

National Policy for the Trading of Carbon Credits 2010-2030



October 2010

National Policy for the Trading of Carbon Credits

Ministry of Energy and Mining

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Table of Contents

List of Acronyms	i
Acknowledgements	iii
Message from the Minister of Energy and Mining	iv
Executive Summary	v
Section 1 – Overview and Context	1
Introduction	9
Background	13
Rationale for National Policy for the Trading of Carbon Credits	19
Defining the Scope for Trading of Carbon Credits in Jamaica	23
Prospects for Development of the Carbon Credits Trading Sector	30
Global Trends and Issues in Trading of Carbon Credits	37
SWOT Analysis of the Trading of Carbon Credits in Jamaica	42
Key Issues in the Trading of Carbon Credits	43
Section 2 – Defining the Policy Framework	46
Strategic Framework for the Trading of Carbon Credits in Jamaica	47
Goals of the National Policy for the Trading of Carbon Credits	49
Goal 1	50
Goal 2	53
Goal 3	56
Goal 4	60
Section 3 – Implementation, Monitoring and Evaluation Framework	63
Policy Implementation	64
Institutional Framework	64
Implementation Framework	65
Carbon Credits Trading Action Plan 2010-2012	66
Monitoring and Evaluation Framework	70
Proposed Indicators	70
Appendices	71
I Glossary	72
II Application Procedure for Approval by the DNA	76
III Jamaica’s Sustainable Development Criteria for the Assessment and Selection of Projects under the Clean Development Mechanism	77
IV International Rule: Classifying Domestic Policies and Measures to Avoid Perverse Incentives under Additionality	80
V Members of Carbon Credits Trading Policy Working Group	81

List of Acronyms

AAU	Assigned Amount Unit
CCX	Chicago Climate Exchange
CDM	Clean Development Mechanism
CER	Certified Emissions Reduction
CERE	Centre for Excellence in Renewable Energy
CNG	Compressed Natural Gas
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DBJ	Development Bank of Jamaica
DLG	Department of Local Government
DNA	Designated National Authority
DOE	Designated Operational Entity
EFW	Energy-from-Waste
ERPA	Emission Reduction Purchase Agreement
EU ETS	European Union Emissions Trading Scheme
EUA	European Union Allowance
EIA	Environmental Impact Assessment
ER	Emissions Reduction
GEF	Global Environment Facility
GHG	Greenhouse Gas
IDB	Inter-American Development Bank
IPP	Independent Power Producer
JPSCo	Jamaica Public Service Company Ltd.
LGA	Local Government Authority
LNG	Liquefied Natural Gas
LULUCF	Land Use, Land Use Change and Forestry
MACC	Mainstreaming Adaptation to Climate Change
MEM	Ministry of Energy and Mining
MFPS	Ministry of Finance and the Public Service
MJ	MegaJoule
MOA	Ministry of Agriculture
MOE	Ministry of Education
MRV	Measurable, Reportable and Verifiable
MSW	Municipal solid waste
Mt	Million tonnes

MW	Megawatt
NEPA	National Environment and Planning Agency
NGO	Non-governmental Organization
NLA	National Land Agency
OPM	Office of the Prime Minister
OUR	Office of Utilities Regulation
PCJ	Petroleum Corporation of Jamaica
PWG	Policy Working Group
REDD	Reducing Emissions from Deforestation and forest Degradation
REP	Rural Electrification Programme
SD	Sustainable Development
SGP	Small Grants Programme
SRC	Scientific Research Council
SWOT	Strengths, Weaknesses, Opportunities, Threats
tCO ₂ e	Tonne of carbon dioxide equivalent
WTE	Waste-to-Energy
UNFCCC	UN Framework Convention on Climate Change
UTech	University of Technology, Jamaica
UWI	University of the West Indies
VER	Verifiable Emissions Reduction
WRA	Water Resources Authority
NWC	National Water Commission

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The Ministry of Energy and Mining wishes to thank the members of the Carbon Credits Trading Policy Working Group for providing technical support and guidance to the development of this policy. This policy required significant input from agencies outside of the Ministry of Energy and Mining, and to this end, we thank all those agencies for their inputs. In particular, we wish to thank the Environmental Management Division in the Office of the Prime Minister who assisted with the development of the draft Policy on Carbon Emissions Trading in 2009 which was used as a basis for the development of this policy document.

Of note, we also wish to thank the members of the Energy and Minerals Development Thematic Working Group of the Vision 2030 Jamaica – National Development Plan Monitoring and Evaluation Process as well as the various Ministries and Agencies that assisted the process by providing pertinent data and engaging in the consultative process that is so important in national policy development.

We also wish to thank International Development Partners who are currently providing extensive support in the development of Jamaica's energy sector and in particular our efforts at achieving energy security, diversification of the country's energy mix and reducing the cost of energy to Jamaicans. We especially thank the United Nations Development Programme (UNDP) for the support they have provided the Ministry to facilitate the development of five sub-policies under the National Energy Policy 2009 – 2030.

Message from the Minister of Energy and Mining



The United Nations Framework Convention on Climate Change and its Kyoto Protocol addresses one of the most serious threats facing humanity today, climate change. There is scientific evidence pointing towards the correlation between increased greenhouse gas emissions caused by human activity mainly by developed countries, and a measurable warming of the earth's lower atmosphere. We are beginning to understand and experience the possible catastrophic implications of changes in the global climate system, particularly for small island developing states like Jamaica.

Actions to address climate change are common to all but with differentiated responsibility. By participating in carbon credits trading schemes, Jamaica will assist developed countries in realizing a portion of their quantified emission reductions targets and at the same time the country will move towards achieving its national sustainable development goals.

Small island states have been placing a great deal of emphasis on adaptation initiatives as a means of coping with climate change. However mitigation efforts such as energy efficiency and renewable and alternative energy projects in solar, wind, hydropower, bio-fuels, LNG etc., represent an avenue for Jamaica to reduce its dependence on imported fossil fuel. The National Energy Policy calls for the use of renewable and alternative energy sources to meet our energy needs and increased energy conservation and efficiency by Jamaican individuals and industries. The Forest Management and Conservation Plan also sets out targets for reforestation and afforestation programmes that remove carbon dioxide from the atmosphere. The carbon market represents one such opportunity to achieve these objectives.

I am therefore pleased to present Jamaica's National Policy for the Trading of Carbon Credits, which sets out a comprehensive framework for Jamaica's reduction in carbon emissions and participation in the carbon market. It presents Government's positions, defines investment priorities, establishes the institutional and legal framework and facilitates structures necessary for the effective management of the regime involving the participation of all sectors in a manner that is mutually beneficial to all.

James Robertson, M.P.

Executive Summary

This document presents Jamaica's National Policy for the Trading of Carbon Credits which is designed to achieve:

A competitive, diversified, efficient and investment-conducive carbon credits trading sector that fosters socio-economic development and induces a less carbon-intensive economy

This policy is an important part of Jamaica's climate change strategy that facilitates reductions in the country's greenhouse gas emissions and carbon footprint, thereby reducing the country's contribution to this global problem.

Overview and Context

Jamaica is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol which mandates reductions in greenhouse gas (GHG) emissions for certain (Annex I – mainly developed) countries. As a small island developing state, Jamaica generates relatively low amounts of GHGs on a global scale and therefore has no specific targets for GHG reduction under the Protocol. However, Jamaica is vulnerable to the impacts of climate change which include increased severity of hurricanes, flooding and drought as well as increased incidence of certain diseases, among others. Consequently, in addition to engaging in measures to adapt to climate change such as enforcing hurricane-resistant building codes and floodplain zoning laws, it is in Jamaica's best interest to contribute towards climate change mitigation by reducing its own emissions. More importantly, by engaging in projects that generate carbon credits for trading, Jamaica can assist developed countries in reducing their comparatively high level of carbon emissions thus contributing to global mitigation of climate change.

Climate change mitigation projects that qualify for carbon credits generally fall into three categories: alternative energy – including renewable energy – that replaces or reduces the consumption of high carbon content fossil fuels; energy efficiency; and afforestation and reforestation.

The National Policy for the Trading of Carbon Credits is being developed to facilitate Jamaica fulfilling the country's commitments to the UNFCCC and to create a framework for generating carbon credits. The Policy will enable Jamaica's participation in carbon trading regimes

including the Clean Development Mechanism (CDM) of the Kyoto Protocol as well as voluntary carbon schemes.

The majority of GHG mitigation projects are initiatives that develop alternative energy sources or energy efficiency programmes. Because of this focus on energy, this Policy for the Trading of Carbon Credits has been developed as one of six (6) sub-policies under the National Energy Policy 2009 – 2030 that are intended to support the achievement of the goals of the National Energy Policy which calls for the development of the energy sector, with specific emphasis on renewables, new and alternative fuels, biofuels and energy-from-waste.

This Carbon Credits Trading Policy will guide the operations and processes associated with the creation of a carbon credits trading sector in Jamaica. The Policy will establish the legal, financial and institutional framework to enable the successful functioning of a carbon credits trading system. The Policy establishes a strategic framework – goals and a mix of short- to medium-term as well as long-term strategies to support the development of a carbon credits trading sector.

Key institutions in both the energy and environmental management sectors will take leading roles in the implementation of this policy. Collaboration with other sectors such as finance, tourism, forestry, agriculture and transport also will be necessary.

Policy Framework

The policy framework is underpinned by a ***Strategic Framework*** which sets out the goals, strategies and actions necessary to facilitate the implementation of the policy; and the ***Institutional Framework*** describes the roles and responsibilities of the various stakeholders in carbon credits trading.

The Strategic Framework underpinning this policy presents four (4) goals which will contribute to achieving the vision of: ***A competitive, diversified, efficient and investment-conducive carbon credits trading sector that fosters socio-economic development and induces a less carbon-intensive economy.***

The four goals are:

- Goal 1:** A clear, flexible legal and regulatory framework for the carbon credits trading sector that is responsive to changes in the international arena
- Goal 2:** A well-developed governance and institutional framework that leads to the maximization of opportunities for carbon credits trading
- Goal 3:** Diverse initiatives implemented to reduce carbon emissions and generate carbon credits through the regulatory and voluntary markets as well as contributing to the social, economic and environmental development of the country
- Goal 4:** A carbon credits trading sector that attracts investment through a financial and economic system in which benefits and risks are distributed equitably

The strategic framework discusses key issues and includes the short- to medium-term as well as long-term strategic directions for the government, private sector and industry. The framework has been designed to be flexible and adaptable to meet new challenges and opportunities as they arise.

Monitoring and Evaluation

A continuous programme of monitoring and evaluation, involving relevant stakeholders from public and private sectors, will be implemented and this will be aligned to the Monitoring and Evaluation Framework that is part of Vision 2030 Jamaica as well as the Whole of Government Business Planning Process. The Ministry responsible for energy in collaboration with the Ministry responsible for environment and waste management will use several indicators to assess the effectiveness of the National Policy for the Trading of Carbon Credits in achieving the outcomes, which will form the basis for reviewing the policy and recommending any changes to the policy framework.



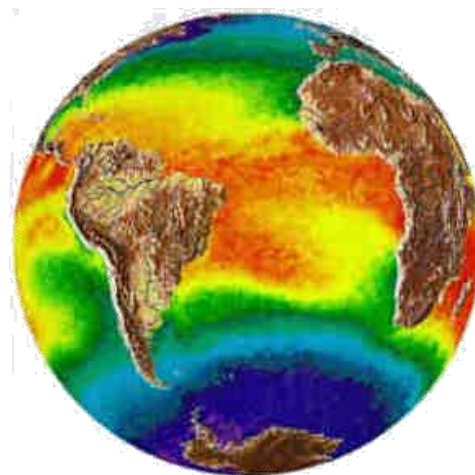
Section 1

Overview and Context

Introduction

This document presents Jamaica's National Policy for the Trading of Carbon Credits 2010-2030. This policy is an important part of Jamaica's climate change strategy that facilitates reductions in the country's emissions of greenhouse gases – particularly carbon dioxide (CO₂) -- and carbon footprint, thereby reducing the country's contribution to this global problem.

Jamaica is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol which mandates reductions in greenhouse gas (GHG) emissions for certain (Annex I) countries. As a small island developing state, Jamaica generates relatively low amounts of GHGs on a global scale and therefore has no specific targets for GHG reduction under the Protocol. However, Jamaica is vulnerable to the impacts of climate change which include increased severity of hurricanes, flooding and drought as well as increased incidence of certain diseases, among others. Consequently, in addition to engaging in measures to adapt to climate change such as enforcing hurricane-resistant building codes and floodplain zoning laws, it is in Jamaica's best interest to contribute towards climate change mitigation by reducing its own emissions. More importantly, by engaging in projects that generate carbon credits for trading, Jamaica can assist developed countries in reducing their comparatively high level of carbon emissions thus contributing to global mitigation of climate change.



Climate change mitigation projects that qualify for carbon credits generally fall into three categories: alternative energy – including renewable energy – that replaces or reduces the consumption of high carbon content fossil fuels; energy efficiency; and afforestation and reforestation. The first two categories reduce carbon “sources” and the third category increases carbon “sinks” – adding trees and other vegetation that will remove carbon from the atmosphere.

The National Policy for the Trading of Carbon Credits is being developed to facilitate Jamaica fulfilling the country's commitments to the UNFCCC and to create a framework for generating carbon credits. The Policy will enable Jamaica's participation in carbon trading regimes including the Clean Development Mechanism (CDM) of the Kyoto Protocol as well as voluntary carbon schemes. This Policy will enable Jamaica to achieve **“A competitive, diversified, efficient**

and investment-conducive carbon credits trading sector that fosters socio-economic development and induces a less carbon-intensive economy.”

The majority of GHG mitigation projects are initiatives that develop alternative energy sources or energy efficiency programmes. Because of this focus on energy, this Policy for the Trading of Carbon Credits has been developed as one of six (6) sub-policies under the National Energy Policy 2009 – 2030 that are intended to support the achievement of the goals of the National Energy Policy which seeks to provide “affordable and accessible energy supplies with long-term energy security.” Like many other countries, Jamaica has framed its National Energy Policy within the context of climate change mitigation and moving towards a low carbon economy. The National Energy Policy is aligned to the country’s National Development Plan – Vision 2030 Jamaica

and calls for the development of the energy sector including the development of renewables, new and alternative fuels, biofuels and waste-to-energy initiatives – leading to increased fuel diversification and energy security – as well as the promotion of energy conservation and efficiency. Through the National Energy Policy, Jamaica is committed to reducing the country’s use of imported fossil fuels. In doing so, Jamaica’s emissions of greenhouse gases – in particular carbon dioxide – will be reduced, leading to a smaller carbon footprint and creating opportunities for carbon credits trading.

Sub-Policies under Jamaica’s National Energy Policy 2009 – 2030

- Renewable Energy Policy
- Energy-from-Waste Policy
- Biofuels Policy
- Policy for Trading of Carbon Credits
- Energy Conservation and Efficiency Policy
- Electricity Policy

While this National Policy for the Trading of Carbon Credits is a sub-policy under the National Energy Policy, it is also governed by two other sub-policies that provide the framework for projects and initiatives that qualify for carbon credits in the areas of renewable energy and energy efficiency. These sub-policies are the National Renewable Energy Policy and the National Energy Conservation and Efficiency Policy. The Policy for the Trading of Carbon Credits will also support the achievement of many of the goals articulated in two of the other sub-policies: the Energy-from-Waste Policy and the Biofuels Policy.

A carbon credits trading system will allow Jamaica to sell carbon credits derived from the “savings” in greenhouse gas emissions due to the implementation of GHG-mitigating energy and forestry projects, reaping financial benefits that can be used to further develop the energy sector and allowing Jamaica to benefit from the experience, expertise and resources of developed countries.

The Policy for the Trading of Carbon Credits provides a framework for a carbon credits trading system, allowing Jamaica to take advantage of the international carbon market to help meet some of the goals within both the national climate change policy and the National Energy Policy, helping to move the country towards sustainable development.

This Policy for the Trading of Carbon Credits will guide the operations and processes associated with the creation of a carbon credits trading sector in Jamaica. The Policy will establish the legal, financial and institutional framework to enable the successful functioning of a carbon credits trading system. The policy framework will support an enabling business and regulatory environment for creating and attracting investment in carbon projects. The establishment of this enabling environment will reduce investor risk and build Jamaica's competitiveness and host country reputation for the efficient commercialization of high quality and economically feasible carbon trading projects. The Policy establishes a strategic framework – goals and a mix of short- to medium-term as well as long-term strategies to support the development of carbon credits trading sector.

The development of this sector will require strong and sustainable partnerships among the public and private sectors as well as with academia. The finance, agriculture, and tourism sectors will be central to the successful development of a carbon credits trading system within Jamaica.

The development of this policy was guided by a Policy Working Group comprising representatives of key government ministries and agencies (see Appendix V for the members of the working group). The Policy used as significant input the Draft Carbon Emissions Trading Policy developed by the Office of the Prime Minister's Environmental Management Division in 2009. This policy working group is part of the Energy and Minerals Development Thematic Working Group under the monitoring and evaluation framework of Vision 2030 Jamaica. The development process included the inputs of various stakeholders in the public and private sectors as well as from non-governmental and civil society organizations.

Structure of the Policy

The National Policy for the Trading of Carbon Credits is comprised of the **Executive Summary**, followed by the sections described below.

Section 1 – Overview and Context provides the introduction to and rationale for the policy, presents background information and global trends and key issues in carbon credits trading and the prospects for the development of the carbon credits trading sector in Jamaica.

Section 2 – Defining the Policy Framework identifies the linkages between this policy and the National Energy Policy 2009 – 2030, Vision 2030 Jamaica – National Development Plan and other components of the national energy framework and presents the vision for a carbon credits trading sector in Jamaica and the strategic framework (goals and strategies) for this policy.

Section 3 – Implementation, Monitoring and Evaluation Framework describes the implementation, monitoring and evaluation framework for this policy. Section 3 also includes the institutional framework for carbon credits trading in Jamaica.

Appendix I is a glossary of terms used in this policy document.

Appendix II describes the application procedure for approval of projects under the Clean Development Mechanism (CDM) by the Designated National Authority.

Appendix III describes Jamaica’s sustainable development criteria for the assessment and selection of projects under the CDM.

Appendix IV describes the International Rule for classifying domestic policies and measures to avoid perverse incentives under additionality.

Appendix V lists the members of the Policy Working Group who developed this policy.

Background

The United Nations Framework Convention on Climate Change & the Kyoto Protocol

The Kyoto Protocol is an international agreement made under the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC sets the overall framework for intergovernmental efforts to stabilize the concentrations of greenhouse gases (GHGs) (carbon dioxide and methane in particular) in the atmosphere. This was expected to be at a level in which dangerous man-made interferences towards the climate system would be avoided. Parties to the Convention agreed to take climate change considerations into account in such matters as planning for the development of the energy sector – the main emitter of greenhouse gases – as well as agriculture, water resources, coastal zone development and protection of resources, and to develop national programmes to minimize the effects of climate change.

The Kyoto Protocol came into force February 16, 2005. Emission quotas (known as "Assigned amounts") were agreed by each of these participating Annex I (i.e. developed) countries, with the intention of reducing the overall emissions by at least 5% from their 1990 levels by the end of 2012. The main consideration to the parties are: the largest share of historical and current global emissions of greenhouse gases has originated in developed countries; per capita emissions in developing countries were still relatively low, and the share of global emissions originating in developing countries must be allowed to grow to meet their social and development needs.

On April 6, 1995, Jamaica deposited its Instrument of Accession to the UNFCCC and made it accession into force to being a Party. The instrument of accession to the Kyoto Protocol was subsequently deposited on June 28, 1999 and the accession entered into force on February 16, 2005. As a developing nation, Jamaica is not an Annex I country and is therefore not bound by GHG emissions targets.

Financial System for Climate Change Adaptation and Mitigation

Funding for climate change adaptation and mitigation are available through a variety of international avenues and mechanisms.

Global Environment Facility (GEF)

The [Global Environment Facility \(GEF\)](#), operates the UNFCCC financial mechanism, and is currently the main funding channel for climate change activities in developing countries. The GEF has allocated \$8.8 billion, supplemented by more than \$38.7 billion in cofinancing, for

more than 2,400 projects in more than 165 developing countries and countries with economies in transition. Through its Small Grants Programme (SGP), the GEF has also made more than 10,000 small grants directly to nongovernmental and community organizations¹. Jamaica has already received GEF funding for several climate change projects, including a current community-based adaptation SGP project to reduce vulnerability and enhance the capacity of selected communities to adapt to climate change and variability.

The GEF also manages two special funds, the **Special Climate Change Fund (SCCF)** and the **Least Developed Countries Fund (LDCF)**. The SCCF was established in 2001 to finance projects relating to adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification. The LDCF addresses the special needs of the 48 Least Developed Countries (LDCs) – which do not include Jamaica, which are especially vulnerable to the adverse impacts of climate change.

Adaptation Fund

The **Adaptation Fund** was established under the Kyoto Protocol in order to finance concrete adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change. The Adaptation Fund is financed from the share of proceeds on the clean development mechanism project activities (2% of certified emission reductions (CERs) issued for a CDM project activity) and other sources of funding, and could be considered to be the first genuinely international levy on private sector activities. The Adaptation Fund is unique among climate change funds with respect to the magnitude of revenues it is projected to generate for adaptation. According to a recent study, the revenue that will be generated from the sale of the two per cent CER share until 2012 is projected to be between \$160m to \$950m, while the funding presently given to or pledged by donor countries to other climate change funds is around \$170m.

Developed countries, as outlined in the Copenhagen Accord, have committed to “fast-start financing,” providing “new and additional resources” to the Adaptation Fund “approaching US\$30 billion for the period 2010-12 with balanced allocation between adaptation and mitigation.” They also committed to mobilizing jointly US\$100 billion a year by 2020 to address the needs of developing countries. In mid 2010, the Fund contained 400 m euros, the amount projected from the proceeds of the Clean Development Mechanism levy. In addition, the Fund had received 65 m euros from Spain, Germany and Sweden. The donations by these European governments helped to quiet certain fears that developed countries would dip into designated overseas development assistance money for climate change.

¹ Note that these figures are for projects that deal not only with climate change, but also biodiversity, international waters, land degradation, the ozone layer, and persistent organic pollutants.

In June 2010, the first four project proposals were approved by the Fund – in the Solomon Islands, Senegal, Nicaragua and Pakistan. These projects address sea level rise, adaptation in coastal areas, improvement of watersheds to better deal with droughts and floods, and risk reduction from glacier lake outburst floods.

Copenhagen Green Climate Fund

Beyond 2012, adaptation funding should flow through the **Copenhagen Green Climate Fund**. However, international negotiators are still in the process of defining its governance structure and there has not been the determination as what would be the sources of funding for this fund. However, it is expected that this new fund will be under the authority of the UNFCCC Conference of Parties and that it should be several times bigger than the Global Environmental Facility (GEF).

World Bank Climate Investment Funds

The **Climate Investment Funds (CIF)**, including the **Clean Technology Fund (CTF)** and the **Strategic Climate Fund (SCF)** were approved in 2008. G8 members have thus far pledged approximately US\$5.7 billion to the funds, which gives the CIFs a real possibility to become the most important international financial tools to combat climate change. The Clean Technology Fund is a climate fund that will aim to promote low-carbon economies by helping to finance deployment in developing countries of commercially available cleaner energy technologies through investments in support of credible national mitigation plans that include low-carbon objectives. The Strategic Climate Fund will help more vulnerable countries develop climate-resilient economies and take actions to prevent deforestation.

In 2009, Bangladesh, Bolivia, Cambodia, Mozambique, Nepal, Niger, Tajikistan and Zambia were invited to take part in the Pilot Program for Climate Resilience, which will provide about US\$500 million for scaled up action and transformational change in integrating climate resilience in national planning. It should be noted that these funds operate with loans, not grants.

Carbon Credits Trading

Carbon credits trading is a market-based scheme for environmental improvement that allows parties to buy and sell permits for emissions or credits for reductions in emissions of certain greenhouse gases (GHGs), chief of which is carbon dioxide (CO₂). Carbon credits trading allows established greenhouse gas emission goals to be met in the most cost-effective way by letting the market determine the lowest-cost GHG reduction opportunities.

A carbon credit is given for the reduction of every metric ton of carbon dioxide prevented from being emitted into the atmosphere from climate change mitigation projects. For example, hydropower projects replacing coal-fuelled plants, or that sequester carbon through

afforestation. Industrialized countries pay the project. Credits are awarded to developing countries that, through these projects, have reduced their greenhouse gases below their emission quota. Developed countries buy these credits to help meet their emission target.

Projects that generate carbon credits generally fall in the following categories:

- Energy conservation and efficiency
- Renewable and alternative energy
- Reforestation and afforestation

These all result in a reduction in greenhouse gas concentrations in the atmosphere, the first two by lowering the amount of CO₂ emitted from fossil fuels (carbon “sources”), and the third by increasing the removal of CO₂ from the atmosphere by trees and other vegetation (carbon “sinks”).

The Clean Development Mechanism

The Kyoto Protocol defines three market-based mechanisms ("flexible mechanisms") that are designed to allow Annex I countries to meet their emission reduction commitments (caps) with reduced economic impact. Annex I Parties may use International Emissions Trading (IET) whereby nations that emit less than their quota will be able to sell assigned amount units (AAUs) to nations that exceed their quota. It is also possible for Annex I countries to sponsor carbon projects that reduce greenhouse gas emissions in other countries. These projects generate tradable carbon credits that can be used by Annex I countries in meeting their caps. The project-based Kyoto mechanisms are known as the **Clean Development Mechanism (CDM)** – for projects in non-Annex I countries – and Joint Implementation (JI) for projects in Annex I countries. CDM projects can earn carbon credits known as Certified Emission Reduction (CER) credits, each equivalent to one tonne of CO₂, which can be counted towards meeting Kyoto targets.

*Industrialized country
(Annex I) to meet quota*

*Afforestation project
in developing country*



Diagram: Explanation of the Clean Development Mechanism: Agroeco.nl

World Bank Carbon Finance

The **World Bank Carbon Finance Unit (CFU)** uses money contributed by governments and companies in OECD countries to purchase project-based greenhouse gas emission reductions in developing countries and countries with economies in transition. The emission reductions are purchased through one of the CFU's carbon funds, for example, the Prototype Carbon Fund, on behalf of the contributor, and within the framework of the Kyoto Protocol's Clean Development Mechanism (CDM) or Joint Implementation (JI). The role of the Bank's Carbon Finance Unit is to catalyze a global carbon market that reduces transaction costs, supports sustainable development and reaches and benefits the poorer communities of the developing world.

The Voluntary Carbon Market

The voluntary market is another trading regime that transacts all carbon offset trades that are not required by regulation. Countries which have not ratified the Kyoto Protocol or do not have a target under the Kyoto Protocol, as well as private companies develop projects and seek registration for verifiable emissions reductions (VERs) credits to offset GHG emissions. Very often the VERs are purchased in the expectation that they will be used to comply with future obligations under the Protocol, national regulations or could be resold. Presently, the voluntary markets remain only a small fraction (about 2.9% volume-wise, 0.6% value-wise) of the regulated markets.

Buyers include companies that buy offsets for their own operations, companies that buy offsets on behalf of their customers (e.g., airlines & travel agents, automobile & petroleum companies), events (e.g., 2010 World Cup football), and individuals. Sellers include retailers and wholesalers who buy and resell offsets, and project developers who develop GHG abating activities and sometimes sell direct. Market intermediaries include brokers who connect project developers and resellers with institutional emissions reductions buyers, and consultants who help clients select emissions reductions suppliers and prepare offsets portfolios.

The voluntary market encompasses the Chicago Climate Exchange (CCX) and the “Over-the-Counter” (OTC) market. The CCX is a legally binding membership based cap-and-trade system which trades primarily allowance-based credits. However, the OTC market based on bilateral deals and trades primarily VERs, and thus presents an opportunity for Jamaica to participate in the trading of VERs.

Post Kyoto 2012

The first commitment period for the Kyoto Protocol ends on 31 December 2012. Developed in 2007, the Bali Action Plan or Road Map defines a course for the adoption of a new instrument which should have taken place at the end of 2009. The plan for the new instrument was to

include even more ambitious emission reduction and limitation commitments for Annex I to the Kyoto Protocol. It should also include commitments for developing countries that are major emitters of greenhouse gases as well as new provisions for addressing adaptation and the transfer of clean technologies as well as the means for financing their implementation. Small countries with low levels of emissions like Jamaica are expected to not have any mandatory commitments.

Although some developing countries, particularly China and India, are recording high levels of emissions, the per capita emissions in developed countries are still much higher than those of the developing world. Poorer countries have a lower capacity than developed countries to mitigate and adapt to climate change, even though they are more vulnerable to the impacts. Therefore, developed countries are increasingly required to take the lead in committing to mitigate their own emissions and to invest in and support technology transfer, other mitigation activities and assist with the building of resilience in developing countries to climate change.

The Bali Road Map does not outline new targets for the post-2012 period but it recognizes the need to severely slash global emissions of greenhouse gases, in particular carbon dioxide, methane and nitrous oxide. For this, many countries support the provision of incentives for countries to reduce emissions that would otherwise result from deforestation and forest degradation (REDD).

The Bali Road Map also recognizes the need to simplify the Clean Development Mechanism (CDM), with the aim of streamlining its administrative processes, expanding the distribution of CDM project activities across the developing world. It also proposes to include a larger range of activities that could qualify as CDM project activities. In addition, it is seeking to enhance funding for the Adaptation Fund that is currently financed by a two per cent levy on CDM projects, by extending the levy to Joint Implementation projects.

The Bali Road Map was expected to conclude with the adoption of a post-2012 climate change agreement at COP-15 in Copenhagen (December 2009). However, the Copenhagen Accord which came out of COP-15 did not set all the expected targets. The agreement, which critics believe did not go far enough to safeguard the world's most vulnerable to climate change, makes provisions for developed countries to provide US\$30 billion for the period 2010 to 2012 for adaptation and mitigation efforts in the developing world. Beyond that, developed countries committed to mobilizing jointly US\$100 billion annually by 2020 to address the climate change needs of developing countries. With reservations, Jamaica has joined five other Caribbean countries in endorsing the Copenhagen Accord which provides for fast-track funding for developing countries to adapt to climate change. Discussions continue and further negotiation is expected at COP16 in Cancun, Mexico in November/December 2010.

Rationale for Policy for the Trading of Carbon Credits

Climate change has been described as the most pressing issue of our time. As a small island developing state, Jamaica is vulnerable to the impacts of this global phenomenon which is caused by a build-up of carbon dioxide and other greenhouse gases (GHGs) mainly caused by human activities related to the use of fossil fuels. Climate change has effects on all of Jamaica's major economic sectors: agriculture, tourism, construction, insurance, health, transportation and infrastructure, fisheries, and forestry. Climate change can result in biodiversity loss, including damage to habitats such as coral reefs and increased land degradation; an increase in severe weather events such as hurricanes, increased drought and weather pattern shifts; sea level rise; spread of disease, increasing the rate and geographic coverage of vector-borne diseases such as dengue and malaria, as well as other health impacts such as heat stress. Climate change could also result in higher insurance industry losses and insurance rates due to more costly coverage of property in the face of more extreme weather.

Jamaica is developing a national climate change policy which seeks to provide a framework for Jamaica's commitments to the UNFCCC with regards to climate change mitigation and for climate change adaptation initiatives to minimize the impacts on the country's economy and environment.

Jamaica's interest in creating a Policy for the Trading of Carbon Credits is based on the need for a secure framework within which the country can generate carbon credits which can be sold on the international market in order to facilitate the development of initiatives and projects for renewable and alternative energy, energy conservation and efficiency, and reforestation.

Climate change can result in:

- biodiversity loss
 - including damage to habitats such as coral reefs
- sea level rise
 - Caribbean prediction: 0.09 to 0.88 m sea-level rise between 1990 and 2100
 - Of the 45 major airports in the Caribbean, 23 have runways 20 feet or less above sea level. Only eight runways have an elevation over 100 feet.
 - Most major roads in the Caribbean are on the coast
- increased drought
- weather pattern shifts
- increased flooding
- warmer seas
- spread of disease
 - increasing the rate and geographic coverage of vector-borne diseases such as dengue and malaria
- other health impacts
 - heat stress
- changes in freshwater supply
- increase in extreme weather events
- insurance industry losses / increase in insurance rates

The development of energy-related projects will support the implementation of the **National Energy Policy 2009-2030** which explicitly calls for the development of renewable and alternative energy in Jamaica to reduce the country's dependence on imported oil and help diversify the country's energy base thus increasing energy security while at the same time reducing our carbon footprint. In addition, the National Energy Policy calls for increased energy conservation and efficiency, which will also reduce the use of imported petroleum and the country's carbon footprint.

This Policy for the Trading of Carbon Credits will focus on creating an enabling environment for further introduction of renewable energy and other sources of fuel, and added emphasis on energy conservation and efficiency in the public and private sectors. At the same time, this Policy will contribute to an effective national energy governance framework. Thus, this Policy is directly related to the achievement of the following goals of the National Energy Policy:

- Goal 1: Jamaicans use energy wisely and aggressively pursue opportunities for conservation and efficiency**
- Goal 3 : Jamaica realizes its energy resource potential through the development of renewable energy sources and enhances its international competitiveness and energy security whilst reducing its carbon footprint**
- Goal 4: Jamaica's energy supply is secure and sufficient to support long-term economic and social development and environmental sustainability**
- Goal 5: Jamaica has a well-defined and established governance, institutional, legal and regulatory framework for the energy sector that facilitates stakeholder involvement and engagement**
- Goal 7: Jamaica's industry structures embrace eco-efficiency for advancing international competitiveness and move towards building a green economy**

Furthermore, this complements **National Outcome 10** within **Vision 2030 Jamaica** of the country attaining "Energy Security and Efficiency," which has been identified as a priority in the country's national development plan. The Policy for the Trading of Carbon Credits also supports the implementation of the national strategy for **National Outcome 14** of **Vision 2030 Jamaica** to "contribute to the effort to reduce the global rate of climate change."

Through promotion of reforestation projects, this National Policy for the Trading of Carbon Credits also supports the goal of **Jamaica's National Forest Management and Conservation Plan** (2002) of establishing forest cover to benefit present and future generations and preserving the ecosystem services provided by forestry.

Drivers for Development of a Carbon Credits Trading Policy in Jamaica

There are many different reasons why the Government of Jamaica wants to establish a carbon credits trading policy. As a Party to the UN Framework Convention on Climate Change (UNFCCC), Jamaica has an obligation to fulfill commitments to implement climate adaptation and mitigation activities. There are significant financial and technical resources available to developing countries such as Jamaica through carbon credits trading in both mandatory (regulatory) and voluntary markets. These resources are specifically aimed at promoting sustainable development within the developing countries. In fact, for projects to be accepted for the Clean Development Mechanism (CDM) – the main mandatory international project-based credits trading mechanism – they must meet the following economic, social and environmental criteria:

- **Economic criteria.** The project provides financial returns to local entities, results in positive impact on balance of payments, and transfers new technology.
- **Social criteria.** The project improves the quality of life, alleviates poverty, and improves equity.
- **Environmental criteria.** The project reduces greenhouse gas emissions and the use of fossil fuels, conserves local resources, reduces pressure on the local environments, provides health and other environmental benefits, and meets energy and environmental policies.

Economic Drivers

- Accessing international financial and technical assistance
- Enhances marketability of tourism sector
- Security of energy supply
- Development of new industry
- Provides opportunities for innovation

Social Drivers

- International commitments
- Employment opportunities
- Improved access to energy services by providing reliable and affordable energy supply
- Public support

Environmental Drivers

- Reducing greenhouse gas emissions
- Sustainable use of natural resources
- Reducing the impacts of climate change
- Increased awareness of environmental issues

Benefits of Establishing a Carbon Credits Trading Regime in Jamaica

A carbon credits trading regime will result in a reduction in Jamaica's carbon footprint; it will facilitate increased development of renewable and alternative energy sources and will

encourage greater energy conservation efforts. It will also provide an incentive for certain afforestation and reforestation activities.

Some key benefits of establishing a carbon credits trading regime in Jamaica are expected to include:

- Reduced greenhouse gas emissions thereby contributing to global climate change mitigation efforts
- Reducing Jamaica's carbon footprint and movement towards a less carbon-intensive economy
- Potential to provide employment creation and economic diversification thereby reducing poverty
- Increase in technical capacity of professionals in the energy sector
- Increased access to innovative research and technologies
- Greater energy security by displacing traditional energy sources with cleaner and more sustainable sources of energy
- Improvements in balance of payments due to the displacement of imported oil
- Encouragement of the active participation of both private and public sectors
- Increased energy conservation and efficiency
- Less emissions and cleaner sources of energy due to new access to more sustainable sources of energy
- Creation of a positive investment environment for development of renewable and other alternative energy sources
- Enhancing the tourism sector's sustainable branding efforts and actions towards achieving carbon neutral travel destination status
- Contribute to more affordable energy to consumers
- Provide rural development and employment
- Increased land covered in forests and other vegetation, which, in addition to reducing GHG levels, also contribute to improved biodiversity, water quantity and quality, improved soils, and reduced erosion and siltation of rivers, harbours and other water bodies.

Defining the Scope for Trading of Carbon Credits in Jamaica

Climate Change Adaptation and Mitigation in Jamaica

Although Jamaica does not contribute significantly to the cause of climate change, it is vulnerable to the effects of climate change which can impact all the major socio-economic sectors including tourism, health, agriculture, transportation and infrastructure and the environment. Therefore, Jamaica has engaged in climate adaptation initiatives to reduce the country's vulnerability to these impacts. At the same time, Jamaica is engaging in climate change mitigation initiatives to reduce the country's contribution to the problem.

Some Impacts of Climate Change on Jamaica

One major impact of climate change could be an increase in the intensity of hurricanes. The heightened intensity of these hurricanes, coupled with sea level rise, will have increasingly damaging impacts. Portmore is home to over 250,000 persons, accounting for nearly 10% of Jamaica's population. Several neighbourhoods in Portmore are in low-lying areas, prompting major evacuation exercises once a major climate hazard threatens. Damage



by Hurricane Ivan amounted to over US\$500 billion with significant losses to the agriculture and tourism industries. The Caribbean prediction regarding rainfall is that there will be fewer rain days per year but an increase in the daily intensity of precipitation, resulting in greater probability of more frequent drought and flood events. The average cost of a single flood event in Jamaica over the last twenty years is equivalent to over 1% of the annual budget. Most of Jamaica's development is on the coast and is at risk from higher sea levels. For example, Montego Bay has a 1.6m storm surge (25 year return) and the elevation of runway is only 1.2 m. The Caribbean prediction is 0.09 to 0.88 m sea-level rise between 1990 and 2100. Other impacts include warmer seas which lead to coral bleaching which contributes to the degradation of our reefs and the increase the rate and geographic coverage of mosquito-borne diseases such as dengue.

Commitments to UNFCCC

As part of efforts towards the fulfillment of Jamaica's obligations as a party to the UNFCCC, Jamaica has prepared its first and second National Communication on Climate Change (in 2000 and 2009, respectively). The reports include the country's circumstances, inventories of greenhouse gases, vulnerability and adaptation measures, policy actions, and information gaps and technology needs in the area of climate change.

Jamaica has taken a leading role in climate change discussions and has promoted the need for the continuation of the dialogue on mitigation as well as adaptation in the Caribbean region. Through the Jamaica Meteorological Service (the national UNFCCC Focal Point), we provide the Group of Latin America and the Caribbean representative on the Adaptation Fund's board.

Climate Change Adaptation Initiatives

Jamaica's climate change planning is heavily focused on adaptation and is implementing measures in several areas.

Jamaica is participating in the GEF and CIDA-funded project, Mainstreaming Adaptation to Climate Change (MACC), which is assisting countries in the Caribbean in ways to integrate climate change adaptation strategies into national development planning on issues such as tourism, health, agriculture, fisheries and infrastructure. Within this project, achievements have included, among others, the establishment of a sea level and climate monitoring system and coral reef monitoring protocols; development of risk management guidelines; implementation of pilot projects in the water, health and agricultural sectors; development of regional and national public education strategies and programmes. Also, work has begun on the integration of climate change adaptation into national and sectoral policies.

In addition to the MACC project, other initiatives include revision of the National Building Code to include new guidelines for the construction of hurricane resistant buildings across the island, which includes the use of hurricane straps and water tanks. The National Works Agency (NWA) is engaged in the Palisadoes Protection and Rehabilitation Project that will help to protect the Palisadoes Road, the only access by land to the Norman Manley International Airport and the town of Port Royal. Also, an evacuation plan has been developed for Portmore within a programme that will be expanded to facilitate the preparation of evacuation plans for other low-lying coastal areas both in rural and urban areas.

Climate Change Mitigation Initiatives

Jamaica is committed to implementing the 'no-regrets' mitigation measures to reduce GHG emissions such as demand side management in electricity production and using alternative energy sources such as solar, wind, hydropower, and bio-fuels to produce energy, even if these activities do not provide tradeable carbon credits. Specific initiatives include:

- Compact Fluorescent Bulb (CFL) Replacement Project with assistance from the Government of Cuba
- Ministry of Transport and Works programme to replace all incandescent traffic lights with new energy-saving lamps
- PCJ's public education programme to raise awareness about energy conservation and efficiency
- Development of an ethanol from sugar cane industry with the assistance of the Brazilian Government
- Jamaica Public Service Company's mini hydro plants



Jamaica has one CDM project: the Wigton Windfarm in Manchester, with investment from the Government of the Netherlands. Also, there is one private sector participant in the voluntary carbon credits trading market: Ecological Technologies Ltd. (Eco Tec)'s VER energy efficiency project for hotels.

Policy and Regulatory Framework

There are many policies and pieces of legislation in a variety of sectors that constitute a framework for climate change adaptation and mitigation in Jamaica.

The draft Climate Change Policy will provide the overarching framework for this sector. Other policies include the Forest Policy and the National Forest Management and Conservation Plan which address reforestation initiatives; the National Land Policy and the Watersheds Policy which address land use issues; the National Biodiversity Strategy and Action Plan; and the National Hazard Mitigation Policy. Since most of the mitigation activities are energy-related, the policy framework for climate change also includes the National Energy Policy and the sub-policies on renewable energy, energy conservation and efficiency, biofuels and energy-from-waste. This is all within the window of Vision 2030 Jamaica – National Development Plan, which recognizes energy diversification and climate adaptation/mitigation as important components of Jamaica's road to developed nation status by 2030.

Management of Climate Change Initiatives

The Environmental Management Division within the Ministry with portfolio responsibility for the environment has overall responsibility for the development of policies, programmes, and legislation to guide activities related to the protection, conservation and sustainable use of the island's natural resources as well as the built environment. The Division deals with a wide range of regional and international environmental protocols and conventions including the UNFCCC. Portfolio areas of the Ministry are sustainable development, biodiversity protection, watersheds management, climate change, hazardous waste management, pollution control and the implementation of international treaties and conventions. The Environmental Management

Division is the Designated National Authority (DNA) for the Clean Development Mechanism under the Kyoto Protocol².

The National Climate Change Committee is charged with overseeing and guiding the process of integrating climate change considerations into national development.

The National Environment and Planning Agency (NEPA), an Executive Agency of the Office of the Prime Minister, is the Authority charged with the responsibility for the management of the natural and built environment in Jamaica. Monitoring the state of the environment is done in collaboration with various agencies.

The Meteorological Service is the national Focal Point to the United Nations Framework Convention on Climate Change (UNFCCC).

The Energy Sector in Jamaica

Jamaica's energy sector is characterized "by an almost complete dependence on imported petroleum; high rates of energy use; ... and an inadequate policy and regulatory framework." The country's first long-term National Energy Policy 2009-2030, was promulgated in 2009 to address these challenges through increasing energy conservation and efficiency, promoting renewable energy and fuel diversification, improving the energy infrastructure and developing a comprehensive governance framework for the sector.

The following provides a synopsis of the energy sector, identifying some key strengths and weaknesses. The National Energy Policy builds on the strengths and reduces many of these weaknesses.

Strengths:

- Jamaica has a well developed power supply and distribution system with more than 90% of the population having access to electricity
- Jamaica is endowed with a very high potential for the use of renewables in the form of solar, wind hydro and biomass production
- The process of market liberalization has been established
- The privatization of energy sector entities and private sector participation

Weaknesses:

- High dependence on imported petroleum
- High energy import bill
- Aged technology of the local petroleum refinery
- Energy inefficiencies in alumina sector
- Slow development of renewable energy resources
- Low levels of public action on energy conservation
- Weak enforcement by regulatory agencies

² Note that, officially, the designation is for the "Ministry having responsibility for the Environment" to be the DNA.

Energy Use and Carbon Emissions in Jamaica

The energy sector in Jamaica is dominated by imported petroleum, which meets approx 91% of the nation's energy needs. Approximately 9% of the energy supply mix comes from renewable sources such as wind, hydro, fuelwood, bagasse, solar and ethanol (used in the transportation sector).

Due to the energy intensity of the aluminum/bauxite industry in Jamaica, per capita energy consumption is high when compared with most developing countries. This is reflected in the country's carbon emissions statistics. In 2007, Jamaica released 4.74 tonnes of CO₂ per capita – slightly above the world average of 4.38, greater than the average for Latin America and the Caribbean of 2.21 tonnes but well below the OECD average of 10.97 tonnes. Moreover, the trend over the past three decades has shown a steady increase, starting from a level of 2.91 tonnes of CO₂ emissions per capita. Emissions data shows that the energy sector is responsible for over 86% of carbon dioxide emissions released into the atmosphere, with the remainder coming from land use changes that remove trees and other vegetation.

2007 CO₂ emissions per capita (tonnes)

World	Jamaica	Latin America & Caribbean	OECD countries
4.38	4.74	2.21	10.97

As shown in Figure 1, transport is the largest consumer of petroleum in our economy, accounting for 37 percent of total petroleum consumption in 2008 and the demand for automotive fuels (gasoline and diesel oil) is growing at a rate of 4.3% per annum. The bauxite and alumina industry accounts for 34 per cent, while electricity generation accounts for 23 per cent. Efficiency of energy conversion and use in electricity generation is low. The conversion efficiency of old steam generation plants is less than 30%. With modern technologies such as combined cycle turbines; this efficiency can be improved to over 50%. System losses in transmission and distribution represent 23% of total output (as estimated by the Office of Utilities Regulation).

The National Energy Policy aims to facilitate the development of non-petroleum-based transportation fuels; greater energy efficiency and lower energy costs in the bauxite and alumina industry; and improved electricity generation infrastructure which will reduce system losses and include the use of renewables.

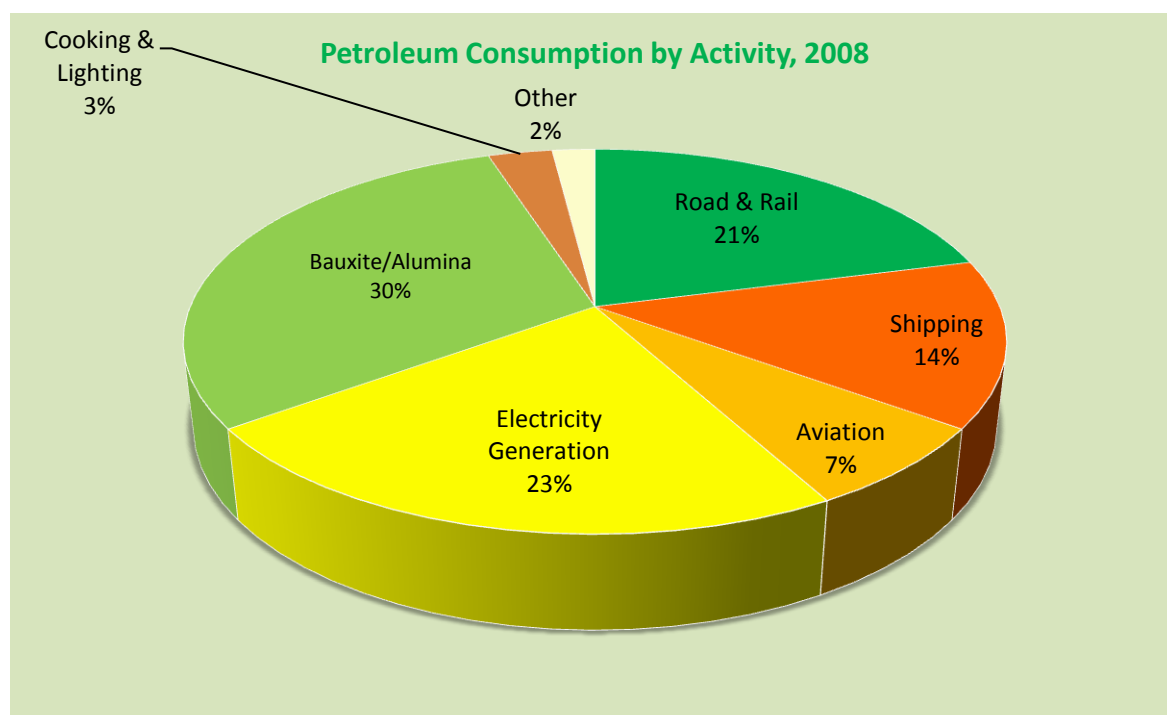


Figure 1: Petroleum Consumption by Activity, 2008

The National Energy Policy 2009-2030

The National Energy Policy 2009-2030 is designed to ensure that by 2030 Jamaica achieves: **“A modern, efficient, diversified and environmentally sustainable energy sector providing affordable and accessible energy supplies with long-term energy security and supported by informed public behaviour on energy issues and an appropriate policy, regulatory and institutional framework.”**

The Strategic Framework – the goals and strategies underpinning the National Energy Policy – addresses both supply and demand energy issues the country faces and places priority attention on seven key areas:

1. Security of energy supply through diversification of fuels as well as development of renewables
2. Modernizing the country’s energy infrastructure
3. Development of renewable energy sources such as solar and hydro
4. Energy conservation and efficiency
5. Development of a comprehensive governance/regulatory framework
6. Enabling government ministries, departments and agencies to be model/leader for the rest of society in terms of energy management
7. Eco-efficiency in industries

The National Energy Policy will support the implementation of Vision 2030 Jamaica – National Development Plan, particularly National Outcome #10 – Energy Security and Efficiency and is therefore consistent with, and part of the overarching vision for achieving developed country status by 2030.

Management of the Energy Sector

The Ministry of Energy and Mining has overarching responsibility for the development of the energy sector in Jamaica. The Ministry's Energy Division facilitates the development of strategies, programmes and projects to ensure the successful implementation of the National Energy Policy with a focus on the identification of new, renewable and alternative energy sources and the promotion of energy conservation and efficiency.

The Petroleum Corporation of Jamaica (PCJ) is the main implementing agency of the Ministry and focuses on implementing the energy security and fuel diversification strategies, including the development of renewable energy, exploration of other non-petroleum based alternatives, and the cost-effective availability of petroleum products.

The Jamaica Public Service Company Limited (JPSCo) is the National Electric Grid Operator and, along with several Independent Power Producers (IPPs), satisfies the electricity generation needs of the country.

The Rural Electrification Programme (REP) has responsibility for providing electricity to non-urban areas. Under the REP, 7,000 km of low voltage distribution lines were constructed and approximately 70,000 rural homes electrified. In excess of 90% of households island-wide now have access to electricity.

Prospects for Development of the Carbon Credits Trading Sector in Jamaica

Focus Areas for Development of Carbon Emissions Reductions Projects

Projects which are eligible to generate carbon credits fall under the broad categories of renewable energy; alternative fuel sources; energy-from-waste; energy efficiency; and land use, land use change, and forestry. Specific project opportunities for Jamaica are outlined in the box below.

Potential carbon emissions reduction projects in Jamaica:

- ❖ Renewable energy
 - wind, solar, hydro, biofuels
- ❖ Alternative fuel sources
 - liquefied natural gas (LNG)
 - compressed natural gas (CNG)
- ❖ Energy-from-waste
 - waste-to-energy incinerators for municipal solid waste (MSW)
 - biogas from animal wastes
 - landfill gas recovery
 - bagasse co-generation
- ❖ Energy efficiency
 - supply side
 - demand side
- ❖ Land use, land-use change and forestry (LULUCF)
 - land use, land use change
 - afforestation /reforestation/REDD

Renewable Energy

A number of countries including Jamaica have been pursuing renewable energy not because of the Kyoto Protocol but due to the high cost of oil and the demands on the fiscal budget. The country's engagement in carbon trading projects could therefore assist the country in meeting the projection under the Energy Policy of increasing the contribution of renewable energy sources to the electricity sector from the current level of 9% to 11% by 2012, 12.5% by 2015 and 20% by 2030.

Information available on the Renewable Energies Potential in Jamaica indicates that the increased use of renewable energy for the electricity sector exceeds by far, what is now realized. The National Energy Policy has indicated that several investment opportunities exist to develop the renewable energy sector in Jamaica such as wind farms and mini-hydro systems to generate electricity, biogas generators for domestic and institutional applications, harnessing of solar energy for water heater heating systems and use of sugar cane and other crops to produce biofuels. The National Renewable Energy Policy and National Biofuels Policy provide the framework for the implementation of projects in this area.



Alternative Fuel Sources

Jamaica has the potential to develop fuel switching projects that use natural gas instead of petroleum to generate electricity or to replace petroleum-based liquid fuels, for example in the transportation sector. Apart from generating emission reductions, these projects will also reduce the levels of airborne particulates, thereby improving human health and the environment. Fuel switching projects that would qualify for carbon credits include retrofitting thermal power stations, new power plants using only natural gas, and in the long term, using compressed natural gas (CNG) instead of gasoline. According to the UNEP Risoe Centre on Energy, Climate and Sustainable Development, as of 2010, there are 109 fossil fuel switching projects in the CDM pipeline, of which 42 are registered. This category of project represents 2.2% of the total of the CDM projects and 1.1% of the CERs issued.

In May 2009, the Government of Jamaica took the decision that Liquefied Natural Gas (LNG) is the fuel of choice for energy diversification. The LNG project will generate upwards of 250 million cubic feet per day of gas in the medium to long term. The project is intended to provide an affordable energy alternative to the country's heavy fuel users, specifically players in the energy and bauxite sectors to reduce their dependence on oil and become more competitive in their business operations. The availability of natural gas in conjunction with the installation of new combined-cycle power plants will lead to a significant increase in the efficiency of electricity generation in Jamaica. The introduction of natural gas into Jamaica's energy supply



mix can lead, in the longer term, to a national system for converting transport fleets to CNG and establishing a CNG supply network to enable private motorists to convert to natural gas based motor vehicles. The development of alternative energy projects that generate carbon credits can help the country meet the targets set in the National Energy Policy to achieve 11% diversification of the fuel supply by 2012, 33% by 2015 and 70% by 2030.

Land Use, Land Use Change and Forestry

The umbrella of projects in the land use, land-use change and forestry (LULUCF) sector is another promising source of carbon credit generation for Jamaica. Latin America and the Caribbean currently are the regions with the highest projected share of carbon credits from forestry CDM since sequestration and carbon (biomass) accumulation for tropical countries, such as Jamaica are greater than that of temperate countries. According to a recent report by the Tropical Agricultural Research and Higher Education Center in Costa Rica, over half (56%) of the estimated credits will come from the region. Although carbon or biomass accumulation rates are poorly known for most parts of the tropical world, with considerable range in estimates, the potential for carbon accumulation for humid tropics may be about 2.5 to 5.0 tonnes of carbon per hectare per year; other sources suggest 4.5 to 14 t C/ha/year.

Afforestation and reforestation (A/R) forestry activities are eligible for the CDM (as well as voluntary markets). These A/R activities include afforestation or reforestation of degraded lands, conversion of agricultural land to agro-forestry systems and commercial plantations, among others. While A/R CDM project activities are subject to the specific modalities and procedures of the CDM, they have the potential of leveraging investments in the forestry sector that would not occur in absence of the possibility of selling CERs. However, forestry projects remain the exception under CDM, constituting less than 1% of total CDM projects worldwide, according to the World Bank's most recent report on the world carbon market. Consequently, project developers and forest conservation groups are exploring the voluntary carbon market.



Jamaica recognizes that there is potential for the development of wood-to-energy plantations in the country. An initial calculation was done based on the development of a forestry project involving up to 10,000 hectares of rapid growth plantations with average yields of 12 tonnes of dry matter per year for rotation periods of 3-5 years. The available biomass could produce up to 80 GWh per year for a total estimated level of 66,720 tonnes of CO₂ per year.

Credits generated from Reducing Emissions from Deforestation and Forest Degradation (REDD) projects are currently excluded from the CDM, but a decision regarding their inclusion is expected at the UNFCCC Cancun meetings in November/December 2010.

Energy Efficiency

Energy efficiency has been identified in the National Energy Policy as having the greatest scope for reducing emissions and dependence on imported energy. The National Energy Policy includes measures to support energy efficiency and conservation including demand side management programmes for the power sector, improvements in electricity generation plants, information dissemination, and enforcing energy efficient building codes.

Almost all of Jamaica's electricity is generated from imported fossil fuels. Transportation and industry also rely heavily on imported fuels. Examination of the GHG (including CO₂) emissions resulting from Jamaica's energy use across all sectors, including power generation and industrial production, as reported in the country's national communication to the Climate Change Convention, provides an indication of where the highest reductions in emissions might be obtained through efficiency improvements. On this basis, the largest opportunities to reduce Jamaica's GHG emissions, as well as reduce the country's dependence on imported energy, appear to be through the use of energy efficiency measures in bauxite, manufacturing, transportation, and improved end-use electricity efficiency in all sectors. Fuel-switching initiatives will assist in this endeavour. Lesser opportunities exist in fuel efficiency measures in the residential, commercial, cement, and agricultural sectors. The National Energy Conservation and Efficiency Policy provides the framework for projects in this area.

Energy-from-Waste

Jamaica has further potential to generate energy from waste. Already, one form of waste – bagasse – provides 24% of the country's renewable energy supply. See below for further discussion of this option. Other energy-from-waste initiatives include waste-to-energy incineration plants for municipal solid waste (MSW), landfill gas capture, generation of biogas from animal wastes, producing biodiesel from waste cooking oils and generating energy from wastewater sludge. The National Energy-from-Waste Policy provides the framework for energy-from-waste projects. The National Biofuels Policy governs the use of bagasse.

Waste-to-energy incineration plants are feasible at Jamaica's two main disposal sites – Riverton in Kingston and Retirement in Montego Bay. In 2009, the Petroleum Corporation of Jamaica (PCJ) entered into



an agreement with a private sector company and partners for the establishment of two waste-to-energy plants using new technologies. When the plants are established, they will generate up to 65 MW of electricity from garbage at the Riverton dump in Kingston. The project as proposed will see the construction of one 45 MW facility that will generate 358 gigawatt-hours (GWh) of electricity a year and one 20 MW facility producing 141 GWh. Annual savings in fossil fuel are projected to be some 700,000 barrels or US\$60 million.

Landfill gas (LFG) projects are becoming more financially attractive and easy to implement. For Jamaica, in terms of the amount of waste generated (approximately 1.46 million tonnes in 2006) and the amount of methane emissions make it favourable for the development of CDM projects. However, although it is a goal of the solid waste management sector, there are no properly managed landfills in Jamaica. Therefore, until this situation changes, landfill gas recovery will not be an option. Current issues at existing disposal sites include regular fires which represent a hazard for the project operation and results in combustion of the waste and of the methane generated from the waste.

The Scientific Research Council has been involved in the development of biogas plants using animal wastes in the agricultural, small manufacturing, educational and residential sectors. A total of 250 of these plants are in operation across the island, though cultural barriers are still to be broken in order to gain full acceptance of biogas as a fuel for cooking. However, no overall estimate exists which determines how much biogas contributes to the energy mix.

Although biodiesel development in Jamaica has focused on growing feedstock crops, there is opportunity to collect and use waste cooking oils and fats. Currently, while there are some small operations in existence, there is no national system in place for collecting used cooking oil which is usually thrown away, or poured down the drain.

Regarding the use of wastewater sludge, the Natural Resources Conservation Authority Wastewater and Sludge Regulations have been developed to address the safe management, treatment and disposal of wastewater from residential, business or industrial sources as well as sewage and industrial sludge. The regulations include standards for the disposal of sludge by means of landfilling or application for agricultural purposes. The regulations also provide for the disposal of sludge other than in a landfill to be done in accordance with the management practices set out in the guideline document to be issued by the Natural Resources Conservation Authority. The conversion of sludge to energy, for example, would be addressed in the guideline document.

In addition, the Scientific Research Council (SRC) provides Biodigester Septic Tank (BST) technology instead of septic tanks and absorption pits on several farms, housing complexes and single households to treat animal waste and domestic sewage.

Sugar Cane Cogeneration

Electricity generation from cogeneration facilities depends very much on the choices of process and technology characteristics. Bagasse output was an estimated 402,376 tonnes in 2009 which is equivalent to about 741,630 barrels of oil. Studies developed in Jamaica indicate that for different scenarios, the potential interconnection of sugar cane cogeneration to the grid could be in the range of 220-300 GWh per year including projects to be developed in all factories in the country. A study developed by Gibson Energy indicates that Sugar Company of Jamaica mills could produce up to 94 MW and 266 GWh of electricity to the grid during the harvest season. This in turn could mitigate up to 221,844 tonnes of CO₂ per year.

Programmatic CDM

Programmatic CDM which allows small projects to be bundled under a government programme or policy has opened up new possibilities for smaller countries like Jamaica to establish or encourage programmes serving a larger number of households and smaller industrial firms offering them improved technology such as cooking stoves, appliances, lighting, motors, and air-conditioners. Assigning a CER value under a CDM Programme of Action provides an incentive to implement these climate friendly policies and measures. This is being pursued, especially in terms of energy conservation and efficiency projects where small projects are being bundled together. This will help to gain access to financing for these smaller projects which would not be attractive to investors if marketed separately.

Experience in Trading of Carbon Credits in Jamaica

Jamaica has one project under the Clean Development Mechanism (CDM). Figure 2 shows the procedure that CDM projects must follow. In September 2002, the Government of Jamaica gave approval to the Government of the Netherlands for the operation of a 20 MW Wigton WindFarm in Manchester. Since commencement in 2004 and up to March 2010, the wind farm has avoided 258,480 tonnes of CO₂ emissions. This translates into 179,959 barrels of oil import being avoided with savings amounting to US\$ 10.1M in the nation's oil import bill.

In the next three years, plans are to expand the Wigton Windfarm. This project will include the installation of nine new two-megawatt wind turbines at a cost of US\$49 Million, and will increase the total amount of energy produced by Wigton to 38.7 MW. The power will be sold to the Jamaica Public Service Co. (JPSCo) for domestic use, enough to power about 24,000 homes. It will save of about 32,400 barrels of oil (valued at US\$2.3 million) thus avoiding 45,954 tonnes

of carbon emissions. Some 44,000 tons of carbon credits are sold annually from the Wigton Project under an existing eight-year agreement, which ends in about three years.

Other countries such as Belgium and project developers from the United States, India and parts of Latin America, have also shown interest in engaging in projects in Jamaica.

There are other projects that are planned to be submitted for consideration under CDM. Caribbean Cement Company has two proposed projects: 1 - Substitution of clinker in the production of blended cement; and 2 - Production of Portland Pozzolan Cement – ‘Carib Cement Plus’ (ASTM C595) – Blended Cement Project. BIOJAM has a proposed Algae Growth & Biodiesel Conversion Project.

In addition to the CDM project, Jamaica has a project that trades carbon credits on the voluntary market. Ecological Technologies Ltd. (Eco Tec) is a limited liability company owned and operated in Jamaica and was the first company in the Caribbean to sell carbon credits. The Voluntary Emissions Reductions (VER) project, entitled “Increased Energy Efficiency in the Tourism Sector in Jamaica: Compact Fluorescent Bulb Replacement,” was created in 2001 as an energy efficiency measure in the energy-intensive hotel sector. The project was expected to create 55,000 tonnes of CO₂ offsets over its lifetime.

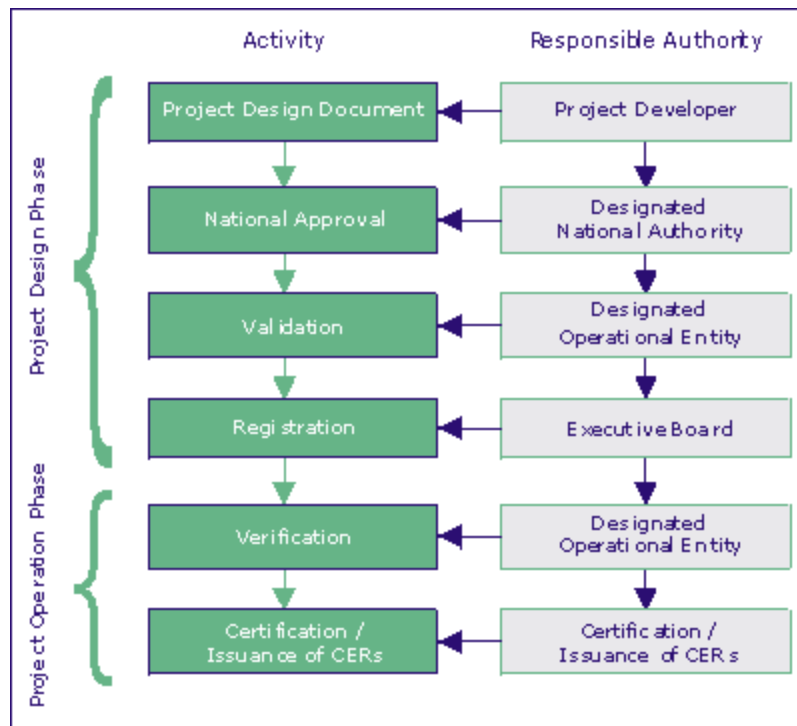


Figure 2. CDM project cycle.

Global Trends and Issues in Trading of Carbon Credits

International trade in greenhouse gas reductions is now a large and rapidly growing market. Motivated by requirements of the Kyoto Protocol and regional programmes, and by voluntary initiatives, governments, private companies, and individuals have collectively committed billions of dollars to buy emission reductions. The international carbon markets have resulted in new capital flows that are supporting sustainable energy and other climate protection activities.



According to the World Bank's Carbon Finance Unit, 374 million tonnes of carbon dioxide equivalent (tCO₂e) were exchanged through projects in 2005, a 240% increase relative to 2004 (110 mtCO₂e) which was itself a 41% increase relative to 2003 (78 mtCO₂e). In terms of dollars, the World Bank has estimated that the size of the carbon market was US\$ 11 billion in 2005, US\$ 30 billion in 2006, and US\$ 64 billion in 2007. The voluntary markets' total growth rate was more than twice the regulated markets' growth rate in 2008. The voluntary offset market is expected to continue to grow significantly as it is becoming increasingly attractive for companies to use as part of their corporate social responsibility strategy.

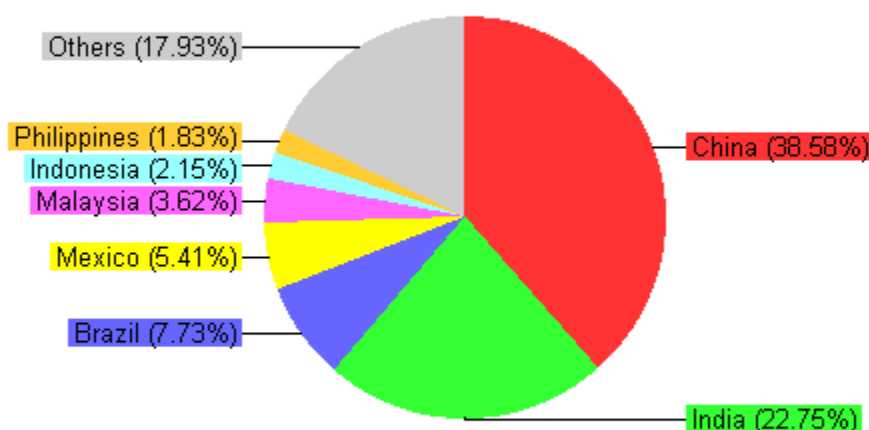
After a period of growth, this past year was affected by the global economic crisis. The World Bank's "State and Trends of the Carbon Market 2010" report states that the global carbon market grew to US\$ 144 billion with 8.7 billion tCO₂e traded, an increase of 6% from 2008 despite enduring its most challenging year to date. The global economic crisis negatively impacted both demand and supply sides and, as industrial output plummeted, the demand for carbon assets fell. The report also states that the EU ETS (European Union Emissions Trading Scheme) remained the engine of growth with over 6 billion EUAs (European Union Allowances) transacted in 2009 for a total value of US\$ 118 billion. On the other hand, project-based transactions declined by 54% to US\$ 3.4 billion in 2009, led by CDM, which declined by 59% to an estimated US\$ 2.7 billion, with slightly more than 200 million tonnes of CO₂e transacted at an average price of US\$ 12.7 per tonne. The reduction in access to capital made it difficult for project developers to secure financing and as a consequence, very few new projects were developed last year.

International equity

Despite the success of the global carbon market in terms of volume and value, views have been expressed that carbon-trading under the CDM has not been as helpful to developing countries as expected with only few of the larger developing countries of Asia and Latin America reaping most of the benefits.

As of June 2010, there were 2,234 registered Clean Development Mechanism projects in developing countries. Its reach has been geographically limited, mainly to Asia, India, Brazil and Mexico having a combined share of approximately 82% of the total project registered. The figure below shows the distribution of all registered CDM projects. Asian countries account for 1,544 registered CDM projects, while North America, represented solely by Mexico, has 121 projects. Brazil has a total of 173 CDM projects, the remainder, totalling 394 belong to other countries across the world. Jamaica has only 1 CDM registered project. Large projects total 56%, while small projects amount to 44% to date.

Registered project activities by host party. Total: 2,237



<http://cdm.unfccc.int> (c) 09.06.2010 14:54

Over 73% of voluntary projects found in Asia and the USA, with only 4% of projects occurring in Latin America and the Caribbean.

In addition to the disparity in CDM projects amongst developing countries, issues related to equity in access to markets as well as distributional and procedural justice in decision making

and planning pose further consideration as to whether carbon trading can achieve real sustainable development benefits. Project development may impact local peoples' access to valuable resources, including environmental services that may involve competing interests in ownership and property rights. Therefore, local needs must coalesce with interests of investors, brokers, national governments and NGOs to ensure an equitable distribution of benefits.

Carbon neutral tourism

There is an emerging trend for tourist destinations to become “carbon neutral” by fostering a tourism sector that does not contribute to a net increase in global warming. This development has emerged in response to the acknowledgement by the international community that the tourism is a major contributor to GHG emissions. The United Nations World Tourism Organization (UNWTO) in its 2007 Davos Declaration called for concerted action to be taken by the sector to mitigate its contribution to climate change, such as through the application of existing and new technology to improve energy efficiency. The declaration also prescribes the implementation of incentives and market responsive mechanisms to mitigate climate change throughout the tourism value chain. In addition, it recommends that tourists should be encouraged to become “carbon neutral.” This means that tourists would calculate their carbon footprint, the approximate amount of carbon dioxide produced on flights, road trips or when they otherwise burn fossil fuels, and then buy “offsets” — donating money for projects that promise to produce energy without burning fossil fuels or otherwise reduce the production of greenhouse gases.

The framework for achieving this goal of carbon neutrality is, however, still evolving at multiple levels (regional, country, local). Many issues still need to be reconciled that include shared responsibilities amongst source markets and destinations, boundary definition, baseline calculations, and cooperation from all actors in the sector, particularly from the aviation industry.



Adherence to the emerging trend of carbon neutrality through carbon project development as well as the procurement and trading of credits, however, is important to the competitiveness of the Jamaican tourism sector. The destination status as carbon neutral would pose as a significant marketing asset to the sector. Also it would support the regional Caribsave project in its efforts to transition the Caribbean to the world's first carbon neutral tourism region. The

Caribsave project is a partnership between the Caribbean Community Climate Change Centre (CCCCC) and the University of Oxford geared towards addressing the impacts and challenges surrounding climate change, tourism, the environment, economic development and community livelihoods across the Caribbean Basin.

Growth of Voluntary Market

The voluntary market has been very small compared to the regulatory market, but has been growing quickly, according to Green Markets International. Various reports suggest that the voluntary market could expand from 10 million–25 million tonnes (Mt) of CO₂e in 2005 to a between 400 Mt CO₂e and 500 Mt by 2010.³ On voluntary markets, carbon trading prices in 2007 per tonne of CO₂e were between US\$ 5 and more than US\$20 compared with US\$6 – 16 under the CDM. Compared with CDM which has very rigorous participation standards, there are variable standards for participating in the various voluntary schemes. Transaction costs are generally less than regulatory market programmes, but can be high depending on the standards used.

There are a number of voluntary standards, protocols and registries set up to upholding the integrity and quality of the data reported to greenhouse gas (GHG) programmes across the world. There is no universally accepted standard for what constitutes an offset in the voluntary market, which is unregulated. However, some standards are now widely recognized and accepted as a designation of credibility. Some of these include: American Carbon Registry, Climate Action Reserve, the Gold Standard (for voluntary and CDM projects), the Voluntary Carbon Standard (for voluntary and CDM projects), Green-e GHG Product Standard, and CCB (Climate, Community, and Biodiversity) Alliance Standard.

Reducing Emissions from Deforestation and forest Degradation (REDD)

Deforestation is a leading cause of climate change—contributing almost 20% of global greenhouse gas emissions annually—most of it driven by demands from industrialized countries for forest products or for commodities like beef or soy that compete with forests for the use of land. In a number of developing countries, tropical deforestation is the largest source of emissions. But tropical forests do much more than simply store carbon. They purify the air we breathe, filter the water we drink and are home to most of the terrestrial world’s biological diversity—a wealth of life that supplies many of the ingredients from which more than a quarter of all medicinal drugs have been derived. Tropical forests provide us with key raw materials, perform ecosystem services we could not do without and, last but not least, are

³ Environmental Finance article by Mark Kenber, The Climate Group, March 2007; Ecosystem Marketplace Article, April 2006

home to rich human cultures that depend upon their natural resources for survival. Aggressive action to reduce (and ultimately halt) emissions from deforestation and forest degradation (REDD) must be part of any serious policy to address the climate crisis, while at the same time respecting other forest values.

The land use sector is both the second-largest source of GHG emissions and an important GHG sink. This sector includes forests (avoided deforestation, tree planting), grasslands, agriculture and other soil-based carbon. In terms of its carbon content, avoiding tropical deforestation offers a vastly greater potential for reducing overall emissions than other aspects of land use, including planting new trees (afforestation).

In addition, it is important that financing be prioritized to promote activities that will produce measurable, reportable and verifiable (MRV) emissions reductions. To meet MRV criteria, adequate methodological standards and sufficient accounting and monitoring capacity must exist to track the emissions reductions associated with changes in land use management. REDD methodology and accounting questions have received sustained attention in recent years and are currently being field-tested in pilot projects, thus positioning REDD to meet MRV criteria and deliver clear climate benefits.

REDD policy should promote the preservation of intact forests while including specific standards that protect biodiversity and ecosystems services. Recognizing the key role forests play in the livelihoods and culture of local people, REDD should be implemented in a transparent manner that protects land tenure rights and ensures that financial benefits flow to local land owners while robustly engaging them in decision-making.

Although there was no specific agreement at the 2009 Copenhagen Conference on Climate Change, there was clear intent in the Copenhagen Accord to support REDD. To harness what progress there was in Copenhagen, the UNFCCC said leaders had also agreed to establish a Copenhagen Green Climate Fund to help “unleash prompt action” in the absence of an overarching treaty. This will primarily mobilize the promised \$30 billion funding from developed countries on mitigation, adaptation, technology, REDD and capacity-building.

In May 2010, the REDD+ Partnership, a grouping of 58 countries, was established to create an architecture on REDD in advance of the 2010 UN Framework Convention on Climate Change (UNFCCC) Conference in Cancun in order to be able to trade REDD emissions credits.

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SWOT Analysis of Carbon Credits Trading in Jamaica

For the carbon credits trading sector in Jamaica, the identification of strengths and weaknesses represents the internal assessment of the sector while the consideration of opportunities and threats represents the analysis of the impact of the external environment on the sector. The SWOT analysis, along with the issues and challenges and the profile of the energy sector presented above, form the basis for identifying goals and strategies that will be employed to apply the strengths and address the weaknesses of the sector, and capitalize on the opportunities and mitigate the threats for the long-term development and sustainability of the sector. The SWOT analysis for Jamaica's carbon credits trading sector is presented in the matrix below.

Strengths	Weaknesses
<ul style="list-style-type: none"> • Jamaica a party to UNFCCC, Kyoto Protocol, Copenhagen Accord • Development of draft Climate Change Policy • Existence of national energy framework – National Energy Policy (and sub-policies for renewable energy, biofuels, energy-from-waste and energy conservation & efficiency) and Vision 2030 Jamaica) that establishes the framework for the development of the carbon credits trading initiatives • Existence of some technical knowledge and expertise in energy matters • Good regulatory framework for electricity generation • Capacity within OPM-EMD to act as CDM DOE 	<ul style="list-style-type: none"> • Limited regulatory framework for a carbon credits trading regime • The lack of a legal instrument that recognizes that CERs as a tradable instrument in the local financial market • Low capacity to develop projects to generate carbon credits • Low level of awareness of carbon credit trading opportunities among public and private sectors, civil society and academia • Insufficiently developed national CDM governance structure • Lack of the establishment of offices or units fully devoted to the promotion of carbon credit trading
Opportunities	Threats
<ul style="list-style-type: none"> • Private sector interests • Improved balance of payments through import substitution • Regional Caribsave project and push for carbon-neutral destination status for Caribbean • High levels of demand for energy • New and innovative technologies existing worldwide • Clean Development Mechanism and voluntary carbon markets • Regional leader in the renewable energy • Creation of new jobs and new industries • Continual development of new innovative financing mechanisms for carbon trading projects 	<ul style="list-style-type: none"> • Complexities of the CDM modalities and procedures • Uncertainty about effectiveness of and access to carbon market • High transaction costs of participating in carbon market • Fluctuating oil prices relative to alternative sources (if oil prices fall low there could be loss of interest in other sources such as renewables)

Key Issues in Trading of Carbon Credits

The National Policy for Trading Carbon Credits addresses a number of key issues that are related to the development of a successful carbon credits trading sector. These issues are described below and are addressed by strategies associated with the goals of this policy.

Legal and regulatory issues / Property rights and ownership of CERs

National laws interact – both negatively and positively – with the international rules that underpin the CDM and other carbon trading regimes. Development of carbon credits trading projects depends on the conditions within national laws concerning the following:

- Property rights
- Environmental and planning laws
- Investment and taxation laws
- Financial services regulations

The legal framework creates the basis for addressing project approval processes, CER ownership, and taxation. The International Emissions Trading Association stated in a 2002 guidance document on carbon contracts that “there needs to be a statement by the [Host Country] government that the financial participant holds clear title to the rights to the ERs and CERs or comparable benefits resulting from the project.”⁴

Local property laws that clearly define and adequately protect property rights of participants in carbon trading projects will give project developers and investors confidence that their projects can be successfully implemented and that project outputs and returns can be secured appropriately. This is particularly true of CERs which are not explicitly defined as tradeable units under Jamaica’s property laws although they are defined under international law. Rules must be clear concerning legal treatment of title to CERs and the GHG emission reductions that underpin them to reduce the legal risks associated with carbon trading scheme investment.

Enactment of new laws can promote the development of carbon credits trading projects within the country. For example, the enactment of laws granting benefits or concessions to projects may mean that carbon projects within that country are given relatively favorable regulatory

⁴ From *Implementing CDM Projects. A Guidebook to Host Country Legal Issues*. UNEP Risoe Center, 2009.

treatment compared to other potential host countries, thereby increasing their ability to compete for and secure investment. On the other hand, laws that restrict or impose particular requirements on eligible projects often provide certainty as to how those projects will be regulated. This certainty may increase investor understanding of, and confidence in, the CDM regulatory environment within the country, and reduce perceived risk associated with implementing projects, thereby potentially promoting investment.

Countries must, however, ensure that in drafting and enacting any laws that encourage carbon credits trading projects, they do not inadvertently undermine the eligibility of the projects they are seeking to support, by mitigating their ability to satisfy the requirement of additionality.

Additionality

Article 12 of the Kyoto Protocol states that projects must result in “reductions in emissions that are additional to any that would occur in the absence of the project activity.” Carbon projects that yield strong financial returns in the absence of revenue from carbon credits; or that are compelled by regulations; or that represent common practice in an industry are usually not considered additional. CDM projects must lead to real, measurable, and long-term benefits related to the mitigation of climate change. The additional greenhouse gas reductions are calculated with reference to a defined baseline.

It is generally agreed that voluntary carbon offset projects must also prove additionality in order to ensure the legitimacy of the environmental stewardship claims resulting from the carbon offset. According to the World Resources Institute/World Business Council for Sustainable Development (WRI/WBCSD), “If a project ‘would have happened anyway,’ then issuing offset credits for its GHG reductions will actually allow a positive net increase in GHG emissions, undermining the emissions target of the GHG program. Additionality is thus critical to the success and integrity of GHG programs that recognize project-based GHG reductions.”

It can be difficult to prove additionality for a project and it is critical for Jamaica to use an internationally accepted methodology for this step in the project verification process.

Revenue sharing

Provisions must be made for the sharing of revenue in instances where the project from a private developer involves incentives provided by government. Such provisions could be in the form of a sharing arrangement between the Government and the private entity. The extent of the arrangement could be determined by the assistance given by the Government to the project, the extent of the private sector expenditure; incentives for continued private sector initiatives concerning environmental protection; and the need to monitor the transfer and

ensure that it is in keeping with the Government's environmental policies and general relations with states.

Revenue sharing agreements could be in the form of debt financing where a financial institution provides a portion of the project's finance in the form of a loan secured by the Government of Jamaica against the assets of the project; the use of national resources, provision of land, office space, or other facilities; and/or the provision of staff, technical expertise or equipment to support the implementation of the project.

New financing mechanisms

New and innovative financing for renewable energy projects are continually being developed. A recent initiative in Mexico used future CER revenue to finance offset projects⁵. The financial institutions purchased CERs from two wind farms which are expected to come online in 2012. The bank agreed to monetize the future income from the sale of the projects' CERs – most of which will be delivered between 2012 and 2020 – as repayment. This carbon monetization model lets promoters substitute CERs for the significant cash equity they would normally need to invest to make a project operational.

Verification

Project verification plays a vital role in upholding the integrity and quality of the data reported to both mandatory and voluntary greenhouse gas (GHG) programmes across the world. Standardized approaches must be used for the independent and rigorous verification of GHG emissions reductions reported by project developers. These standardized approaches define a verification process that promotes the relevance, completeness, consistency, accuracy, transparency and conservativeness of emissions reductions data reported.

The key objectives of project verification are to:

- ensure projects are real, additional, permanent, verifiable and enforceable
- minimize the risk of invalid creation or double counting of carbon credit units
- support the transparency and integrity of the data collected
- maintain that verifications are conducted in a consistent and comparable manner across projects
- assist in monitoring project developer's on-going compliance with the relevant protocols

Australia's National Carbon Accounting System is a world-leading system that monitors greenhouse gases from land-based activities. In 2008 it was announced that this Australian model would be used to develop global carbon monitoring systems for developing countries.

⁵ PointCarbon News, Sept 30, 2010



Section 2

Defining the Policy Framework

Strategic Framework for Trading of Carbon Credits in Jamaica

Vision for Carbon Credits Trading Sector in Jamaica

This Strategic Framework underpinning the National Policy for the Trading of Carbon Credits is designed to accomplish the vision of:

A competitive, diversified, efficient and investment-conducive carbon credits trading sector that fosters socio-economic development and induces a less carbon-intensive economy

This vision guides the national programme to reduce carbon emissions and create a carbon credits trading regime that will provide access to the international carbon market and also will facilitate the further development of the renewable and alternative energy sectors (including energy-from-waste), promote energy conservation and efficiency as well as provide additional incentives for afforestation and reforestation efforts.

The Strategic Framework

The Policy for the Trading of Carbon Credits has been developed to support Jamaica's climate change mitigation and adaptation programme (articulated in the draft National Climate Change Policy) to assist in Jamaica fulfilling the country's commitments to the UNFCCC and also will support the National Energy Policy 2009-2030 and the sub-sector policies under the National Policy that focus on renewable energy, energy conservation and efficiency, biofuels and energy-from-waste.

This Carbon Credits Trading Policy is vital to successfully reduce CO₂ emissions because it seeks to do two key things: minimize or disallow any barriers which otherwise could preclude action; and 2) empower avenues of adaptation, innovation and commerce to enable real, measurable progress in emission reductions. It recognizes that a multi-pronged approach is required since there is no single solution for reducing CO₂ emissions and as such, this policy is integrated and consistent with the Energy Policy Framework and streamlined with the economic development trajectory outlined in Vision 2030 Jamaica.

The strategic framework is cognizant of the limitations faced and advantages that can be leveraged by Jamaica in achieving the vision for improved carbon efficiency and therefore

incorporates the need to use diplomatic and trade channels to encourage the advancement of innovations and inventions that can be adapted by Jamaica.

The Policy for the Trading of Carbon Credits addresses five goals of the National Energy Policy:

- **Goal 1:** Jamaicans use energy wisely and aggressively pursue opportunities for conservation and efficiency
- **Goal 3:** Jamaica realizes its energy resource potential through the development of renewable energy sources and enhances its international competitiveness and energy security whilst reducing its carbon footprint
- **Goal 4:** Jamaica's energy supply is secure and sufficient to support long-term economic and social development and environmental sustainability
- **Goal 5:** Jamaica has a well-defined and established governance, institutional, legal and regulatory framework for the energy sector that facilitates stakeholder involvement and engagement
- **Goal 7:** Jamaica's industry structures embrace eco-efficiency for advancing international competitiveness and move towards building a green economy

The Policy for the Trading of Carbon Credits is consistent with *Vision 2030 Jamaica: National Development Plan* and provides support for the achievement of two national strategies that address **National Outcome 14** in the Plan, namely “**adaptation to climate change**” and “**to contribute to the effort to reduce the global rate of climate change.**” The Policy also addresses **National Outcome 10: “Energy Security and Efficiency”** and supports the implementation of the national energy strategy: to diversify the energy supply. The strategies identified in the Policy for the Trading of Carbon Credits are consistent with those presented in the Sector Plans for Environmental Management and for Energy under *Vision 2030 Jamaica*.

The Strategic Framework will be sustained to 2030 and beyond yet be flexible and adaptable to meet new challenges and opportunities as they arise. The framework specifies short- to medium-term as well as long-term strategic directions for the government, private sector and industry as well as civil society.

The vision and strategic framework of the Policy for the Trading of Carbon Credits reflect the input of a policy working group charged with the responsibility of developing this policy using as a starting point, a draft Carbon Emissions Trading Policy prepared by the Office of the Prime Minister's Department of Local Government in 2009. Appendix V lists the members of this working group.

Goals of the National Policy for the Trading of Carbon Credits

There are three (3) goals in this policy which, when achieved together, will realize the vision of providing ***a competitive, diversified, efficient and investment-conducive carbon credits trading sector that fosters economic growth and development and induces a less carbon-intensive economy.***

The goals are:

Goal 1: A clear, flexible legal and regulatory framework for the carbon credits trading sector that is responsive to changes in the international arena

Goal 2: A well-developed governance and institutional framework that leads to the maximization of opportunities for carbon credits trading

Goal 3: Diverse initiatives implemented to reduce carbon emissions and generate carbon credits through the regulatory and voluntary markets as well as contributing to the social, economic and environmental development of the country

Goal 4: A carbon credits trading sector that attracts investment through a financial and economic system in which benefits and risks are distributed equitably



Goal 1

A clear, flexible legal and regulatory framework for the carbon credits trading sector that is responsive to changes in the international arena

Achievement of this goal will provide a clear legal framework within which a vibrant carbon credits trading sector can be fostered and developed. Viability of carbon reducing projects for the mandatory or voluntary carbon market will depend primarily on the security of the property rights surrounding the assets, the taxation and financial services treatment of the transactions, and the costs involved in complying with additional regulation, such as environmental approvals. Also the legal framework creates the basis for addressing project approval processes, carbon credit ownership, and taxation.

In particular, Jamaica must ensure that national laws comply with the domestic legal requirements imposed by the CDM; and do not impede or preclude the country's effective participation in the CDM or other carbon trading markets. In order to successfully host a CDM project, Jamaica's local laws must provide for national assent or approval of CDM projects proposed for implementation, in accordance with the international rules; and a regulatory environment in which the project can be successfully implemented. However, new laws developed to promote carbon credits trading projects should not prevent the eligibility of those projects by preventing their ability to satisfy the requirement of additionality. Appendix IV presents the international CDM rule on the consideration of laws in regard to additionality.

To meet the additionality criterion:

If a country seeks to facilitate CDM implementation as part of its policy strategy, then it should not impose any legal requirement that a particular type of project be implemented to fulfill a given legal requirement. For example, a national law requiring waste management companies to install landfill gas capture facilities at landfills would preclude those companies from undertaking landfill gas capture projects as CDM projects.

This goal will promote investor confidence and participation in carbon trading projects for both the CDM and voluntary markets by reducing risks and transaction costs.

Strategies for Goal 1

- Explore the development of new laws or revision of existing laws to govern the terms and type of involvement of entities in carbon trading projects. For example, Jamaica's forestry regulatory framework could specify that an afforestation/reforestation project must be endorsed by the Forestry Department.
- Explore the development or revision of laws to govern (facilitate or limit) foreign investment in and ownership of carbon credits trading projects.

- Explore the development of laws that establish a special taxation regime for carbon credits trading projects and associated revenue and expenditures. Examples of conditions include:
 - Requiring owners of CERs that sell the CERs to foreign buyers, or who remit CERs abroad in order to fulfill their emission reduction obligations, to pay a fee on this sale/remittance. The fee could be calculated on the basis of the volume of CERs sold, the sale price of the CERs, and the type of project that generated the CERs
 - Establishing an income tax exemption for income received from the sale of CERs, allowing deductions to be claimed for expenditure incurred for the purpose of obtaining the CERs
- Explore the development of laws providing particular benefits or concessions with respect to particular projects in certain high priority sectors such as renewable and alternative energy. These laws may provide for measures such as special tax concessions, simplified approval procedures and government grants.
- Explore the development of laws that set the price at which CERs and VERs generated by carbon projects can be sold
- Develop or revise financial and tax legislation to clarify the following in regards to carbon credits trading projects:
 - whether a CER/VER generated from projects will be treated as a security or a commodity (generally, securities trading is often regulated more stringently than commodities trading, producing higher transaction costs for market participants)
 - foreign exchange controls applicable to CER transactions
 - taxation of CER/VER transactions (including taxation concessions and incentives; taxation on revenues from CER/VER sales)
 - whether projects are subject to foreign direct investment restrictions or special legal protections
 - CER/VER pricing controls, under which proposed projects only receive approval if its carbon credits are sold above a floor price
- Coordinate the timing of processes under Jamaica's environment and planning laws (e.g. conduct of EIAs) with those required under the CDM Rules
- Investigate and identify barriers to CDM projects within national laws governing issues such as title to the land on which projects are developed; (foreign) investment; securities and financial products; public sector transparency. Formulate recommendations for the removal of these legal barriers.
- Implement legislation that governs the status and general classification of GHG reductions and CERs and other tradable carbon assets; the allocation of title to such assets once generated or issued; and the contractual transfer of title to such assets.

- Develop or revise legislation to clarify the following in regard to carbon credits trading projects:
 - rights and title to revenues from the sale of CERs or other carbon assets, including where there are multiple entities involved in the development and operation of a project
 - rights, conditions or restrictions with respect to the land on which projects are built and operated
 - the extent to which individual project participants and other parties can use contracts to allocate title to CERs and other project assets
 - whether, and under what conditions, some or all CERs or other project assets may be expropriated

Key Implementing Agencies and Partners

- Ministry of Energy and Mining
- Office of the Prime Minister
- Ministry of Justice/Chief Parliamentary Council
- Ministry of Finance and the Public Service
- Forestry Department
- National Environment and Planning Agency
- Office of Utilities Regulation

Goal 2

A well-developed governance and institutional framework that leads to the maximization of opportunities for carbon credits trading

Under Goal 2, efforts will be made to provide a strong and sustainable governance framework for the carbon credits trading sector. This goal focuses on capacity development within all government ministries, departments and agencies, as well as other organizations, to fulfill their role in ensuring a successful carbon credits trading sector.

Goal 2 emphasizes capacity building, collaboration and coherence in the various policy and implementation arms of the public sector to facilitate the efficient application and implementation of projects that can generate carbon credits for the benefit of the country. Procedures will be developed to ensure that projects can be reviewed, approved and processed in an efficient and timely manner and, where possible, facilitate joint-ventures with domestic firms in order to promote technology transfer. This goal also focuses on effective monitoring and evaluation of projects to ensure that they accomplish the claimed reductions and to increase credibility of the carbon credits trading system in Jamaica.

Strategies for Goal 2

- Establish an interagency/interdepartmental carbon credits trading governance structure that facilitates the simplification of the knowledge flow and implementation of the new technologies and projects and integrates this knowledge into the broader GOJ policy and decision-making processes.
- Finalize the process, which has already begun, of establishing the Designated National Authority (DNA) within the ministry/agency with responsibility for the environment. The DNA will approve CDM projects by issuing written approval for those projects. These approvals must confirm that participation in the proposed CDM project is voluntary; and implementation of the proposed CDM project will contribute to the country's sustainable development.
- Develop the capacity of the DNA – and other actors in the carbon credits trading governance structure – and systems to monitoring the sustainable development impacts of CDM projects under implementation, and reporting on national CDM programmes to national policymakers
- Through the DNA, establish project criteria, inclusive of general conditions, specific sectoral requirements and appropriate indicators established through broad stakeholder consultation
- Explore and adopt internationally recognized standards to ensure that voluntary offset projects produce real environmental benefits

- Foster ministerial cooperation and adequate representation on the Technical Committee of the DNA to ensure timely project approvals
- Encourage local entities to become designated operational entities (DOEs) in order to help reduce transaction costs involved in validation, registration, verification and certification of CDM projects
- Establish clear guidelines to prove additionality
- Develop institutional capacity to provide baseline calculations in the major carbon-emitting industries such as energy generation, mining, transportation and tourism, in order to facilitate the development and qualification of projects that can access the CDM and other carbon markets
- Ensure the continued preservation of natural sinks such as forests and reserves through adequate legislative, enforcement and regulatory mechanisms
- Consult with relevant agencies responsible for the national spatial plan to foster in its design adequate consideration and zoning for carbon trading projects
- Develop a cadre of professionals that can independently verify and monitor the reduction in emissions that are claimed in project proposals
- Ensure participation of the DNA in the process of the finalization of the national climate change policy and in the development of positions for international climate change negotiations
- Establish a body independent from the DNA to help identify and promote project opportunities, as well as facilitate participation of relevant sectors in both mandatory and voluntary markets. This will ensure that the DNA focuses on regulating (i.e. assessing and approving) CDM project activities while the independent body promotes specific projects, thereby preventing a potential conflict of interest which could arise if the DNA undertook both roles
- Develop simplified and/or expedited project approval processes that make it quicker, easier and cheaper to obtain the necessary regulatory authorizations

Key Implementing Agencies and Partners

- Ministry of Energy and Mining
- Office of the Prime Minister
- National Land Agency

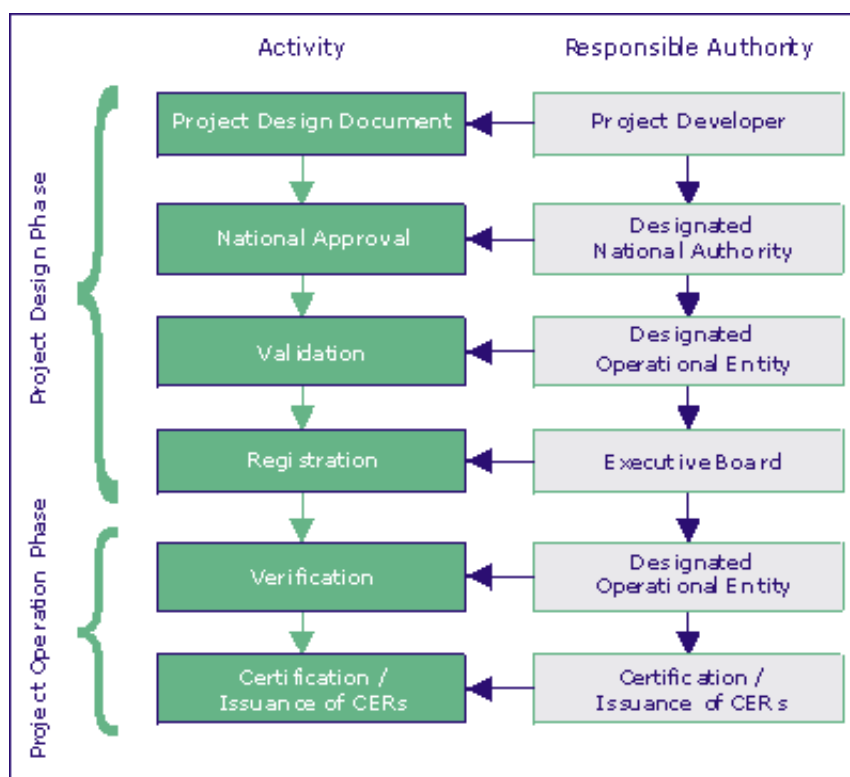
- Ministry of Finance and the Public Service
- Forestry Department
- National Environment and Planning Agency

Goal 3

Diverse initiatives implemented to reduce carbon emissions and generate carbon credits for the regulatory and voluntary markets as well as contributing to the social, economic and environmental development of the country

Goal 3 focuses on the development of initiatives which reduce GHG emissions and ensuring that they qualify as projects to generate carbon credits on the regulatory and/or voluntary markets.

Qualifying initiatives are in the areas of renewable and alternative energy, energy conservation and efficiency, and reforestation and the strategies will facilitate a focus on the development of those project ideas that are most conducive to the energy needs and forestry goals of the country. Also, effective and efficient electric grids, pipelines, rail, and road infrastructures are essential to implement technologies that will ensure economic growth and enable GHG emissions reduction. Therefore, strategies to accomplish this goal link with certain strategies under the National Energy Policy and the sub-policies for renewable energy, biofuels, energy-from-waste and energy conservation and efficiency as well as the National Forestry Plan.



CDM Project Cycle

In addition to reducing carbon emissions, these projects have to meet sustainable development criteria in order to qualify under carbon credits trading schemes. This goal also focuses on capacity development of project developers to create successful project proposals that will meet the relevant criteria, thereby leading to increased access to financial mechanisms for these initiatives.

Strategies for Goal 3

- Foster the development of a national community for participating in the carbon trading market through industry awareness and capacity building. This national community includes DNA staff members, the national focal point to the UNFCCC and the Kyoto Protocol, government policy makers of all levels, academics, NGOs and the local business community, encompassing project developers, investors, local consultants, technical experts and any other entity involved in the governance or development of carbon projects.
- Consult with the academic and scientific community to ensure that emerging and future emission reducing technologies or practices, that may potentially have an adverse impact on public safety and welfare are identified and not approved, unless satisfactory measures can be implemented and managed to reduce adverse risk to the local environment and to reduce the negative direct or indirect impacts on human health and the natural environment
- Develop and improve the portfolio of projects eligible for consideration under all relevant carbon trading schemes
- Pursue project development under Programmatic CDM especially for energy efficiency projects to help small scale projects access investment funding. This approach increases the economic feasibility and the potential number of participants engaged in this type of project.
- Facilitate the creation of an efficient energy infrastructure to reduce leakages and energy losses, and incorporate renewable energy, thereby reducing carbon emissions
 - Enhance electric transmission and distribution, and make provisions for deploying the smart grid
- Promote the development and commercialization of projects in the renewable energy sector
 - Implement tax policies to encourage development of the renewable energy sector
 - Develop a domestic industry for the production of solar systems, biogas and biofuel technologies
 - Undertake resource assessment and inventory of potential renewable energy sources

- Develop renewable energy projects in the areas of solar, wind, hydro, and biofuels
- Promote the development of alternative fuel sources such as liquefied natural gas (LNG) for use in the bauxite industry
- Promote the development and commercialization of forestry-related projects
 - Develop technical expertise in forestry CDM methodologies
 - Encourage the participation of the private sector in carbon forestry
 - Undertake large-scale tree-planting programmes
 - Increase the sustainable production of wood from accessible plantations environmentally and economically suitable for harvesting, and encourage the development of such plantations on suitable private lands to reduce the exploitation pressure on natural forests and sensitive areas
 - Support the promotion of REDD projects
- Promote the development of energy conservation and efficiency projects
 - Develop a Programme of Action (PoA) for programmatic CDM as an incentive to promote energy efficiency improvement projects. The PoA will include a programme to implement an energy efficiency standard, a demand-side management programme, or efforts to switch to industrial facilities from fossil fuel to natural gas, with special focus on the bauxite industry
- Promote the development of energy-from-waste projects
 - Integrate carbon reducing project activities into solid waste management operations to support waste-to-energy – and in the longer term, landfill gas – projects
- Research and develop alternative fuels for the transportation sector (e.g. liquid fuels from organic matter and CNG)
- Explore relationships with carbon development and carbon trading companies to take advantage of their technical expertise and experience in identifying and developing potential projects that can access the carbon market
- Develop mechanisms that encourage and facilitate inter-industry collaboration and co-financing of projects
- Promote the matrix of potential carbon reducing projects that potential investors, domestic and international, can immediately access and implement in a reduced timeframe
- Market the project portfolio to buyers and investors nationally and internationally

- Target the areas in which the top three countries/firms that have CDM projects focus on and develop domestic projects that can augment their project portfolio
- Assist firms in identifying counterparts in developed countries with which they can joint-venture in implementing projects that qualify for market-based or voluntary carbon credits trading mechanisms
- Encourage collaboration across domestic firms in projects that reduce emissions in one sector to the benefit of itself and other industries
- Assess emission profiles at the industry and firm level and develop an action plan with individual firms to implement measures required to reduce emissions from the current production processes
- Facilitate adoption of transportation infrastructures and operational approaches that minimize GHG emissions while enabling growth of freight and human transport
- Develop and promote carbon emissions reducing initiatives in the tourism sector to contribute to Jamaica becoming a “carbon-neutral” destination

Key Implementing Agencies and Partners

- Ministry of Energy and Mining
- Office of the Prime Minister
- Petroleum Corporation of Jamaica
- Office of Utilities Regulation
- Ministry of Agriculture and Fisheries
- Forestry Department
- JAMPRO
- Ministry of Finance and the Public Service
- Jamaica Public Service Company Limited
- National Environmental and Planning Agency
- National Solid Waste Management Authority
- Ministry of Transport and Works
- Ministry of Tourism
- Jamaica Bauxite Institute

Goal 4

A carbon credits trading sector that attracts investment through a financial and economic system in which benefits and risks are distributed equitably

The achievement of Goal 4 will ensure that Jamaica's carbon credits trading sector will be attractive to international investors, especially in the private sector who are the main players in the voluntary carbon market. The strategies aligned to this goal are designed to ensure that the investment promotion activities are informed by the Government's green economy/clean energy commitments in order to facilitate development of a lower-carbon economy.

The achievement of this goal will ensure that both benefits and risks from carbon reducing projects accrue to all participants in the project thereby reducing the burden on some participants and encouraging greater participation. A benefit-sharing system will enable communities or small firms to afford the costs of investing in the project. At the same time, these stakeholders will reap economic benefits from the sale of the emissions credits. This is particularly important for programmatic CDM projects or projects for the voluntary market which "bundle" together smaller projects that involve multiple stakeholders.

In addition, Goal 4 promotes the exploration of innovative financing mechanisms and ensures that existing firms are aware of the methods that they can employ, potential partners for the implementation of carbon emissions reducing projects and the support systems that are in place for the development and implementation of these projects.

Information dissemination and investor promotion activities will play a central role in the ability of the country to successfully attract projects of this nature and therefore appropriate strategies are included to ensure that these activities are central.

Project Agreements

- Under a Project Development Agreement structure, an Annex I entity will usually be involved in the design and development of a CDM project at an early stage, usually in exchange for rights to sell (often with revenue sharing arrangements) all or a majority of CERs.
- Under an ERPA developer structure, the Annex I party will also be involved in the development of the CDM project but will usually purchase the CERs generated under a separate ERPA.
- Under an ERPA offtake structure, a host country party will usually retain control over the design and implementation of the project while the role of the Annex I entity will be limited to purchasing CERs from the project.

Strategies for Goal 4

- Ensure that emission reduction purchase agreements (ERPAs) include clear specifications – especially in the absence of governing legislation – for issues such as the treatment of title (ownership) to carbon credits, level of risk associated with project activity, environmental liabilities etc.
- Develop recommendations regarding the most appropriate type of project development agreements to enter into for given projects. These agreements clearly define the ownership of carbon project assets and carbon credits and level of involvement of the different parties
- Develop joint venture structures to maximize the value that can be extracted from carbon projects
- Establish a system for the sharing of revenue in instances where the project from a private developer involves incentives provided by government
- Explore use of overseas development assistance to promote project types the private sector would be hesitant to invest in, such as small community-based projects
- Define rules for whether carbon credits are sold and purchased on a spot basis (transferred immediately upon or soon after ERPA execution) or under forward arrangements (where a stream of credits is purchased over time)
- Define rules for whether the purchase volume is a guaranteed volume of carbon credits, or only a portion of the volume generated by the project
- Define rules to determine responsibility for paying costs and liability for taxes
- Define rules for the treatment of events of default and disputes
- Introduce feed-in tariffs guaranteeing the purchase of electricity generated from renewable energy at a particular price
- Introduce tax rebates, accelerated depreciation and other fiscal concessions that reduce the tax liability of projects that reduce GHG emissions
- Through the DNA, link local carbon credit sellers with foreign purchasers
- Facilitate dialogue between project proponents and potential financiers, including national and international institutions such as the Development Bank of Jamaica,

Commercial Banks, the World Bank and other multilateral development banks, to help establish facilities for financing and insurance

- Implement incentives (e.g. tax waivers, subsidized funding sources) that intend to introduce cleaner, more energy efficient appliances and thus facilitate the reduction of activities that contribute to GHG emissions by households
- Create a mechanism that allows for private company ownership of CERs and VERs
- Leverage existing trade and diplomatic channels to promote Jamaica as a preferred destination with available infrastructure and human capacity that can speedily facilitate the development and implementation of carbon credit generating projects

Key Implementing Agencies and Partners

- Ministry of Finance and the Public Service
- Ministry of Energy and Mining
- Office of Utilities Regulation
- JAMPRO
- Ministry of Industry, Investment and Commerce
- Ministry of Foreign Affairs and Foreign Trade
- Planning Institute of Jamaica
- Office of the Prime Minister
- Forestry Department



Section 3

Implementation, Monitoring and Evaluation Framework

Policy Implementation

The Ministry of Energy and Mining will lead and facilitate the implementation of the Policy for the Trading of Carbon Credits, in collaboration with the Environmental Management Division within the Ministry with portfolio responsibility for the environment and other Government Departments and Agencies, the private sector and NGOs. The successful implementation of this policy will require that linkages be made between the energy and environmental management sectors as well as other aspects of the economy and society including, but not limited to, tourism, agriculture, transport, environment, finance and education.

Institutional Framework

The key players in the implementation of the National Policy for the Trading of Carbon Credits and their roles and responsibilities are described below.

The **Ministry of Energy and Mining** will be responsible for the overall implementation of the Policy for the Trading of Carbon Credits and will provide expert advice and guidance with respect to all renewable and alternative energy and energy conservation and efficiency initiatives. The **Petroleum Corporation of Jamaica**, which is an agency of the Ministry, and its **Centre of Excellence for Renewable Energy** (CERE) will be involved in facilitating the implementation of renewable energy initiatives.

The **Environmental Management Division** within the Ministry with portfolio responsibility for the environment will provide expert advice and guidance on the environmental impacts of all energy-related programmes. The Division is the Designated National Authority (DNA) and will facilitate proposals for consideration of projects to benefit from the Clean Development Mechanism.

The **National Environment and Planning Agency** (NEPA) will have the responsibility of ensuring that energy-generating facilities operate in such a way that human health and the environment are protected from harmful emissions. Also, NEPA will be responsible for issuing a permit to facilities and will only issue a permit if the applicant has demonstrated that the facility will meet the requirements of the necessary air quality regulations for emissions. In carrying out its role, the Agency will continuously assess plant operations and their environmental performance for example by routinely checking emissions of plants. NEPA will be responsible for taking appropriate enforcement actions or prosecuting an operator if there is a breach.

The **Meteorological Service of Jamaica** is the national Focal Point to the United Nations Framework Convention on Climate Change (UNFCCC) and will provide technical guidance to

carbon credit projects. The Met Service will report on Jamaica's performance vis-à-vis the UNFCCC.

The **Forestry Department** is responsible for the management of Jamaica's forest resources and will be responsible for overseeing afforestation, reforestation and REDD activities

The **Ministry of Finance and Planning** will be responsible for establishing any financial or tax incentives or disincentives for the development of the carbon credits trading sector.

The **Office of the Parliamentary Counsel in the Ministry of Justice** will be responsible for the preparation of draft legislation to govern the development of the carbon credits trading sector.

Local universities will play a key role in keeping abreast of research in climate change mitigation initiatives, including renewable energy technologies.

Implementation Framework

The strategies identified in the Strategic Framework will be operationalized by the associated implementing agencies and partners through the incorporation of specific actions in the Strategic and Operational Plans of these entities. These plans will provide detailed information on specific actions to be undertaken, the implementing agencies and partners, timelines and costs.

To accomplish the goals outlined in the National Policy for the Trading of Carbon Credits 2010 - 2030, key projects/initiatives will be developed and implemented. These projects will facilitate Jamaica's commitments to climate change mitigation under its UNFCCC commitments and create the environment for the development of a carbon credits trading regime. Some projects are identified as priority actions in the **Draft Jamaica National Climate Change Strategy and Action Plan**. Some projects are projects that have the potential to be developed to create carbon credits to take advantage of regulatory and voluntary carbon markets. These projects will be in the areas of renewable and alternative energy, energy conservation and efficiency, and forestry. Consequently, the energy-related priority projects for the first three years 2010 to 2012 under the Policy for the Trading of Carbon Credits are "flagship" projects from the **National Energy Policy Action Plan 2009 – 2012**, which were selected based on significance of impact in terms of advancing the achievement of a goal or the level of investment. These are also part of the implementation plan for certain sub-policies of the National Energy Policy. Forestry-related priorities are obtained from the **National Forestry Management and Action Plan**.

The Carbon Credits Trading Action Plan for the period 2010 – 2012 is presented in the table below. Priority projects are identified with the overarching policy or plan that they support. Also, the table includes the responsible agencies and expected outcome(s).

Carbon Credits Trading Action Plan 2010 – 2012

Priority Project	Contribution to Policy or Plan	Responsible Agencies	Expected Outcomes
Develop programmes to sensitize energy sector workers on climate change and its impacts	Climate Change Policy ⁶	MEM, PCJ	Persons in energy sector sensitized about climate change
Develop public awareness, public education programmes on the importance of reducing our dependency on the use of fossil fuels	Climate Change Policy	MEM, OPM (EMD), NEPA, MOE	All Jamaicans aware of his/her role in reducing the consumption of fossil fuels
Identify innovative sources of financing for climate proofing the country's economy	Climate Change Policy	MFPS	Financial incentives that encourage investment in climate change mitigation and adaptation
Establishment of a revolving facility for EE and RE financing in the private sector	National Energy Policy ⁷ National Energy Conservation and Efficiency Policy	DBJ, MEM Support: PCJ, PC Banks	Establishment of EE/RE Revolving Fund Encouragement of private sector uptake
Improvement of Electricity Distribution and Transmission Efficiency	National Energy Policy National Energy Conservation and Efficiency Policy	JPSCo Support: OUR, MEM, UTech, UWI	Reduced theft of electricity Reduced technical losses Reduction in non-technical losses Upgraded billing system
Expansion of Hydro Power Capacity	National Energy Policy National Renewable Energy Policy Draft National	PCJ, CERE, OUR, JPSCo, NWC Support: WRA, NLA, UTech, UWI, NEPA, NLA	Increased hydroelectric capacity

⁶ Draft Jamaica National Climate Change Policy and Action Plan

⁷ As specified in the National Energy Policy Action Plan 2010-2012

Priority Project	Contribution to Policy or Plan	Responsible Agencies	Expected Outcomes
	Climate Change Policy		
Increase in Wind Energy Generation Capacity	National Energy Policy National Renewable Energy Policy Draft National Climate Change Policy	PCJ, CERE, JPSCo Support: UTech, UWI, NEPA, NLA	Increased wind energy generation capacity ⁸ Studies into wind energy generation potential conducted
Promotion of Solar (Photovoltaic, Solar Cooling and Thermal) Technologies	National Energy Policy National Renewable Energy Policy Draft National Climate Change Policy	PCJ, CERE Support: UTech, UWI, SRC	Increase in solar's portion of Jamaica's energy mix Increase in solar power and water heating equipment used in housing schemes Increased local capacity in implementation of solar systems
Renewable Energy Study	National Energy Policy National Renewable Energy Policy Draft National Climate Change Policy	PCJ, UWI Support: IDB, UTech	Recommendations regarding solar and wind energy projects in Jamaica Establishment of 20 wind measurement sites
Biomass and Biofuels (Ethanol and Biodiesel)	National Energy Policy National Renewable Energy Policy National Biofuels Policy Draft National Climate Change Policy	MEM, PCJ, CERE, MOA, SRC Support: UTech, UWI, BSJ, NEPA, SIRI	Development and implementation of bio-fuel policy and programs Establishment of a strong legal and regulatory framework for liquid bio-fuels industry Island-wide E10 distribution infrastructure

⁸ Target: 87 MW of installed wind energy will be developed by 2014

Priority Project	Contribution to Policy or Plan	Responsible Agencies	Expected Outcomes
			Development of testing labs
Waste-to-energy project	National Energy Policy National Renewable Energy Policy National Energy-from-Waste Policy	PCJ, NSWMA, OPM, Department of Local Government Support: JPSCo, OUR, MFPS, NEPA, UTech, UWI, SRC, NLA	Generation of energy from waste Avoided carbon emissions Waste minimization
LNG project	National Energy Policy	MEM, OUR	Establishment of regulatory framework for the LNG sector Construction of Floating Storage Regasification Unit and Gas Transmission System
Development of Energy Sector policies	National Energy Policy	MEM, MOA, NSWMA Support: OPM, PCJ, UTech, UWI	A coherent policy framework to support the implementation of the National Energy Policy
Expansion of the regulatory mandate of OUR	National Energy Policy National Renewable Energy Policy	OUR Support: Cabinet Office, Solicitor General's Office, MEM	Extension of the mandate of the OUR for the regulation of new sub-sectors
Net Metering and Wheeling System	National Energy Policy National Renewable Energy Policy	MEM, OUR, JPSCo Support: PCJ, CERE	Establishment of net metering and wheeling framework
Green Technology in Local Government	National Energy Policy National Renewable Energy Policy	OPM - DLG, LGAs Support: UTech, UWI	Use of green technology in cities and rural areas
Facilitating private investment in industry	National Energy Policy	PCJ, JAMPRO	Increase in private sector investment in renewable

Priority Project	Contribution to Policy or Plan	Responsible Agencies	Expected Outcomes
	National Renewable Energy Policy		energy and energy efficiency initiatives
Establishment of fuelwood plantations on public lands	National Forest Plan ⁹	Forestry Dept, PCJ, NGOs	Fuelwood plantation established near protected areas
Reforestation of forest reserves	National Forest Plan	Forestry Dept, NGOs	Forest cover replanted in reserve areas
Public education campaign about the roles and values of forest resources for biodiversity conservation, watershed protection and carbon sinks	National Forest Plan	Forestry Dept	Increased public understanding of value of forests' role in mitigating climate change

⁹ The National Forestry Management and Action Plan

Monitoring and Evaluation Framework

The Ministry of Energy and Mining and the Environmental Management Division within the Ministry with portfolio responsibility for the environment will be accountable for monitoring and evaluating the implementation of this Policy. The proposed indicators outlined in this policy represent the foundation of a results-based monitoring and evaluation system to ensure that the three goals of this policy are achieved which will, in turn, contribute to the achievement of the country's relevant climate change adaptation and mitigation goals and the related goals as set out in the National Energy Policy 2009-2030 and Vision 2030 Jamaica, National Development Plan.

A continuous programme for monitoring and evaluation, conducted by relevant stakeholders from public and private sectors, will be implemented to ensure that its policy objectives and strategies are appropriately developed to enable efficiency, investment growth and sustainable development from carbon emission trading. The Ministry of Energy and Mining will conduct broad stakeholder consultations periodically to review and assess the effectiveness of the Policy using the indicators identified below as a guide. The results of the assessment including recommendations will be published in an annual report for submission to the Cabinet.

Proposed Indicators

The proposed indicators for the National Policy for the Trading of Carbon Credits over the period 2010-2030 are presented in the table below. These indicators are the building blocks of the Monitoring and Evaluation programme. Targets will be set in collaboration with the key implementation partners.

Carbon Credits Trading Indicators and Targets

Indicator	Baseline	Targets		
	2010	2012	2015	2030
Carbon emissions (tCO ₂ e per year)				
Number of projects submitted to DNA for approval				
Number of projects approved by DNA				
Number of projects being implemented that generate carbon credits				
Number of CERs issued				
Number of VERs issued				



Appendices

Appendix I

Glossary

Adaptation Fund

A fund generated by charging an adaptation levy on Clean Development Mechanism projects. The purpose of the fund is to help particularly vulnerable developing countries meet the costs of adapting to a changing climate.

Additionality

For Joint Implementation and Clean Development Mechanism projects, emissions reductions must be additional to those that would otherwise occur. Additionality is when there is a positive difference between the emissions that occur in the baseline scenario, and the emissions associated with a proposed project. Additionality is a principal condition for the eligibility of a project under the CDM.

Afforestation

The direct human-induced conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding and/or the human-induced promotion of natural seed sources. It is distinct from Reforestation, which is the conversion of land that was not forested on 31 December 1989 to forested land.

Annex I, or Annex B

The signatory nations to the Kyoto Protocol that are subject to caps on their emissions of greenhouse gases and committed to reduction targets – countries with developed economies. Annex I refers to the 36 countries identified for reduction in the UNFCCC while the Annex B is an adjusted list of 39 countries identified under the more recent Kyoto Protocol. Annex B countries have their reduction targets formally stated.

Annex II

A subset of Annex 1/B, Annex II countries are signatory nations to the UNFCCC which are also members of the OECD - the most industrialized economies. They have extra obligations to help developing nations combat climate change via technology transfer and financial help.

Assigned Amount Unit (AAU)

A Kyoto Protocol unit equal to one metric ton of carbon dioxide equivalent. Each Annex I Party issues AAUs up to the level of its assigned amount, established in the Kyoto Protocol. Assigned amount units may be exchanged through emissions trading.

A/R

Afforestation and reforestation. Term given to the class of projects devoted to the planting of trees on unforested land for carbon emissions reduction and other environmental benefits.

Biofuels

Biofuels are renewable fuels made from plants that can be used to supplement or replace the fossil fuels petroleum and diesel used for transport. The two main biofuels are ethanol and biodiesel. Ethanol is produced from the fermentation of sugar or starch in crops such as corn and sugar cane. Biodiesel is made from vegetable oils in crops such as soybean, or from animal fats.

Carbon footprint

The global warming impact of human activities in terms of the amount of greenhouse gases they produce. The emissions associated with the use of power, transport, food and other consumption for an individual, family or organisation are added up to give one comparable measure in units of carbon dioxide equivalent.

Carbon neutral

An individual, household or organisation that is responsible for no net emissions of greenhouse gases from all its activities is considered "carbon neutral". Emissions must be cut to a minimum and any necessary emissions then offset by emission reducing activities elsewhere. Buying accredited clean electricity helps cut household or office greenhouse emissions, while investing in sustainable energy projects or afforestation schemes are examples of offsets.

Carbon sequestration

The incorporation of carbon dioxide into permanent plant tissues.

Carbon sink

Features where carbon dioxide is removed from the atmosphere. The major natural sinks are forests and oceans which have processes that absorb CO₂.

Clean Development Mechanism (CDM)

A Kyoto Protocol initiative under which projects set up in developing countries to reduce greenhouse gas emissions generate tradable credits called CERs, the first step towards a global carbon market. These credits can be used by industrialized nations to offset carbon emissions at home and meet their Kyoto reduction targets. The projects include renewable energy generation, reforestation and clean fuels switching.

CDM Executive Board

The CDM Executive Board approves CDM projects, certifies operational entities and will issue carbon credits for CDM projects.

Certified Emission Reduction (CER)

A credit generated under Kyoto's Clean Development Mechanism (CDM) for the reduction of emissions of greenhouse gases equal to one tonne of CO₂-equivalent. They are designed to be used by industrialized countries to count toward their Kyoto targets but can also be used by EU companies and governments as offsets against their emissions under the EU Emissions Trading Scheme.

Compressed Natural Gas (CNG)

Natural gas that has been compressed under high pressures, typically between 2000 and 3600 psi, and held in a container.

Credits

These are assigned for emissions reductions. There are four types of Kyoto credit - Assigned Amount Units, Certified Emission Reductions, Emission Reduction Units, and Removal Units. The former are allocated to countries which have Kyoto Protocol targets, and the latter three types are generated through different types of projects.

Designated National Authority (DNA)

The DNA is the official body representing the Government which takes part in the arrangement of CDM/JI projects. For JI host countries, the DNA approves the projects and issues the emission reduction units.

Designated Operational Entity (DOE)

An independent body accredited by the CDM Executive Board (CDM EB) that either validates a project proposal and recommends it for registration by the CDM EB, or verifies the monitoring data and recommends to the CDM EB the amount of carbon credits that should be issued.

Emissions trading

One form of carbon price creating a market-based system for regulating the emission of greenhouse gases. The quantity of emissions is controlled and the price allowed to vary by the issuing of tradable emission permits. These rights to emit can be traded in a commercial market under an emissions trading scheme.

Greenhouse gas (GHG)

Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, but are not limited to, water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), chlorofluorocarbons (CFCs), hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), ozone (O₃), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆).

Joint Implementation (JI)

A Kyoto Protocol mechanism which allows developed countries, particularly those in transition to a market economy, to host carbon-reducing projects funded by another developed country. The arrangement sees the credits generated, called ERUs, go to the investor country while the emission allowances (AAUs) of the host country are reduced by the same amount.

Kyoto Protocol

The agreement reached in Kyoto in 1997 committing developed countries and countries making the transition to a market economy (Annex I countries) to achieve quantified targets for decreasing their emissions of greenhouse gases.

Landfill

Solid waste disposal site that is managed and has designated cells for tipping and regular covering of waste

Landfill gas

All gases generated from the landfilled waste

Land use, land use change and forestry (LULUCF)

The term given to the sector covering reforestation & afforestation, land clearing and agriculture. Each of these activities can make significant contributions to atmospheric carbon emissions and/or removals.

Liquefied natural gas (LNG)

Natural gas (primarily methane) that has been liquefied by reducing its temperature to -260 degrees Fahrenheit at atmospheric pressure.

Offsets

Carbon offsets, offset credits. Credits issued in return for a reduction of atmospheric carbon emissions through projects. By paying for such emission reducing activities, individuals and organisations can use the resulting credits to offset their own emissions, either voluntarily or under the rules of most emissions trading schemes. One offset credit equates to an emission reduction of one tonne of CO₂.

Reforestation

The direct human-induced conversion of non-forested land to forested land through planting, seeding and/or the human-induced promotion of natural seed sources, on land that was forested but that has been converted to non-forested land.

tCO₂

Tonne of carbon dioxide equivalent. A measure for describing how much global warming a given type and amount of greenhouse gas may cause, using the functionally equivalent amount or concentration of carbon dioxide (CO₂) as the reference.

Tonne

A metric ton – equal to 1,000 kg.

UNFCCC

United Nations Framework Convention on Climate Change. Also referred to informally as the UN climate change convention. It is the international agreement for action on climate change and was drawn up in 1992. A framework was agreed for action aimed at stabilizing atmospheric concentrations of greenhouse gases. The UNFCCC entered into force on March 1994 and currently has 192 signatory parties. The UNFCCC in turn agreed the Kyoto Protocol in 1997 to implement emission reductions in industrialized countries up to 2012 and is currently seeking the negotiation of a new treaty to extend commitments beyond 2012.

Appendix II

Application Procedure for Approval by the Designated National Authority

All applications for CDM National approval should follow the following procedure:

- (a) Formal Submission of CDM Project Proposal from project proponent to the DNA for CDM national approval
- (b) DNA acknowledges receipt of project proposal.
- (c) Project circulated by DNA to Technical Review Team and/or Ad hoc Committee for evaluation
- (d) The Opinion of the Technical Review Committee is received stating whether the project contributes to sustainable development
- (e) If project is approved, the DNA prepares letter of approval for legal review.
- (f) Communication of National Approval to the Project Participant
- (g) National Project monitoring after registration by the Executive Board.
- (h) Visits to the project site/area may also be conducted to get further information about the project.

DOCUMENTATION REQUIRED

(a) The Project Proposal should be in the form of the Project Design Document (PDD) prepared in accordance with the guidelines of the CDM Executive Board.

(b) Depending on the nature and scale of the proposal, the following additional documentation may be requested:

- The Environmental Impact Assessment
- A statement declaration by the project developer as to why they think the proposed project activity would contribute to sustainable development of the country
- Verification by local stakeholders that they have been consulted on the project and have no substantial objections to the project.

Appendix III

Jamaica's Sustainable Development Criteria for the Assessment and Selection of Projects under the Clean Development Mechanism

Projects submitted for consideration under the CDM must fulfill the broad sustainable development objectives of:

- Increased energy efficiency and conservation
- Sustainable energy production
- Transfer of technologies and financial resources
- Local environmental benefits, e.g. cleaner air and water
- Local environmental side benefits, such as health benefits from reduced local air pollution
- Poverty alleviation and equity considerations through income and employment generation
- Private and public sector capacity development
- Catalyzing green investing priorities

In the selection process, the DNA will assess projects to ensure that the overall sustainable development impacts are positive. The table below shows the broad economic social and environmental considerations that will be taken into account when assessing CDM projects.

Sustainable Development Criteria	
Economic	net generates employment
	reduces economic burden of energy imports and reduces foreign exchange demands
	Provides financial returns to local entities
	Positives impact on Balance of Payments
	technological transfer
	macroeconomic, fiscal and economic sustainability
	cost-effectiveness
Social	increases equity
	increases energy access
	considers gender issues
	Provides education and training
	Provides positive health impacts (direct and indirect)
	alleviates or reduces poverty

	improves quality of life
Environmental	reduces greenhouse gas (GHG) emissions and use of fossil fuels
	reduces pressure on local environments
	local environmental benefits, e.g. related to: air pollution, water, soil, waste reduction
	promotes the development, application, and transfer of climate-friendly technologies
	use of renewable resources
	energy efficiency
	sustainable land use
	biodiversity protection (conservation or preservation)
Political or Governance	participation of local populations
	participation of local authorities
	information sharing
	governance
	legal framework

Modified from: OLADE Capacity Study

Specific Criteria Related to Sustainable Energy Use

In assessing and evaluating projects the DNA will seek to advance the objectives of the Jamaica Energy Sector Policy which places emphasis on energy efficiency, fuel sources and energy use in transportation. Projects submitted for consideration should satisfy at least one of the following outlined objectives:

- diversify the energy base and encourage the development of indigenous energy resources where economically viable and technically feasible; and ensure the security of energy supplies;
- encourage efficiency in energy production, conversion and use with the overall objective of reducing the energy intensity of the economy;
- ensure stable and adequate energy supplies at the least economic cost in a deregulated and liberalized environment to enhance international competitiveness and to improve quality of life of householders;
- provide an appropriate environment conducive to private sector participation in electricity generation;
- make electricity available to the remaining areas of the island, especially in deep rural areas and at affordable rates to lifeline customers;
- complement the country's Industrial Policy recognizing the importance of energy as a critical input to industrial growth and stability;
- minimize the adverse environmental effects and pollution caused by the production, storage, transport and use of energy, and minimize environmental degradation as a result of the use of fuel wood; and

- reduce reliance of the energy intensive sectors of the economy such as bauxite, electricity and transport on a single fuel type. Natural gas, coal and renewable energy sources are among the alternatives which will be explored.
- reduce motor vehicle use and electricity consumption in the public sector with emphasis on major users.

The DNA reserves the right to revise and redevelop the following criteria based on shift in government priorities.

**** All projects approved prior to the completion of this policy document have compiled with the above described procedure.**

Appendix IV

International Rule: Classifying Domestic Policies and Measures to Avoid Perverse Incentives under Additionality

The CDM Executive Board adopted at its 16th meeting “clarifications on the treatment of national and/or sectoral policies and regulations in determining a baseline scenario.” These clarifications defined four different types of national or sectoral policies, for use when determining the laws and policies applicable to CDM projects and the determination of additionality:

Type E+: existing national and/or sectoral policies or regulations that create policy-driven market distortions which give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels.

Type E-: national and/or sectoral policies or regulations that give positive comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies (e.g. public subsidies to promote the diffusion of renewable energy or to finance energy efficiency programs).

Type L-: sectoral mandatory regulations adopted by a local or national public authority motivated by the reduction of negative local environmental externalities and/or energy conservation and which would incidentally also reduce GHG emissions.

Type L+: sectoral mandatory regulations adopted by a local or national public authority motivated by the reduction of negative local environmental externalities and which incidentally prevent the adoption/diffusion of less GHG emitting technology.

In order to avoid any perverse incentive as a result of the CDM’s additionality requirement, the CDM Executive Board has ruled that the following types of domestic regulations and policies should not be considered when determining whether a proposed CDM project is additional:

1. Type E+ policies or regulations introduced after 11 December 1997 (the date the Kyoto Protocol was adopted by the COP); and
2. Type E- policies or regulations introduced after 11 November 2001 (the date of the COP decision that provided the foundation for the CDM Modalities).

Appendix V

Members of the Carbon Credits Trading Policy Working Group

Mrs. Yvonne Barrett-Edwards	Ministry of Energy and Mining
Mr. Alli Morgan	Forestry Department
Mr. Owen Evelyn	Forestry Department
Mr. Ryan Evans	Cabinet Office
Mr. Clifford Mahlung	Meteorological Service
Mrs. Arial Bowen	Ministry of Foreign Affairs and Foreign Trade
Ms Paula Brown	Ministry of Transport & Works
Mrs. Paulette Kolbush	National Environment & Planning Agency
Mr. Anthony McKenzie	National Environment & Planning Agency
Ms Nicole O'Reggio	Office of the Prime Minister (Environmental Management Division)
Mr. Clement Jackson	Office of Utilities Regulation
Mr. Richard Brown	Office of Utilities Regulation
Mr. Courtenay Francis	Office of Utilities Regulation
Mrs. Felicia Whyte	Petroleum Corporation of Jamaica – Centre of Excellence for Renewable Energy
Mr. Richard McDonald	Petroleum Corporation of Jamaica
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