefits from deforestation that triggered, inter alia, large scale deforestation in parts of the Brazilian Amazon, are present in Guyana. If unaddressed, these pressures will lead to significantly increased deforestation rates.
- High prices on minerals increases interest in further expanding mining activities, thus exacerbating this general trend.
- With development comes increased access to the forests: An example of this is how improvements to the Lethem (Brazilian border) - Georgetown road will increase risk of deforestation and forest degradation along the road.
- Global demand for food, fuel, fiber, and minerals will in all probability increase significantly over the coming decades in the face of a significant rise in global population and their average living standard.

The pressures on Guyana's forests are real and growing. In this situation, maintaining Guyana's annual deforestation rates at levels well below 0.1 percent over time would be historically unprecedented.

Moreover, to further ensure additionality and permanence of the results, Guyana has committed to a series of measures to improve forest and REDD+ governance, including:

- A national system to system for measuring, reporting and verification (MRV) of emissions and removals of carbon in Guyana's forests. The system will, inter alia, provide annual information on rates of deforestation and forest degradation. All data will be subject to independent verification.
- A national system for coordinated land use to ensure that economic use of Guyana's forests targeted at very high value economic activities and strategic infrastructure developments, coupled with appropriate measures for conservation and biodiversity protection.
- An independent forest monitoring system to facilitate increased transparency and accountability in Guyana's forest sector.
- A process towards entering a Forest Law Enforcement, Government and Trade (FLEGT) Voluntary Partnership Agreement with the European Union. The aim of FLEGT is to guarantee that the wood exported to the EU is from legal sources and to support partner countries in improving their own regulation and governance of the sector.
- Specific measures to reduce forest degradation caused by mining and infrastructure development.

16. What is the GRIF

The GRIF stands for Guyana REDD+ Investment Fund and is a fund established through which payment earned by Guyana from REDD+ will be made. For now, payments to the GRIF will be from Norway until such time that Guyana establishes additional partners.

17. How does the GRIF Function

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 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, and 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 March 2011, Guyana and Norway have approved as Partner Entities the Inter-American Development Bank (IDB), the World Bank and the United Nations Development Group.

18. How soon can we expect money to flow to Guyana?

The first payment to the GRIF of US$30M was made in October, 2010. Guyana has met all the requirements for the second payment of US$40M as of March 2011 and which has been transferred into the GRIF. Projects are continually being prepared for review and approval by the GRIF Steering Committee.

19. How will Guyana use the funds?

Chapter 9 of the revised LCDS outlines the key sectors and projects identified, through a national consultation process, of strategic importance to the development of a low-carbon economy in Guyana. These will be supported by funds from the GRIF.

20. What are the priority projects for LCDS investment?

The priority projects for the LCDS are as follows:

i. Amaila Falls Equity

The Amaila Falls Hydropower Project is the flagship of Guyana's Low Carbon Development Strategy. Amaila will deliver a steady source of clean, renewable energy that is affordable and reliable and is envisioned to meet Guyana's domestic energy needs while removing dependency on fossil fuels. The project involves (i) a hydropower plant at the confluence of the Amaila and Kuribrong rivers; (ii) an electrical interconnection facility, consisting of about 270km of high-voltage redundant transmission lines and two sub-stations.

Projected benefits include:

- Expected US$3.5B in savings to Consumers over 20yrs.

- Improved reliability and generation of clean energy which will encourage economic growth and development by improving regional competitiveness, private sector investment and foreign direct investment.
- Expected elimination of at least 92% of the country's energy-related greenhouse gas emissions.
- Conversion of reliance on thermal generation to renewable energy.

ii. Amerindian Land Titling

The objective of this project is to facilitate and fast track the Amerindian Land Titling process. It seeks to

a) have land titles issued and the demarcation process completed for all Amerindian villages that submit requests, including those that request extensions,
b) Strengthen existing mechanisms to deal with unresolved land issues, and
c) improve the communication and outreach efforts of the Ministry of Amerindian Affairs.

iii. Amerindian Development Fund

The Amerindian Development Fund will be established to provide funding to support the socio-economic development of Amerindian communities and villages, through the implementation of their Community Development Plans (CDPs). The project will also strengthen capacity within the Ministry of Amerindian Affairs and the Amerindian communities to implement the various CDPs. CDPs will include projects in areas such as agriculture, village infrastructure, tourism, manufacturing, village business enterprise, and transportation.

iv. Micro and Small Enterprise (MSE) Development and Building Alternative Livelihoods for Vulnerable Groups

This project aims to address two of the major bottlenecks that constrain the development of MSEs and the ability of vulnerable groups to build alternative livelihoods in Guyana, which are i) limited access to finance and ii) limited technical and business skills. Access to finance will be addressed through a collateral guarantee facility and an interest support facility which will enable MSEs to obtain a loan at an affordable rate and a low carbon grant scheme to assist vulnerable persons with viable business propositions. Lack of skills will be addressed through a training voucher scheme which will enable MSEs to obtain the knowledge and skills they require at existing training institutions. Sector specific training will also be provided. The Small Business Bureau at the Ministry of Tourism, Industry and Commerce will execute the project.

v. Institutional Strengthening in support Of Guyana's Low Carbon Development Strategy (LCDS)

This project seeks to strengthen the key institutions involved in the implementation of the Low Carbon Development Strategy to address the impacts of Climate Change, ensure the effective implementation of the LCDS, and to help Guyana meet its commitments under interim REDD+ partnerships. The institutions that will be strengthened are the Office of Climate Change, the Project Management Office, and the Guyana Forestry Commission. The project will also aid the institutional diagnostic of the Guyana Environmental Protection Agency and the Guyana Geology and Mines Commission. A second component of the project entails the development and implementation of a national Monitoring, Reporting and Verification System (MRVS).

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vi. Cunha Canal Rehabilitation Project

The Cunha Canal Rehabilitation Project is an important intervention addressing the focus area of adapting to climate change. The works will improve the ability of the Government of Guyana to manage water resources in the East Demerara Water Conservancy (EDWC). The proposed physical works for the Cunha Canal will include the widening of the canal, the rehabilitation of the former outlet structure, rerouting the canal to re-establish its original alignment and construction of a bridge on the East Bank of Demerara Public Road where the canal intercepts the road. Rehabilitation of the Canal will increase its discharge capacity and contribute to reducing the risks of the embankment overtopping and flooding of areas along the East Bank of Demerara.

vii. International Centre for Bio-diversity Research and Low Carbon Development

This project will see investment in human resources, infrastructure, facilities and equipment to develop a self-sustaining scientific research centre at the University of Guyana (UG). The international Centre for biodiversity research and low carbon development will be dedicated to researching Guyana's biodiversity and assessing its economic value and how this can be maximized. The Centre will work with emerging global institutes to ensure that Guyana is integrated with international advances in relevant fields.

viii. Hinterland Electrification Programme

The Hinterland Electrification Programme involves installing 11,000 solar home systems in every Amerindian household that has not yet received one through a previous initiative. The major impacts will see improvement of social and economic aspects of village life, as solar panels will provide electricity for lighting, which will facilitate educational and economic activities. The Hinterland Electrification Programme is being executed by the Hinterland Electrification Unit of the Office of the Prime Minister in conjunction with the Ministry of Amerindian Affairs. The project is being funded in its entirety by GoG funds. Additionally, to build capacity and empower villagers with the necessary skills in the use and maintenance of the solar home systems 355 persons from 184 villages and hinterland communities were trained in the assembly, installation and maintenance of the systems.

21. Will the funds received under the LCDS exceed the $580 million we forego for our forests?

The EVN of Guyana's SFE is based on a hypothetical model where all economically viable forest is utilized for economic activities over 25 years (it excludes 10% for protected areas, all Amerindian lands, and inaccessible forest). For REDD+ to out-compete EVN, it needs to assign a zero emissions value to the SFE that is in excess of US$580million after a reasonable time frame.

This will depend on the evolution of the UNFCCC process, and Guyana is working within that process to ensure a positive outcome. The LCDS sets out an illustrative example of how this might happen. If resources of this scale (which are in line with global estimates) are in place by around 2020, then Guyana can be very ambitious in taking action towards a zero carbon emissions forestry sector. However, there is currently no certainty that resources of this scale will be available – so Guyana is unable to embark on long-term planning that assumes this.

In the short-term, Norway is working with Guyana to create incentives that are sufficient to start the process in line with the figures set out in the LCDS. However, it will be essential to create other partnerships quickly – and the Government believes that the implementation of the proposals of the IWG-IFR put Guyana on track that is compatible with a sufficient EVN_{REDD+} valuation of the forest in the early 2020s.

Eventually, there could be a market for ecosystem services which would realize payments over and above the EVN.

22. How does this Strategy fit with Reduced Emissions from Deforestation and Forest Degradation Plus (REDD+) and various other initiatives being undertaken?

REDD+ will be the means through which Guyana will receive payment for forest climate services. The LCDS provides the strategic framework into which REDD, Readiness Planning, and other initiatives such as the World Bank's Forest Carbon Partnership Facility (FCPF) will fit. They will all form a part of the implementing of the Strategy with the Readiness Planning activities being one aspect.

23. Will the Strategy require mining and forestry to stop?

Existing legal mining and forestry activities will not be required to stop. However, they will be required to strictly comply with standards set by our Mining, Forestry and Environmental Laws and the Low Carbon Development Strategy. Enforcement activities against illegal activities, and activities which do not comply with the necessary standards, will be stepped up, as more resources are made available to the enforcement agencies in the coming years. In parallel, environmental and governance requirements for mining will be upgraded.

24. Will mining and forest concessionaires be required to reduce their activities?

Mining and forestry will be allowed to continue in accordance with the Low Carbon Development Strategy. However, they will be required to strictly comply with existing rules and regulations for their respective sectors. Enforcement activities against illegal activities, and activities which do not comply with the necessary standards, will be stepped up, as more resources are made available to the enforcement agencies in the coming years. In parallel, environmental and governance requirements for mining will be upgraded.

25. What will happen to future forest-based projects?

Part of the decision making process for allowing projects that are currently in the pipeline and future projects will include assessing the income foregone from REDD+ if the project were to go ahead. This will be done based on the REDD+ payment calculation outlined in the LCDS, which assigns a value to the carbon stored in a given area of forest.

If Guyana is going to be paid for the carbon service of that area of forest, it would forego the REDD+ income if it allowed, for example, a mining project to go ahead. However, this will require action from the international community to ensure that there are sufficient funds available to pay for REDD+, which is currently not the case. For example, if Guyana "earned" US$100 million for forest climate services in one year, and there was only US$30 million available, then there is a shortfall of US$70 million. Guyana could not be expected to forego that income on behalf of the world.

This question frames the economic choices that are at the core of REDD+. If the international community is prepared to fund REDD+ properly, then the economically rational choice will be to protect forests. If the funds are not there, this is not possible.

26. Will Protected Areas be included in the Strategy?

Protected areas are included in the strategy, where the Government would commit to placing these into protection.

27. Will there be a stop to designating new Protected Areas?

Approximately 10% of state forests and lands have been earmarked for Protected Areas. These include existing Protected Areas and have not been included in the financial calculations within the LCDS. Guyana will continue to pursue the establishing of Protected Area and to build on the programme with the passage of the Protected Areas Act (2011), which declared Shell Beach and Kanuku Mountains as Protected Areas. The Act also provides the establishment of the Protected Areas Commission.

28. Will communities be employed as rangers, etc. to monitor the areas?

Yes**,** there is provision for employment to communities for monitoring activities which could include forest inventories, field checking, establishment and maintenance of field plots etc.

29. Will the Strategy still be relevant if we find oil?

The Strategy will be relevant. Guyana is not an Annex I (Developed) country and as such, is not required to agree to any caps on emissions. The fact that Guyana is prepared to consider participating in REDD+ for emissions from the forestry sector is already significantly beyond what the legal obligations are under the international treaty. Beyond the forestry sector, Guyana is considering some far-reaching actions – including shifting most domestic demand for energy to low carbon sources. However, a developing country, like Guyana, cannot be expected to forego the huge income which would accrue from exporting oil – and so, exploration for oil will continue to be fully supported by the Government. If oil is discovered, it will be predominantly for export, and will be subject to whatever global arrangements are in place for fossil fuels at that time.

30. How long will we have to lock away our forests under this Strategy?

The LCDS is not about locking away forests. Guyana will continue to utilize its forests sustainably – through integrated land planning that gets the balance right between keeping the majority of existing intact forest in its current state, sustainably managing a limited amount of forest, allowing economic activity and employment to continue in sustainably managed economic sectors, and permitting a limited, small amount of deforestation for key development objectives. The overall goal of the LCDS and REDD+ is to make forest protection the “economically rational” choice by making forest worth more alive than dead, by placing a value on forests.

31. What are the benefits to Guyanese?

The revenue that comes from carbon payments could gradually grow to out-compete what we currently derive from logging and other extractive uses of the forest. Such increased revenue can be used for providing better hospitals and health care, better schools, teachers and education standards. Electricity from hydro will be much cheaper to consumers, and will allow for more industries, jobs and an overall better quality of life for all.

The anticipated revenue will also allow us to improve our sea defences and drainage and irrigation systems and build better roads to new areas of agriculture production such as the intermediate savannahs and the Rupununi area and will ensure greater food security.

32. Will there be further consultations and awareness sessions?

Yes, there will be further consultation with stakeholders on the finalised LCDS. The specific modalities and targets will be defined.

33. Where can more information be obtained on the Strategy?

The Office of Climate Change, within the Office of the President can be contacted for additional information.

Office of Climate Change
Office of the President
Shiv Chanderpaul Drive
Georgetown
Tel. 223 5205
Email: info@lcds.gov.gy
Web Site: www.lcds.gov.gy

Definitions

What is climate change?

Climate is the long term condition of temperature and rainfall (precipitation) in a country or on the planet as a whole. It is obtained by taking average measurements of rainfall and temperature over a long period of time. For example, we can say that the climate of the Arctic region is characterized by an average temperature of 2 degrees, a precipitation of 100 millimetres and is permanently covered by massive ice sheets.

If over the last 25 years or so, we observe that the average temperature of the same area is 3 degrees and the ice sheets which have been frozen for centuries are now melting due to a higher temperature, we can say that the climate is changing.

Is climate change occurring?

Recent studies are showing that climate is changing all over the world. When we compare temperature readings taken in the last few decades with scientific studies of tree rings, ice core samples from deep below the ice sheets, and corals, we have found that the earth's temperature has risen since the industrial revolution began 200 years ago. The facts are all around us. Arctic ice sheets are melting; sea level is rising; tropical storms are becoming more frequent and more intense. The alarming fact is that these changes in climate have been accelerating over the last 15 years.

What causes global warming?

The earth's atmosphere acts like a blanket draped around the earth. It contains certain gases, such as carbon dioxide, which absorb heat from the sun, reducing the amount that escapes back into space. In this way, it acts very much like a greenhouse which traps heat within an enclosed glass building. Without these gases, the earth's temperature would be very much colder, and life as we know it would be impossible on the earth.

Carbon dioxide and a few other gases are called greenhouses gases, and this trapping of heat around the Earth is called the greenhouse effect. However, carbon dioxide in the air has been increasing over the last 200 years. This is due to the burning of fossil fuels such as coal, gasoline, diesel, bunker fuels and aviation kerosene.

Because carbon dioxide is increasing in the air, the greenhouse effect is also increasing, and so global temperatures are rising. This rise in temperature is called global warming.

Also, because the increase in carbon dioxide in the air has resulted from human activity such as industries, transportation, heating of homes and cutting of forests, carbon dioxide is called an anthropogenic green house gas; the term 'anthropo' refers to 'human',

What causes sea level to rise?

When the earth's temperature rises, two things happen to the water in the oceans. One is called thermal expansion – the volume of water expands when it is heated, and so the level of the sea rises. Second, ice sheets melt, and this adds water to the ocean causing further rise in sea level.

What is the link between forests and carbon?

The leaves of plants and trees, in the presence of sunlight, absorb carbon dioxide from the air and store it as carbon in their trunks and branches. A large percentage of wood is actually carbon, which has been taken from the air in the form of carbon dioxide.

When we drive a car, run an electrical generator, operate machines in a factory etc, we let off carbon dioxide into the air. The forests of the world take this carbon dioxide and convert it into wood, while putting back oxygen into the air. Forests therefore 'cleans' the air and recycles it so that we can breathe good air. By reducing the carbon dioxide in the air, forests reduce global warming and the negative effects of climate change. Because air travels all around the planet, east-west and north-south, a forest in the tropical countries can convert carbon dioxide from Europe or North America. In this way, our forests perform an ecological service to the world.

What do we mean by "emissions"?

When we cut down a tree and burn the wood, the carbon that was stored in the wood goes back into the air. Even if we do not burn the wood, if it decays and rots, the carbon goes back into the air. It is 'emitted' into the air. So the cutting of forests can be seen as an emission, a 'greenhouse gas' emission (GHG emission).

What is REDD?

REDD means Reducing Emissions from Deforestation and forest degradation. REDD was recognized as an important part of the climate change strategy agreed at the Bali climate meeting. This is no surprise. While tropical forests account for 6 percent of the earth's surface, deforestation and degradation account for almost one fifth of all greenhouse gas emissions in the world. However, forests can potentially represent more than one third of the solution to global warming. 'REDD Plus' refers to not only deforestation, but also the preservation of forests and enhancement of the stocks of forests that we have. It is one thing to try to reduce deforestation; but for many countries like Guyana, where deforestation is already low, the preservation of forests and the improvement of the quality and density of the forest are also important considerations. REDD and REDD-Plus are therefore an important tools for dealing with the mitigation.

What are the potential effects of climate change?

Changes in the temperature of the atmosphere result in changes in air pressure, cloud formation and precipitation. Over time, some areas may experience more rainfall with greater intensity, while other areas may experience drought. This can lead to agricultural crop failures, food insecurity and starvation ultimately.

Rising sea levels will flood low lying coastal areas such as Guyana, damaging or destroying crops, roads, homes and lives. In the Caribbean, hurricanes will become more frequent, more intense and their tracks will shift. Countries like Guyana which are currently slightly off the known track will begin to experience hurricanes and their associated devastation.

Ecosystems will be destroyed, and some species will become endangered and later extinct. These are only some of the effects which are predicted with the data that we currently have. Because the rate of climate change is increasing each year, the effects are likely to get worse.

How will climate change affect Guyana?

In Guyana we can expect Guyana's temperature to Rise 1°C– 4°C by the end of the 21st century. Sea level is expected to rise by 1-3 feet by the end of the century also. There will be changes in the pattern of rainfall leading to more intense periods of rainfall and longer dry periods.

With 90 percent of our population living on the coast which lies below sea level, and on which much of our agriculture and food production is located, sea level rise and high intensity rainfall will damage our agriculture and destroy our food security. Our road and housing infrastructure also stand to be destroyed.

What can we do to reduce climate change and its effects? What is meant by mitigation and adaptation?

When you put mesh on your windows to prevent mosquitoes from coming in, you adapt; when you ensure that there are no stagnant pools of water for the mosquitoes to breed, you mitigate. You can see here that adaptation is responding to the effect of something – responding to the mosquito itself. Mitigation is trying to deal with the cause - making sure there are fewer mosquitoes around. Similarly, in climate change, adaptation is responding to the threat of rising sea levels, more intense weather patterns etc. The building of sea walls to keep out the sea; developing hydro power or solar power to reduce dependence on gas and diesel, diversification of agriculture away from the low lying coast, are all ways of adapting to climate change. Mitigation looks at the source of the problem – trying to reduce the amount of Co2 and other harmful gases that go into the air. This can be done by proper management and preservation of forests to absorb Co2; by providing financial incentives to countries and industries to reduce the amount of Co2 they let off (emit) into the air.

What is the UNFCCC?

UNFCCC is the United Nations Framework Convention on Climate Change. It is an Agreement that seeks to control the level of greenhouses gases, such as carbon dioxide, in the atmosphere thus controlling global warming and sea level rise.

It was adopted in 1992 at the Rio Earth Summit and entered into force March 21 1994. Since then, some 184 countries have signed on to the Convention.

Every two or three years, representatives of all the member countries (Parties) meet in a Conference of the Parties (COP) to review progress and make decisions that will guide action to reduce greenhouse gas emissions . The last meeting in Bali, Indonesia set forth a plan to try to forge a new agreement by the end of 2009. The next COP is slated for Copenhagen, Denmark December 2009.

What is the Kyoto Protocol?

The KP is an international agreement which is linked to the UNFCCC. It is a legally binding agreement with commits 39 developed countries including the EU (Annex B Parties) to reduce greenhouse gas emissions by specified amounts.

The Kyoto Protocol was adopted in Kyoto, Japan, on 11 December 1997 and entered into force on 16 February 2005. The detailed rules for the implementation of the Protocol were adopted at COP 7 in Marrakesh, Morocco.

Whereas the UNFCCC encourages countries to reduce greenhouse gas emissions, the Kyoto Protocol commits them to do so because it is legally binding agreement,

What is meant by 'cap and trade' and a 'carbon market'?

Parties with commitments under the Kyoto Protocol (Annex B Parties) have accepted targets for limiting or reducing emissions. These reductions average about five percent of 1990 levels over the period 2008 - 2012. These targets are expressed as levels of allowed emissions, or 'assigned amounts', over the 2008-2012 commitment period. The allowed emissions are divided into "assigned amount units" **(AAUs).**

If a country reduces carbon emissions below what they are assigned, they are allowed under Article 17 of the Kyoto Protocol to sell this excess capacity to countries that have gone over their targets. So we start with a 'cap' on emissions, and if we keep emissions below that cap, we can 'trade' it. This is the Cap and Trade mechanism under the Kyoto Protocol.

This has led to emissions trading, and because the major greenhouse gas is carbon dioxide, it is called carbon trading. So carbon has become like a commodity to be traded. This is known as the "carbon market."

What is wrong with the existing Kyoto Agreement?

Under the existing Agreement, projects that reduce carbon dioxide emissions can attract funding, providing a source of revenue for countries that try to lower their Co2 emissions. However, the present rules only reward projects that re-plant forests after they have been cut or plant new forests where no forest existed before. It does not reward countries like Guyana that have conserved their forests through responsible forestry practices. In effect, it encourages such countries to cut down forests and re-plant to get funding. This is why it is sometimes called a perverse incentive.

The Government of Guyana believes that an agreement should be reached on the inclusion of REDD+ in the carbon markets. Guyana in fact believes that public funding coming from developed countries will not be enough to meet the requirements of decreasing deforestation worldwide, so market-based funding should be sought.

What is being negotiated now in relation to forestry?

The Government of Guyana, in relation to forestry, supports, *inter alia*:

- international proposals to cut deforestation and forest degradation in half by 2020 and by 2030 make greenhouse gas emissions from deforestation balanced by new forest growth.
- the proposals of the Informal Working Group on Interim Financing for REDD+ (IWG-IFR), which state that action on deforestation and forest degradation must start immediately and not until the Kyoto Protocol expires in 2013.

Why must we protect forests to stem global warming?

Deforestation accounts for 17 percent of all green house gas emissions which cause global warming. This is more than the combined emissions of all of the cars, trucks, trains and planes in the world. It is even more than the European Union's emissions. Therefore forests have great potential to curb global warming and have to be part of the solution.

Furthermore, forests provide valuable ecosystem services to the world, and serve as a habitat for a wide range of smaller plants. The total carbon content of forests is more than the amount of carbon in the entire atmosphere. It is vital to protect this reservoir of carbon if we want to cut back on GHG and global warming.

Glossary

A

Additionality

This refers to emission reductions over and above the general trend or "Business as usual" scenario. It refers to the carbon accounting procedures being established under the Kyoto Protocol, whereby projects must demonstrate real, measurable, and long-term results in reducing or preventing carbon emissions that would not have occurred in the absence of CDM activities.

Afforestation

This refers to the planting of new forests on land, which historically has not been covered by forests.

Alliance of Small Island States (AOSIS)

The Alliance of Small Island States comprises 42 island and coastal states mostly in the Pacific and Caribbean. Members of AOSIS are some of the countries likely to be hit hardest by global warming. The very existence of low-lying islands, such as the Maldives and some of the Bahamas, is threatened by rising waters.

Alternative Energy

Energy derived from non-traditional sources, for example, hydropower, solar, wind, compressed natural gas

Annex I Countries/Parties

The industrialised countries, including countries in transition to a market economy, which took on obligations to reduce their greenhouse gas emissions under the Kyoto Protocol. Their combined emissions, averaged out during the 2008-2012 period, should be 5.2% below 1990 levels. By default, the other countries are referred to as Non-Annex I countries.

Annex II Countries/Parties

Countries, which a special obligation under the Kyoto Protocol, that provide financial resources and transfer technology to developing countries. This group is a sub-section of the Annex I countries, excluding those that, in 1992, were in transition from centrally planned to a free market economy.

Annex A

List established under the Kyoto Protocol of the basket of six greenhouse gases that the Protocol covers and the sectors or source categories that emit them.

Annex B

List established under the Kyoto Protocol setting out each Party's emission limitation or reduction target, for the first Commitment Period, relative to the base year.

Anthropogenic

Made by people or resulting from human activities. Commonly used in the context of emissions, which are produced as a result of human activities as opposed to natural processes.

Anthropogenic Climate Change

Anthropogenic means "human made". So in the context of climate change it refers to greenhouse gases, or emissions that are produced as the result of human activities.

Assigned Amount Units (AAUs)

This is one of the three measurements for measuring defined by the Kyoto Protocol as criteria for Annex 1 countries to achieve emission reduction targets. The other two mechanisms are Emission Reduction Units (ERU) and Certified Emission Reductions (CER). AAU is a cap and trade mechanism, and the latter two mechanisms deal with actual project based reduction.

B

Bali Action Plan

An action plan, drawn up at the UN Climate Change Conference in Bali in December 2007, established a working group to define a long-term global goal for reduction of greenhouse gas emissions, and a "shared vision for long-term co-operative action" in the areas of mitigation, adaptation, finance and technology. The Bali action plan forms part of the Bali roadmap.

Bali Roadmap

A plan drawn up at the UN Climate Change Conference in Bali, in December 2007, to pave the way for an agreement at Copenhagen in 2009 on further efforts to reduce greenhouse gas emissions after the expiry of the Kyoto Protocol. The roadmap gave deadlines to two working groups, one working on the Bali action plan, and other discussing proposed emission reductions by Annex I countries after 2012.

Base Year

This is a reference year for statistical calculations. The UNFCCC uses 1990 as the base year. However, all Annex I Parties have the option of choosing 1995 as the base year for their emissions of the three industrial gases covered by the Kyoto Protocol – hydrofluorocarbons, perfluorocarbons and sulphur hexafluoride.

Biodiversity

All forms of life essential to maintain functioning ecosystems, which provide services essential for human survival and quality of life.

Bio-fuel
A fuel derived from renewable, biological sources, including crops such as maize and sugar cane, and some forms of waste.

Biomass

It is the total dry weight of all living organisms that can be supported at each tropic level in a food chain Also, it is organic non-fossil material of biological origin, for example, trees, crops, grasses, tree litter, roots, and animals and animal waste.

Business as usual

A scenario used for projections of future emissions assuming no action, or no new action, is taken to mitigate the problem. Some countries are pledging not to reduce their emissions but to make reductions compared to a business as usual scenario. Therefore, their emissions will increase but less than they would have done.

C

Carbon capture and storage (CCS)

This is the process of capturing greenhouse gas pollution from coal or gas power plants and storing it underground instead, of releasing it into the atmosphere.

Carbon credit

Carbon credit is used in emission trading schemes (see emissions trading), where one credit gives the owner the right to emit one tonne of Carbon Dioxide.

Carbon Dioxide (CO_2)

The greenhouse gas whose concentration is being most affected directly by human activities. CO_2 also serves as the reference to compare all other greenhouse gases (see carbon dioxide equivalents). The major source of CO_2 emissions is fossil fuel combustion. CO_2 emissions are also a product of forest clearing, biomass burning, and non-energy production processes such as cement production. Atmospheric concentrations of CO_2 have been increasing at a rate of about 0.5% per year and are now about 30% above preindustrial levels.

Carbon dioxide (CO_2) equivalent

A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential (GWP). Carbon dioxide equivalents are commonly expressed as "million metric tons of carbon dioxide equivalents (MMTCO2Eq)." The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated GWP. The use of carbon equivalents (MMTCE) is declining. MMTCO2Eq = (million metric tons of a gas) * (GWP of the gas).

Carbon Flow

The level of CO2 in the atmosphere is determined by a continuous flow among the stores of carbon in the atmosphere, the ocean, the earth's biological systems, and its geological materials. As long as the amount of carbon flowing into the atmosphere (as CO2) and out (in the form of plant material and dissolved carbon) are in balance, the level of carbon in the atmosphere remains constant.

Carbon footprint

The amount of carbon emitted by an individual or organisation in a given period of time, or the amount of carbon emitted during the manufacture of a product.

Carbon intensity

This is a unit of measure. It is the amount of carbon emitted by a country per unit of Gross Domestic Product (GDP).

Carbon leakage

A term used to refer to the problem whereby industry relocates to countries where emission regimes are weaker, or non-existent.

Carbon neutral

A process where there is no net release of CO2. For example, growing biomass takes CO2 out of the atmosphere, while burning it releases the gas again. The process would be carbon neutral if the amount taken out and the amount released were identical. A company or country can also achieve carbon neutrality by means of carbon offsetting.

Carbon offsetting

An investment made in a project that will lead to the prevention or removal of carbon dioxide from the atmosphere, for example, planting trees or building renewable energy power stations to avoid the construction of coal ones.

Carbon price

This is a price on greenhouse gas emissions that creates a disincentive for their release (and incentive to capture or avoid them). A carbon price can be imposed through a carbon tax, an emissions trading scheme (which fixes emission level and allows price to vary) or a variety of other mechanisms.

Carbon sequestration

Carbon sequestration is the process of removing atmospheric Carbon Dioxide, either through biological processes, for example, plants and trees, or geological processes through storage of Carbon Dioxide in underground reservoirs.

Carbon sinks

This refers to any the natural or human activity or mechanism that removes more carbon dioxide from the atmosphere than it releases. Both the terrestrial biosphere and oceans can act as carbon sinks.

Carbon Stock

The quantity of carbon contained in a “pool”, meaning a reservoir or system which has the capacity to accumulate or release carbon.

Certified Emission Reduction (CER)

CER is a greenhouse gas trading credit, under the UN Clean Development Mechanism programme. A CER may be earned by participating in emission reduction programmes - installing green technology, or planting forests - in developing countries. Each CER is equivalent to one tonne of carbon dioxide

Clean Development Mechanisms (CDM)

Article 12 of the Kyoto Protocol provides for the CDM whereby developed countries are able to invest in emissions reducing projects in developing countries to obtain credit to assist in meeting their assigned amounts. The details of the CDM have yet to be negotiated at the international level. However, it does allow countries to use credits obtained from the year 2000 for the purposes of meeting their assigned amounts. Participation is voluntary and open to private and public entities alike on a Party-approved basis.

Conference of the Parties (COP)

The COP is the collection of nations which have ratified the Framework Convention on Climate Change (FCCC), currently over 150 strong, and about 50 Observer States. The primary role of the COP is to keep the implementation of the Convention under review and to take the decisions necessary for the effective implementation of the Convention. The first COP (COP 1) took place in Berlin from March 28th to April 7th, 1995, and was attended by over 1000 observers and 2000 media representatives.

D

Deforestation

This refers to practices or processes that result in the change of forested lands to non-forest uses. It can lead to significant levels of carbon dioxide emissions through the burning or decomposition of the wood releases carbon dioxide and by trees that once removed carbon dioxide from the atmosphere in the process of photosynthesis are no longer present and contributing to carbon storage.

E

Ecosystem

Any natural unit or entity including living and non-living parts that interact to produce a stable system through cyclic exchange of materials

Emission Permit

This is a non-transferable or tradable allocation of entitlements by a government to an individual firm to emit a specific amount of a substance.

Emission Trading Scheme (ETS)

A scheme set up to allow the trading of emissions permits between business and/or countries as part of a cap and trade approach to limiting greenhouse gas emissions. The best-developed example is the EU's trading scheme, launched in 2005.

Emission Quota

The portion or share of total allowable emissions assigned to a country or group of countries within a framework of maximum total emissions and mandatory allocations of resources or assessments.

Economic Value to the Nation (EVN)

This refers to the economic value of some service to the country. In Guyana's case EVN refers to the economic value of standing forests to the nation. According to McKinsey& Company, EVN is estimated at $5.8 billion.

Economic Value to the World (EVW)

This refers to a concept that captures the true economic value of a service globally. In the context of the Low Carbon Development Strategy, EVW refers to economic value of the ecosystem services that forests provide to the world. It is estimated by McKinsey& Company that EVW from avoided deforestation ranges from $6500 to $7000 per hectare in Guyana.

F

Forestry/Forestation

This is the science and art of cultivating, maintaining, and developing forests.

Forest Carbon Partnership Facility (FCPF)

This Facility is designed to set the stage for a large-scale system of incentives for reducing emissions from deforestation and forest degradation, providing a fresh source of financing for the sustainable use of forest resources and biodiversity conservation, and for the more than 1.2 billion people who depend to varying degrees on forests for their livelihoods.

Forest Investment Programme (FIP)

This is a programme within the World Bank's Strategic Climate Fund (a multi-donor Trust Fund within the World Bank's Climate Investment Funds). The FIP's overall objective is to mobilise significantly increased funds to reduce deforestation and forest degradation and to promote sustainable forest management, leading to emission reductions and the protection of carbon reservoirs.

Fossil fuels

This refers to natural resources, such as coal, oil and natural gas, containing hydrocarbons. These fuels are formed in the Earth over millions of years and produce carbon dioxide when burnt.

Framework Convention on Climate Change (FCCC)

The landmark international treaty unveiled at the United Nations Conference on Environment and Development (UNCED, also known as the "Rio Summit"), in June 1992. The FCCC commits signatory countries to stabilize anthropogenic (i.e., human-induced) greenhouse gas emissions to "levels that would prevent dangerous anthropogenic interference with the climate system". The FCCC also requires that all signatory parties develop and update national inventories of anthropogenic emissions of all greenhouse gases not otherwise controlled by the Montreal Protocol.

G

Global Warming Potential (GWP)

This is the index used to translate the level of emissions of various gases into a common measure in order to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations.

Greenhouse Effect

This refers to the insulating effect of certain gases in the atmosphere, which allow solar radiation to warm the earth and then prevent some of the heat from escaping. This process occurs naturally and has kept the Earth's temperature about 59 degrees F warmer than it would otherwise be. Current life on Earth could not be sustained without the natural greenhouse effect.

Greenhouse Gas

This is any gas that absorbs infra-red radiation in the atmosphere. Greenhouse gases include water vapour, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), halogenated fluorocarbons (HCFCs), ozone (O_3), perfluorinated carbons (PFCs), and hydrofluorocarbons (HFCs).

H

High Forest Cover, Low Deforestation (HFLD) countries

HFLD countries retain a high percentage of their original tropical forest cover due to historically low levels of deforestation. These forests and their carbon stocks are crucial to the long-term fight against climate change. Because HFLD countries have no history of widespread deforestation, some consider them to be at low risk. However, history shows that deforestation to meet growing demands for agriculture, livestock, timber and human settlement will eventually confront all remaining tropical forests.

I

Incentivize

To provide incentives to motivate a particular course of action or counts as a reason for preferring one choice to the alternatives. It is an expectation that encourages people to behave in a certain way.

Intergovernmental Panel on Climate Change (IPCC)

This is a scientific body established by the United Nations Environment Programme and the World Meteorological Organisation, which reviews and assesses the most recent scientific, technical, and socio-economic work relevant to climate change. It does not, however, carry out its own research. The IPCC was honoured with the 2007 Nobel Peace Prize.

J

Joint Implementation

Article 6 of the Kyoto Protocol permits Joint Implementation whereby developed countries are able to invest in projects in other developed countries to acquire credits to assists in meeting their assigned amounts. Countries are only able to use credits generated in the commitment period of 2008 to 2012. Participation is voluntary and open to private and public entities alike if approved by the Party to the Protocol.

K

Kyoto Mechanism

The Kyoto Protocol creates three market-based mechanisms that have the potential to help countries reduce the cost of meeting their emissions reduction targets. These mechanisms are Joint Implementation (Article 6), the Clean Development Mechanisms (Article 17).

L

Leakage

Carbon leakage occurs when there is an increase in carbon dioxide emissions in one country as a result of an emissions reduction by a second country with a strict climate policy.

M

Market-based Incentives

Measures intended to directly change relative prices of energy services and overcome market barriers.

Metric Tonne

This is a common international measurement for the quantity of greenhouse gas emissions, which equals 2,205 lbs or 1.1 short tonnes.

Million Metric Tonnes (MMT)

Common international measurement for million metric tons of carbon dioxide equivalents (MMT CO2) to describe the magnitude of greenhouse gas (GHG) emissions or reductions

N

Natural greenhouse effect

This is the natural level of greenhouse gases in our atmosphere, which keeps the planet about 30C warmer than it would otherwise be and is essential for life. Water vapour is the most important component of the natural greenhouse effect.

Non-annex I countries

This is the group of developing countries that have signed and ratified the Kyoto Protocol. They do not have binding emission reduction targets.

O

Offsets

A carbon offset is a carbon emission reduction project that helps decrease the amount of carbon dioxide (CO2) that otherwise would be in the atmosphere. Verifiable carbon offsets are those certified by a third party for their methods of carbon reduction.

P

Parts Per Million (ppm)

This refers to the number of parts of a chemical found in one million parts of a particular gas, liquid, or solid.

Per-capita emissions

This is the total amount of greenhouse gas emitted by a country per unit of population.

Precautionary Approach

The approach promoted under the Framework Convention of Climate Change to help achieve stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous interference with the climate system.

Pre-industrial levels of carbon dioxide

This refers to the levels of carbon dioxide in the atmosphere prior to the start of the Industrial Revolution. These levels are estimated to be about 280 parts per million by volume (ppmv). The current level is around 380 ppmv.

Q

Quantified Emission Limitation and Reduction Commitment (QELRC)

This is the official term in the Kyoto Protocol for the emission limitation or reduction target taken on by each Party listed in Annex B (developed countries).

R

Ratification

This is the formal approval, often by a Parliament or other national legislature, of a convention, protocol, or treaty, enabling a country to become a Party. Ratification is a separate process that occurs after a country has signed an agreement. The instrument of ratification must be deposited with a "depositary" (in

the case of the Climate Change Convention, the UN Secretary-General) to start the countdown to becoming a Party (in the case of the Convention, the countdown is 90 days).

Reducing Emissions from Deforestation and forest Degradation and avoided deforestation (REDD+)

This refers to the concept of REDD as well as the inclusion of sustainable forest management, forest conservation and the enhancement of forest carbon stocks.

Reforestation

Planting of forests on lands that have previously contained forests but that have been converted to some other use.

S

Sink

This is any process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas or aerosol from the atmosphere.

Stern review

This is a report on the economics of climate change led by Lord Nicholas Stern, a former World Bank economist. It was published on 30 October 2006 and argued that the cost of dealing with the consequences of climate change in the future would be higher than taking action to mitigate the problem now.

T

Technology transfer

This is the process whereby technological advances are shared between different countries. Developed countries could, for example, share up-to-date renewable energy technologies with developing countries, in an effort to lower global greenhouse gas emissions.

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