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**PROPOSAL ON DEBT FOR CLIMATE ADAPTATION SWAPS:
A STRATEGY FOR GROWTH AND ECONOMIC TRANSFORMATION
OF CARIBBEAN ECONOMIES**

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CONTENTS

Executive Summary	3
Introduction	7
I. The debt situation in the Caribbean	8
A. The level and composition of external debt.....	8
B. Debt decomposition and sustainability in the Caribbean	12
C. The genesis and impact of debt in the Caribbean	14
II. Size and vulnerability: critical factors affecting Caribbean growth and development	17
A. Prospects for achieving sustainable development in the Caribbean’s current reality	17
B. Addressing structural gaps: the role of improving fiscal performance, consolidation and debt management	18
III. The role of green industries in inducing structural change	20
A. Building the case for the development of green industries in the Caribbean.....	21
IV. Essential elements of a framework for the operationalization of a debt for climate adaptation swap mechanism	23
References	26
Annex I: Caribbean debt vs the world	27
Annex II: Sustainability Analysis methodology	28
Annex III: Debt structure	31
Annex IV: Sustainability analysis methodology and key results	32
 Tables	
TABLE 1 CARIBBEAN PUBLIC DEBT, 2014.....	8
TABLE A1 DEBT CATEGORIES FOR THE CARIBBEAN VS SIDS AND THE WORLD	27
TABLE A2 PRIMARY BALANCE REQUIRED TO STABILIZE OR REDUCE DEBT UNDER VARIOUS SCENARIOS.....	30
TABLE A3 CARIBBEAN EXTERNAL DEBT STRUCTURE, 2013	31
 Figures	
FIGURE 1 CARIBBEAN TOTAL DEBT SERVICE AND EXTERNAL DEBT SERVICE AS SHARES OF REVENUE AND EXPORT EARNINGS, 2014.....	9
FIGURE 2 COMPOSITION OF TOTAL PUBLIC DEBT, 2014.....	10
FIGURE 3 COMPOSITION OF EXTERNAL DEBT, 2014	11
FIGURE 4 BILATERAL AND MULTILATERAL DENT, 2014	11
FIGURE 5 CARIBBEAN AGGREGATE DEBT COMPOSITION, 2001-2014	12
FIGURE 6 INDEBTEDNESS AND ENVIRONMENTAL VULNERABILITY OF COMMONWEALTH SMALL STATES	16

Executive summary

ECLAC advocates that the Caribbean's high debt dilemma was not principally driven by policy missteps, or the international financial crisis. Rather, it finds its roots in external shocks, compounded by the inherent structural weaknesses and vulnerabilities confronting Caribbean SIDS and their limited capacity to respond¹. A major factor has been the underperformance of the export sector, partly due to a decline in competitiveness and a slowdown in economic activity especially among the tourism-dependent economies².

Caribbean countries have also accumulated debt as a consequence of increased expenditures to address the impact of extreme events and climate change attendant difficulties. Most Caribbean countries are located in the hurricane belt and are also prone to earthquakes and other hazards. Indeed, a disaster resulting in damage and losses in excess of 5 per cent of GDP can be expected to hit any Caribbean country every few years. Moreover, over the period 2000-2014, it is estimated that the economic cost of natural disasters³ in Caribbean countries was in excess of US\$30.7 billion. The English Speaking Caribbean countries are extremely vulnerable to natural disasters.

Meanwhile, Caribbean economies have had limited access to concessional external finance, given their classification as middle income developing countries. This has constrained the availability of finance for growth and development. Evidence also shows that ODA had been in decline in the region since the early 2000s. The decision to concentrate international cooperation on poverty and to target lower-income countries assumes that as incomes grow, countries have more resources to combat poverty and finance their development. However poverty and inequality are both a cause and effect of development (ECLAC, 2012). Increases in per capita income do not reveal that a single hurricane can wipe out half the capital stock of a society in a day or the impact of sea level rise on the tourism sector a mainstay of several economies. Such existential threats are not revealed by per capita income.

Caribbean⁴ countries are among the most highly indebted countries in the world. In 2014, four out of the twenty most indebted countries by public debt to GDP ratio were Caribbean – Antigua and Barbuda, Barbados, Grenada and Jamaica. In that year, the total debt burden amounted to US\$49 billion, or 70 per cent of subregional GDP. It is noteworthy that although the public debt burden is of varying severity among Caribbean countries, the debt problem is sufficiently common to make it a serious regional issue which needs to be urgently addressed. This situation has been aggravated by a decline in FDI relative to pre-crisis period (2008), high levels of unemployment, especially among young people and low levels of economic growth.

A debt decomposition analysis⁵ undertaken to determine the largest contributors to the changing debt burden suggests that the interest rate effects, combined with low growth and unanticipated shocks were the most significant drivers of the region's debt. Furthermore, debt sustainability exercises undertaken by the IMF on Caribbean countries reveal that most of these economies show high debt sustainability risk levels, and are vulnerable to real interest rate and exchange rate shocks.

Regional policy makers have been making bold efforts to address the debt problem through fiscal consolidation programs that are either home grown or through the International Monetary Fund (IMF) with support from other donors (Charles Amo-Yartey et al 2012). At least four countries between 2009 and 2013 have been addressing fiscal difficulties under IMF programs, two of which, Jamaica and

¹ A number of structural factors have helped to elevate the debt (Alleyne and Edwards, 2013).

² It is important to bear in mind that Caribbean economies are relatively open, with many Member States having trade openness indices in excess of 100 per cent. A perusal of the trade concentration index shows that Caribbean countries are far more specialized in fewer products compared to the world average or even to that of the Small Islands Developing States (SIDS). Given the peculiarities of Caribbean production and trade, merely expanding exports would be insufficient to strengthen the resilience of subregional economies.

³ EM-DAT database is compiled by the Centre for Research on the Epidemiology of Disasters (CREED, 2004).

⁴ Caribbean is defined as the thirteen Caribbean ECLAC member countries as well as the two other Eastern Caribbean Currency Union members, Anguilla and Montserrat.

⁵ Breaks down the change in the public debt ratio over time into its individual components.

Grenada, have had to return to the IMF for additional support⁶. Many of these programs are aimed at instituting structural reforms including improvements to the business environment and encouraging the search for new markets and activities. On the fiscal side there have been attempts at the rationalization of expenditure, efforts to raise taxation and in one case the introduction of fiscal rules to address excessive spending.

High debt burdens, which on average have increased in the wake of the crisis, also affect sovereign credit rating and have led to higher sovereign risk premiums in international capital markets which mean higher borrowing costs for Caribbean SIDS. Highly indebted Caribbean countries are also exposed to currency instability, financial fragility, and lower levels of investment and growth. More importantly, the governments' role is increasingly broadened from its basic function of providing public goods and services.

High debt ratios and as well as high debt servicing commitments have resulted in the inability of many Caribbean economies to employ countercyclical fiscal policy; institute a broad agenda of economic and productive diversification; or to strengthen of social safety nets, all of which are crucial for improving growth prospects and mitigating the pernicious effects of external economic shocks. Indeed, there exists the real possibility that future growth and development can be impaired by debt overhang.

While some of these changes are necessary, they can only realistically be expected to yield discernible structural change over the medium term, ultimately placing Caribbean economies on a path towards sustainable development. In this regard, developing green industries would provide an important component of this structural change strategy in the Caribbean; advancing growth and simultaneously addressing climate change adaptation and mitigation (CCAM). The transition to a green growth model worldwide based on environmentally sensitive production and consumption is gradual but expected to accelerate in coming decades. To be ahead of the curve, the region needs to transition to green growth in light of its capacity to address poverty alleviation and environmental impacts. This would entail two processes: first, the restructuring of old uncompetitive industries and activities such as traditional agriculture and tourism to make them more environmentally sensitive and poverty reducing; and secondly, the development of new products and services, which are demanded in growing markets. In addition, trade in green products and services have more than doubled in the last decade, growing much faster than total world trade. This suggests that increased specialisation in this segment is a good option for the Caribbean.

Given the current debt overhang and environment of fiscal constraint, it is almost impossible for Caribbean governments to make the desired public sector investment in green industries. This circumstance is further exacerbated by a decidedly risk averse private sector which, in the absence of the appropriate policy incentives, will not likely make the desired investment in green industries in the short to medium term. In light of these considerations, we propose a strategy of debt for climate adaptation swaps aimed at creating more fiscal space and helping to engineer much needed economic growth among member states while addressing climate related effects.

ECLAC's debt for climate adaptation swap proposal calls for donors to use pledged resources from the Green Climate Fund (GCF) to finance a gradual write down of 100 per cent of the Caribbean SIDS' multilateral debt stock held at various multilateral institutions as well as the bilateral debt stock of Member States. It is 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, LDCs and African States. An agreement to contribute a fraction of such funds for

⁶ Five countries used this approach in the 2000s. For example, Suriname successfully restructured a number of its external loans in 2000. In 2004, Dominica restructured its public debt, within the context of an IMF program, reducing its interest rates to 3.5 per cent from 8 per cent. Also, Grenada restructured its debt in 2004/05, amidst extensive infrastructure destruction caused by hurricane Ivan. In 2007, Belize restructured its external debt, which provided front loaded interest payment relief, and postponed amortization payments until 2019. In 2010, Antigua/Barbuda received debt relief from its Paris Club creditors, which agreed (under the baseline accord) to suspend accumulating penalties interest charges and postpone amortization until 2017. Also in 2010, Jamaica launched a comprehensive debt Exchange to address its looming debt problem. The objective of the debt Exchange was to enable the government to reduce its interest bill and expand the maturity profile of the debt stock. Jamaica returned to the Fund in 2013 (IMF 2012).

resilience building in the Caribbean based on a debt for climate change swap could assist in addressing the severe Caribbean debt situation. As at November 2015 there was an estimated US\$35.7 billion in total climate change pledges to the GCF, with 52 per cent of this deposited and US\$14.3b approved for projects. Only 1 per cent of GCF funds have been so far approved for projects from Latin America and the Caribbean.

A key feature of the proposed debt for climate adaptation swap mechanism would entail the agreement of the debtors to make annual payments into a Caribbean Resilience Fund (CRF), in an amount equal to the discounted debt service payments (a haircut). The payments would be made over a period agreeable to all parties and used to finance climate change adaptation and mitigation projects. Interest could also be earned on these funds until such time as they are spent on climate related projects. It is envisaged that the CRF will also be capitalized by the amount which represents the haircut arising from total multilateral concessional and bilateral debt, a 100 per cent of which will be written down using GCF resources; as well as contributions from bilateral donors; and funds raised through PPPs given the integrity of the CRF.

Accordingly, ECLAC views the notion of debt for climate adaptation swaps programme facilitated through the use of Green Climate Fund (GCF) resources under the adaptation window, which represents one of the few remaining sources of concessional funds still accessible to Caribbean SIDS; complemented by the creation of a Caribbean Resilience Fund as the conduit for financing interventions in the green industries, including infrastructure, as well as climate adaptation and mitigation projects, to be the most credible means of tackling the subregion's high debt and fiscal inflexibility, while at the same time strengthening the Caribbean's trade competitiveness and productivity; delivering much needed economic diversification as a means of reducing economic vulnerability; and quickening economic growth thereby placing the Caribbean on a sustainable path towards achieving the SDGs.

It is envisaged that the CRF would provide financing for a balanced mix of private and public private partnership (PPP) green industry projects. The region would need to develop a green industrial value chain that would require financing, production, marketing, regulation and R&D among other factors. The resilience fund would finance projects that meet the exacting standards of the GCF, and that are expected to provide good returns on investment.

It is recognised, at the same time, that some Caribbean states have a sizable percentage of their external debt owed to private creditors⁷. Given the heterogeneous nature of the structure of private debt in the subregion, ECLAC proposes a menu approach to treating with the varying types of private debt, with some measure of variable geometry employed across countries as dictated by their individual circumstances. In this regard, we propose a debt buyback scheme, using the GCF, designed to reduce debt service payments and the debt stock. Such a scheme could be pursued on the basis of deep discount in the secondary markets and a new loan agreement by creditors, having regard to continuing borrowing requirements. Similarly, the savings from interest would be used to fund climate change related adaptation and mitigation programmes as well investment in green industries through the CRF. The menu could also include debt for equity swaps in cases where the debt is held by domestic commercial banks, the attractiveness of which would lie in the enhanced balance sheet effect of such arrangements.

A number of issues would have to be clarified in setting up such a scheme, including modalities for disbursement, priority sectors, accountability and reporting requirements. While this approach will not completely solve the debt problem it can serve as an important catalyst for bringing debtors and creditors together to address the issues surrounding enhanced debt management.

Member states have a duty to pursue structural reforms in order to address the short and medium term challenges. In this context the proposed debt swaps should be contingent on obligations on the part of member states to pursue sustainable fiscal consolidation programs and should be based on agreements

⁷ For example, in the case of Jamaica multilateral concessional debt reduction will see the debt burden move from 131 per cent to 128 per cent, for Grenada from 103 per cent to 82.3 per cent, for Belize from 78.5 per cent to 66.6 per cent, for Saint Lucia from 76.4 per cent to 61.2 per cent, for Saint Vincent from 76.1 per cent to 46.1 per cent, for Dominica from 75.5 per cent to 51.4 per cent and Guyana from 57.8 per cent to 38.1 per cent.

between creditors and debtors. Beyond agreed conditionalities, the eligibility for participation among member states should be based on the following criteria:

- Countries experiencing low growth despite significant reforms aimed at increasing GDP;
- Countries that have established a track record of reforms either with IMF support or under home grown strategies;
- Countries facing an unsustainable debt burden despite efforts at fiscal consolidation;
- Countries facing sizable debt service payments which have reduced their fiscal space and retarded infrastructural investment; and
- All countries that will face considerable difficulties in pursuing the Sustainable Development Goals including climate change adaptation policies due to fiscal distress.

Introduction

This paper is intended to stimulate discussion on the growing evidence that the public debt of the Caribbean has reached unsustainable levels that will compromise the economic growth trajectory of the subregion if not specifically addressed. It argues that the influence of structural and external factors needs to be considered in the search for a solution to the Caribbean debt dilemma. It therefore actively promotes consideration of a strategy to address the debt overhang of Caribbean countries while encouraging investment in climate adaptation and structural transformation that can contribute to changing the economic fortunes of the subregion.

The decline in global commodity prices has impacted negatively the growth of goods producing Caribbean economies, primarily due to the weight of such items in their export basket. In the case of the service economies of the Caribbean, which are mainly driven by tourism services, the slow return to tourism activity has led to less than robust growth. The post crisis period has thus been particularly challenging for the sustained growth of Caribbean economies. The diversification of Caribbean economies therefore has emerged as a key structural challenge facing the subregion.

The high levels of public debt represent a critical structural challenge facing Caribbean economies. Consequently, the need for economic diversification to reduce negative external shocks must be addressed in the context of high levels of public debt and rising debt service costs. Nevertheless, while Caribbean countries have largely instituted fiscal consolidation programmes aimed at reducing public debt to manageable levels, there has been some slippage in 2015, which has largely stemmed from deterioration in performance among the goods producers. In putting the debt challenge facing the Caribbean in its correct context, it should be noted that public debt in the Caribbean continues to exceed that of Latin America and indeed other SIDS at similar levels of development. Debt service continues to represent a significant share of government revenue in the region, thereby presenting a challenge to countries to upgrade and modernize key economic infrastructure and administrative systems as a platform for a robust recovery after the crisis. What is worrisome from a growth and development perspective has been the propensity of Caribbean countries to employ cuts in capital investment as one pillar of fiscal adjustment. Unsustainable debt therefore remains a serious impediment to the subregion's economic growth and, by extension, to its ability to achieve the Sustainable Development Goals (SDGs) (ECLAC, 2016).

Global agreement on the SDGs has followed swiftly on the heels of the significant progress made by the subregion in respect of the Millennium Development Goals (MDGs). Within the broad framework for sustainable development defined by the 2030 agenda, countries must aim to sustain per capita economic growth, achieve higher levels of economic productivity, promote development-oriented policies, improve global resource efficiency in consumption and production and achieve full and productive employment and decent work for all (ECLAC, 2016). The debt challenge facing the Caribbean threatens to undermine not merely future growth prospects but the ability of the countries of the subregion to realize the full promise of economic welfare and sustainable development envisaged by the SDGs.

Beyond high public debt, anaemic growth and low productivity, a nexus of development challenges confront the Caribbean at present; most significantly the subregion's vulnerability to climate change; limited access to affordable finance; energy security; and poverty. The fact that in the Caribbean fiscal imbalances are accompanied by persistent current account deficits reflects weak domestic productivity and export competitiveness. This can only be addressed by structural change in the context of fiscal consolidation strategies designed to contain debt levels in the region. These challenges as well as those alluded to earlier, must of necessity be addressed through a comprehensive strategy which is supported by the International Development Partners (IDP). The implication is that the region needs a new growth strategy that promotes competitive exports and import-competing products and services. In this respect, green industries could provide an important component of this structural change strategy in the Caribbean. Such industries provide a double dividend since they could advance growth and simultaneously address climate change adaptation and mitigation (CCAM). The next section examines the debt situation in the Caribbean more closely.

I. The debt situation in the Caribbean

A. The level and composition of external debt

Caribbean countries are among the most highly indebted in the world. In 2014, four of the twenty most indebted countries in the world (by public debt to GDP ratio) were Caribbean – Antigua and Barbuda, Barbados, Grenada and Jamaica. In that year, the total debt burden amounted to US\$49 billion, or 70 per cent of subregional GDP. (See table 1 below).

TABLE 1
CARIBBEAN PUBLIC DEBT, 2014

	Domestic	External	Total	Total
		(USD millions)		(Per cent of GDP)
Anguilla	20.0	62.2	82.2	26.4
Antigua and Barbuda	695.1	559.7	1254.8	102.8
Bahamas	5,045.8	2,120.5	6301.6	84.2
Barbados	3,097.0	1,628.1	4725.1	108.6
Belize	188.0	1,126.1	1314.1	76.5
Dominica	122.5	277.6	400.1	76.3
Grenada	294.8	577.0	871.7	95.6
Guyana	379.7	1,216.4	1596.0	51.9
Jamaica	9,454.9	8,658.6	18113.5	129.8
Montserrat	0.0	2.3	2.3	3.7
Saint Kitts and Nevis	355.8	283.8	639.6	75.1
Saint Lucia	544.4	526.5	1070.9	76.3
Saint Vincent and the Grenadines	196.9	386.8	583.7	80.0
Suriname	558.9	810.0	1368.9	26.7
Trinidad and Tobago	8,621.0	2,343.2	10964.3	40.2
Caribbean total	29,574.8	20,578.7	49,288.9	70.3*

Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

* Average.

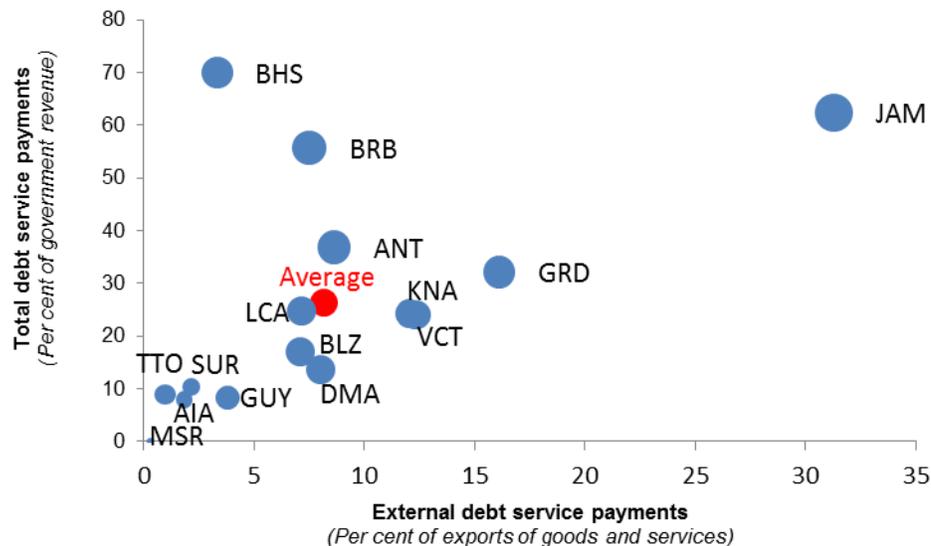
Despite the high debt burden the subregion's total debt relative to the rest of the world is miniscule and its resolution poses no systemic risks for global financial stability. The total external debt burden for the English and Dutch Caribbean is only about one per cent of the world's⁸ external debt. This highlights the group's small size and could well be a reason for the lack of urgency in addressing this matter (see Appendices I and III). Compared with other Small Island Developing States (SIDS)⁹, however, the Caribbean makes up 55.7 per cent of the total external debt.

Debt service costs are high, both in terms of the actual accounting cost as well as the opportunity cost of social and economic development programmes. In 2014, external debt service payments absorbed 8 per cent of receipts from the export of goods and services. This depletes vital foreign exchange earnings that could be used for intermediate and capital goods and technology imports to boost growth, or to bolster foreign reserves. Total debt service payments averaged 25 per cent of government revenue between 2011 and 2014. Figure 1 below refers.

⁸ Counting 124 territories with available data on external debt, out of 214 territories.

⁹ Counting 22 SIDS with available data on external debt, out of 37 SIDS.

FIGURE 1
CARIBBEAN TOTAL DEBT SERVICE AND EXTERNAL DEBT SERVICE AS
SHARES OF REVENUE AND EXPORT EARNINGS, 2014

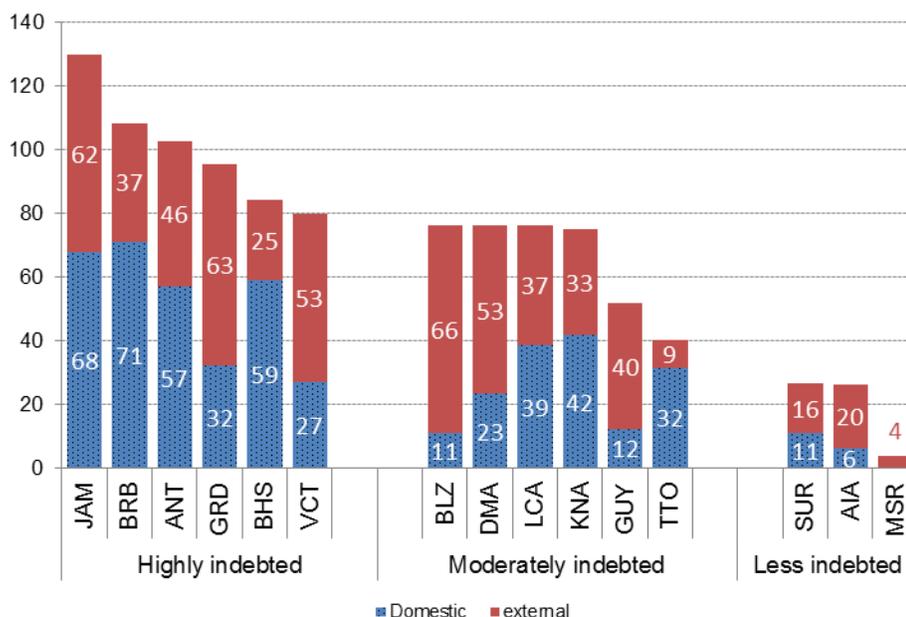


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures
 Note: Size of bubble represent total public debt as a per cent of GDP.

The level and composition of public debt is highly heterogeneous among Caribbean SIDS. In 2014, the level of the total public debt stock ranged from 4 per cent of GDP for Montserrat to 130 per cent of GDP for Jamaica. That same year, total debt stock comprised domestic public debt ranging from zero per cent of GDP (Montserrat) to 71 per cent of GDP (Jamaica), and external public debt ranging from 4 per cent of GDP (Montserrat)¹⁰ to 66 per cent of GDP (Belize). Given the wide range in levels of total public debt, Caribbean SIDS can be classified in three levels of indebtedness: the highly indebted (more than 80 per cent of GDP), the moderately indebted (40 – 80 per cent of GDP) and the less indebted (less than 40 per cent of GDP). Figure 2 presents total public debt composition in 2014.

¹⁰ Montserrat is a British Overseas Territory with an economy heavily supported by the British Government.

FIGURE 2
COMPOSITION OF TOTAL PUBLIC DEBT, 2014
(Per cent of GDP)

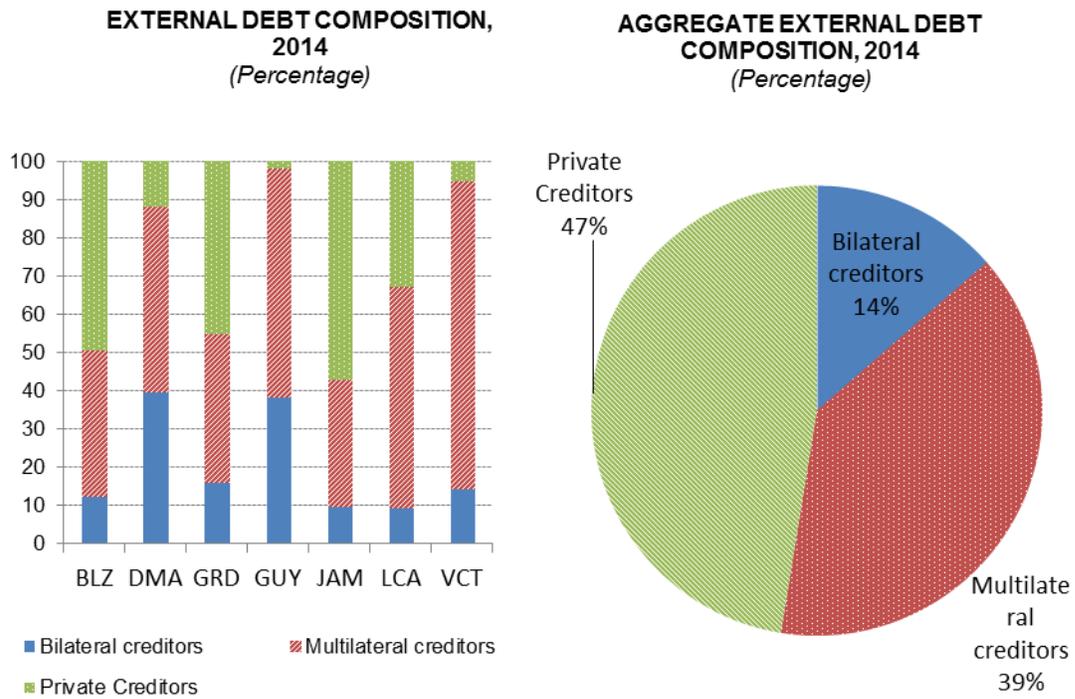


Source: Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures

A more comprehensive analysis of seven Caribbean countries, for which more detailed data are readily available allows for closer examination of the external debt structure. Figure 3 below illustrates the composition of external debt for each of these seven countries as well as the aggregated shares. Multilateral and bilateral debt represents 39 per cent and 14 per cent of total external debt, respectively. The external debt structure varies across individual countries. Debt from private creditors was greater than 45 per cent for three of the seven countries, Belize (49 per cent), Grenada (45 per cent) and Jamaica (57 per cent). The prominence of private creditors in Belize, Grenada and Jamaica can be attributed to the reduced access to finance and the compulsion to access bond and other related market instruments. Conversely, debt from official lenders dominates the overall credit landscape for the remaining four countries (Dominica, Guyana, Saint Lucia, and Saint Vincent and the Grenadines) accounting for at least 67 per cent of the total external debt.

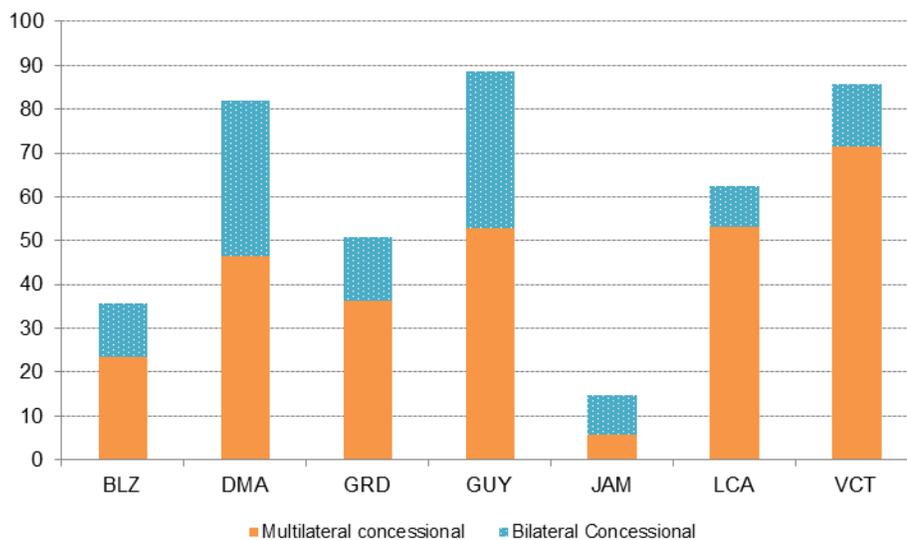
Concessional debt exhibits a similar pattern among the countries. For Belize and Jamaica, it represents less than 36 per cent of total external debt, while for the remaining five countries it dominates the total external debt ranging from 51 per cent for Grenada to 89 per cent for Guyana. Figure 4 shows the share of concessional debt in total external debt for the seven Caribbean countries. The heterogeneity of the debt situation therefore renders a one-size-fits-all approach inadequate for the region.

FIGURE 3
COMPOSITION OF EXTERNAL DEBT, 2014



Source: World Bank World Development Indicators database.

FIGURE 4
BILATERAL AND MULTILATERAL CONCESSIONAL DEBT, 2014
(Per cent of external debt stock PPG)



Source: World Bank World Development Indicators database.

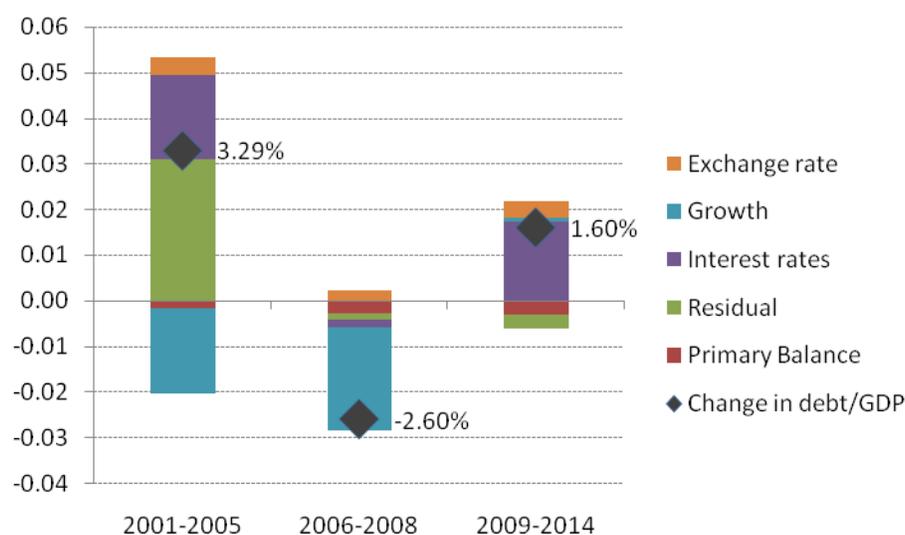
B. Debt decomposition and sustainability in the Caribbean

In order to assess the sustainability of debt in the subregion a variety of approaches were examined. First a debt decomposition analysis was conducted in order to identify the key contributors to the changing debt burden (see Annex IV). The analysis looks at the change in the central government debt to GDP ratio and decomposes it into five components:

- The primary balance effect, which increases the debt ratio if governments produce a primary balance deficit, and decreases it if they produce a primary balance surplus;
- The interest rate effect, which increases the debt ratio if nominal interest rates increase and/or growth decreases and vice versa;
- The growth effect, which increases the debt if GDP growth is negative and vice versa;
- The real exchange rate effect, which increases the debt ratio with a devaluation and vice versa; and
- The residual, which increases the debt when the government takes on contingent liabilities from the public sector or assumes debt from the private sector, and vice versa. It also includes any accounting errors and omissions.

The Caribbean has experienced three distinct periods of debt accumulation over the years 2000 to 2014. From 2000-2005, average Caribbean central government debt increased from 44.0 per cent to 56.1 per cent of GDP; from 2005-2008 debt fell from 54.0 per cent to 50.8 per cent of GDP; and from 2009-2014 debt grew from 55.9 per cent to 62.1 per cent of GDP. The accumulation in debt was decomposed over these three periods, and the results are illustrated in figure 5 below. All components above the zero line caused an increase in the debt ratio; conversely, all components below the zero line caused a decrease in the debt ratio.

FIGURE 5
CARIBBEAN¹¹ AGGREGATE DEBT DECOMPOSITION, 2001-2014
(Per cent of GDP)



Source: Authors calculations, based on official data and the World Bank World Development Indicators database.

¹¹ The data in the chart shows the average annual decomposition for 11 countries: Anguilla, Antigua, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia and Saint Vincent and the Grenadines. The Bahamas, Suriname and Trinidad and Tobago were excluded due to data limitations.

In the first period, the increase in the debt to GDP ratio rose due to the real interest rate effect and a very large residual, which were not offset by the subregion's economic growth. The large residual reflected the impact of unanticipated shocks in a number of countries including contingent liabilities.

In the second period, the Caribbean managed to achieve a decrease in average central government debt due mainly to the contribution of strong growth reduced real interest rates. In this period the global financial crisis also took place, but its effect was really felt from 2009.

In the post-crisis period, the debt to GDP ratio increased as growth for the Caribbean largely stalled. Although interest rates continued to fall, the absence of growth means that the real interest rate effect was positive and actually increasing the debt ratio. Notably, throughout all three periods, the exchange rate effect was consistently small and positive. Also in all three periods, the primary balance effect was negative, meaning that the Caribbean countries were producing primary surpluses that were not large enough to meaningfully reduce the debt burden.

Fiscal sustainability exercises (described in Annexes II and III) were also carried out by ECLAC on a group of countries for which data were available. The objective was to determine whether the countries would be able to generate enough primary surpluses under the current circumstances to stabilise and ultimately reduce their debt burden. The results reveal that the required fiscal adjustment to the primary surpluses to reduce the debt stock to 60 per cent of GDP over 10 years ranges from 1.5 per cent to 10 per cent of GDP. The conclusion is that countries will have great difficulty bringing down their debt levels on their own without external support.

Given the prospect for continued low growth and increasing interest rates, it appears that Caribbean debt ratios will continue to increase. High debt burdens also affect sovereign credit ratings and have led to higher sovereign risk premiums in international capital markets which mean higher borrowing costs for Caribbean SIDS. Highly indebted Caribbean countries are also exposed to currency instability, financial fragility, and lower levels of investment and growth. More importantly, the government's role in providing public goods and services is severely curtailed. This is supported by debt sustainability analyses (DSA) conducted by the IMF within the last four years for The Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Kitts and Nevis, Saint Vincent and the Grenadines and Suriname¹². While the results vary somewhat, most countries show high debt sustainability risk levels. Most countries are vulnerable to real growth, real interest rate, primary balance and exchange rate shocks.

The analysis leads to two important conclusions. Firstly, despite differing circumstances, the most indebted countries are highly exposed to external shocks. Secondly, in light of the recent economic performance of Caribbean economies and the fiscal consolidation programs that are being pursued, indebted countries are unlikely to grow themselves out of debt, especially in a global environment with sluggish demand.

It is important to note that regional policy makers have been making bold efforts to address the problem through fiscal consolidation programs that are either home grown or through the International Monetary Fund (IMF) with support from other donors (Charles Amo-Yartey et al 2012). At least four countries between 2009 and 2013 have been addressing fiscal difficulties under Fund programs, two of which, Jamaica and Grenada, have had to return to the Fund for additional support. Many of these programs are aimed at structural reforms, including improvements to the business environment and encouraging the search for new markets and activities. Nevertheless, it would take some time before these reforms positively impact growth. On the fiscal side there have been attempts at the rationalisation of expenditure, efforts to raise taxation and in one case the introduction of fiscal rules to address excessive spending. Notwithstanding, the debt burdens have remained stubbornly high and in some cases have increased despite a number of traditional debt structuring exercises. Therefore debt relief could help to lock-in fiscal reform by providing finance for the structural reform and adjustment.

¹² The basic DSA involves projecting the debt to GDP ratio and financing needs under different scenarios using available data. Once the existing debt to GDP ratio is above a certain benchmark, the DSA involves another step of risk identification and analysis, which calculates the economy's vulnerability to different economic shocks.

C. The genesis and impact of debt in the Caribbean

It is important to recognize that the Caribbean's high debt dilemma was not principally driven from policy missteps, or the international financial crisis. Rather, it finds its roots in external shocks, compounded by the inherent structural weaknesses and vulnerabilities confronting Caribbean SIDS and their limited capacity to respond. The debt decomposition suggests that unanticipated shocks were significant reason for debt accumulation. A major factor has been the declining performance of the export sector, partly due to a decline in competitiveness and a slowdown in economic activity initially among the tourism-dependent economies.

It is important to bear in mind that Caribbean economies are relatively open with many Member States having trade openness indices¹³ in excess of 100 per cent¹⁴. While trade and market liberalization have impacted individual Caribbean economies differently, almost all have lacked the requisite capacity to readily absorb the adjustment costs of reducing tariffs; removing non-tariff barriers; eliminating export subsidies; as well as liberalizing services, financial and investment regimes.

More importantly, the subregion's multilateral and bilateral trade liberalization efforts have not only increased international competition faced by domestic firms, it has also reduced much needed policy space available to small vulnerable economies in (i) safeguarding the role the agricultural sector in ensuring food security, rural development and generating foreign exchange earnings; as well as (ii) facilitating growth and development of the private sector.

A perusal of the trade concentration index shows that Caribbean countries are far more specialized in fewer products compared to the world average or even to that of the Small Islands Developing States (SIDS)¹⁵. Indeed, many Caribbean countries depend on the export of a few agricultural products, mineral resources or tourism services for foreign exchange earnings¹⁶.

Given the peculiarities of Caribbean production and trade, merely expanding exports would be insufficient to strengthen the resilience of subregional economies. Caribbean economies tend to export a limited number goods and services to just a few main markets. Further, in addition to having high import as well as export dependence and export market concentration discussed earlier, subregional economies also possess high economic openness ratios, meaning that they are highly exposed to the international economy. This makes the subregion's economies exceedingly vulnerable to external economic shocks.

Not surprisingly, the subregion commands a marginal share of global trade (0.03 per cent in 2014), which has declined steadily since 2008 (0.17 per cent). It has also been estimated that the subregion is operating at 46 per cent below its true trade potential¹⁷. Consequently, the subregion has been unable to take advantage of market access opportunities furnished by its myriad of bilateral trade agreements.

Declining competitiveness ultimately shows up in the deteriorating current account balance which often creates foreign exchange shortages. The current account balance for the goods producers moved from a surplus in 2011 to a deficit of over 5 per cent in 2015; the result of the fall out in commodity prices. In the case of the service producers, considerable adjustments have been made. Nevertheless, the current account deficit has been persistent and was estimated at 16 per cent in 2015. More formal analysis (Alleyne et al 2011) shows that for some countries there is a feedback between the current account balance and the fiscal balance which suggests that fiscal consolidation alone may not be enough to address the debt challenge on a sustained basis.

¹³ Ratio of exports and imports to GDP.

¹⁴ This, coupled with the undiversified export base and markets of Member States, makes the Region vulnerable to external shocks, particularly commodity prices and demand for major exports.

¹⁵ This index is also known as Herfindahl-Hirschmann index which can measure the degree of given market's concentration – in this case, export. The index obtains values from 0 to 1. The value of the index decreases when the number of products increases and share of each product falls. Contrary, the value approaches to 1 when export structure is specialized in a fewer products.

¹⁶ Given the instability global commodity prices, Caribbean economies need to diversify their export structure in order to mitigate the possible trade shocks.

¹⁷ Mc lean, Sheldon et. al, February 2013, Caribbean Regional Aid for Trade Strategy, Caribbean Community Secretariat and the Inter-American Development Bank.

Countries have also accumulated debt as a consequence of increased expenditures to address the impact of extreme events and climate change attendant difficulties. Most Caribbean countries are located in the hurricane belt and are also prone to earthquakes and other hazards. Indeed, a disaster resulting in damage and losses in excess of 5 per cent of GDP can be expected to hit any Caribbean country every few years. During the period 2000-2014, it is estimated that the economic cost of natural disasters¹⁸ in Caribbean countries was in excess of US\$30.7 billion.

Beyond exposure to natural disasters, climate change represents the most serious challenge to the sustainable development of the Caribbean¹⁹. While the region produces less than one per cent of emissions of greenhouse gases (GHGs) in the world, the impact of climate change in the subregion is disproportionately greater. The Intergovernmental Panel on Climate Change has observed in the Caribbean an increase in sea level of about 1.8 mm per year²⁰. The consequences of this increase in sea level associated with increased ocean temperatures are visible in the subregion. It is estimated that 70 per cent of the beaches are affected by loss of shoreline at a rate of between 0.25 and 9 meters per year. This loss causes damage to private and public infrastructure (roads, airports, power generators, etc.), this is particularly critical because it is estimated that 70 per cent of the population lives in coastal areas. Similarly, the loss of coast negatively affects the quality of coastal and marine resources, which has two main effects: first, a reduction in protection against storms and hurricanes, accelerating erosion and causing damage to infrastructure.

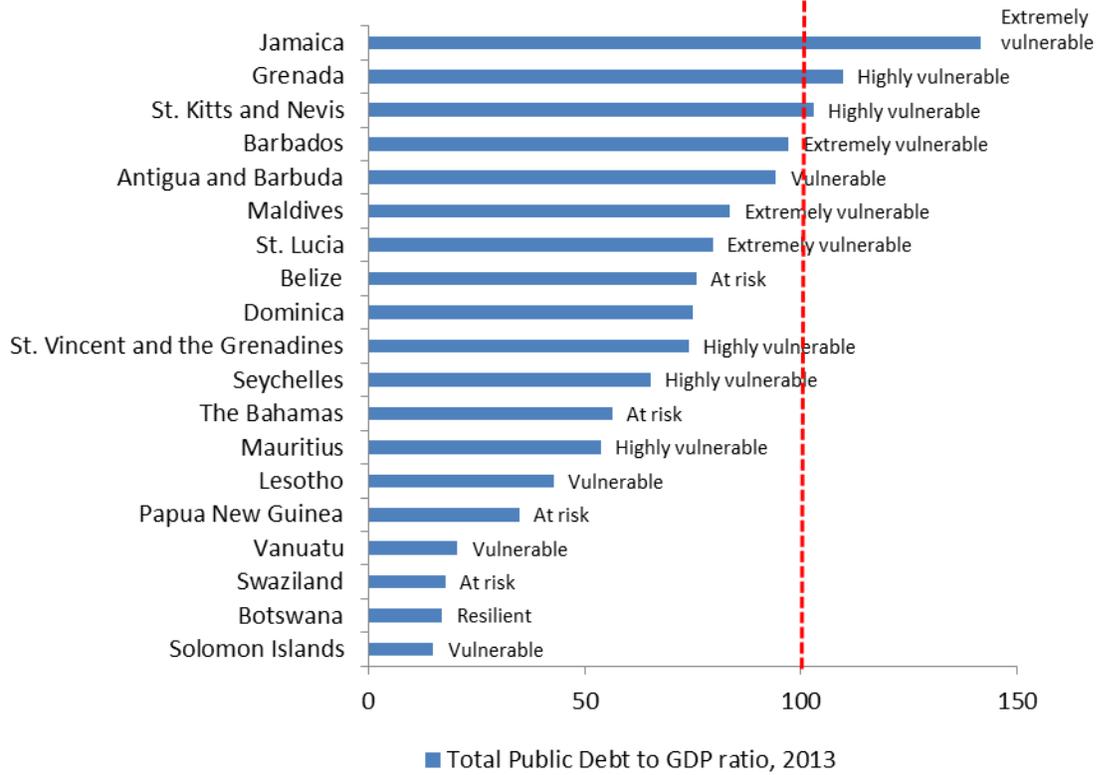
Apart from the environmental degradation that it causes, it also affects the tourism sector, which represents approximately 15.5 per cent of employment and contributes 13 per cent to GDP. The disproportion between greenhouse gas emissions and the effects generated by climate change in the Caribbean is one of the fundamental problems facing the subregion as it pursues sustainable development. With the severe debt crisis it is clear that member states cannot pursue adaptation policies in a systematic manner. Figure 6 below shows the level of vulnerability of Caribbean states based on UNEP's vulnerability index. The correlation between levels of indebtedness and high vulnerability of Caribbean SIDS compared with SIDS from other regions is very revealing.

¹⁸ EM-DAT database is compiled by the Centre for Research on the Epidemiology of Disasters (CRED, 2004).

¹⁹ ECLAC (Economic Commission for Latin America and the Caribbean) (2011), *The economics of climate change in the Caribbean-summary report* (LC/CAR/L.299), Port of Spain, Trinidad and Tobago.

²⁰ UNEP (United Nations Environment Programme) 2008, *Climate Change in the Caribbean and the Challenge of Adaptation* (DEW/1088/PA), Regional Office for Latin America and the Caribbean, Panama City, Panama.

FIGURE 6
INDEBTEDNESS AND ENVIRONMENTAL VULNERABILITY OF COMMONWEALTH SMALL STATES



Source: IMF World Economic Outlook, UNEP Environmental Vulnerability Index 2000

II. Size and vulnerability: critical factors affecting Caribbean growth and development

The circumstances described above are direct manifestations of the challenges of size and vulnerability characteristic of all small island developing States.

The Barbados Programme of Action, the blueprint of the SIDS sustainable development agenda first raised awareness of the direct correlation between vulnerability and the small size in SIDS, and comprehensively addresses the many challenges facing SIDS that circumscribe their ability to achieve their sustainable development objectives. These include structural disadvantages; narrow resource base, weak productive capacity and diseconomies of scale; environmental fragility with well-known susceptibility to the impacts of climate change and natural disasters; openness to trade with high dependence on a few markets and commodities rendering them vulnerable to external shocks, and the low technology content of goods exports which means that Caribbean SIDS remain at the low end of the production value chain.

These inherent weaknesses have been compounded in recent years by changing fortunes and circumstances: the dismantling of preferential trading arrangements; the devastating impact of the global financial crisis; loss of highly skilled labour through heavy out migration; persistent pockets of poverty consistent with highly unequal distribution of income; high unemployment with increasing exposure among vulnerable groups, particularly women and youth, and growing debt burdens severely limiting fiscal space to afford adequate attention to social welfare issues.

These challenges notwithstanding, Caribbean SIDS find themselves in an international climate that uses GDP per capita as the principal measure of their capacity to overcome them. The classification by the World Bank of the majority of Caribbean countries as upper middle (and high) income countries using the single variable of level of per capita national income²¹, has deafened the international community to their appeals for special and differential treatment, and denied them concessional assistance at a time when it is needed for resilience building. The use of per capita income to assess the level of development demonstrates a one dimensional view of development which is an assumption of linearity²² based on the experience of developed countries.

Caribbean economies therefore have limited access to concessional external finance to alleviate the high debt burden as well as to redress its growth and development retarding effects. Since the 1990s there has been a steady decline on ODA to the Caribbean. The decision to concentrate international cooperation on poverty and to target lower-income countries assumes that as incomes grow countries have more resources to combat poverty and finance their development. However poverty and inequality are both a cause and effect of development (ECLAC, 2012). The per capita income measure hides more than it reveals. Increases in per capita income do not, for example, reveal that a single hurricane can wipe out half the capital stock of a society in a day. Nor does it value the impact of sea level rise on the tourism sector, the mainstay of several Caribbean economies. Such existential threats are not addressed by per capita income.

A. Prospects for achieving sustainable development in the Caribbean's current reality

At a historic UN summit in September 2015, the international community adopted 17 SDGs aimed at tackling broad sustainable development challenges. The 2030 Agenda presents a major opportunity for Caribbean countries to reverse decades of lagging economic performance and make the transition to balanced, holistic, and people-centred growth and development.

²¹ The World Bank uses 2012 GNI per capita in \$US to define its income groups. The middle income ranges lies between \$1,036 and \$12,615 (lower middle income: \$1,046-\$4,085; upper middle income: \$4,086 - \$12,615).

²² The implication is that one size fits all with respect to development policy.

These sustainable development goals are designed to promote structural change, competitiveness and output gains while advancing social development and meeting environmental concerns. The broader scope of the SDGs is particularly important for the Caribbean. Despite its middle income status and moderate to high human development classification - except for Haiti –the region has experienced poor economic growth performance over several decades. The region should benefit from goals that, among their objectives, serve also to directly strengthen economic performance and promote beneficial engagement with the global economy.

The severe fiscal stress that results from high indebtedness and the associated limited fiscal space has constrained the ability of Caribbean SIDS to confront poverty, informality and inequality. For Caribbean small states to have a chance at implementing the sustainable development goals, the achievement of sustained economic growth is imperative. This is also essential to maintaining debt sustainability. Growth should also be driven by improved trade performance. In this regard it should be noted that the crucial challenge of financing trade-related infrastructural gaps which have been the principal cause of the region's declining trade competitiveness, remains, further limiting the Caribbean growth trajectory.

It is imperative that the subregion transitions from its current low-growth trajectory towards sustainable and inclusive growth and development, if the countries are to improve economic performance, and implement policies that conserve the environment, reduce inequality, strengthen resilience, and promote social inclusion.

B. Addressing structural gaps: the role of improving fiscal performance, consolidation and debt management

It is important at this juncture to recall that despite considerable efforts at fiscal consolidation, rationalisation of expenditure and debt management, debt burdens of Caribbean countries still remain high. Moreover, the region's debt challenge has also reduced government's capacity to offer subsidised credit and trade financing to small and medium size firms; strengthen business support organizations; and enhance key economic infrastructure. Highly indebted Caribbean countries are also exposed to currency instability, financial fragility, and lower levels of investment and growth. More importantly, the government's role is increasingly broadened from its basic function of providing public goods and services.

High debt ratios and as well as high debt servicing commitments have also resulted in the inability of many Caribbean economies to employ countercyclical fiscal policy, institute a broad agenda of economic and productive diversification, and strengthen social safety nets, all of which are crucial for improving growth prospects and mitigating the effects of external economic shocks. Indeed, there exists the real possibility that future growth and development can be impaired by debt overhang.

This notwithstanding, countries are even now engaging in fiscal reform to address the debt issue, whether under the IMF or using home grown policies. Most of these positive efforts are designed to address structural failures. Examples of these are as follows:

- tax reform to improve revenue collection;
- improving the business environment (Jamaica and Trinidad and Tobago have made progress) to attract a better quality of FDI;
- introducing fiscal reform (removing tax expenditures and excessive tax concessions);
- emphasising the creative industries and strengthening copyright legislation;
- expanding ICT architecture to facilitate greater interconnection.

While some of these changes are necessary, they can only realistically be expected to yield discernible structural change over the medium term, ultimately placing Caribbean economies on a path towards sustainable development. In contrast, fiscal consolidation programmes being instituted in many economies in the subregion, particularly in the Eastern Caribbean and Barbados, have invariably delivered early gains of improved fiscal performances and reduced import demand while keeping inflation in check.

As part of their adjustment, greater effort has also been made to contain expenditure, including efforts to enlist the support of trade unions to limit public sector wage increases in some countries. Besides pursuing home grown programmes, a few of the most severely affected countries have opted for IMF support. Nevertheless, a weak recovery in economic growth, related in part to sluggish global demand has affected the pace of fiscal consolidation.

The fiscal flexibility index²³ points to limited fiscal space among Caribbean countries. The index provides a measure of government's discretionary spending as a fraction of total expenditure. Relative to the maximum value of 100 that indicates total fiscal flexibility, the index has averaged 35 since the crisis, suggesting that flexibility has been fairly low. Indeed regional governments have been locked into high non-discretionary spending on wages, salaries and debt interest payments, which limits space for public investment in critical areas such as infrastructure, health and human capital upgrading. In 2015, the index worsened by 1.9 percentage points, indicating that despite an improved fiscal balance, flexibility deteriorated.

The efforts of the region and its IDPs thus far have been insufficient to adequately address the full spectrum of challenges facing the region. What has becoming increasingly clear is that the high-debt induced development problematique facing the Caribbean cannot be solved by merely focussing on fiscal consolidation and debt management programmes. There must be a rethinking, a re-engineering, of the drivers of trade-led economic growth, poverty reduction and development, which should be guided by acknowledgement that inherent structural gaps, particularly in the areas of productivity, and competitiveness and interconnectivity have limited the ability of Caribbean economies to transform domestic production systems in order to optimize resource allocation and achieve sustainable growth.

Moreover, as many Caribbean economies continue to grapple with relatively high indebtedness, the success of any structural transformation endeavour would invariably depend on the willingness of the international community and the region's development partners to acknowledge the peculiar circumstances of Caribbean SIDS and meaningfully assist the regional economies in their endeavour to construct the requisite robust trade complementarity structures. Central in this regard is addressing the Caribbean's debt dilemma in a sustainable manner while at the same time fostering structural change and economic diversification. Investment in green industries and the attendant facilitating infrastructure can play a crucial role in delivering this much needed structural transformation of Caribbean economies.

This notwithstanding, in light of the current debt overhang and environment of fiscal constraint, it is almost impossible for Caribbean governments to make the desired public sector investment in green industries. This circumstance is further exacerbated by a decidedly risk averse private sector which, in the absence of the appropriate policy incentives, will not likely make the desired investment in green industries in the short to medium term.

²³ The fiscal flexibility index is defined as :
$$FFI = (1 - NDE/TGE) * 100$$

NDE is non-discretionary expenditure defined as outlays on wages and salaries, transfers and interest payments and TGE is total government expenditure. The maximum value of the uncorrected index is 100, reflecting total fiscal flexibility.

III. The role of green industries in inducing structural change

Green industries could provide an important component of this structural change strategy in the Caribbean. Such industries provide a double dividend since they could advance growth and simultaneously address climate change adaptation and mitigation (CCAM). UNEP describes green industries as those that entail investment in environmentally significant sectors, and which simultaneously contribute to sustainable development and poverty reduction through improved human well-being and reduced inequalities (UNEP, 2010a and UNEP, 2010b)²⁴. Both these definitions imply that green industries embrace the reduction of carbon emissions and climate change impacts, while optimising the use of indigenous capital and social responsibility and economic efficiency ((ILO-EU-IILS, 2011).

Importantly, as suggested by UNIDO, there is a critical role for the public sector in the development, promotion and evaluation of the performance of green industries. This role is stymied in highly indebted Caribbean economies lacking the fiscal space to facilitate core investments in areas such as R&D, human capital development, training, institutional development, regulation and marketing; factors essential to the development of a dynamically competitive green sector.

This approach is buttressed by the Agreement of the UNFCCC's 21st Conference of Parties in Paris (COP 21) and the UN Sustainable Development Goals (SDGs) which have committed the international community to accelerating efforts to mitigate and adapt to the impacts of climate change. Green industries will unquestionably be integral to the practical implementation of policies to ameliorate the impacts of climate change.

Growth based on intense use of natural resources is coming to an end. The transition to a green growth model worldwide based on environmentally sensitive production and consumption is gradual but expected to accelerate in coming decades. Indeed, some developed countries have already implemented measures requiring countries to reveal the carbon content of traded goods and to factor carbon as an input cost in production as part of their carbon mitigation and greening strategies. In addition, green labelling will become increasingly important in global trade flows over time.

To be ahead of the curve, the Caribbean subregion needs to transition to green growth in light of its potential to contribute positively to addressing poverty alleviation and environmental impacts. Such a transition would entail two processes. First, it will be necessary to restructure old, uncompetitive industries and activities such as traditional agriculture and tourism to make them more environmentally sensitive and conducive to poverty reduction. Secondly, it will be necessary to develop new products and services, which are demanded in growing markets. The WTO records world trade in green goods, technologies and services in 2014 totalled some US\$1.4 trillion (CIGI, 2014). In addition, trade in green products and services have more than doubled in the last decade, growing much faster than total world trade. This suggests that increased specialisation in this segment is a good option for the Caribbean.

As has been indicated in the previous sections, the debt challenge in the Caribbean is not simply one of fiscal profligacy and mismanagement. Although there is room for improvement in governments' fiscal operations, there are pervasive structural constraints that have led to the current cycle of fiscal imbalance and debt in the region. As economies with trade openness indices in excess of 100 per cent²⁵, the Caribbean depends heavily on proceeds from exports of goods and services to finance budgetary programmes. The fact that fiscal imbalances are accompanied by current account deficits reflects weak domestic productivity and export competitiveness. This can only be addressed by increased rates of economic growth in addition to fiscal consolidation strategies designed to contain debt levels in the

²⁴ Although in some cases green industrial policies might help directly in poverty reduction and improved social welfare, it is expected that in many cases these aims might be better facilitated by green growth, the proceeds of which are shared equitably among the population.

²⁵ High trade openness exposes the Caribbean to significant terms of trade, foreign investment and other shocks that make it difficult to sustain goods growth rates over long time periods in the region.

region. The implication is that the region needs a new growth strategy that promotes competitive exports²⁶ and import-competing products and services.

A. Building the case for the development of green industries in the Caribbean

From a Caribbean perspective, green industries could provide an important pillar of growth and economic diversification and structural change. A low carbon, green growth strategy in the Caribbean recommends itself primarily on the basis of efficiency, productivity and competitive advantage and secondarily on the basis of environmental protection and poverty alleviation. Green industries provide an opportunity for Caribbean economies to capture the elusive grail of sustained growth and clean, decent jobs. Three broad aspects of the green industries are relevant to the Caribbean. These are a green energy platform that provides a foundation or ‘infrastructure’ offering broad support for other sectors; the greening of traditional sectors such as agriculture and tourism; and the development of other ‘new’ green activities and services.

A majority of Caribbean countries have prioritised self-sufficiency in green, renewable energy. Consider, for example, the opportunities for the further development of renewable energy sources. The subregion has recognised that its current 90 per cent dependence on fossil fuels for its energy needs is unsustainable (Farrell and Bassi, 2015). Indeed, in 2013, CARICOM’s fuel import bill amounted to US\$9 billion, representing a significant leakage of foreign exchange. Having gone through many energy price shocks, most of them inflationary, Caribbean countries are paying greater attention to renewable energy as a substitute. A number of renewable options have been considered, including hydroelectricity, solar, wind, biomass, geothermal and ocean energy. Barbados was an early pioneer in the use of solar water heaters in the region, which has led to between US\$133.5 million and US\$137 million savings and installed 40,000 heaters. In Guyana, Belize, Suriname, Jamaica and Saint Vincent and the Grenadines, the energy 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). Ultimately, the mix of options chosen would depend on cost competitiveness, scalability of projects and the potential for integrating plants with traditional electricity grids, among other factors.

Another important case for green industries in the Caribbean is the need to develop high quality jobs that can reduce the high level of youth unemployment. Green jobs can be based on high productivity activities and decent work (Oppenheim, *op. cit.* and ILO, EU and ILS *op. cit.*). Furthermore, some green sectors can allow the subregion to optimise the use of indigenous knowledge through R&D to create unique products that can capture niche export markets. This is especially the case for the creative industries, and niche agriculture such as high value added cocoa production in Trinidad and Tobago²⁷ and coffee in Jamaica.

Of critical importance to the Caribbean is the fact that green industries provide a pathway to natural disaster-resilient development; a key plank of climate resilient strategy in this disaster-prone region. Green farming, building construction and green energy among others could contribute to disaster risk mitigation and adaptation, thereby reducing the impacts of disasters and climate change in the Caribbean.

The Caribbean Resilience Fund, as envisaged, can provide financing for a balanced mix of private and public private partnership (PPP) green industry projects. The region would need to develop a green industrial value chain that would include financing, marketing, regulation and R&D, among other factors. Given that these elements critically entail investment in quasi-public goods with high upfront costs, the private sector will not be willing to bear these risks alone. The public sector will therefore be expected to

²⁶ The Caribbean continue to specialise in a number of declining stars such as sun, sea and sand tourism and crude natural resource based commodities such as oil and gas, which face fluctuating and uncertain demand in global markets.

²⁷ Trinidad and Tobago has the world largest cocoa gene bank, providing a rich opportunity for bio-engineering research in this field.

undertake critical aspects of the infrastructure and institutional development including building regulatory capacity. In selected cases, the public sector might need to engage in PPPs to catalyse investment in potentially competitive productive activity. All these activities would require financing which Caribbean governments would be hard pressed to provide under current fiscal situations. We suggest that the resilience fund could finance such projects which are expected to provide good returns on investment.

It is anticipated that a significant portion of the resources of the CRF will be allocated to the development of alternative sources of energy, which could be designated a main pillar of green structural change. Most countries have developed policy frameworks for the development of green energy under the Caribbean Sustainable Energy Roadmap and Strategy (C-SERMS) of CARICOM. It is envisaged that the CRF would provide funding for targeted projects in development of solar, wind, bio-fuels and geothermal energy that could be profitably exploited. Nevertheless, the effective development of the green energy sector would require clear policies for interconnection and sale of surplus energy to the local grid or the export of energy.

A green transport sector in the Caribbean could achieve significant efficiency in energy use and reduce pollution, congestion and road fatalities. This requires greater use of scaled up public transportation systems such as economic rail systems in the larger islands. In addition, a regional approach is required for greening regional shipping and air transportation. This should centre on improving efficiency in the sub-sectors and the potential use of green energy. It is expected that the CRF in collaboration with the private sector could be used to finance projects aimed at creating a more efficient, climate-resilient transport sector.

Among the other low hanging fruit, agriculture provides good options for green financing in areas such as organic production of high value added crops, 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. Caribbean tourism is ripe for a cleaner more efficient energy mix. Indeed, the cost of main consumers of energy in the sector: air conditioning (48 per cent), lighting (11.5 per cent) and refrigeration (10.6 per cent) (Taibi et al 2014), could be significantly reduced by using renewable sources including solar and wind power.

Waste to energy, water and waste water management also provide opportunities for green practices. Although waste management is usually a large scale activity, smaller scale technologies are being invented that undertake economic waste management that is relevant for Caribbean SIDS. Reuse and recycling of solid waste alongside the purification of grey water for irrigation and other uses provides good green opportunities, especially since the Caribbean is a water scarce region.

IV. Essential elements of a framework for the operationalization of a debt for climate adaptation swap mechanism

In light of the foregoing, ECLAC proposes debt for climate adaptation swaps that would address the unsustainable debt burden confronting Caribbean countries while facilitating investment in climate adaptation initiatives and green industries, so as to build resilience, stimulate growth and promote economic transformation in the economies of the subregion.

The proposal recognises that Caribbean debt is heterogeneous; member states carry varying combinations of multilateral, bilateral and private debt. The debt profiles also vary by the degree of external versus domestic debt and the extent of the obligations to private creditors. It therefore argues that while the debt challenge is regional and should be treated as such, a menu approach is considered the best strategy given the variety of debt profiles and debt service burdens. Finally, it identifies a mechanism that at once addresses the debt overhang while sourcing climate change funds for adaptation projects and investment in green industries, to be administered through a Caribbean Resilience Fund.

This aspect of the proposal is important since pledged funds would already have been factored into the budgets of the donors, thereby representing a pool of resources that could be tapped if the proposal is deemed acceptable. It is also important to bear in mind that the UNFCCC Green Climate Fund remains one of few sources of concessional financing available to the middle income Caribbean SIDS, given their high vulnerability to climate change and natural disasters. Indeed, 25 per cent of Fund's resources are made available for adaptation activities in SIDS, LDCs and African States. The Paris Decision, which serves as guidance for the Paris Agreement and pre-2020 action "strongly urges developed country Parties to scale up their level of financial support, with a concrete roadmap to achieve the goal of jointly providing US\$100 billion annually by 2020 for mitigation and adaptation." The Decision further states that prior to 2025 the Conference of Paris "shall set a new collective quantified goal from a floor of USD100 billion per year."

The strategy of debt for climate change swaps is premised on the use of vulnerability as an indicator of development assistance and on the preferred approach to circumvent debt purchases in the secondary market, given the positive debt ratings of many Caribbean countries. An agreement to use a fraction of such funds which Caribbean SIDS could access on a concessional basis for resilience building in the subregion to purchase multilateral, bilateral and private debt would in the first instance address the severe debt situation of the subregion. Accessing these resources based on a debt for climate change swap would then allow for the establishment of the resilience fund which would facilitate investment in climate adaptation projects, resilience building strategies and green industries.

The mechanism would work as follows:

- In respect of multilateral and bilateral debt, pledged Green Climate Funds (GCF) would be used to finance a gradual write down of 100 per cent of the Caribbean SIDS' multilateral debt stock held at various multilateral institutions, as well as their bilateral debt. This would be contingent on debtors agreeing to make annual payments into a Caribbean Resilience Fund (CRF) in an amount equal to the discounted debt service payments (a haircut).
- The payments would be made over a period agreeable to all parties and used to finance climate change adaptation and mitigation projects, resilience building strategies and green industries and to promote economic transformation. Interest could also be earned on these funds until such time as they are spent on climate related projects.
- It is envisaged that the CRF will also be capitalized by the amount which represents the haircut arising from total multilateral concessional and bilateral debt, a 100 per cent of which will be written down using GCF resources; as well as contributions from bilateral donors; and funds raised through PPPs given the integrity of the CRF.

While this proposal may be beneficial for those countries with significant multilateral and bilateral debt, it should be noted that of the total debt in the region, no more than 21 per cent (US\$10b) represents bilateral and multilateral debt. It is important to take into account the fact that there are countries for which a sizable percentage of public external debt is owed to private creditors (although the proposal could be extended to all private creditors).

In order to accommodate those Caribbean states that have a sizable percentage of their external debt owed to private creditors²⁸, and taking into consideration the heterogeneous nature of even the structure of such debt among Caribbean countries, ECLAC proposes a menu approach to treating with the varying types of private debt, with some measure of variable geometry employed across countries as dictated by their individual circumstances.

In this regard, we propose a debt buyback scheme using the GCF, designed to reduce debt service payments and the debt stock. Such a scheme could be pursued on the basis of deep discount in the secondary markets and new loan agreements by creditors at lower costs, having regard to continuing borrowing requirements. Similarly, the savings from interest would be used to fund climate change related adaptation and mitigation programmes and investment in green industries through the CRF. The menu could also offer debt for equity swaps in the cases where the debt is held by domestic commercial banks. The enhanced balance sheet effect of such arrangements would make them attractive to these creditors.

As described above, resources from the GCF could be used to address all three categories of creditors, each requiring different terms and conditions for addressing the debt challenge. A comprehensive, coherent proposal embracing all dimensions could be articulated with the support of a key international financial institution. A number of issues would have to be clarified in setting up such a scheme, including agreement on modalities of disbursement, projects and priority sectors for investment, accountability and reporting requirements. While this approach will not solve the debt problem it can serve as an important catalyst for bringing debtors and creditors together to address the issues surrounding debt reduction and enhanced debt management.

It is envisaged that the Caribbean Resilience Fund (CRF), would be managed by a credible financial institution which has an excellent record of efficiently managing financial resources towards advancing the development of the region. The CRF would be expected to provide financing for a balanced mix of private and public private partnership (PPP) green industry projects. The region would need to develop a green industrial value chain that would require financing, production, marketing, regulation and R&D among other factors. The resilience fund would finance projects that meet the exacting standards of the GCF, and that are expected to provide good returns on investment.

Member states that elect to participate in such a debt for climate swap arrangement would be required to pursue structural reforms in order to address the short and medium term challenges. In this context debt relief should be contingent on obligations on the part of member states to pursue sustainable fiscal consolidation programs and should be based on agreements between creditors and debtors.

A variety of criteria could be considered as the basis for determining which countries are eligible to participate in the proposed debt swap arrangements. Among these could be the following:

- Countries experiencing low growth despite significant reforms aimed at increasing GDP;
- Countries that have established a track record of reforms either with IMF or World Bank support or under home grown strategies;
- Countries facing an unsustainable debt burden despite efforts at fiscal consolidation and fiscal reform;

²⁸ For example, in the case of Jamaica multilateral concessional debt reduction will see the debt burden move from 131 per cent to 128 per cent, for Grenada from 103 per cent to 82.3 per cent, for Belize from 78.5 per cent to 66.6 per cent, for Saint Lucia from 76.4 per cent to 61.2 per cent, for Saint Vincent from 76.1 per cent to 46.1 per cent, for Dominica from 75.5 per cent to 51.4 per cent and Guyana from 57.8 per cent to 38.1 per cent.

- Countries facing sizable debt service payments which have reduced their fiscal space and retarded infrastructural investment; and
- All countries that will face considerable difficulties in pursuing the Sustainable Development Goals including climate adaptation due to fiscal distress.

This proposal has several advantages which should be attractive to all creditors. It proposes a strategy which guarantees reduced repayment risks, strengthens the resilience of Caribbean countries and helps to build up a Fund that over time may be augmented by investments that have positive rates of return. It also is an opportunity for member states, to secure the fiscal space to generate much needed investment while pursuing adaptation and mitigation strategies. Finally the proposal may influence a region-wide approach to improved fiscal management, designed to help to address future debt build-up. Should the frame and essential elements of this proposal be received favourably, ECLAC stands ready to engage key stakeholders and partners in order to appropriately develop the proposal and advance the process meaningfully.

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Annex I

Caribbean debt vs the world

TABLE A1
DEBTCATEGORIES FOR THE CARIBBEAN vs SIDS AND THE WORLD, 2013

	US\$ millions	Per cent of SIDS	Per cent of World
CARIBBEAN (15)			
External Public Debt	19,704.4	55.7	1.0
CARIBBEAN (7)^a			
External Debt (Public and Publicly Guaranteed)	10,955.6	31.0	0.6
Official	5,918.2	24.3	0.65
Multilateral	4,358.7	36.1	0.76
<i>Multilateral concessional</i>	1,928.4	40.7	0.78
Bilateral	1,559.5	12.6	0.45
<i>Bilateral concessional</i>	1,479.8	12.5	0.49
Total Concessional	3,408.2	20.6	0.62

Source: World Bank World Development Indicators database; Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

^a Countries for which detailed external debt data are readily available –Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia and Saint Vincent and the Grenadines.

Annex II

Sustainability Analysis Methodology

The method used for the debt sustainability analysis for the Caribbean was the Standard Approach, based on the work of Buitier (1985) and Blanchard (1990), as outlined in the IDB's (2013) debt sustainability manual.

The Standard Approach calculates the primary surplus required to stabilize the debt to GDP ratio at its current level for a given interest rate, growth rate and debt stock.

$$f^* = \frac{r - g}{1 + g} d$$

where:

- g is the long-run average growth of real GDP, calculated using a geometric mean return formula
- f^* is the primary surplus and
- d is the debt-to- GDP ratio based on the general government gross debt.
- r is the long-run real interest rate, *weighted by the share of domestic and foreign currency debt (the share of external and domestic debt were used as their currency shares in the absence of this data).*
- It is calculated as $r = a \left\{ \left[\frac{(1+i)}{(1+\pi)} \right] - 1 \right\} + b \left\{ \left[\frac{(1+j)}{(1+\rho)} \right] - 1 \right\}$
- where:
 - a is the per cent of public debt in domestic currency
 - b is the per cent of debt in foreign currency
 - i is the average local interest rate
 - π is the local average inflation rate
 - j is the average foreign interest rate
 - ρ is the average foreign (United States) inflation.

This method is conducted under the assumption that the real interest rate r is greater than the real GDP growth rate, g . If this invertibility condition is violated ($r < g$), no required primary balance can be calculated.

Data

Data for this assessment were sourced from online databases. The data for d and g were sourced from the IMF World Economic Outlook (October 2014) database and data used to calculate r were sourced from the World Bank World Development indicators database. The long run interest rate and GDP growth rates were calculated using data for the last ten available years, 2004-2013. The World Development Indicators database had data available for only seven Caribbean countries: Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia and Saint Vincent and the Grenadines. As such, the analysis was limited to these seven countries.

Simulation scenarios

In addition to calculating the primary balance required to stabilize the debt at its 2013 level (**f* Steady state**), a number of other scenarios were examined. These included:

- 1 - What is the required primary balance to reduce the debt across countries to 60 per cent of GDP in 10 years?
- 2 - What would be the impact on the required primary balance of a complete and immediate write-off of the total external debt across all countries?
- 3 - What would be the impact on the required primary balance of a 50 per cent immediate write-off of the total external debt across all countries?
- 4 - What would be the impact on the required primary balance of a 50 per cent immediate write-off of the total external debt and a 25 per cent immediate reduction in total domestic debt across all countries?
- 5 - What would be the impact on the required primary balance of an immediate elimination of all concessional external debt.

It should be noted that the formula used for scenario 1 was

$$f^{target} = \frac{\mu}{(1 + \mu)^N} ((1 + \mu)^{-N} d_N^* - d_0)$$

Where $\mu = \frac{r-g}{1+g}$, d_N^* is the debt stock as a per cent of GDP target in N years and d_0 the initial debt stock as a per cent of GDP.

These scenarios were then repeated assuming an increase in the foreign real interest rates. The real interest rate was re-calculated by adding two percentage points to the average foreign real interest rate.

Limitations

1. Data obtained from multiple sources. The total public debt was sourced from the IMF World Economic Outlook (October 2014) database (and was classified as gross general government debt) while the external debt was sourced from the World Bank World Development indicators database (and was classified as public and publicly guaranteed debt).
2. Historical data time range limited to last 10 years due to violation of invertibility condition for all countries except Jamaica using 1980-2013 data.

Sustainability Analysis Results

TABLE A2
PRIMARY BALANCE REQUIRED TO STABILIZE OR REDUCE DEBT UNDER VARIOUS SCENARIOS

Country	External debt, 2013	Primary surplus, 2013	Real interest rate	Scenarios						
				Indicator	For debt stabilization					For debt reduction
					1	2	3	4	5	6
Belize	65.2	1	4.19	Total public debt	75.8	10.7	43.3	40.6	55.2	60
				Required primary balance	1.07	0.15	0.61	0.57	0.78	2.55
				Required adjustment	0.06	-0.86	-0.4	-0.44	-0.23	1.54
Dominica	53	-0.9	2.77	Total public debt	75.1	22	48.6	43	32.8	60
				Required primary balance	0.56	0.16	0.36	0.32	0.24	2.01
				Required adjustment	1.48	1.08	1.28	1.24	1.16	2.93
Grenada	60.1	-3.7	2.38	Total public debt	109.8	49.7	79.7	67.3	78.8	60
				Required primary balance	1.75	0.79	1.27	1.07	1.25	6.38
				Required adjustment	5.41	4.45	4.93	4.73	4.92	10.04
Jamaica	52.3	7.6	2.89	Total public debt	141.6	89.4	115.5	93.2	133.4	60
				Required primary balance	3.82	2.41	3.12	2.51	3.6	11.04
				Required adjustment	-3.83	-5.24	-4.53	-5.13	-4.05	3.4
Saint Lucia	25.7	-2.1	2.79	Total public debt	79.6	53.9	66.7	53.3	62.7	60
				Required primary balance	1.06	0.72	0.89	0.71	0.84	2.9
				Required adjustment	3.18	2.84	3.01	2.83	2.95	5.02
Saint Vincent and the Grenadines	37.5	-4.1	2.56	Total public debt	74	10.7	43.3	40.6	42.4	60
				Required primary balance	0.73	0.1	0.42	0.4	0.42	2.06
				Required adjustment	4.8	4.18	4.5	4.47	4.49	6.14

Note: All figures, except the real interest rate, are expressed as a percentage of GDP. The interest weight is the 10-year average of domestic and foreign interest rates, weighted by the currency composition of the debt; foreign interest rates were adjusted upwards by 2 per cent, as interest rates in Europe and North America are expected to rise in the near future.

Scenarios 1 through 5 show the primary balance required to maintain debt at a given level. This level varies across scenarios:

Scenario 1: No debt relief and debt is maintained at its current level.

Scenario 2: 100 per cent write-off of external debt.

Scenario 3: 50 per cent write-off of external debt.

Scenario 4: 50 per cent write-off of external debt and a 25 per cent write-off of domestic debt.

Scenario 5: 100 per cent write-off of all concessional external debt.

Scenario 6 shows the primary balance needed to steadily reduce total public debt to 60 per cent of GDP over 10 year.

Annex III

Debt structure

TABLE A3
CARIBBEAN EXTERNAL DEBT STRUCTURE, 2013

	BLZ	DMA	GRD	GUY	JAM	LCA	VCT	TOTAL
	<i>(US\$ Millions)</i>							
Multilateral	359.0	131.3	192.6	659.6	2,565.7	224.0	226.5	4,358.7
<i>Multilateral concessional</i>	188.8	124.6	175.8	587.9	447.0	202.9	201.4	1,928.4
Bilateral	145.0	95.8	82.9	435.8	751.8	22.4	25.7	1,559.5
<i>Bilateral concessional</i>	144.2	85.4	76.4	409.3	716.4	22.4	25.7	1,479.8
Private creditors	548.3	36.5	214.0	20.9	4,104.4	95.9	17.5	5,037.4
Total concessional	333.0	210.1	252.2	997.2	1,163.4	225.3	227.1	3,408.2
Total External Debt	1,052.3	263.6	489.5	1,116.3	7,421.9	342.2	269.7	10,955.6
Total Public Debt	1,275.2	390.2	863.1	1,727.6	18,826.4	1,020.2	547.0	24,649.7
	<i>(Per cent of external debt)</i>							
<i>Multilateral concessional</i>	17.9	47.3	35.9	52.7	6.0	59.3	74.7	17.6
	<i>(Per cent of total public debt)</i>							
<i>Multilateral concessional</i>	14.8	31.9	20.4	34.0	2.4	19.9	36.8	7.8

Source: World Bank World Development Indicators database; Economic Commission for Latin America and the Caribbean (ECLAC), on the basis of official figures.

Annex IV

Sustainability analysis methodology and key results

The following equation²⁹ was used for decomposing the debt.

$$\Delta d_t = -pb_t + evt + [i_{t-1} - \pi_t(1 + g_t) - g_t + \alpha_{t-1}s_t] \frac{d_{t-1}}{(1 + g_t)(1 + \pi_t)}$$

Where:

$$\text{Interest rate effect} = i_{t-1} - \pi_t(1 + g_t) \frac{d_{t-1}}{(1 + g_t)(1 + \pi_t)}$$

$$\text{Growth effect} = -g_t \frac{d_{t-1}}{(1 + g_t)(1 + \pi_t)}$$

$$\text{Real exchange rate effect} = \alpha_{t-1}s_t \frac{d_{t-1}}{(1 + g_t)(1 + \pi_t)}$$

Variables:

d_t = public debt/GDP

pb_t = Primary balance as a per cent of GDP

evt = New, non – borrowed debt as a per cent of GDP. Can be viewed as the residual

i_t = weighted average interest on total debt

π_t = GDP deflator

g_t = Real gdp growth rate

α_t = Share of external in total debt

s_t = rate of nominal depreciation (percentage change in the exchange rate)

Summary of Key Points to Note:

The Five components of the debt decomposition:

1. The first component of the change in debt-to-GDP is the primary balance. When governments spend more than they collect in revenue (excluding interest payments) they increase the debt ratio, and vice versa;
2. The interest rate effect is the second component of the debt decomposition. The decomposition uses real interest payments, which subtracts the effect of nominal GDP increases, due to inflation or real GDP growth, from nominal interest payments. This is because increases in nominal GDP will result in increases in tax revenue that can be used to pay interest. If the average nominal interest rate on debt is equal to the nominal GDP growth rate (and as such the revenue growth rate), there is no need for new borrowing. If interest payments however, exceed the growth rate, then new borrowing will occur;.
3. The next component is the growth effect: Any change in GDP will affect the debt-to-GDP ratio by definition;

²⁹ The full derivation is found in the CDB's "Public Sector Debt in the Caribbean: An Agenda for Reduction and Sustainability" on page 133.

4. The fourth component is the real exchange rate effect, which can bring about a change in the debt-to-GDP ratio without any new borrowing if a change in the exchange rate changes the value of the debt. Countries with fixed exchange rates will have zero exchange rate effects; and
5. The final component of the debt decomposition is the residual. This results from debt obligations from public enterprises and private enterprises that have been assumed by the government. It also includes accounting errors and omissions, as well as discrepancies between accrued amounts and cash flows.

Data:

The data was sources from official sources and the World Bank's World Development Indicators database for the period 2000-2014.