Briefing

How to stay ahead in a low-carbon global economy

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Key messages

- Cver the next ten years, global trade patterns will be transformed by natural resource scarcity, climate change and international mitigation policies, resulting in an inevitable shift to a low-carbon global economy.
- Caribbean countries can embrace this shift through the development of a long-term multi-sectoral green growth strategy as an opportunity to create new and enhance existing competitive advantages.
- Energy is a key component of this shift. The development of the green energy sector within the region can reduce energy costs and increase long-term competitiveness. Energy efficiency measures and the removal of fossil fuel subsidies can further bolster competitiveness both at the micro and macroeconomic level.
- The development of biofuels, in countries like Guyana and Suriname, can take advantage of a growing global market, help develop and diversify local agricultural sectors and improve energy autonomy. Conversely, fossil fuel export revenues can be used to invest in green energy infrastructure.
- The regulatory process plays an equally important part. The development and use of regulatory standards in sectors such as tourism and manufacturing can help signal the green credentials of Caribbean companies, improve natural resource manage and facilitate market entrance in regions with high environmental standards.

Current models examining the possible implications which such changes may reflect for low-income countries include a look at best practices from countries such as Kenya, Cambodia and Nepal, some of which may also prove relevant for the Caribbean context. To this end, ten key measures were identified by the ODI which could help such countries to remain competitive in a future low-carbon global economy. These ten measures further assisted in examining the Caribbean context and may be seen to sum up the various observations and recommendations already examined within this paper.

Develop a green-energy sector

The Caribbean region is characterized by one of the world's highest per capita energy costs, heavily reliant on high price imported distillate and heavy fuel oil (Nexant, 2010). Policies may be put in place by governments to facilitate trade and to address local demands. According to a Nexant (2010) report for the World Bank, a scenario in which interconnection or renewable energy is introduced within a regional Caribbean strategy shows savings worth up to 32 USD billion under a base case scenario (Ginelle Greene, 2014). According to the ODI (2014), renewable energy costs are expected to fall as technologies mature. This would avoid the need for any future costly mitigation measures and could be supported through new sources of climate finance. In the transition into a greener economy, the issue may also often arise where firms may not wish to engage with new processes or technologies due to their high upfront costs or risks.

In response to this, policies may be put in place to help reduce such costs. Policies introduced by the case of Barbados may provide several examples in this regard. The government has enacted several pieces of legislation aimed at encouraging investment within green business activities. Such legal framework takes the form of a number of tax incentives that translate not only into substantial cost savings but also encourage sales of "green" products and services by making them more affordable to consumers (BIDC, 2014). Under Section 12 of the Barbados Income Tax Act individuals are allowed to claim an initial allowance of 20% on the purchase on capital equipment such as plant and machinery, in addition to this certain green business activities may be entitled to an investment allowance.

An example of this would be the use of recycled plastics to produce new plastic products by a company could entitle it to claim an investment allowance of 20% of the expenditure incurred in respect of machinery or plant. Furthermore, companies manufacturing "green products", are allowed to claim an annual allowance of 150% of the capital expenditure for the assets used in the business. Similar additional incentives may be found under the national Income Tax Act and Customs Tariff which grant deductions and customs duty exemptions for green goods such as those related to renewable energy and energy efficiency (BIDC, 2014).

Use fossil-fuel reserves wisely

Between the years of 2010 and 2011 the petroleum industry contributed to 40% of Trinidad & Tobago's GDP. [2] Countries with fossil-fuel reserves, such as Trinidad & Tobago should take strategic decisions to utilise such resources towards supporting the development of renewable energy e.g. for export purposes as well as investing current revenues into the development of renewables. Also important is to outline a clear direction for energy policy, thus helping to minimize uncertainty for private investors in renewables.

Take advantage of firms' innovation to generate their own green electricity

The ODI (2014) highlighted key examples of innovation within developing countries. One example highlighted Kenyan manufacturing and agribusiness firms investing in their own mini-hydro power plants, geothermal plants, co-generation from sugar production, solar panels and waste-to-energy installations. One firm, a cement factory, included a customer service relations component. Other firms were also observed to establish their own tree plantations, creating a sustainable supply of fuel wood and avoid depleting forests. Instances where such initiatives take place in rural underserved areas, renewable energy could provide access to energy which otherwise would have been unavailable. From the perspective of a firm this may legitimise the reason to implement green measures while allowing for further opportunities into other 'green' sector activities.

Within the Caribbean, similar steps of innovation may be observed in Barbados in the area of solar water heaters and photovoltaic technology for electricity generation. Backed by the government, the solar water heater industry has been able to save the country over 100,000 MWH of energy and millions of dollars' worth of fossil fuel imports amounting to consumer savings valued up to 425 USD million (Greene, 2014). However such trends have yet to be transferred into the photovoltaic industry due to the need for; an appropriate policy framework,

1 Barbados Investment and Development Corporation(http://www.bidc.org/index.php?option=com_content&view=article&id=145:green-business-incentives&catid=87:news-archives&Itemid=167)

2 Central Statistical Office, Ministry of Planning and Sustainable Development Trinidad & Tobago, 2012.

including feed-in tariffs, the establishment of mini-grid frameworks, and net metering mechanisms to encourage further investment in these alternative energy solutions, thus improving competitiveness and increasing the energy supply.

Promote energy-efficiency measures

Private sector investment in energy efficiency may prove critical for the advancement of a low carbon economy. For example a best practice which may be referenced is an UNCTAD pilot project in Cambodia. Pioneered with a garment factory, £100,000 were invested in energy-efficiency measures which lead to cost savings of nearly £400,000 per year. Similar energy efficiency and green related Policy measures may also be put in place within the CARIFORUM region, which may help encourage the private sector in this direction. An example of this may be observed in Kenya where mandatory energy audits were introduced. In Kenya this was conducted via a staged approach, which firstly involved the targeting of large firms with energy efficient measures. Implementations of measures were then consequently rolled out with small and medium-sized enterprises (SMEs). A key observation to note with the Kenyan government's experience were the attempts to fine tune the degrees of efficiency measures implemented according to the size of the firm.

Remove fossil-fuel subsidies

According to the ODI (2014), "subsidizing fossil fuels encourages inefficient energy use, undermines competitiveness and incentives for development of renewables, and imposes a heavy financial burden". An example given in this regard was the Nepal Oil Corporation which "accumulated subsidy-related losses of around US$315m". The Caribbean country of Trinidad & Tobago may be examined in such a similar context where the hydrocarbons sector accounts for over a third of GDP and over 80% of the export sector (CARICOM Secretariat, 1996) and "continues to be the mainstay of the economy" (CARICOM Secretariat, 2005). The fossil fuel dependent CARIFORUM economy is also one in which the domestic market is heavily subsidized by the government.

The International Monetary Fund (IMF, 2013) highlighted the particular concern for such costly fuel subsidies, which disproportionately benefit the wealthy and contribute to severe road congestion that is materially harming. However the IMF (2013) also cautions that the removal of such subsidies should be phased in nature to avoid the risk of rapid inflation, removed over a medium-term basis. This may be accompanied by policies which encourage conversion to the use of alternatives such as the utilisation of compressed natural gas.

In the sustainable aim towards a green economy, such policies may also promote the use of hybrid or electric vehicles. The IPCC's Fifth Assessment Reports (AR5, 2014) related to small island developing states (SIDS), topic on transportation indicated that such vehicular transitions may be feasible within the next couple decades. As such, a staged approach may be most appropriate for resource dependent countries. This should be accompanied by the implementation of new energy distribution infrastructure, accompanied by appropriate pilot testing of technologies to local contexts.

Such an approach would seek to improve the efficiency of any infrastructure charges within the economy, while avoiding any major investments into potentially inefficient technologies. This may also help to circumvent the experience of 'first mover disadvantage', a concern which was largely identified at the firm level and may also prove to be a concern applicable at the economy-wide level. According to the IMF such steps may decrease the cost of fuel subsidies which in Trinidad & Tobago are currently granted only on petroleum-based fuels.

Take advantage of the growing market for biofuels

Global demand for biofuels is expected to more than double to a value of around US$185 billion over the 2010-2021 period (Navigant Research, 2011), with biofuels estimated to have a higher income potential than that of traditional crops (ODI, 2014). Consequently there could be merit in promoting dual crops, which can be used for both food and biofuel, such as sugar, cassava, sweet sorghum, or castor. This could raise incomes and enable farmers to diversify their livelihoods, helping to promote both food and energy security, if a domestic market for biofuels can also be established. Such benefits however could only be experienced in the case where a surplus of dual crop production occurs, facilitated by the right growth conditions and an effective mitigation policy to address the foreseen effects of crop substitution on food imports by implementing countries.

Countries such as Suriname and Guyana may have huge potential in the area of biofuels, to promote economic growth of an already significant agriculture sector while encouraging enhanced competitiveness. According to the Ministry of Agriculture, Animal Husbandry and Fisheries (2013), Suriname has great agricultural potential in terms of agro-ecological conditions and land that could be brought (back) into production. Agriculture remains an important economic activity in Suriname, providing employment and income to some 17% of the economically active population.

Guyana's vast availability of productive land also presents enormous opportunities for growth within the Caribbean region. Agriculture already represents a significant proportion of Guyana's domestic production accounting for approximately 25% of GDP and with agricultural exports amounting to over a third of Guyana's

total exports in 2004 (Guyana Office for Investment, 2013). As such biofuels may be used as an industry to revitalise the agriculture sectors of these countries as a strategic part of national strategies employed.

According to the Guyana Office for Investment (2013 such progress has been a result of the government's effort to diversify the sector. Based upon the potential observed, following best practices of other countries within the region such as Brazil, such government policies may also explore opportunities available for a biofuel industry. Haiti is another Caribbean country where potential may exist within the biofuels industry as a tool for growth, by maximising the cheap labour supply available within the country. Currently a project run by Biodiesel Haiti aims to establish jatropha, a Central American tree whose seeds can produce up to 40% oil. However governments may need to take further steps to ensure demand and secure investment capital by passing necessary laws.

Some regional success may be observed in the case of Brazil with thirty year programme with a strong State role, technological developments and a growing role for biofuels in the transportation system (Jim Loney, 2007). In Brazil, 98% of ethanol was produced from sugarcane crops (FAO, 2012). In this regard, a decline has been observed in the activities related to the co-products of the bioethanol industry for example livestock operations. Such co-production activities used to be large, however recently this has declined significantly raising concern for livestock sectors such as the beef industry (P. M. Meyer et. al., 2013). This may display a demand to produce food products only in relation to the more lucrative market of energy rather than for food supply and thus have impacts on food security leading to issues such as import substitution for agricultural activities which do not also have an energy related purpose.

The Caribbean countries may also seek to explore the exploitation of international trade agreements and other arrangements in place which may give them an advantage in the area of biofuels. The Caribbean Basin Initiative (CBI) may be one such example. The arrangement is a broad program which aims to promote economic development through private sector initiatives in Central American and Caribbean countries. A major goal of the initiative is to expand foreign and domestic investment in non-traditional sectors and thus diversify the beneficiary countries' economies and increase their export activity. The arrangement is governed by the 1983 Caribbean Basin Economic Recovery Act of (CBERA) which was amended in 2990 and the year 2000 covering a broad range of products from CBI countries granting duty free access to the US market (US Department of Commerce, 2000).

The 1983 Caribbean Basin Initiative (CBI), which has a 54-cent-a-gallon tariff, creates an advantage over Brazil. Costa Rica, El Salvador and Jamaica have already exported ethanol to the United States (US). Additionally, Jamaica and Costa Rica triangulate trade in ethanol to the US, taking advantage of tariff preferences. Overall, global trade in biofuels will depend on the availability of new technologies, the implementation of standards for the sustainable production of biofuels, and discussions regarding protectionist measures such as tariff barriers. Other important issues which may affect the development of such a local industry may include food availability and the appropriate public policy incentives which may play a role in bio-fuel trading activities.

In this regard, an adequate institutional framework is necessary for developing and maintaining a biofuels system that is economically efficient, socially equitable and environment friendly. To this end the strong institutions in the legal or political and regulatory frameworks that produce policy, strategy and action which may impact the economic, social and environmental spheres of the implementing country would be needed. Furthermore, the effectiveness of public policy will require a proper information system, technical capacity, research and development, and reliable monitoring of progress toward meeting objectives (Hector Pestonesi et. al., 2008).

Implement environmental regulation, standards or certification in the manufacturing sector

The ability to keep pace with environmental standards or certification has increasingly become a requirement to access international markets. For example, '10 Saint's Brewery Co. Ltd.' a Barbadian beer company needed to comply with a local German recycling programme in order to successfully export to the target market (Glyn Partridge, 2014). The role of trade policy may prove integral in addressing compliance with certification and standards requirements for such non-tariff measures which can pose technical barriers to trade (TBT) for developing economies. Other areas of concern in this regard include compliance with sanitary and phytosanitary (SPS) measures and private standards such as food miles, carbon footprint as well as eco-labeling requirements (Ginelle Greene, 2014). As such in order for small economies, such as those of the Caribbean states, to effectively leverage opportunities in a low-carbon economy it may be integral to strategically target specific markets in a phased approach in order to minimalize operational costs when entering new markets.

Support farmers in the transition to sustainable agricultural practices and carbon footprinting

Ancharaz (2013) identified agriculture as one of the major sectors most exposed to climate change induced events in the Caribbean (Ginelle Greene, 2014). The region is particularly characterized by food security problems, demonstrated by extremely high food import bills estimated at an average value of 4 billion USD in 2008 (FAO, 2011). According to the ODI (2014) support should be provided in order to "meet future

certification requirements, enhance yields, ensure long-term sustainability of production, and capitalize on projected rising global food prices" through use of techniques such as zero-tillage and improved irrigation systems. The development of organic agriculture production and the development of the key quality infrastructure systems may be one example of a potential area of domestic and export potential.

According to Greene (2014), the global market for organic food and beverages is projected to grow to 105 USD billion by 2015, from the total value of 62.9 USD billion in 2011. In the UK it was estimated that the agriculture sector had the potential to save approximately 1.3 billion Euros through improved environmental management practices (Ginelle Greene, 2014). The role of National Adaptation Programmes of Action (NAPAs) or National Action Programmes (NAPs) may prove critical towards achieving such potential benefits. These action plans may pinpoint key cooperation partners and their roles within strategic areas of an innovation governance agenda, for example knowledge and technology transfer, innovation stimulation via R&D, joint venture projects and the formation of regional think tanks as well as professional networks towards supporting a transitioning and more competitive Caribbean agriculture sector.

Develop economic sectors that capitalize on forest resources and encourage sustainable forest management

According to the ODI (2014) this may refer to activities such as wildlife tourism, or non-timber forest products such as medicinal and aromatic plants (MAPS) which encourage conservation of forest assets and an additional source of income for indigenous forest communities. Caribbean countries such as Suriname and Guyana, the Dominican Republic, Dominica among others which have an abundance of varied flora and fauna may have a strong potential competitive advantage in the market for MAPS. The sector is estimated to grow by 8-10% per year globally. Caribbean economies production and export ability may be developed to take advantage of this.

Additionally, the area of ecotourism demonstrates an even faster growing sector at around 20% per year with new opportunities emerging from the growing environmental, social and cultural awareness of visitors. Caribbean countries have already capitalised on their wildlife and nature in this manner with tremendous earning capacity as eco-tourism revenue earners. Examples may be pinpointed from Dominica's nature trails, to Belize's Mayan ruins, St Lucia's drive-in volcano, the Sulphur Springs or the historic Pigeon Island reserve (Greene, 2014). However, both sectors need regulation in order to ensure that they are managed sustainably (ODI, 2014). Such regulations may include private sector incentives such as tax breaks, legislation changes and public awareness campaigns.

Establish green credentials for the country's tourism and other major sectors

The Caribbean is the most Tourism and Travel intensive region of the world. According to the Caribbean Hotel and Tourism Association (2011) the industry's total contribution amounted to 14% of GDP, 13% of employment, 12% of investment and 17% of exports (Ginelle Greene, 2014). Increasing international emphasis on environmental responsibility will reward those tourism destinations that are perceived as relatively green, and early converts to sustainable tourism will make market gains. As such, establishing a brand such as a 'green tourism destination' will be important to creating a competitive advantage for the future (ODI, 2014).

Furthermore, policies which encourage the development of non-traditional branches of tourism may be also adopted, that is; a shift to low-volume, high-value tourism and a shift to pro-poor, eco-friendly tourism. According to the ODI (2014), there is much to be gained if policymakers and businesses start thinking now about how to manage the risks and capitalize on opportunities, positioning themselves for success in a low-carbon global economy. Such policies of green accreditation however may span across to other sectors of significance such as the manufacturing, agro-processing industries etc. An example of such moves may already be observed within Barbados with the architecture and construction services sector with the establishment of a Green Building Council, which broadly aims to develop and transform the buildings and communities towards the practice of sustainable development standards.

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