



United Nations

ECLAC

ECLAC SUBREGIONAL HEADQUARTERS FOR THE CARIBBEAN

FOCUS

Magazine of the Caribbean Development and Cooperation Committee (CDCC)

INVESTING IN THE CARIBBEAN FUTURE



ISSUE 3 / JULY - SEPTEMBER 2018

ABOUT ECLAC/CDCC

The Economic Commission for Latin America and the Caribbean (ECLAC) is one of five regional commissions of the United Nations Economic and Social Council (ECOSOC). It was established in 1948 to support Latin American governments in the economic and social development of that region. Subsequently, in 1966, the Commission (ECLA, at that time) established the subregional headquarters for the Caribbean in Port of Spain to serve all countries of the insular Caribbean, as well as Belize, Guyana and Suriname, making it the largest United Nations body in the subregion.

At its sixteenth session in 1975, the Commission agreed to create the Caribbean Development and Cooperation Committee (CDCC) as a permanent subsidiary body, which would function within the ECLA structure to promote development cooperation among Caribbean countries. Secretariat services to the CDCC would be provided by the subregional headquarters for the Caribbean. Nine years later, the Commission's widened role was officially acknowledged when the Economic Commission for Latin America (ECLA) modified its title to the Economic Commission for Latin America and the Caribbean (ECLAC).

Key Areas of Activity

The ECLAC subregional headquarters for the Caribbean (ECLAC/CDCC secretariat) functions as a subregional think-tank and facilitates increased contact and cooperation among its membership. Complementing the ECLAC/CDCC work programme framework, are the broader directives issued by the United Nations General Assembly when in session, which constitute the Organisation's mandate. At present, the overarching articulation of this mandate is the Millennium Declaration, which outlines the Millennium Development Goals.

Towards meeting these objectives, the Secretariat conducts research; provides technical advice to governments, upon request; organizes intergovernmental and expert group meetings; helps to formulate and articulate a regional perspective within global forums; and introduces global concerns at the regional and subregional levels.

Areas of specialization include trade, statistics, social development, science and technology, and sustainable development, while actual operational activities extend to economic and development planning, demography, economic surveys, assessment of the socio-economic impacts of natural disasters, climate change, data collection and analysis, training, and assistance with the management of national economies.

The ECLAC subregional headquarters for the Caribbean also functions as the Secretariat for coordinating the implementation of the Programme of Action for the Sustainable Development of Small Island Developing States. The scope of ECLAC/CDCC activities is documented in the wide range of publications produced by the subregional headquarters in Port of Spain.

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FOCUS: ECLAC in the Caribbean is a publication of the Economic Commission for Latin America and the Caribbean (ECLAC) subregional headquarters for the Caribbean/Caribbean Development and Cooperation Committee (CDCC).

EDITORIAL TEAM:

Director	Diane Quarless, ECLAC
Editor	Alexander Voccia, ECLAC
Copy Editor	Denise Balgobin, ECLAC
Coordinator	Sheldon McLean, ECLAC
Design	Blaine Marciano, ECLAC

Cover Photo: Courtesy Pixabay.com

Produced by ECLAC

CONTACT INFORMATION

ECLAC Subregional Headquarters for the Caribbean
PO Box 1113, Port of Spain, Trinidad and Tobago
Tel: (868) 224-8000
E-mail: spou-pos@eclac.org Website: www.eclac.org/portofspain



DIRECTOR'S DESK: INVESTING IN THE CARIBBEAN FUTURE

This issue of FOCUS is of particular importance to our subregion; the topics covered address ways to build resilience in the Caribbean. Each of the articles offers innovative approaches to addressing key challenges facing Caribbean economies, demanding the attention of policy makers and planners alike.

We start with a look at the factors that limit the deepening of trade, the life blood of the subregion. This first article therefore posits key considerations to stimulate trade in the Caribbean, while the second explores the need to advance Green Industry development, using the Green Climate Fund (GCF) to help finance climate adaptation and mitigation projects. The third looks at the remarkable oil discovery in Guyana and considers the possibility of the so called “resource curse” that may result if development is not pursued in a balanced fashion, not bolstered by good governance. Finally, we examine oil price volatility to determine whether there may be implications for government policy, within the industry.

In describing the precipitous decline in trade performance of the subregion, this issue explores whether a wider regional engagement to include Latin America is necessary to build regional value chains and to overcome economies of scale. We seek to make the case for the removal of supply-side capacity constraints, as well as for promoting a private sector-embedded regional industrial policy predicated on a more equitable distribution of the gains

of intra-Caribbean market integration among the member countries. This means paying attention to local challenges that arise from the regional integration and finding a mechanism to enforce agreements to which member states have agreed. This is a tall order but there may be few options left for the Caribbean, given the limits of the CSME.

As regards Green Industry development, future growth will likely be found in this area given changing tastes and growing popular concerns regarding the environment. A number of potential areas for green growth are identified, including several forms of renewable energy and the export of education and health services. We also argue that government can pursue procurement policies to help encourage green projects. Innovative financing for green industrial development such as the issuing of green bonds and the use of PPPs is also highlighted. A critical issue raised is the challenge presented by the procedures and modalities for accessing GCF funds. These are notoriously rigorous and complex.

Our exploration of the domestic and

regional implications of the oil and natural gas discoveries in Guyana is illuminating. With commercial production expected to start in 2020 and to continue for at least two decades, the country’s per capita income is likely to move from its position as one of the lowest in the Caribbean to one of the highest within 10 years. It is our hope that through prudent resource management and the strengthening of local institutions, Guyana will maximise the welfare gains from its oil discovery.

Yours in Focus

A handwritten signature in dark ink, appearing to read "Diane Quarless".

Diane Quarless



FOSTERING TRADE-DRIVEN REGIONAL INTEGRATION – A FEW IMPORTANT CONSIDERATIONS FOR THE CARIBBEAN

Sheldon McLean

Caribbean economies share of global and regional trade remains low at an estimated 0.14 per cent, notwithstanding their relatively open economies and their resolute embrace of trade liberalization.

There seems to be little appetite for quickening the pace of regional integration. The implication is that intra-regional trade within the Caribbean subregion is not an engine of export-led growth for the subregion, as was envisaged when the subregion embarked on the establishment of the CARICOM Single Market and Economy and concluded the Economic Partnership Agreement with the European Union (2008). Indeed intra-regional trade accounts for just under 10 per cent of the region's total trade in 2017, which is lower than that of the EU-27, SICA, ASEAN and MERCOSUR. It is also evident that bilateral Free Trade Agreements (FTAs) have not yielded the intended broad-based expansion in exports as utilization rates, with the exception of the Economic Partnership Agreement with the European Union, are under three percent.

It is to be noted that most Caribbean States have registered persistent current account deficits of varying degrees over the last 10 years, with the regional average in 2017 standing at 7.7 per cent of Gross

Domestic Product (GDP) (See Figure 1). The fact that for many subregional economies, particularly the more highly indebted, the post-crisis period has seen the institution of fiscal consolidation measures, may have restrained trade. High debt coupled with debt repayment commitments, have limited resources available for building export capacity and fostering private sector development. Thus, constrained trade facilitation efforts have inhibited export growth. In addition, soft commodity prices and the devastating effects of climate-related natural disasters on productive sectors in recent years, has further highlighted the need to build resilience in Caribbean economies.

It is difficult to address the challenges highlighted by continuing to concentrate on achieving full implementation of the CARICOM Single Market and the ad hoc negotiation of additional market access for export goods with extra-regional economies. It is argued that the solution lies in a rethinking - a re-engineering as it were - of the basis of the Caribbean's

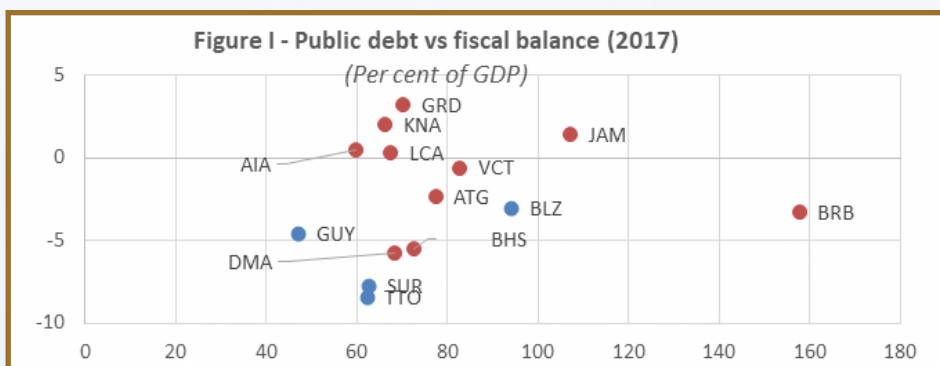
trade-driven regional and multilateral integration, in order for greater welfare gains to accrue to the region. In this context, this article seeks to succinctly explore what may be some of the key missing elements of the approach to re-energizing trade-based regional integration and what should be the new foundation of this regionalism.

TRADE PERFORMANCE AND OPPORTUNITIES FOR EXPORT EXPANSION

Caribbean export performance has not improved significantly in recent years and there has been little movement up the regional or global value chain. In fact, the Caribbean's export of goods has generally trended downwards since 2008.

Furthermore, ECLAC's analyses indicate that the production and exports of Caribbean goods are extremely specialized and concentrated in a few major markets, particularly the US and the EU, with the intra-regional market being the third largest. Interestingly, however, some of the market share lost by the United States since 2005 has gone to Mercosur.

Further, a perusal of the trade concentration index¹ shows that Caribbean countries are far more specialized in fewer products compared to the world average or even to that of other small island developing States (SIDS) on average. In fact, many Caribbean countries depend on the

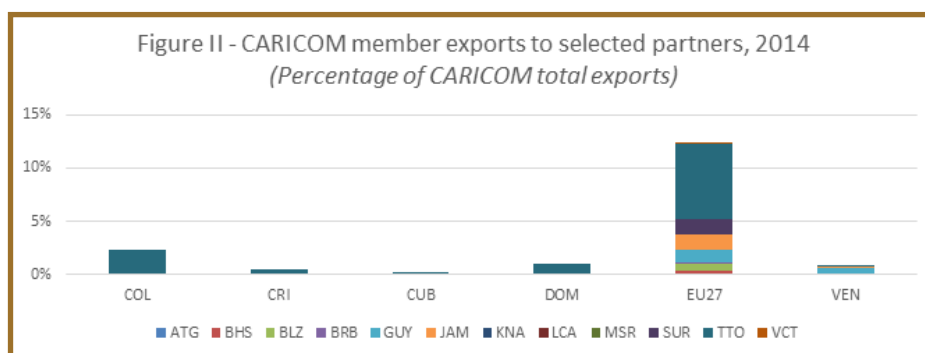


¹ The trade concentration index provides an indication to which degree exports and imports of individual economies or of groups of economies are concentrated on a few products rather than being distributed in a more homogeneous manner among several products. An index value closer to 1 indicates a country's exports or imports are highly concentrated on a few products. On the contrary, values closer to 0 reflect exports or imports are more homogeneously distributed among a series of products.

export of a few agricultural products, mineral resources and the tourism sector for foreign exchange earnings. The Caribbean's export concentration index (ECI), however, has fluctuated over the period 1995 to 2016. In 2016, the ECI of the services producing economies (0.37) was lower than that of the goods producing economies (0.41). This suggests that the product exports of the former were more evenly distributed among several products.

The Caribbean's trade balance with most of the Western Hemispheric countries with which it has bilateral trade agreements has deteriorated during the past decade. Moreover, Trinidad and Tobago has dominated the region's exports to Columbia, Costa Rica and the Dominican Republic accounting for a share of in excess of 90% in each case,² largely in energy-related products. (See Figure II).

The Eastern Caribbean Currency Union (ECCU) countries account for only 4 per cent of CARICOM exports to the Dominican Republic and have marginal exports to Cuba. Recent research conducted by the ECLAC subregional headquarters for the Caribbean reveals that the subregion has a marginal comparative advantage with the countries of the Greater Caribbean such as Cuba and the Dominican Republic, and possesses even higher levels of comparative advantage vis-à-vis Central and South American economies. In the case of Cuba, the Caribbean Community has comparative advantage in non-alcoholic beverages, pesticides and disinfectants, organic chemicals, and wood products. Hence, it may be useful for the private sector to explore opportunities for increasing investment and production in these subsectors, as well as engaging in increased trade facilitation efforts, with a view to expanding exports to Cuba.



Source: WITS database

Perusal of computed Trade Complementarity and Grubel-Lloyd Indices³ reveals that Caribbean economies also possess relatively higher levels of trade complementarity and potential for intra-industry trade among each other and with South and Central American countries, when compared to their other major trading partners such as the EU, US and Canada. Significant un-tapped opportunities therefore exist for cross-regional production integration and value-chain creation not only intra-regionally but also with Central and Latin America. These would provide a viable platform for investment and development cooperation geared towards increasing the Caribbean's exports at the extensive margin.⁴

BROADENING THE SCOPE OF DIVERSIFICATION AND INTEGRATION EFFORTS

The foregoing analysis may imply that, in order to be effective, the region's integration efforts should extend beyond the borders of the Caribbean, not only to achieve the requisite scale needed to bring down marginal costs, but also to provide the necessary demand-pull to incentivize production.

However, before the Caribbean region considers pursuing new vistas of regional integration, which favour deeper trade and economic integration with Central and Latin America, it must

incentivize the institutional machinery of the Caribbean Community and the mechanics of the Single Market to deliver the competitiveness, trade and welfare gains on which the current Caribbean regionalism movement was premised. This means greater intervention by subregional governments and private sector in the production of regional public goods (etc. in the form of ICT and e-governance platforms, renewable energy sources, inter and intra-regional transport mechanisms etc.) that are crucial for structural transformation of Caribbean economies.

What is equally crucial is removing supply-side capacity constraints, as well as formulating a private sector embedded regional industrial policy predicated on a more equitable distribution of the gains of intra-Caribbean market integration among the member countries. This means paying attention to local challenges that arise from the regional architecture. This rebalancing should allow the Caribbean Community Secretariat and other regional institutions to seek remedies if there is lack of enforcement. These have increasingly emerged as necessary antecedents to the achievement of production integration and trade-led growth envisaged in the current regional integration process.

► (continued on page 6)

² 2014 was the last year for which a complete set of data could be sourced.

³ The trade complementarity index measures the extent to which the export profile of one country (or country group) complements or matches the import profile of another country (or country group). The Grubel-Lloyd index captures various types of intra-industry trade, with G-L index lower than 0.1 indicating that existing bilateral trade in largely inter industry, with no production integration.

⁴ Trading patterns usually evolve along two major margins: at the intensive margin there is a change in trade volumes between established bilateral trading partners; while at the extensive margin new trading relationships are established where either old or new products are traded.

FOSTERING TRADE-DRIVEN REGIONAL INTEGRATION – A FEW IMPORTANT CONSIDERATIONS FOR THE CARIBBEAN

The restructuring and modernization of regional production systems also requires incentivizing the private sector to drive this process. To illustrate, the Caribbean's efforts at diversification have traditionally been horizontal in nature, with insufficient focus on involving the private sector into an agenda of government policy interventions geared at capitalizing on opportunities for the regionalization of the production of goods and services. The declining fiscal performance and high debt servicing costs of many Caribbean economies will constrain the ability of governments to meaningfully confront the issues of structural gaps and export expansion without meaningful private sector investment. Moreover, the experience of large exporters who have successfully gone through the process of self-discovery and have the means of cross-subsidizing the development of new exports sectors to new as well as existing markets should be drawn upon.

To address the structural features identified above, regional economies must move to a comparative advantage-based incentivizing of their diversification efforts through, among other things, crafting a harmonized suite of fiscal incentives, concessionary credit, loan guarantees, export financing and insurance, procurement policies and region-wide export strategies, targeting a balanced increase in intra-regional trade as well as exports of goods and services to Latin America and the wider Caribbean in the first instance. Fiscal and other incentives must be deployed based on empirical justification with a sunset clause for their phasing out.

Moreover, the Revised Treaty of Chaguaramas has provisions for harmonized fiscal incentives which were never pursued; and the ECCU economies, which have established an economic union, may be a good place to start. In addition, policy makers should renew efforts to incorporate competition policy, dispute settlement and safeguard provisions into the region's current

(where they do not exist) and future bilateral trade agreements with Western Hemispheric and other countries.

Countries should also embark on an aggressive agenda of building the export capability of the services subsectors, such as tourism, creative, education, maritime, health, professional, financial, engineering, architecture and construction industries. This is necessary to counterbalance the dominance of factor endowment-based exports in the goods-producing economies. This in turn should be accompanied by an exploration of the appetite for negotiating de facto services market access in Latin American and other key markets as far off Africa and Asia.

It may also be useful to establish a regional framework for the periodic conduct of market intelligence, market entry requirements, export potential, and investment opportunities for research in Latin America, inclusive of a mechanism for the dissemination of the results established.

Moreover, opportunities for South/South and triangular cooperation with the Central and South American region should be pursued by individual Caribbean economies, and this wider integration process leveraged to build regional production value chains. Under such conditions, the regional integration process and the nexus of RTAs, FTAs and other regional integration frameworks may stand a chance of becoming net trade creating, efficiency enhancing and welfare optimizing.

CONCLUSION

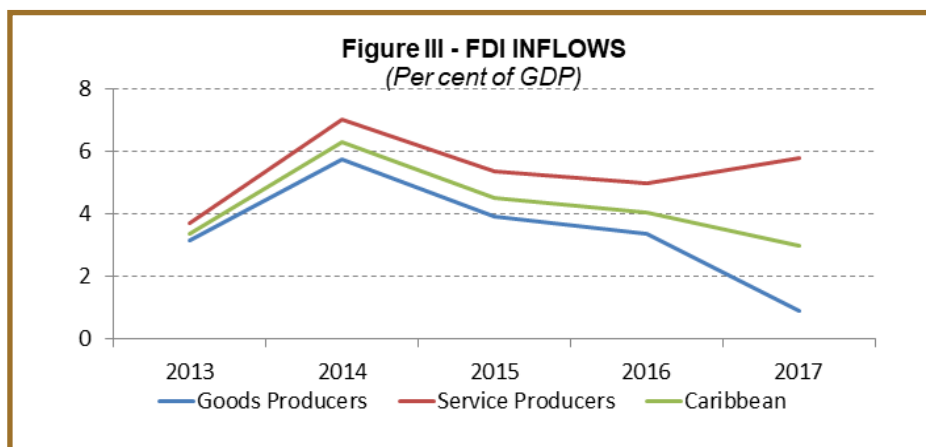
The Caribbean Community's trade-related industrial policy-setting should be guided by an appreciation that beyond the intra-regional market, the wider-Caribbean as well as the South and Central American economies provide the most viable options for facilitating the process of self-discovery. This in turn is necessary for any

successful engagement in comparative advantage-based production integration. However, the immediate priority may lie in putting one's house in order first.

The fact is the envisaged convergence to factor-price equalization and in wealth (between member states) just has not materialized. It can be argued, quite circularly, that this may be partially due to an asymmetry in factor-endowment (as well as technological development) and asymmetrical interintegration between member states (e.g the deeper integration amongst the ECCU economies). However, it is these very issues that the Revised Treaty of Chaguaramas and the movement towards establishing the CARICOM Single Market and Economy (CSME) were intended to address, which speaks to more of a deficiency in the architecture of the current interintegration framework.

Further, part of the reason why trade has failed to become a growth engine in the Caribbean lies in the inability to capture existing avenues for intraregional intra-industry commerce, particularly since the region's exports to major extra-regional trading partners such as Canada and the EU are largely inter-industry with absolutely no intra-industry linkages. This deficiency must be addressed with utmost urgency.

There should be cognisance that the region's areas of comparative advantage have been shifting towards the services sector. Hence the sector should be at the heart of any programme of economic restructuring, quickening intra-Caribbean market liberalization, and/or broadening the regional integration process. Moreover, while foreign direct investment inflows (as a percentage of GDP) into the Caribbean has been declining since 2014, there was an uptick in the services-producing economies in 2017. (See Figure III.) Given the re-emergence of a protectionist sentiment globally, it is important that South-South trade-relations within the Caribbean and between the Caribbean and Latin



America not be so influenced.

It is argued that adopting an approach to regional intergration which seeks to encourage implementation of commitments under the the Revised Treaty of Chaguaramas; rebalance intra-regional commerce; and re-enrgize intra-regional intra-industry trade - while embracing the wider Caribbean, as well as Central and Latin America - would expand both trans-regional trade and investment. In this way, fostering comparative advantage-led production integration (across goods and services sectors) will go a long way in making regionalism a powerful tool of the subregion's economic development. ■

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GREEN INDUSTRIES AND THE PROCESS FOR SECURING FUNDING FROM THE GREEN CLIMATE FUND

Hideobu Tokuda

Economic growth based on natural resource exploitation is not likely to be sustainable. The transition to a worldwide green growth model is expected to accelerate in the coming decades amid the growing consumer preference for green products.

In addition, other international drivers for green industry growth, including the COP21 climate agreement will incentivise such growth in the future. Indeed, World Bank (2014) expected that investment in renewable energy in 145 developing countries will amount to \$2 trillion over the period 2014-2023. The investment opportunity is expected to be largest in onshore wind power (\$0.67 trillion), with solar PV (\$0.48 trillion), small hydro (\$0.32 trillion), geothermal (\$0.19 trillion) and bioenergy (\$0.15 trillion) the next largest opportunities.

While long-term prospects depend on the future policy developments, OECD (2012) also conducted a simulation exercise under the assumption that greenhouse gas (GHG) emissions for the OECD areas are progressively reduced over the period 2013-2050, achieving 50% below their 1990 level in 2050. The simulation indicated that by 2030 value added in the solar and wind electricity sector could be 29.1% higher than it would have been in the absence of the climate mitigation policy. They also estimated that the value added in the combustible renewables and waste electricity sector and the hydro and geothermal electricity sector could be 26.3% and 10.3% higher, respectively. On the other hand, the value added in the fossil fuel-based electricity sector is estimated to be 41.7% lower. However, its negative impact on employment is expected to be small as long as countries have well-functioning labour

markets because labour intensity of the sector is low.

From a Caribbean perspective, green industries provide a double dividend since they could advance growth and simultaneously address climate change adaptation and mitigation. For example, green farming, the greening of buildings and green energy usage could contribute to disaster risk mitigation and adaptation through reducing the impacts of disasters and climate change in the Caribbean. Green industries are also expected to contribute to the balance of payment (BOP) by enhancing export competitiveness and domestic productivity.

Among the many areas for green industrial development, those bearing the greatest potential for the Caribbean region include the following: the green renewable energy which is a foundation for other sectors; the greening of traditional sectors such as agriculture and tourism; and the development of 'new' green activities and services such as education and health services for exports.

The majority of Caribbean countries are aiming to achieve self-sufficiency through renewable energy in the near future. A number of options have been considered in this regard, including hydroelectricity, solar, wind, biomass, geothermal and ocean energy. Barbados was an early pioneer in the use of solar water heaters in the region, while in

Guyana, Belize, Suriname, Jamaica and Saint Vincent and the Grenadines, the discussion on diversifying the energy portfolio mix has included hydropower. Guadeloupe has developed a 15MW geothermal power plant and other islands such as Dominica, Nevis and Saint Lucia have begun exploratory drilling for geothermal energy (Familiar, 2015). Jamaica has made good progress in the use of wind energy as well.

According to New Energy Events, the average price for utility-scale solar projects was US\$0.13 per kWh, while the average price for utility-scale wind projects was US\$0.11 per kWh in 2017. This means that the Caribbean region's renewable energy is now price competitive with cost of generation of diesel-fired thermal, and therefore these renewable energy projects would not harm the development of other industries in the region.

Among traditional sectors, agriculture provides good options for green growth in areas such as agro-forestry that integrates crop production and forestry, conservation agriculture with minimum land tillage and green house crop production. There are also significant opportunities for greening the tourism sector in the region. This is especially important as modern tourists are environmentally conscious and often factor this in their travel decisions. Furthermore, some 'new' green sectors can allow the region to optimise the use of indigenous knowledge through

¹ A regional trade arrangement (RTA) is a free-trade agreement, customs union or common market consisting of two or more countries.

R&D to create unique products that can capture niche export markets. This is especially the case for the creative industries, education and health and niche agriculture such as high value added cocoa production in Trinidad and Tobago and coffee in Jamaica.

The region would need to develop a green industrial value chain that would include financing, marketing, regulation and R&D, among other factors. The public sector is expected to undertake critical aspects of the infrastructure and institutional development including building regulatory capacity - a role which is stymied in highly indebted Caribbean economies lacking fiscal space. These circumstances are direct manifestations of the challenges facing Small Island Developing States (SIDS), which include narrow resource base; diseconomies of scale; environmental fragility to the impacts of climate change and natural disasters among others.

Critical to development a green industrial value chain is funding to build the required infrastructure and support services. Access to financial resources for addressing climate change and promoting green industries continues to be of great concern to Caribbean SIDS. In particular, the classification of the majority of Caribbean countries as upper-middle and high-income countries using the single indicator of per capita national income has prevented their access to concessional external finance.

In these circumstances, the Green Climate Fund (GCF), the funding mechanism created by the UN FCCC COP, aimed at helping countries invest in clean energy and green technology and build resilience, would be a key resource in financing green growth, since it represents the only large remaining source of concessional external funding available to Caribbean SIDS. It is also noteworthy that the

GCF accords special consideration to those countries, that are particularly vulnerable to climate change and allocates 25 per cent of the Funds' resources for adaptation activities in SIDS, Least Developed Countries (LDCs) and African States.

OVERCOMING PROJECT SIZE LIMIT OF ACCREDITED ENTITIES

In order to access GCF funding, there are a series of administrative layers with which the Caribbean policy makers must be familiar. Access to GCF resources is possible only through accredited entities, which can submit proposals to the Fund. The process of "accreditation" is designed to assess whether candidate entities are capable of strong financial management and of safeguarding funded projects against any unforeseen environmental or social harm.

Therefore, in accessing GCF's resources, it is necessary to engage an accredited entity as an interlocuter. A favourable development for the region is that a number of entities have been accredited to the GCF, including the Caribbean Development Bank (CDB) and the Caribbean Community Climate Change Centre (CCCCC). However, both entities have a US\$50 million limit on the value of individual projects. The Inter-American Development Bank (IDB) is also an accredited entity which can handle large (over US\$250 million) projects, but not all Caribbean economies are members of the IDB, as is the case with CDB. Hence, a framework which allows for the engagement of all three accredited regional entities may be the ideal modality for large-scale green projects to move forward in the Caribbean region.

RISK SHARING MECHANISMS FOR PRIVATE SECTOR ENGAGEMENT

Mobilising private capital is also crucial in order to achieve significant investment volumes. In this regard, GCF is

encouraging engagement of the private sector as it could maximize the impact of GCF funding.

The private sector would expect transparency, certainty and a clearly defined long-term investment horizon. Therefore, an appropriate approach to attract private capital is to combine both private and public capital in a public-private partnership (PPP) by setting up tailor-made risk reduction and risk sharing mechanisms in order to ensure a 'fair' return. One possible risk sharing arrangement could be that private sector entities would take less risk while donor countries may hold more. This type of structure mitigates risk for the private sector, thereby helping to leverage private capital for what may be considered high-risk investments. Such investment should be carried out in the context of transparency and accountability to avoid the public sector bearing all the risks and the private sector reaping the returns. In respect of innovative financing, Green Bonds could be used as a way to support the financing of PPP projects. Green bonds should be designed to have comparable credit risk and returns as conventional bonds, and therefore represent an important instrument to attract mainstream fixed income investors (e.g. insurance companies and pension funds). The bonds would need to be backed by real assets with sufficient cash flows to provide returns. In PPP projects, the Green Bond financing could be implemented through aforementioned risk reduction and risk sharing mechanisms. In addition, given the large diaspora communities which some Caribbean countries have in the North Atlantic countries, a variant of the Green Bonds, specifically diaspora green bonds, can also be a fillip to green industrial development.

► (continued on page 15)



GUYANA OIL PROSPECTS AND IMPLICATIONS

Machel Pantin

In 2015, oil and gas fields were discovered in Guyana's coastal waters, an event which will have far reaching implications for both Guyana and the region. The discovery was made by energy company Exxon Mobil, seven years after exploration started, and sixteen years after the exploration contract had been signed.

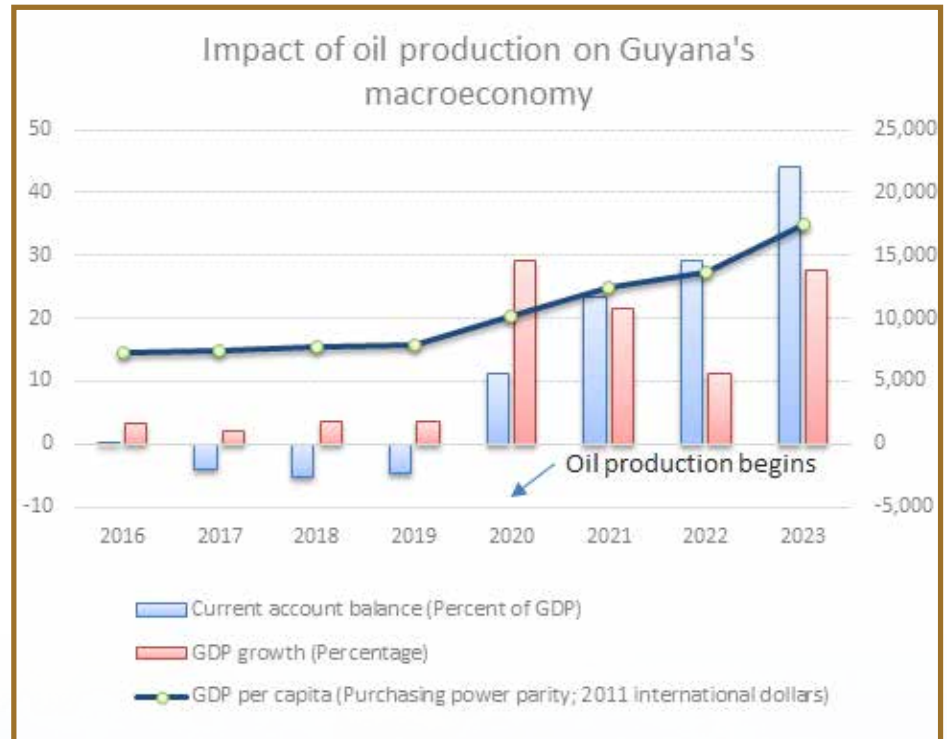
In the years since, significant deposits of oil were discovered in six other wells, resulting in the largest deep-water play in recent history. By June 2018, Guyana's oil reserves were estimated at 3.7 billion barrels.¹ It is estimated that production will eventually reach more than 500,000 barrels per day, or about 12.5 per cent of Exxon's current daily production.²

Given Guyana's small population of 0.8 million, most of the oil will be for export. Production is expected to begin in 2020 and continue for at least two decades. The oil will be extracted onto a floating production, storage and offloading (FPSO) vessel, from which it will be exported directly, rather than being brought to onshore facilities. The FPSO, which is essentially a floating industrial complex, separates the oil from gas and water, and stores the oil. It can process 120,000 barrels of oil per day and is capable of storing 1.6 million barrels of oil.

DOMESTIC IMPLICATIONS

As one of the poorer countries in the Western Hemisphere, based on GDP per capita (at Purchasing Power Parity) Guyana's economy is likely to be transformed dramatically with the production of oil. The IMF predicts that GDP growth will be almost 30 per cent in the year that oil production begins and remain in double-digits over the following three years.

The country's per capita income is



Source: International Monetary Fund, World Economic Outlook Database, April 2018

expected to move from one of the lowest in the Caribbean to one of the highest within 10 years. After having posted a deficit for most of the last 20 years, it is projected that Guyana's external current account balance will leap to a surplus of 11 per cent of GDP in 2020 and grow to 44 per cent of GDP by 2023.

Given the quality and range of Guyana's infrastructure, major investment is needed. Potential plans include a mainland processing facility and oil services base, a deepwater port and coastal power plant, along with a pipeline to supply fuel from the oil field.³ These developments will bring in investment

and create jobs, though technical training will be needed.

Following the announcement of oil deposits in 2015, Guyana's neighbour to the west, Venezuela, alleged that the discovery was in disputed waters. The two countries have a long-standing border dispute, with Venezuela claiming over 70 per cent of Guyana's land and maritime territory for almost 200 years. While the conflict has been referred to the International Court of Justice by the United Nations, this decision has been panned by Venezuela. Given the economic troubles currently facing its neighbour to the west, the border

¹ Stabroek news. June 21 2018. Oil reserves now at 3.7b barrels in Guyana basin. <https://www.stabroeknews.com/2018/news/guyana/06/21/oil-reserves-now-at-3-7b-barrels/>
² Kevin Crowley. Exxon Starts Drilling in Guyana Seeking First Production by 2020. Bloomberg. <https://www.bloomberg.com/news/articles/2018-06-12/exxon-starts-drilling-in-guyana-seeking-first-production-by-2020>
³ Ron Bitto. Offshore in Depth, June 2017. World Oil.com. <https://www.worldoil.com/magazine/2017/june-2017/columns/offshore-in-depth>

dispute adds a level of uncertainty to Guyana's future.

Despite the billions of dollars worth of resources soon to be extracted from below the sea, sustainable economic development is not guaranteed for Guyana. These changes, which are forecast to bring rapid growth and revenues to Guyana, will also come with a number of challenges. Policy makers in the country must be aware of the so called, "Resource Curse", which is the paradoxical outcome of underdevelopment and even lower economic growth for countries rich in natural resources. The theoretical explanations for this phenomenon include "Dutch Disease", in which increased revenue causes an appreciation of the country's currency, making other exports more expensive and thus less competitive, while increasing imports. These other sectors, which may be less capital intensive than resource extraction, stop growing or contract, leading to increased unemployment. The country's exports become more concentrated, the economy in general becomes more dependant on the natural resource, and consequently more vulnerable to commodity price and other external shocks.

Another explanation is rent-seeking behaviour, in which capital and labour is diverted away from productive sectors into the natural resource sector to seek economic rents. Rent-seeking agents do not produce wealth, but rather try to manipulate political connections to increase their share of available wealth. It is often manifested through competition for government transfers. Rent-seeking and the "Resource Curse" are more likely to affect countries with weak political institutions before the discovery of natural resources.⁴ Guyana has historically struggled with fragile political institutions arising from ethnic cleavage and public sector inefficiency.

On Transparency International's 2017 Corruption Perceptions Index, Guyana scored lowest among all English-speaking Caribbean countries. While its ranking has been rising in recent years, Guyana needs to rapidly upgrade its institutions in order to maximise the welfare gains from its oil discovery. It should aim to join the ranks of countries that have managed to escape the "Resource Curse", such as Norway, Chile, Malaysia and Botswana. The IMF has recommended that it overhaul its tax structure before granting more licenses.⁵ The United States government has been trying to assist Guyana in drafting the necessary policies for handling the rapid transition while having an interest, through its private sector in exploiting this major oil find.

REGIONAL IMPLICATIONS

Guyana's projected oil production capacity will eclipse that of its Northerly Caribbean neighbour, Trinidad and Tobago. Guyana's emergence could prove a source of collaboration or competition for Trinidad and Tobago, whose oil production has been declining since the mid-2000's.

The two countries signed a Memorandum of Understanding on cooperation in the energy sector in September 2018.⁶ Trinidad and Tobago's recently closed Petrotrin oil refinery could have potentially provided a market for Guyana's oil,⁷ but this would require significant investment for any new buyer. Interestingly, Trinidad and Tobago also recently signed a deal to process Venezuelan natural gas. The current dispute between Guyana and Venezuela adds an additional layer of uncertainty to future collaboration between the two CARICOM members.

Regionally, to foster more collaboration and seek a strategic advantage, Guyana

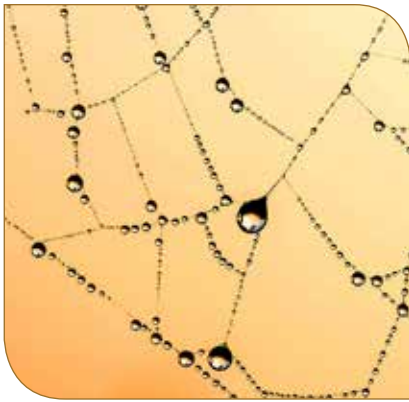
may wish to sell oil to other Caribbean countries at preferential rates, similar to Venezuela's Petrocaribe programme.⁸ Indeed, the effect of the oil discovery will be far-reaching, and the entire Caribbean is waiting and watching to see how this economic transformation in the southern Caribbean will impact the rest of region. ■

⁴ Deacon, Robert T. and Ashwin Rode. 2012. Rent Seeking and the Resource Curse. (Prepared for edited volume on rent seeking). <http://econ.ucsb.edu/~deacon/RentSeekingResourceCurse%20Sept%2026.pdf>

⁵ Wall Street Journal. 21 June 2018. Eureka! Giant Oil Find Set to Bring Guyana Startling Riches—Maybe. <https://www.wsj.com/articles/eureka-giant-oil-find-set-to-bring-guyana-startling-riches-maybe-1529578800>³ Ron Bitto. Offshore in Depth, June 2017. World Oil.com. <https://www.worldoil.com/magazine/2017/june-2017/columns/offshore-in-depth>

⁶ Rosemarie Sant. Trinidad & Tobago Guardian. September 20 2018. T&T, Guyana sign energy MOU. <http://www.guardian.co.tt/news/tt-guyana-sign-energy-mou-6.2.671598.de9ff45d6c>

⁷ Caribbean 360. March 30 2017. Trinidad wants in on Guyana oil. <http://www.caribbean360.com/business/trinidad-wants-guyana-oil>



ARE OIL PRICES FOLLOWING THE COBWEB MODEL?

Don Charles

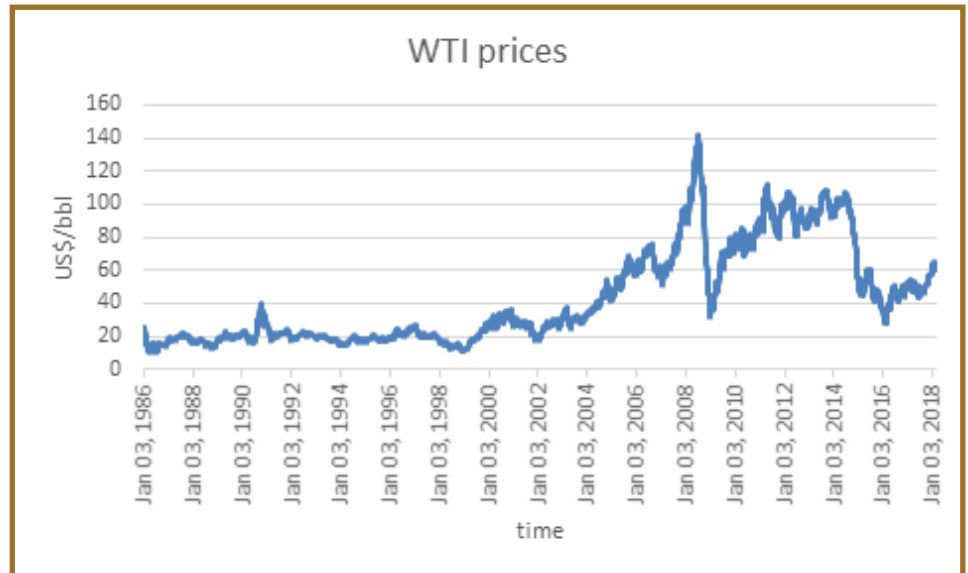
Within recent years, there has been a surge in the production of crude oil from the United States (US). This is explained by the US' recent commercial success in the production of shale oil. This shale revolution, was partially responsible for the oversupply of crude oil on the market in 2014 (IEA 2015; Rapier 2017; EIA 2018a).

Given excess supply relative to demand, the sharp oil price collapse of 2014 was understandable. Crude oil prices tend to be volatile and based upon demand and supply, movements (Tabak, and Cajueiro 2007; Kang et al. 2009). The rapid fluctuation in oil prices can be seen in Figure 1 which traces West Texas Intermediate (WTI) prices, from January 1986 to January 2018.

Global crude oil production has exceeded consumption since the third quarter of 2014. As a result, there was downward pressure on benchmark crudes (West Texas Intermediate (WTI), and Brent) crude oil prices. The spot price¹ of WTI declined from US\$ 105.79 per barrel in June 2014, to US\$ 59.29 per barrel in December 2014 (EIA 2018b).

Historically, the Organization of Petroleum Exporting Countries (OPEC) engaged in production cuts to support oil prices (Hamilton 1983). But in November 2014, OPEC announced that its member countries would maintain their existing production levels. Such a move was taken by the organization to protect its approximate 40 per cent market share of the crude oil global market. It believed that a low oil price would force inefficient producers out of the market, and cause prices to automatically correct themselves (IEA 2015). Contrastingly, WTI oil prices continued to decline reaching US\$30.32 per barrel by February 2016 (EIA 2018b).

OPEC later revised its strategy, and on November 30, 2016, it announced an agreement (the "Vienna Agreement") under which the organization would cut production by 1.2 million barrels per day (bpd) from October 2016 levels,



Source: EIA (2018b)

commencing January 2017, for six months (OPEC 2016a). The Vienna Agreement also intended for non-OPEC countries to manage/ restrict their oil production levels (OPEC 2016b). On December 10, 2016, OPEC announced that 11 countries joined the Vienna Agreement and agreed to collectively reduce production by 558,000 bpd (OPEC 2016c). The collective production cut of both OPEC and non-OPEC countries amounted to 1.8 million bpd.

The Vienna Agreement has been extended twice. First to the March 2018, then to December 2018 (OPEC 2017a, b). The unprecedented collaboration between OPEC and non-OPEC producers to manage supplies has favored the rebound in oil prices throughout 2017, to its current level of US\$ 62.47 per barrel in February 2018 (EIA 2018b).

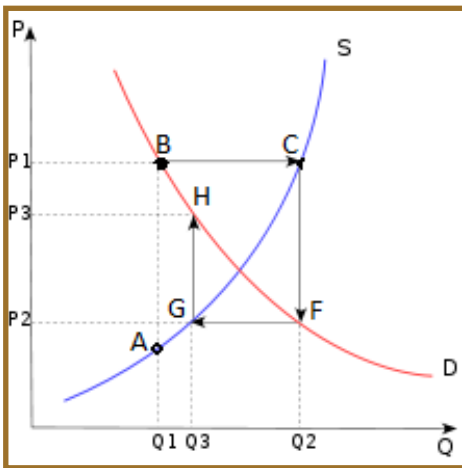
THE COBWEB MODEL

The sharp decline in oil prices in 2014, followed by production cuts from January 2017, which eventually triggered a gradual price rebound, bears similarity to the Cobweb Model.

The cobweb model is an economic model that uses demand and supply relationships to explain why the price of some commodities, usually agricultural prices, or goods, are subject to fluctuations. It explains how prices adjust to changing conditions of supply, and demand. It was so named because the pattern produced from the pattern of prices and output movements resemble a cobweb.

The economist Nicholas Kaldor (1934) proposed the cobweb framework to explain the fluctuation in commodity prices. In fact, Kaldor provided the example of an agricultural commodity, corn, in which the cobweb effect may occur. For example, assume that bad weather caused a low yield of corn, the

¹ The spot price of oil is the current price of crude oil on the market.



Source: Kaldor (1934)

farmer therefore brings a lower supply of corn on the market. This is reflected by Q_1 in Figure 2. As a result of the low supply, the price of the commodity rises to P_1 . In the next period, the farmer assumes that the high price of P_1 will continue. Thus, the farmer produces a higher amount of corn Q_2 in period 2. The higher supply, Q_2 causes excess supply on the market. This eventually causes the price of corn to drop to P_2 in period 2.

The farmer assumes there will be low prices in the next period. Thus in period 3, he only supplies Q_3 of corn to the market. This relatively low supply results in excess demand on the market. Thus prices rise to P_3 in period 3. This process can continue over and over.

The main outcomes of the cobweb model include:

Convergence. This is where the supply

curve is steeper, or more inelastic, than the demand curve. The magnitude of the price fluctuations decrease each cycle, so a plot of the prices and quantities over time would look like an inward spiral. (See Figure 3.1).

Divergence. This is where the supply curve is more elastic than the demand curve. The magnitude of the fluctuations increase each cycle, so a plot of the prices and quantities over time look like an outward spiral. This implies that prices are getting higher over time and may be an unrealistic case given the experience of the oil market. (See Figure 3.3).

Rectangular/ Continuous. This is where the elasticity of the supply curve equals the elasticity of the demand curve. In this case, the magnitude of the fluctuations is constant over time. A plot of the price and quantity fluctuations looks like a rectangle. (See Figure 3.2).

APPLYING THE COBWEB MODEL TO OIL PRICES

It can be argued that oil prices imitate a cobweb relationship. The behavior of oil prices should be of interest to policy makers in oil exporting countries as it can inform expectations of future revenues.

In the crude oil industry, it takes time for a company to bring oil from the ground to a market. Production wells, and platforms need to be commissioned, which may take several months to construct. Additionally, the production company may have to obtain licenses, environmental clearance,

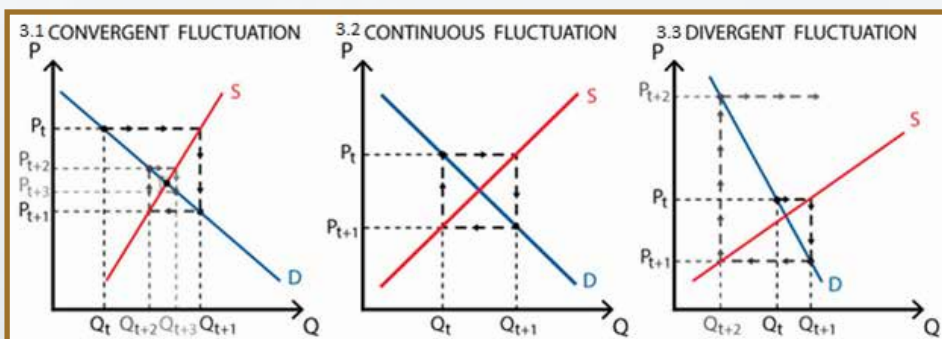
and other administrative requirements in order to legally produce oil from any site. Such activity may take as much as 18 months, even in countries with well-established oil industries. Oil company managers will subsequently base their well production decisions upon past prices. This is a key feature since the Cobweb model assumes that producers make their production decisions based on past prices of the commodity.

Returning to Figure 2, notice that low oil prices in the initial period may motivate low oil production. The economy starts at point A in Figure 2. Such features may describe the global oil industry in the late 1990s. Such low production cause oil prices to eventually rise. Demand outstrips supply, eventually causing price hikes. In Figure 2 this can be seen by prices moving to P_1 . The global economy moves to point B. This can describe the global oil industry over the 2000 to 2008 period whereby oil demand was greater than its supply and its price was increasing.

In terms of oil prices historical data, the price collapse of mid-2008 to 2009 can be described as outlier. It was in response to the financial crisis and the global economic recession. In the last quarter 2009 oil prices rebounded. It continued its upward trend until mid-2014.

Within a cobweb framework, one can argue that such high oil prices (of the 2000-2008 period) was eventually accompanied by high oil production.² This caused the global economy to move to point C. However, at point C there was an oversupply of oil on the market. This caused the collapse of oil prices. Oil prices drop from P_1 to P_2 . The economy moves from C to F. The move from C to F reflects the oil industry over the June 2014 to March 2015 period whereby the price of oil collapsed from approximately US \$100/ bbl. to just below US \$50/ bbl.

► (continued on page 14)



Source: Ezekiel (1938)

¹ The high oil prices of 2000 to 2008 did not motivate shale oil production. Shale oil production increased because since the 1970s the US started investing in research to achieve energy self-sufficiency. Also over the 1970s to the 2000s, Mitchell Energy experimented with hydraulic fracturing to extract shale gas. After their merger with Devon Energy in 2002, when they applied horizontal drilling with hydraulic fracturing, they started to produce high production gas wells. In the oil and gas industry, oil is sometimes found with gas. The technology used to locate and extract shale gas can also be used to locate and extract shale oil. Therefore the research from the US DOE and Mitchell Energy benefited both the oil and gas industry. Thus the increased shale oil production in the US in the 2000s was as a result of research which gradually improved over time (Steward, 2007). It was not a direct result of high oil prices as a cobweb model would imply.

ARE OIL PRICES FOLLOWING THE COBWEB MODEL?

The model assumes that the price of oil will not remain at its low price of P_2 . This is because the low prices of P_2 will discourage oil production. There would be a reduction of oil supply. In the next period, the oil producers will be expected to cut back production to Q_3 . When production declines, according to the cobweb framework there will be an excess demand for oil on the world market. This would cause the price of oil to rebound from P_2 to P_3 in the next period. In the oil industry, this gradual rebound in oil prices did occur after OPEC implemented its production cuts in 2017. On the 9th July 2018, WTI prices were US\$73.93 per barrel, which was a noticeable rebound in the US\$30.32 per barrel of February 2016.

Within 2018, oil prices have dropped from its peak of US\$76.40 on October 3, to US\$50.84 by November 26. This occurred in lieu of the increase in US oil production from 9,492 thousand bbls. in the first week of January 2018 to 11,700 thousand bbls. in the third week of November 2018. If the Cob-Web model were to hold for oil prices, then the decline in oil prices should continue until there is either a decline in US oil production, or an announcement by OPEC for production cuts, news or an event which could result in the disruption in supplies from a major oil producer.

This has budgetary implications for oil exporting countries highly dependent upon oil exports. It could mean that the previous rebound in oil prices to the US\$60/bbl-US\$70/bbl range was not sustainable, and oil prices may drop below US\$50/bbl. Therefore it would be reasonable for countries dependent upon oil export revenues to revise downward their oil price forecasts. ■

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IMPROVING EXPORT PERFORMANCE AND PROMOTING INDUSTRIALIZATION IN CARIBBEAN: THE CURIOUS CASE OF GOODS PRODUCING ECONOMIES

To date, the largest green project financed by GCF in the Caribbean region is the commercial Geothermal Energy (GE) project for Eastern Caribbean countries. In this project, GCF and several other entities, including IDB and CDB, are providing a US\$190 million financial package to mitigate risk and unlock investments by the private sector as well as technical support for capacity building. In this manner, GCF can provide invaluable

resources to the development of green industries, despite the fact that there are challenges to accessing GCF funding. For the Caribbean region to play a leading role in the rapidly growing green industries, overcoming the high investment cost and lack of concessional financing - with the GCF funding is a challenging but promising option.

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6 - 9 August 2018

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The Magazine of the Caribbean Development and Cooperation Committee
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PO Box 1113, Port of Spain, Trinidad and Tobago

Tel: 868-224-8000

E-mail: spou-pos@eclac.org

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