Carbon Emission Trading for the Caribbean

Trading Carbon Offsets- A Caribbean Tale

by Chinyere Nwaogwugwu
Ecological Technologies Limited (Eco Tec)
Freeport Commercial Center
Freeport, Montego Bay
Jamaica
chinyere@go2ecotec.com

Background

Carbon Trading is a relatively new instrument that can be used to encourage clean technologies in developing countries. Originating from the Kyoto Protocol, the legendary meeting in Kyoto, Japan that established the rules under which the mitigation of climate change through the sale of carbon emission reductions would be internationally managed, the Protocol was drafted and established in 1997. From this determination to mitigate climate change worldwide, carbon emission sales as an instrument became a driving force for renewable energy development, design and usage. As of November 2009 there were 187 ratified signatories to the treaty.

The Protocol called for the 37 industrialized nations that were party to it, to reduce their carbon emissions to 1990 levels. The reasoning was clear. Since the dawn of industrialization, developed countries were responsible for the most CO_2 emissions in the world. The 37 signatories of the Protocol represent 55% of the total 1990 emissions worldwide. Noticeably absent in the ratification process was the United States of America. The US was at that time the largest emitter of carbon dioxide in the world with over 25% of the total global CO_2 emissions. The Kyoto Protocol was ratified in 2005 when Russia became a signature of the treaty. The Protocol also called for "flexible mechanisms to combat four greenhouse gases - carbon dioxide (CO_2) methane (CH_4) nitrous oxide (NO_2) and sulfur hexafluoride (SF_6) as well as two fluro carbon gases - hydroflurocarbons (HFC) and perflurocarbons (PFC).

The Clean Development Mechanism (CDM) is a flexible mechanism that is a product of the Protocol. These mechanisms create Certified Emission Reductions or CERs that are generated on a per tonne basis. The Clean Development Mechanism is the more interesting of the available flexible mechanisms for the Caribbean as projects generated from this mechanism are created in non developed nations. (Kyoto Protocol)

CDM and Developing Nations

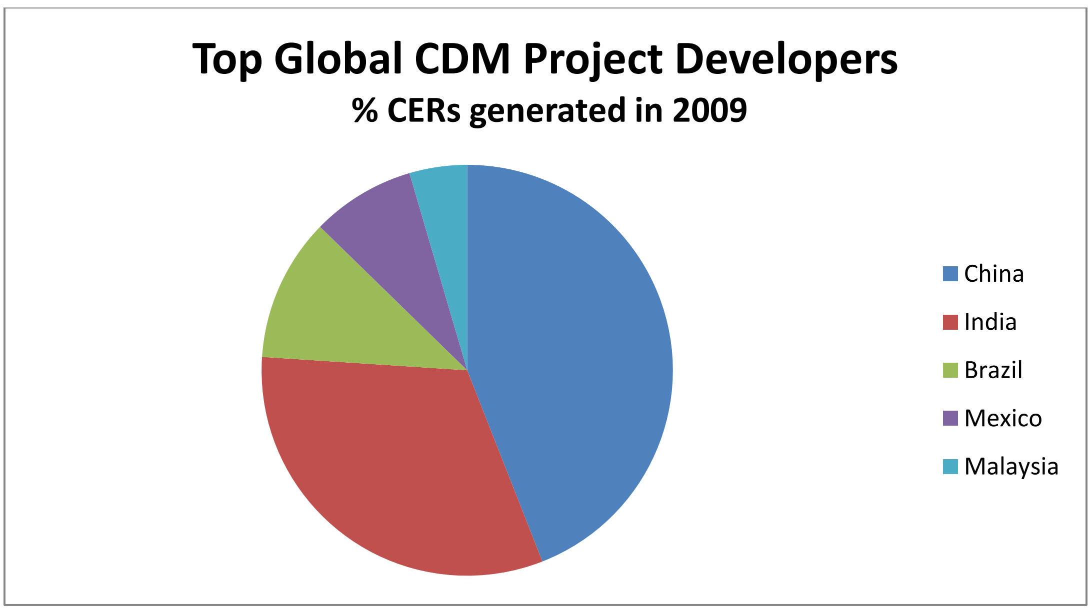
Developing nations such as India, Brazil and China are developing carbon emission offset projects in great numbers. The carbon industry's development has been a boon for these countries.

According to China Carbon, as of December 2008, China alone accounted for 53.6% of total global CER supply, making it the world's number one source of carbon credits through the Clean Development Mechanism. The total CERs issued to China during that period was 90.6 Million tonnes. Hydro power, wind energy and energy efficiency projects topped the list. Although that figure decreased in 2009 to 35%, China is still the largest carbon project developer. (China Carbon, 2009) It's a good thing too, since China is also the largest emitter of CO_2 in the world. The country creates 6 million metric tonnes of CO_2 annually. Although China has high CO_2 offsets, it is unbound by the Kyoto Protocol.

India has the second largest project portfolio for the CDM. With approximately 25% of the total projects developed for 2009, India is developing wind energy, biomass and cogeneration projects that will support the economic development of the country.

The largest economy in Latin America and the first nation to register a CDM project, Brazil is the third largest CDM project developer in the world. Brazil has a 9% market share of mainly biomass electricity generation projects. Mexico and Malaysia round out the top 5 with 6.3% and 3.5% respectively. Table 1 below shows the distribution.

TABLE 1



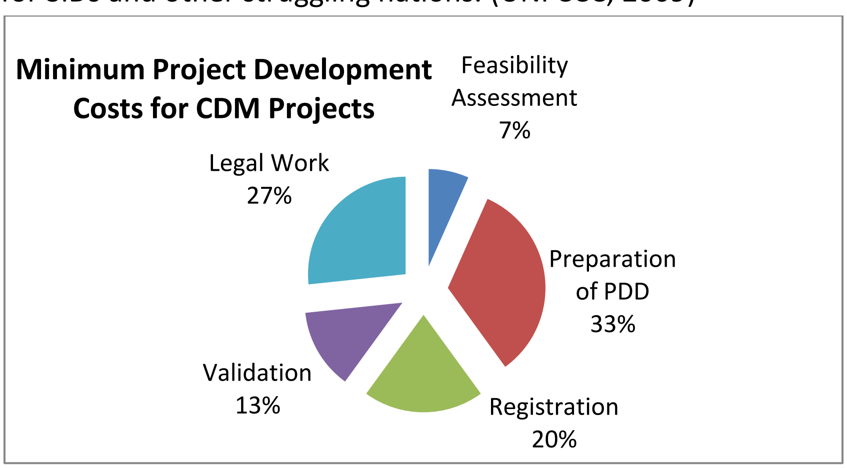
In total, 1.67 billion CERs will be generated from the 1,899 projects created in 2009 - 2012. If CERs receive just US$ 10.00 per tonne, that becomes $US 16.7 billion. For a developing nation, any fraction of that amount is a welcomed addition to the national coffers.

The lack of consensus however at the Copenhagen Meeting of the Parties in 2009 has given CER pricing an uncertain future. According to Point Carbon's, Carbon 2009 report, 45 percent of survey respondents expect an EU Emission Allowance (EUA) price of €35 or higher in 2020. However, only 13 percent expect a 2010 EUA price above €25. This is a sharp decline from 2008's figure of 39 percent. This short term lack of confidence will improve once the parties agree on the next commitment period. (Tvinnereim, Endre, Kjetil Røine and Carina Heimdal, 2009)

The table above shows the strong presence of Latin America in the carbon offset field. Although Latin America and the Caribbean reported 23% of total projects registered, the preponderance of those CERs are created in Latin America, not the Caribbean. So why aren't there projects in the Caribbean?

There are a few reasons for this.

1) Country size. It is no coincidence that the countries that are leading this industry have large land masses. That developer can with one methodology continue to bundle additional locations on the project. It is not so in small countries particularly small island states. The annual CO_2 emissions per country table, lists the Caribbean at 0.3% of the total carbon emissions worldwide. Projects therefore will never be large proportional to the rest of the world. Even if they are bundled together with neighboring nations, the projects will be approximately 88,079,000 metric tonnes of CO2 annually, a drop in the global project bucket.
2) Upfront project development costs – The costs to develop these projects are high. Total upfront costs to create the smallest offsets accepted will run a developer a minimum of US $70,000. This figure could reach $110,000. This figure does not include broker's fees (5%-10%), risk mitigation (1%-3%) or monitoring and verification costs (US$ 3,000 – US$ 10,000). The CDM Executive Board has made commitments to reduce the cost of project registration for SIDs and other struggling nations. (UNFCCC, 2009)

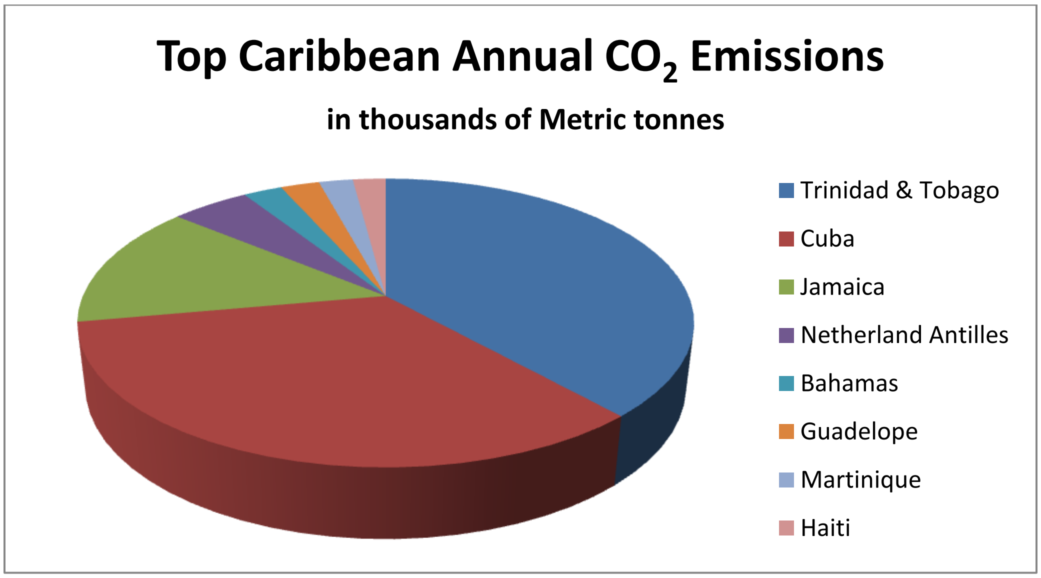


3) Complex methodologies - The complexity of the approved methodologies is also a hindrance to project uptake in the Caribbean. With little experience in project development, Caribbean developers are hesitant to initiate these methodologies without cooperation from first world project developers.

In Table 2 below, the top eight emitters of CO_2 in the Caribbean are labeled according to their size. Trinidad & Tobago and Cuba represents the lion's share of 0.1% of the global CO2 emissions total respectively. Trinidad needs to reduce by 82.6% to reach the world per capita average while Cuba needs to increase by 67.3% to reach the same median. (Carbon Emissions By Country)

With the above costing as a deterrent to CDM project development, the voluntary market has some solutions to the problems that the Caribbean faces in getting carbon projects off the ground.

TABLE 2



Voluntary Emission Reductions (VERs) Market

There is an alternate carbon market called the Voluntary Market that consists of companies and organizations that reduce their carbon emissions on a voluntary basis. VERs can be generated from projects which:

- are either based in a country that has not ratified the Kyoto Protocol (e.g. USA) or does not have the infrastructure to support CDM project development;
- have not yet been registered under the CDM;
- falls outside the scope of the CDM;
- are too small to warrant the costs of CDM approval; or

· are specifically developed for the voluntary market.

In the beginning, the voluntary market was akin to the Wild West of the early 20 century. Anyone could sell a project. With a lack of standardization and accountability, it was very difficult to select projects if the seller was unknown. Most of the standards we have now in the Voluntary Market were developed in 2006 as a result of the variance in project quality, methodology and record keeping of its early days. Now there are several standards to choose from to ensure quality VERs. The Standards below were developed in consultation and are an effective tool for creating high-quality emission reduction projects that promote sustainable development and benefit local communities.

Voluntary Standards
Voluntary Carbon Standard
Gold Standard
VER + Standard
CCB Standard
Social Carbon Standard

Whether it is CERs or VERs, CO_2 emission offsets could positively impact the Caribbean by encouragement of cleaner technologies, the transfer of know-how from the developed to the developing and by the influx of revenues from developed nations that purchase these offsets. It is a win-win situation for the Caribbean and an opportunity for growth and advancement.

Projects in the Caribbean

Caribbean people love a long shot and although it is a challenge for Small Island States to become major players in this market, some Caribbean companies have ventured in to the Carbon Markets with solid success. The Caribbean entities that have faced the above challenges and pioneered the instrument are listed below.

Wigton WindFarm

Wigton Windfarm Limited is a company owned by the Jamaican state. It operates a 20.7MW wind farm in Manchester, Jamaica. Wigton Windfarm is the first and only Jamaican entity to sell CERs through the CDM facility.

Wigton Windfarm was commissioned in April 2004 with twenty-three 900kw turbines and supplies electricity to the national grid. The 20.7 MW project should generate enough electricity to feed 25,000 homes. The project generates 525,400 tonnes of CO_2 over a ten year project lifetime. (Securities, 2003)

Ground was broken on March 17, 2010 for the US$ 50 million project expansion. Part 2 is being financed by the Petro Carib Fund and will increase the total production to 38.7 MW by adding nine 2MW V80 wind turbines to the existing complement. The carbon emissions from this addition will also be sold through the CDM.

Ecological Technologies Ltd. (Eco Tec)

Eco Tec is a limited liability company owned and operated in Jamaica. Eco Tec is the first company to sell carbon credits in the Caribbean. The VER project was created in 2001 as an energy efficiency measure in the energy intensive Hotel Sector. The project is entitled "Increased Energy Efficiency in the Tourism Sector in Jamaica: Compact Fluorescent Bulb Replacement". The project will create 55,000 tonnes of CO2 offsets over its lifetime.

Caribbean Projects In the Pipeline

Trinidad and Tobago – In 2009, the World Bank signed the first emission reduction purchase agreement with Trinidad and Tobago to reduce emissions through the restoration of the Nariva wetlands in the country. It will be the country's first project. (Trinidad and Tobago: Nariva ecosystem restoration and carbon sequestration, 2009)

Guyana- Hydro Electric Dam Project – ENMAN Services Limited of Port of Spain, Trinidad, has developed the Turtruba Hydropower Project. The 800-MegaWatt hydropower development on the middle Mazaruni River in Guyana at Tortuga Falls is awaiting funding to continue its development. (PR Hub, 2009)

Scope for Additional Project Development

There are many areas that Caribbean businesses, governments and NGOs can develop meaningful, quality carbon offset projects.

Areas that would fill the immediate need for projects are:

Afforestation/Reforestation projects
Energy Efficiency projects
Hydro power projects
Solar power projects

These projects will also have indirect benefits besides the obvious reduction of fossil fuel dependence. Afforestation/ Reforestation will improve biodiversity and increase rainfall in reforested areas; while energy efficiency measures will insure financial savings for energy consumers. Hydropower and solar power projects will improve the technical know-how in the country and each of these projects if implemented will generate income over time that can be used to further develop our long term energy plan for increased sustainability and energy independence.

Challenges

At this moment, the challenges are mainly lack of information about the great potential this sector has as well as lack of financing for these projects. Investors prefer to put their revenue in larger projects. Also, they would like the developer to take the initial risk in the project design and implementation. With the availability of funding to develop projects however, there would definitely be an increase in the amount of projects on offer from the Caribbean.

Figure 1: Wigton Wind Farm

Figure 2: Caribbean Home 1

With the above challenges overcome, a vision of a Caribbean that is clean and green, driving core industries such as tourism and agriculture with carbon offset capital would be on course for achievement.

Conclusion

The Kyoto Protocol is a significant achievement of the 21st Century. Carbon Trading has tremendous possibilities for the Caribbean and can be the catalyst to reduce fossil fuel consumption and drive renewable energy and energy efficient technologies in the region. Although there are few Caribbean organizations involved in carbon trading, there are pioneers in the field that can help to further develop the industry for a sustainable future.

Works Cited

Kyoto Protocol “Wikipedia, the free encyclopedia”, http://en.wikipedia.org/wiki/Kyoto_protocol

List of countries by carbon dioxide emissions, “Wikipedia, the free encyclopedia” http://en.wikipedia.org/wiki/Carbon_emissions_by_country

“China Carbon”, http://www.chinacarbonfund.com/

Tvinnereim, Endre, Kjetil Røine and Carina Heimdal. Point Carbon, Carbon 2009: Emission Trading Coming Home. http://www.pointcarbon.com/polopoly_fs/1.1083376!Carbon%202009-Emission%20trading%20coming%20home.pdf

UNFCCC, Executive Report 2009 Clean Development Mechanism http://unfccc.int/resource/docs/publications/cdm_annual_report_2009.pdf

PR Hub, http://blog.taragana.com/pr/brazilian-involvement-in-guyana-hydropower-project-opens-up-new-opportunities-7556/

Eco Securities Ltd. Wigton Wind Farm Project, Project Design Document, http://cdm.unfccc.int/UserManagement/FileStorage/FS_108256551