UWI
CAVE HILL CAMPUS
BARBADOS, WEST INDIES

DEPARTMENT OF GOVERNMENT,
SOCIOLOGY, SOCIAL WORK
AND PSYCHOLOGY

# POLICY BRIEF SPECIAL EDITION ON CLIMATE CHANGE

FACULTY OF SOCIAL SCIENCES

UNIVERSITY OF THE WEST INDIES
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Established in 1976 the then Department of Government and Sociology delivered teaching in Political Science, Sociology and Psychology. Today the Department offers several programmes at both the undergraduate and graduate levels in: International Relations, Labour and Employment Relations, Political Science, Sociology, Social Work and Psychology.

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The aim of the Department of Government. Sociology, Social Work & Psychology is to produce innovative research that addresses the topical issues facing the Caribbean and world today. The Department carries out research in the areas of democracy and electoral politics, survey design & analysis, social policy, gender and youth development inter alia.

The Department's academic staff possess an extensive list of publications, in the form of books, peer-reviewed articles, peer-reviewed journals, newspaper articles and other non-fiction texts. In addition to its theoretical output, the researchers collaborate with organisations and agencies at the global, regional and national levels.

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# TAPPING INTO THE FULL POTENTIAL OF CLIMATE CHANGE MITIGATION


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## What is the issue?

*"Human influence on the climate system is clear, and recent anthropogenic emissions of greenhouse gases are the highest in history" (IPCC, 2014, p.2).*

The Intergovernmental Panel on Climate Change (IPCC), in their most recent Special Report on Global Warming of 1.5°C, indicates that the planet has currently warmed 1°C above pre-industrial levels primarily due to anthropogenic greenhouse gas emissions (IPCC, 2018). Given global 'business as usual' practices, warming is projected to likely rise above 3°C by the end of the century (IPCC, 2014). The impact of this warming and subsequent overarching climatic change on human and natural systems would be and already is, far-reaching. The Small Island Developing States (SIDS) of the Caribbean, although one of the least contributors to anthropogenic emissions, are among the most vulnerable to the impacts of climate change. Under the business as usual scenario, SIDS face projected economic costs associated with climate change of at least 15% of their combined Gross Domestic Product (GDP). In comparison to the projected global costs of 1 to 4% of GDP for the same emissions pathway, this is substantial (UN-OHRLLS, 2017). Unhinged climate change would also cause adverse effects on the environmental and social sectors in the form of sea-level rise, saline intrusion, increased extreme events, climate-induced diseases, food security issues, degraded ecosystems and migration (UN-OHRLLS, 2017).

The increasingly urgent and global nature of climate change led to the formation of he Paris Agreement. The mandate of the Paris Agreement is to restrict global temperature rise to 2°C (and ideally 1.5°C) above pre-industrial levels (UN, 2015a). This mandate sits on the two pillars of mitigation and adaptation, wherein countries pursue low carbon development via greenhouse gas emission reduction and climate-resilient development by implementing measures to deal with the impacts of climate change. The Agreement recognizes Parties' "common but differentiated responsibility and respective capabilities" (UN, 1992, pg. 1). Given that developed countries have contributed the majority of greenhouse gas emissions, they are expected to take the leading role in mitigation action and provide overall support to developing countries via the

financial, technical, and capacity-building mechanisms in the Agreement.

Since SIDS contribute less than 1% of global greenhouse gas emissions, their development plans have focused more on the crucial need for adaptation. For instance, the SIDS Accelerated Modalities of Action (SAMOA) Pathway, which outlines SIDS' priorities, emphasises adaptation as an immediate and urgent need while mitigation is expressed as a secondary item (UN, 2014). Nevertheless, the Paris Agreement requires each Party to communicate planned mitigation efforts in Nationally Determined Contributions (NDCs) every five years. Additionally, commitments should be increased with each succeeding NDC. Mitigation action either involves the reduction of greenhouse gas emissions through initiatives such as renewable energy generation and improved energy efficiency or the enhancement of carbon sinks through, for instance, reforestation and forest management. Based on the stipulations of the Paris Agreement, developing countries are expected to incorporate mitigation at a pace which aligns with their national priorities

**"NDCs embody efforts by each country to reduce national emissions and adapt to the impacts of climate change. The Paris Agreement (Article 4, paragraph 2) requires each Party to prepare, communicate and maintain successive nationally determined contributions (NDCs) that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions" (UNCC 2020)**

Herein lies the issue. Given SIDS' overarching goals of inter alia sustainable development and poverty eradication, how should they approach the formation of their NDCs? Are there benefits from mitigation that can be capitalised on for broader sustainable development?

## Why is it important?

Many SIDS wrestle with limited resources. Evaluating the opportunities for holistic sustainable development, through mitigation, leads to the identification of sectoral co-benefits which are critical in maximising limited financial and human resources (Northrop et al., 2016).

In recent times, 70% of climate finance has been directed towards mitigation (UN-OHRLLS, 2018). Given the availability of mitigation finance, and considering that the market is characterized by decreasing costs of renewable energy (UN-OHRLLS, 2018) as well as generally low costs of emissions reduction and carbon sink enhancement, SIDS should make use of mitigation pathways and the development opportunities it offers (Mitchell and Maxwell, 2010).

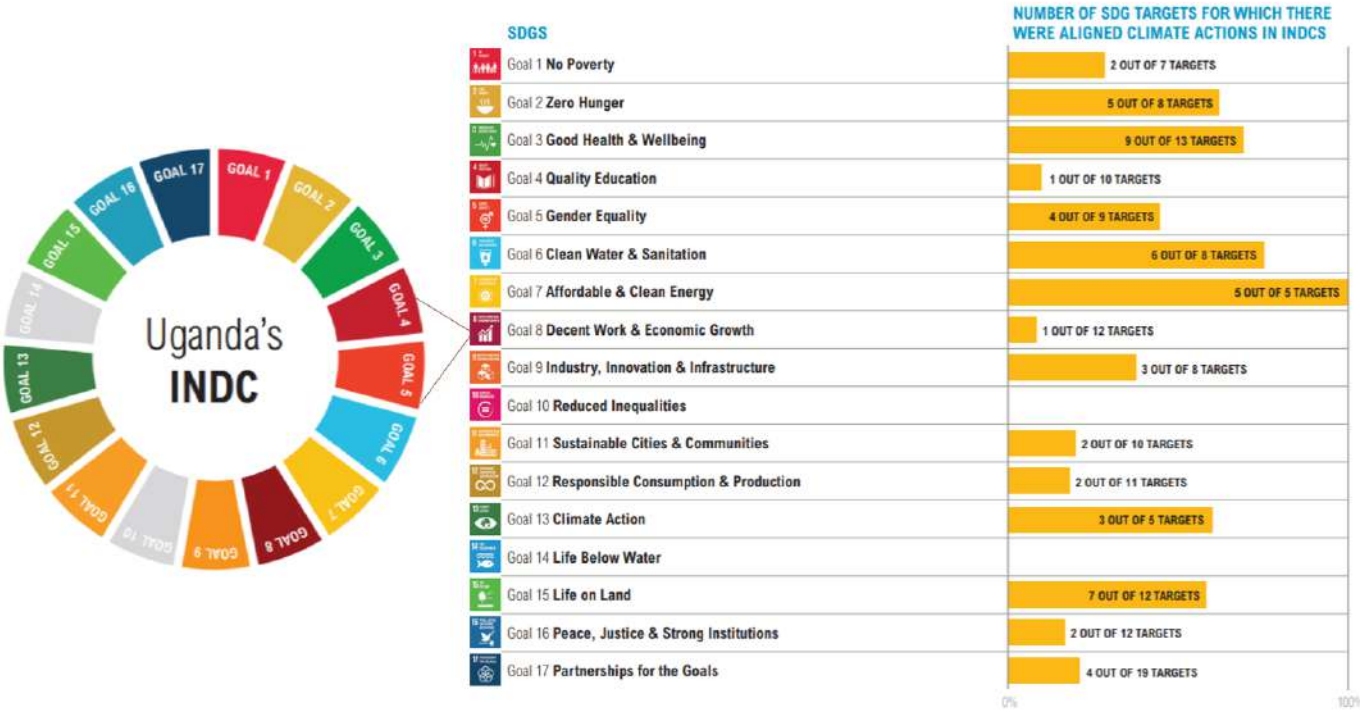
## What should be done?

**Utilize the Sustainable Development Goal Framework**

To capitalise on these opportunities, NDCs should be designed, and subsequently assessed, based on identified multi-sectoral benefits which support national priorities. The Sustainable Development Goals (SDGs) provide a lens to view society's multifaceted issues (UN, 2015b). The globally accepted framework consists of 17 goals and 169 targets which were designed to span the entirety of the human system and its interaction with the human-made world and the natural environment. Northrop et al. (2016) evaluated the intersection between the aims of the Paris Agreement's NDCs and the SDGs. The paper highlights Uganda's Intended Nationally Determined Contribution (INDC) as it successfully aligned climate actions to 15 of the 17 SDGs. Uganda was a front-runner in localising the SDGs and strategically

integrating them in their INDC. The INDC was therefore aimed towards SDG targets that influenced Uganda's national priorities and key economic sectors- thus maximizing allocated local and international funding.

Figure 3: Alignment between Uganda's INDC and the SDG Targets




Sourced and adapted from Northrop et al. (2016)

**Identify Critical Sustainable Development Pathways**

The SDG framework was developed following the end of the tenure of the Millennium Development Goals (MDGs). The MDGs were criticized for lack of internal integration which led to, for instance, economic advancement at the expense of environmental well-being. Correcting this wrong, the SDGs were specifically designed to operate as an interlinked network (Le Blanc, 2015).

Research has been done to evaluate interaction among the SDGs themselves (Le Blanc, 2015) as well as among chosen SDG nexuses (Weitz et al., 2014; Lui et al., 2018; Mainali et al.; 2018). For instance, Mainali et al. (2018) investigated the water, energy, food nexus and its interaction with poverty. This work highlighted key development pathways which show that, for example, increased use of renewable energy under SDG 7 (affordable and clean energy) has the potential to contribute to SDG 2 (zero hunger) by improving agricultural productivity via more affordable energy for irrigation pumping. This, in turn, increases farmers' incomes, decreasing poverty and reinforcing SDG 1 (no poverty) and SDG 8 (decent work and economic growth). Increased income levels translate to, among others, increased ability to afford sanitation needs such as toilets (SDG 6 clean water and sanitation) and education (SDG 4 quality education).

Of specific interest to the topic at hand, research mapping the interactions between

mitigation and the SDGs has revealed mitigations' potential to influence more than 70% of SDGs (Fuso Nerini et al., 2019). Further, the IPCC (2018) considered the interactions between mitigation activities, particularly in energy supply, energy demand, land management, and the ocean and the SDGs. This work found strong synergies for SDG 3 (good health and well-being), SDG 7 (affordable and clean energy), SDG 11 (sustainable cities and communities), SDG 12 (responsible consumption and production), and SDG 14 (life below water). Moreover, "low energy demand, low material consumption, and low greenhouse gas-intensive food consumption" (IPCC, 2018) were highlighted as pathways characterized with the most SDG synergies. These studies demonstrate the sustainable development reach of singular well-planned mitigation action.

**Pinpoint Significant Sectors for Mitigation Action**

The infrastructure system presents a noteworthy and somewhat hidden opportunity to apply these insights. Infrastructure systems, particularly networked infrastructure, are often the cause of the majority of greenhouse gas emissions within a country. Networked infrastructure systems facilitate the distribution of energy, transportation, water, waste management, and digital communications services. Their greenhouse gas-intensive nature combined with the presence of ageing infrastructure and rising populations make infrastructure development a critical launching pad for mitigation action.

Research has indicated that infrastructure can underpin all 17 SDGs and 72% of the 169 targets either directly or indirectly (Thacker et al., 2019). Zooming in on recent research, specifically on mitigation initiatives within the infrastructure network system, action in this area can positively influence all the goals and 50% of the targets (Vital, 2019). Particularly, it was found that mitigation action within networked infrastructure exhibits a strong influence on SDG 6 (clean water and sanitation), SDG 7 (affordable and clean energy), SDG 9 (industry, innovation and infrastructure), and SDG 11 (sustainable cities and communities). Moreover, upon evaluation of mitigation in each infrastructure service, it was found that the energy, transport, and water systems influenced the highest proportion of SDGs both directly and indirectly (Vital, 2019).

Integrated SDG centric infrastructure planning is beginning to take off. Adshead et al. (2018) laid a foundation with an evidence-based infrastructure development plan for the Government of Curacao. The vision for future infrastructure was shaped by Curacao's identified challenges and sustainable development through the SDGs. Thacker et al. (2019) reports that the assessment resulted in the identification of cost-effective short-term measures and aided in coordination across government ministries.

Adding to this work, Vital (2019) quantitatively applied the evaluation of infrastructure and mitigation within the SDGs to a case study in St. Lucia. The findings were used to develop an SDG influence metric to assess mitigation strategies to 2050 for the island. The strategies were developed given varying scenarios informed by national priorities and subsequent policy analysis, existing infrastructure life span, projected population growth and infrastructure needs, and key stakeholder insight. The devised strategies were classified by the metric which aggregated potential SDG impact based on environmental/climate impact, access to infrastructure services, and ease of implementation. For example, of the six mitigation strategies developed for the energy sector the highest scoring strategy achieved St.

Lucia's projected electricity needs, renewable energy, and energy efficiency targets without costly options such as a new diesel power generation plant, a waste to energy facility, natural gas, and anaerobic digestion. Beyond the SDG metric which captured indirect SDG influence, this strategy also directly influenced the most SDG targets. By considering the sustainability impact through the SDG framework, an effective pathway to meet the island's energy needs was found through enhanced renewable energy generation and maximum cost-effective energy efficiency measures.

**Bringing It All Together**

The findings from such studies illuminate high impact development pathways and provide guidance for policy-making and long-term planning. They show that to extract every ounce of benefit from mitigation action NDCs should focus on the infrastructure-mitigation nexus and particularly on energy generation, sustainable city and community development, innovation in industry and infrastructure, and clean water and sanitation. They also highlight the most impactful sectors for NDCs: energy, transportation and water. Moreover, mitigation action within these sectors has the potential to reverberate and impact all aspects of sustainable development.

From the brief case studies presented, it is clear that applying mitigation strategies to critical SDGs and sectors and understanding their linkages has immense potential to produce the best outcomes. Such actions necessitate cross-sector discourse which fosters policy coherence and informed decision making- further reinforcing sustainable development (Lui et al., 2018). Carefully crafted climate change mitigation action through the NDCs in conjunction with measures such as context-specific cost-benefit analyses, vigilant implementation, monitoring and evaluation, and good governance have the capacity to propel truly resilient growth in Caribbean SIDS.

**"To extract every ounce of benefit from mitigation action NDCs should focus on the infrastructure-mitigation nexus and particularly on energy generation, sustainable city and community development, innovation in industry and infrastructure, and clean water and sanitation."**

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# INTEGRATING SUSTAINABILITY INTO THE CURRICULUM OF HIGHER EDUCATIONAL INSTITUTIONS

Brief adapted from Griffith, Alana, and Winston Moore. 2020. 'A Comparative Analysis of Approaches to Integrating Sustainability into the Curriculum at A University in A Small Island Developing State in the Caribbean'. In Integrating Sustainable Development into the Curriculum, edited by Enakshi Bingley, Patrick Blessinger, and Taisir Subhi Yamin, 18:41–56. Innovations in Higher Education Teaching and Learning. Bingley: Emerald Publishing Limited.

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## What is the issue?

Caribbean Small Island Developing States (SIDS) are disproportionately affected by climatic changes. According to the United Nations Development Programme (UNDP) (2010, 1), "the difficulties that all countries face in effectively coping with climate change impacts are exacerbated in SIDS because of their small geographical area, isolation and exposure." However, in examining the impacts of climate change, Caribbean SIDS are often aligned with Latin America. While connecting the two regions does serve its purpose– considering their geographical proximity, meteorological conditions, issues of underdevelopment, and colonial history– there are significant differences in their economic and political make-up. For this reason, it is necessary to examine the effects of and to recommend solutions for climate change in the Caribbean, not only in combination with Latin America but on its own as well.

In proposing strategies to mitigate and adapt to climatic changes, recommendations tend to lean towards the technical, scientific, and political aspects of this phenomenon. For instance, in the "Strategic Plan for the Caribbean Community 2015 – 2019: Repositioning CARICOM," the plan outlines a "Building Environmental Resilience" strategy. The strategy is meant to "reduce vulnerability to disaster risk and the effects of climate change and ensure effective management of the natural resources across Member States" (Gwendoline Williams and Associates, CARICOM Secretariat, and Change Drivers in Member States 2014, 26). The approaches to meet this goal are outlined in the Table 2. Most of these approaches, as shown, concentrate on legal, political and technical strategies. However, this paper would like to emphasise the importance of Higher Education Institutes (HEIs) as an effective strategy in approaching the environmental and developmental issues faced by the Caribbean as a result of climate change. Engaging HEIs in the mitigation and

adaptation strategies of SIDS can be considered as a proactive approach to dealing with climatic issues. Two courses, Caribbean Social Problems and Economic Planning administered through the Department of Government, Sociology, Social Work and Psychology and the Department of Economics respectively, at the University of the West Indies, Cave Hill Campus will be used as examples of how this can be achieved.

Table 2: CARICOM strategies for 'Building Environmental Resilience'

| Strategies | Approaches |
|---|---|
| **Advance Climate Adaptation and Mitigation viz.7410** | a) Ensure the periodic updating of the Regional Framework for Achieving Development Resilient to Climate Change and the Implementation Plan 2011 – 2021 to guarantee continued currency with national and regional development imperatives;<br>b) Pursue the full operationalisation of the Implementation Plan and secure complete integration of its elements into national and regional development agendas;<br>c) Prepare Member States to be in a state of climate finance readiness;<br>d) Support the development of a compendium of projects of Member States for action by the CCCCC and its partners to leverage the financing to support implementation of national resilience-building initiatives;<br>e) Promote actions to derive benefits from the international response to climate change. |
| **Advance Disaster Mitigation and Management** | Focusing on a comprehensive approach to disaster management which involves the management of all hazards, throughout all phases of the disaster management cycle and involving all peoples and sectors of the economy. This integrated risk management approach will center on:<br>a) Integrating Comprehensive Disaster Management (CDM) into national policies, strategies and legislation;<br>b) Strengthening national and regional institutional capacities for effective support of CDM implementation, monitoring and evaluation (including mobilisation of resources);<br>c) Enhancing preparedness and capacity for effective and efficient coordination of response and recovery at the national and regional levels (including public awareness and education);<br>d) Building an infrastructure for fact-based policy and decision-making;<br>e) Improving integrated risk management at the sectoral level for key priority sectors. |
| **Enhance Management of the Environment and Natural Resources** | Legal and Regulatory reform to improve land use planning and management; pollution prevention and control; waste management; building national and institutional capacities to conduct and use environmental and social impact assessments (including climate change screening/proofing); promoting energy efficiency and renewable energy options (linked to Climate Adaption interventions above); promoting sustainable use and management of biodiversity; promoting integrated Coastal Zone Management; promoting conservation, management and sustainable use of the marine living and forest resources; and enhancing regional capacity to address ocean governance issues associated with, inter alia, proliferation of alien and exotic species, marine litter and biodiversity beyond national jurisdiction. |

Source: Strategic Plan for the Caribbean Community 2015 – 2019: Repositioning CARICOM

## Why is important?

Incorporating HEIs into the climate change response of Caribbean SIDS is integral to building bottom-up and top-down defences against the adverse effects of this phenomenon. According to Griffith and Moore (2020, 12) "HEIs are critical to the achievement of the United Nations 2030 Sustainable Development Agenda." The UNFCCC (United Nations Framework Convention on Climate Change) highlights mitigation and adaptation strategies as key to responding to climate change issues The Energy and Resources Institute (TERI)

(2007, 1). Mitigation is defined as "a human intervention to reduce the sources or enhance the sinks of greenhouse gases" (Working Group III Technical Support Unit 2014, 4). Adaptation, on the other hand, is "the process of adjustment to actual or expected climate and its effects (IPCC 2018, 1758). According to, TERI (2007, 2) adaptation measures necessitate resource management, food security, development of social and human capital, among other things - all of which constitute sustainable developmental practices. Thus, sustainable development improves resilience and decreases vulnerability, and thereby improves the ability of states to withstand the harmful impacts of climate change.

By incorporating the UN 2030 sustainable development goals into the curricula of courses taught at HEIs, students would be educated and informed on these issues, even before they enter the 'working world.' For instance, Ahmadein (2019, 18), in assessing the opportunities and obstacles of achieving SDGs from an Arab perspective, states that "universities, in particular, are essential to achieving the SDGs because they can equip the next generation with the skills, knowledge and understanding to address sustainability challenges and opportunities and perform research that advances the sustainable development agenda." Also, as everyday citizens, educating students about climate change is quintessential in building a conscientious and politically active citizenry.

The University of the West Indies (UWI), as the region's premier tertiary and higher education institution, has a pivotal role to play in this regard. According to Griffith and Moore (2020, 44), the UWI has implemented various strategies towards the promotion of sustainable development. These strategies include but are not limited to: the Institute for Sustainable Development, the Centre for Resource Management and Environmental Studies (CERMES), a collaboration between the UWI's Office of Development and the United Nations Development Programme (UNDP) classified as the 'SDG Youth Advocacy Campaign in April 2017,' and the UWI Cave Hill Student Guild's initiative called "Pelicans of Action" (Griffith and Moore 2020, 44). Nonetheless, the authors highlight that while there have been attempts at the "macro and micro level" to implement sustainability and SDGs into the University's agenda, at the "meso-level with regard to attempts by lecturers to integrate sustainability into their courses is not necessarily captured; neither is it mandatory" (Griffith and Moore 2020, 4). The issue of SDG incorporation into the curricula of the UWI's bachelor, graduate and post-graduate programmes is essential to ensuring a multi-level approach to building a robust, sustainable development project for the University and the region.

This is especially important for Caribbean SIDs which have historically dealt with issues of poverty, racism, gender inequality and political disenfranchisement. The original intent behind the establishment of the UWI was to promote sustainable development. While this terminology was not employed, as the term was not popular at that time, the achievement of the 2030 SDGs correlates to the social and cultural responsibility of this institution. Griffith and Moore (2020, 44) give evidence to this point, underscoring the 1945 Report of the Commission on Higher Education in the Colonies, which led to the establishment of the University College of the West Indies, which subsequently became the UWI. Of which, the intention was to "expand the higher education opportunities available to those living in the colonies granting equal access regardless of gender, race, or religious persuasion to satisfy the professional needs for the development of the then colonies" (Griffith and Moore 2020, 44). The incorporation of SDGs into the curricula of the of the UWI's programmes is

one more step towards fulfilling this objective.

## What should be done?

Griffith and Moore (2020) provide examples of the courses, Economic Planning and Caribbean Social Problems, to demonstrate ways in which SDGs can be incorporated into the curriculum. The course, Caribbean Social Problems, "assesses the extent, nature, causes, and consequences of social problems in the Caribbean, their links to broader global issues and the influence of supranational agencies like the United Nations (UN) and World Health Organization in helping define and address social problems within the region and beyond" (Griffith and Moore 2020, 45). The course employs a "flipped classroom method." In this method, the "passive aspect of learning" (reading, lecturers and so on) are placed online, while the more "active aspects of learning" are left in the classroom (Ingason and Guðmundsson 2018). The instructor can then use class time to actively engage with students" (Ingason and Guðmundsson 2018). According to Griffith and Moore (2020, 45), the flipped classroom strategy allows for learning through discussion, tutorials and online discussions.

In this way, students can participate in the subject matter of the course actively. The course content is directly linked to the 2030 SDGs, covering topics such as poverty, unemployment, family abuse and health insecurity (Griffith and Moore 2020, 47). Consequently, the lecturer integrates sustainability themes into the content in the delivery/teaching of these topics. For example, in one online discussion on "social problems in the global context," students were asked to "reflect on the SDGs and select one goal" (Griffith and Moore 2020, 48). The students were then able to express their perspective on the different goals, using the theories taught in the course, in relation to concepts of sustainability. For example, one student's contribution on the sustainable development goal one 'No poverty,' (see Table 3) demonstrates that the student can i) identify at least one SDG, ii) explain its importance, iii) discuss the obstacles to achieving this goal and iv) correlate other relevant concepts (in this case globalisation, capitalism and migration) with the achievement of this goal.

Accordingly, in this particular case, students are not only given the opportunity to learn about the SDGs but to incorporate them in their broad understanding of social problems from the domestic to the global level. Additionally, the foundation set with this course would enable students to problematise the achievement of SDGs, specifically for developing countries and SIDS. This would hopefully better enable them to develop holistic and achievable strategies as they take up positions as educators, policymakers and professionals in other capacities within and outside of the region.

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Furthermore, the integration of the UN 2030 SDGs is especially important for the UWI economics programme, as their students will most likely undertake careers which will intersect with the sustainability agenda (Griffith and Moore 2020, 51). The importance

Table 3: Example of Student Online Discussion

**The most important sustainable goal is "No Poverty" by 2030 (The United Nations, 2018). Globalisation helps us to address social problems by showing that they are not always nation bound but they are either due to or can be amended by the global reach. For example, foreign investors who prevent the growth of domestic capital or those who supply low wage jobs in the secondary market while repatriating profits contribute to poverty in the host country (Kentor, 2001). Globalisation also facilitates and promotes a dependent relationship on powerful countries and their investments. Nevertheless, with globa participation "no poverty" is achievable. Due to the speed of migration and capital movement, international work is possible, and poverty can be alleviated. Therefore, as Kentor suggests, globalisation is neither good nor bad (Kentor, 2001). The global approach helps us to examine social problem on a wider scale rather than deeming them as local issues and as requiring local solutions.**

Source: Griffith, Alana, and Winston Moore. 2020. 'A Comparative Analysis of Approaches to Integrating Sustainability into the Curriculum at A University in A Small Island Developing State in the Caribbean'.

of a curriculum inclusive of these issues is maximised by the fact that the students are largely from developing countries and SIDs. Their unique personal and national experiences, thus, influence them to select an economics degree (Griffith and Moore 2020, 51). Furthermore, the Department of Economics has committed itself to train and prepare students for decision-making. According to the Head of the Economics Department, Prof. Troy Lorde, "economists are therefore playing a leading role in helping firms and countries to enhance their performance and navigate the uncertainty of globalisation.

The Department of Economics plays a key role in this regard by "training the next generation of decision-makers" (Lorde 2020). In keeping with this broader agenda, the Economic Planning course seeks to provide students with the skillset to develop policies and strategies at the "organisational, region, or broader macroeconomic (Griffith and Moore 2020, 51). Ultimately, this would help to create the desired outcomes that would otherwise not be produced if left up to the market (Griffith and Moore 2020, 51). At the end of the course, students are expected to possess the skills to formulate plans which increase the economic value of public and non-public institutions, identify the tools needed to implement and observe the progress of their plan and recognise the issues which may affect (positively or negatively) the development of these plans (Griffith and Moore 2020, 51).

Employing sustainability in this course would hopefully create a generation of decision-makers who proactively include the SDGs when planning. This is especially important as the lack of attention to sustainability in political, social and economic planning, have caused policymakers first to make unsustainable decisions and then respond with reactive measures to solve the created problem. In integrating sustainability and economic planning, the course aims to be proactive and systematic rather than reactive. For instance, for the unit "green strategy," Griffith and Moore (2020, 52) explain that students are exposed to a variety of topics which correlate

with SDG number 7 (Affordable and Clean Energy), number 8 (Decent Work and Economic Growth), number 11 (Sustainable Cities and Communities), number 12 (Responsible Consumption and Production), and number 13 (Climate Action). Consequently, the students then learn about the green strategy, SDGs and how both can be incorporated into economic planning. They are then given an assignment which asked that they "select a company in your home country and conduct an assessment of strategically positioning the company as a green business" (Griffith and Moore 2020, 52). Here students can put the concepts learnt into action as they are being trained to develop policies or strategies which promote good economic practices framed within the larger goal of maintaining or creating sustainable development. The authors then conclude that by incorporating SDGs into economic planning, it is possible to "break" the conventional boundaries of sustainability to development economics which deals with issues related to "strategy, business and feasibility" (Griffith and Moore 2020, 52).

In conclusion, the incorporation of SDGs into the curricula is instrumental, in promoting what the University has identified as an ideal graduate (see Figure 4). The outcomes and benefits of the two courses examined demonstrate that both Caribbean Social Problems and Economic Planning can help create an ideal graduate. Specifically, attribute 1, which speaks to students being able to apply analytical and logical reasoning; attribute 5 which calls for graduates to be environmentally aware, conscientious of global events and willing to contribute to addressing these events; attribute 6 that requires graduates to be aware of the social, cultural and environmental implications of their actions; and attribute 7 that calls for students to promote and apply ethical values (The University of the West Indies 2020).

They develop students who are knowledgeable, capable and equipped with the mindset and skillset to develop the plans and policies needed to establish a formidable sustainable development project. The University of the West Indies should strongly consider this strategy to supplement the other macro and micro initiatives aimed at promoting sustainable development in the region and the world.

Figure 4: Diagram Showing the 7 Attributes of the Ideal UWI Graduate


Source: (The University of the West Indies 2020)

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# TENSIONS IN THE AGENDA FOR ADDRESSING CLIMATE CHANGE IN DEVELOPING STATES


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## What is the issue?

Climate change impacts millions of people in diverse ways, unfortunately, it is Small Islands Developing States that suffer the most economically, socially and politically in comparison to other developing states. SIDS are often first to face the wrath of climate change. Climate change is on the agenda for Caribbean Small Island Developing States (SIDS) because of its adverse effects on their environments, societies and economies. For example, according to CARIBSAVE, 1m SLR (Sea level rise) is projected to inundate 100% of port lands in Jamaica, 20% of airport lands and 2% of road networks. It is also projected to cause damage or loss to at least 149 multi-million dollar tourism resorts, with beach assets lost or substantially degraded at many more tourism resorts. In addition, "transportation networks may be severely disrupted, including loss or damage of twenty-one (28%) CARICOM airports, lands surrounding thirty-five ports inundated (out of 44) and loss of 567 km of roads (e.g. 14% of the road network in The Bahamas, 12% in Guyana, 14% in Dominica)" (Simpson, 2010).

## Why is it important?

Caribbean countries rely heavily on their natural environment as the key strategy to attract visitors. However, as shown above, the natural environment is highly vulnerable to climate variability and change. Nonetheless, in managing the effects of climate change, it is essential to understand that the tensions between economic development and environmental protection complicate decision-making around climate change adaptation. For the Caribbean, one step forward towards economic growth, maybe one step backwards in the fight against climate change.

For a clear sustainable path toward development to be charted, these underlying tensions must be addressed. This article will seek to examine how climate change affects the

Caribbean in relation to internal and external issues. Additionally, the article will explore why, despite governmental recognition of the impacts of climate change, SIDS are hindered in decision-making in this regard.

**Internal Issues**

Loss of Land, sea-level rise, increasing temperature, and coral reef dying are just some of the dire effects of climate change on the tourism industry. It disrupts a Caribbean economy heavily reliant on providing sea, sun and sand to its visitors. Consequently, on the one hand, SIDS seeks economic growth through tourism and investments that bring jobs to the countries, helping to curb the woes of unemployment that have plagued Caribbean civilization. This means that governments and other authorities should try to sustain the industry, for the sake of economic survival and prosperity. While, on the other hand, these structures pose a threat to coastlines because they are not green buildings which emit less greenhouse gas emissions than traditional buildings. Moreover, coastal damages that they may cause can take years to replenish (Pierre-Nathoniel, 2017).

**"A 'green' building is a building that, in its design, construction or operation, reduces or eliminates negative impacts, and can create positive impacts, on our climate and natural environment. Green buildings preserve precious natural resources and improve our quality of life" (WorldGBC 2020).**

An empirical example of this tension is the island of Barbados that is impacted by climate change but is also heavily dependent on the tourism industry. Whereas, Barbados has gained access to renewable energy developmental funds, the importation of cars contributes to greenhouse gases (GHG) because they run on fossil fuels. Consequently, while GHG may decrease in one area, it continues in another. Undoubtedly, the Caribbean region cannot be expected to convert fully to electric vehicles in such a short period. Nevertheless, it is a tension that governments must contend with that is vast and complex. The blue-green economies must find ways to mitigate and adapt if SIDS are to have a chance at attaining their Sustainable Development Goals SDGs for 2030, 2050, 3030, or whatever timeline is sought.

**External Issues**

The region has made some steps in advancing in environmental issues at the global level, one example of this are the Multinational Environmental Agreements (MEAs) signed by Caribbean SIDS, such as the Paris Agreement, the United Nations Framework Convention on Climate Change (UNFCC) and Vienna Convention for the Protection of the Ozone Layer. However, the inherent uncertainties in new developments in climate science, climate impact assessment techniques, and the characterisation of the implications of climate change and variability assist in improving strategy development towards climate risk management within developing countries.

Vulnerability among SIDS from external forces is crucial in understanding why climate change is not yet entirely achievable. For one, it is not the only major socio-economic plight faced by the region. Other issues, such as, low levels of foreign exchange, poverty, high levels of crime, among other developmental issues take up a significant portion of SIDS' human and non-human resources. It can be argued that individuals are more concerned about their wellbeing than that of climate change and the environment, even though they are on the front lines of the fight. This is because it is not an

immediate issue in their minds. Rise in gas/diesel prices, and local tax hikes are of more importance to individuals than any change in climate with exception to a hurricane (Nicholas, 2017). These social issues also make SIDS vulnerable to climate change. It is because of these circumstances, that climate change does not take priority consistently. It is essential to share knowledge and build resilience on the importance of climate change and its effects on developing states to enact change.

## What should be done?

Understanding that tensions between state development and climate change exist, it is important to make the tourism industry more environmentally friendly since it is a major economic earner for the region. This means transforming the Caribbean region from harmful greenhouse gases to renewable, environmentally friendly sources of energy, while still developing economically. For example, Ragbir (2020) states that constructing green buildings emits less carbon than traditional buildings.

It is also crucial to sensitise citizens about climate change and its impact on their lives and future generations. Buying reusable drinking bottles, avoiding single use plastic products and not burning garbage are simple, yet effective, methods that individuals can do to play their part. There is no excuse for Small Island Developing States to not have climate change consistently on their agenda, without added complications and tensions.

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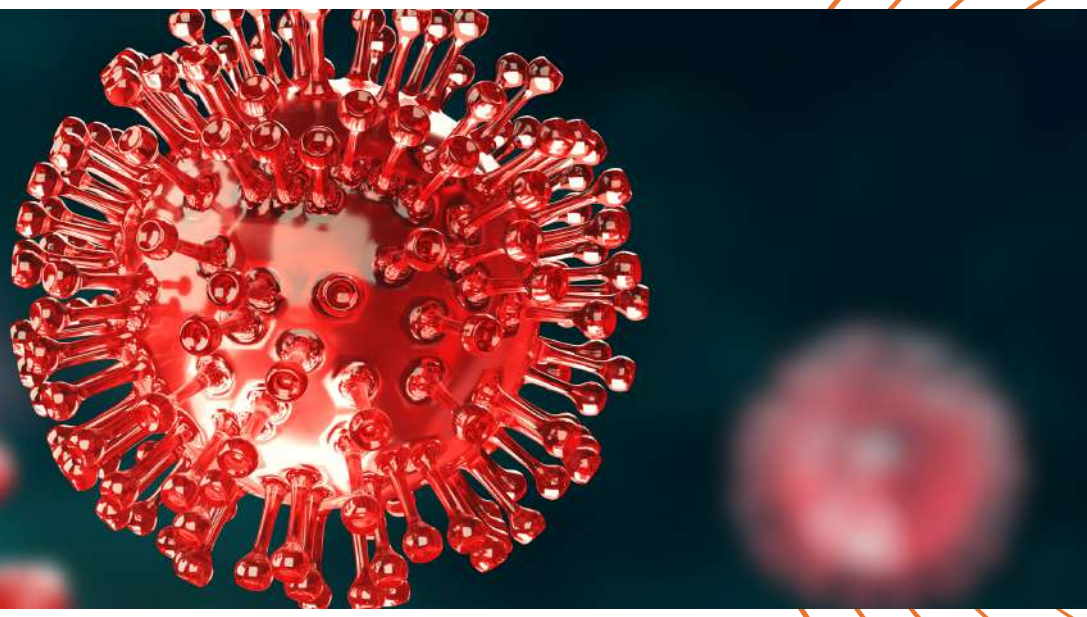
# RESPONSES TO CLIMATE CHANGE AS A GLOBAL CHALLENGE: LESSONS FOR THE CARIBBEAN DURING COVID-19 AND BEYOND



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## What is the issue?

### Environmental Deterioration and Climate Change: From Global to Local

The environmental degradation of this planet has worsened in the first two decades of this century. On the environmental level, it is a manifestation of the global socio-economic crisis and the contradictions and problems derived from neoliberal globalisation in the present system of international economic relations. Recent international reports have revealed the worsening of the main global, regional and local environmental problems, which affect, above all, the poorest and most vulnerable segments of the world's population, with serious implications at all spatial levels-global, regional, national and local.

The five greatest risks (in terms of probability of occurrence), identified by experts in global issues, at the beginning of 2020 refer to environmental matters, such as, 1) extreme meteorological events; 2) failure of mitigation and adaptation to climate change; 3) natural disasters; 4) loss of biodiversity; and 5) human-made environmental disasters. For the first time since 2007, the first five positions are occupied by environmental issues, which since 2010 have become much more visible in these studies (see WEF, 2020).

Likewise, three of the five major risks (in terms of the magnitude of their impacts) as well correspond with environmental issues: the failure of mitigation and adaptation to climate change (1); the loss of biodiversity (3); and extreme environmental events (4) (WEF, 2020). Multilateral negotiations on the environment and development, especially from the Río de Janeiro Summit (1992) (e.g. The Summit on Sustainable Development, on Johannesburg, South Africa, 2002; and the Río+20 Conference, in Brazil, 2012, among others) have become spaces for heated

disagreements and conflicts centred around the North-South axis. Here, the principle of common but differentiated responsibilities is a slogan for the developing countries in times of advocating for greater equity in those negotiating processes.

**Principle 7 of the Rio Declaration: "In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressures their societies place on the global environment and of the technologies and financial resources they command" (quoted in French 2009, 94).**

In the case of the United Nations, it adopted in 2015 the 2030 Agenda and the 17 Sustainable Development Goals, that were translated into aims for countries, based on diverse economic, social and environmental objectives. These constituted an important effort towards a global response to advancing matters of sustainability. However, the means of implementation, concerning financing and appropriate technologies to accomplish these goals, are pending issues, which severely compromises the possibility of finding lasting solutions to the existing problems.

With the planet's worsening environmental degradation, the multiple dimensions of human development are compromised, among them food, water and energy security. Consequently, a great potential for socio-political and military conflicts are enabled and places at risk the efforts for preserving peace and advancing development.

Among the key messages of climate change science, according to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) (2014), are that:

- The influence of human activity on the climate is evident;
- To the extent that the climate is altered, there will be major risks of widespread and irreversible severe impacts;
- Measures to limit climate change and create a more sustainable future are available, but require immediate actions and opportunities, as the window of opportunity, is closing, and inaction comes with elevated costs and risks.

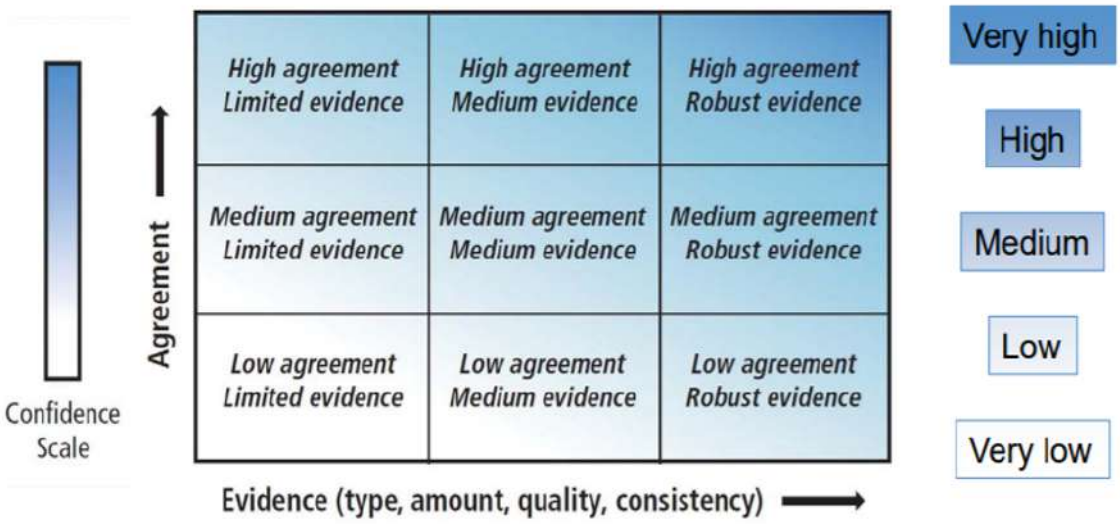
The principal components of the response strategies to climate change are adaptation, which includes actions focused on reducing vulnerability to climate change and attributes a key role to the local level, and mitigation, which considers actions to reduce the net emissions of greenhouse gasses (GHG).

The most recent reports of the IPCC confirm the previous conclusions. They estimate, with high confidence, that human activities have already caused approximately 1.0°C of global warming above pre-industrial levels. Temperatures may probably reach 1.5°C between 2030 y 2052 if global warming continues to increase at this current pace (IPCC, 2018). The IPCC has concluded that climate change generates additional tensions on the terrestrial ecosystems. It also exacerbates the existing risks to livelihoods, biodiversity, human and ecosystem health, infrastructure and food systems (IPCC, 2019a).

The IPCC (2018) as well highlights, with **high confidence** that the warming caused by the anthropogenic emissions from the pre-industrial period until the present, will persist across centuries and millennia. In the long run, it will continue causing more changes in the climatic system, such as the rise in sea levels, with associated impacts.

**The term 'high confidence' falls under the IPCC's "Calibrated Uncertainty Language" scale. This scale helps to establish a common approach and language for experts to evaluate and communicate the degree or level of confidence in the findings of their assessments (Mastrandrea et al. 2010). Confidence is a "qualitative judgement about the validity of a finding" (Zwiers 2013). To determine the 'confidence' of a statement, there needs to be both evidence and agreement. According to Rauser and Geppert (2017, 24), there must be "high agreement in robust evidence" for the confidence level to be high.**

Figure 5: Diagram showing confidence scale




Source: (Zwier 2013)

## Why is it important?

*Article 2 of the Paris Agreement* establishes the objective of strengthening the world's response to the threat of climate change, with the approach of sustainable development and efforts to eradicate poverty. For this reason, they advocate, with regard to mitigation, *"to maintain the increase of the average world temperature below 2ºC with respect to the pre-industrial levels, and continue the efforts to limit the increase in temperature to 1.5ºC with respect to the pre-industrial levels"* (United Nations, 2015). Small Island Developing States (SIDS) have advocated for the goal of mitigation of 1.5ºC, compared to others such as the 2ºC approach; this is due to their high level of climate change vulnerability.

In order to successfully maintain the global average temperature below 1.5ºC with relation to the pre-industrial levels, it would require a transformational change in the production patterns and global consumption. It would necessitate that the net global anthropogenic emissions of Carbon Dioxide decrease by approximately 45%, in reference to the 2010 levels, by 2030, falling to net-zero by 2050 (IPCC, 2018). Unfortunately, humanity is not advancing along the right path to effectively correct climate change, since the potential and implemented actions indicate a global warming temperature of about 3-4 ºC (UNEP, 2019).

The recent evaluations of the IPCC (2018, 2019a and 2019b), underscore that the setbacks and delays in climatic mitigation and adaptation responses, in all sectors, would generate impacts each time more negative and would hamper sustainable development. These evaluations by the IPCC have resonated widely in debates and international negotiations on these and other related issues especially if one takes into consideration the serious recorded

effects on terrestrial and marine/oceanic ecosystems in the recent years (eg. Increased incidences of forest fires accelerated melting of the polar ice caps, potent hurricanes, among other extreme events).

**"The progress of multilateral negotiations on climate change, for its part, has been extremely slow and fragmented, owing to the lack of political will on the part of the major emitters to adopt equitable agreements, that correspond to the historical and contemporary levels of responsibility to this global challenge."**

The progress of multilateral negotiations on climate change, for its part, has been extremely slow and fragmented, owing to the lack of political will on the part of the major emitters to adopt equitable agreements, that correspond to the historical and contemporary levels of responsibility to this global challenge. In this context, the Paris Agreement marks a key moment in the global initiative of confronting climate change; although the proposed actions by the group of countries, that are members of the Convention, are still inadequate in achieving response levels that correspond with the requirements of science, as was indicated earlier. Added to this is the decision of the North American President (in June of 2017) to pull out of the Paris Agreement.

Amidst these realities, if the international community does not successfully come together against climate change, they will seriously compromise what was agreed to at the United Nations, namely the 2030 Agenda for Development and the Sustainable Development Goals (SDGs) adopted in September 2015.

## What should be done?

### Lessons for The Caribbean In the Time of Covid-19

The island countries of the Caribbean share with the other Small Island Developing States (SIDS), heightened vulnerability to environmental challenges, in particular to climate change. For this reason, in the Paris Agreement, these countries were acknowledged with a special status. The natural resources, and in general the environment, of these nations, have been under great pressure due to the intensification of climate change, that threatens all socio-economic sectors. These territories, that hardly contribute a tiny proportion of global emissions, are located among those which record the greatest losses and damages as a consequence of global warming.

From the onset of 2020, the world has been shaken with the rapid spread of the COVID-19 pandemic that originated in China at the end of 2019. In a few months, it arrived at all corners of the planet with a high cost-loss of human lives and declining economic activity. The large part of the world population has been confined to social isolation; while considerable segments of transport, industry and services have stopped. This has translated into a drastic reduction of greenhouse gases and has put to the test every countries capacity to respond to socio-economic and environmental disasters of great magnitude.

In the time that this text was written, the cause-effect links between worsening climate change and the appearance of pandemics of this nature are still being investigated and await to be evaluated in the Sixth Assessment Report of the IPCC (in progress), that will be tentatively published in 2021-2022. Nonetheless, the response mechanisms against the health emergency that Covid-19 represents reveals important lessons for the world in the response against climate change, that happens to be particularly important for Caribbean countries.

**Above all, the current pandemic has demonstrated the incapacity of neoliberal** practices and formulations to confront in a

concerted manner, among distinct societal actors, challenges of this kind. Private health systems, with dismantled or very scarce public services, have proven inadequate in responding to the challenges of the pandemic. In these circumstances, it becomes more evident the existing gaps of social equity and, above all, food and health systems. In this way, the situation confirms the necessity of enhancing social equity as a strategy of strengthening states against global challenges.

**"The current pandemic has demonstrated the incapacity of neoliberal practices and formulations to confront, in a concerted manner among distinct societal actors, challenges of this kind."**

It is required, therefore, to create sustainable capacities to guarantee systematic resilience at all spatial levels (global, regional, national and local/community) and periods (short-term, medium-term and long-term). For the island countries of the Caribbean, it is fundamental to fortify local development capacities. Which would include applying their methodologies to measure and construct scenarios that would ultimately assist in making socio-economic and environmental decisions.

Secondly, the pandemic has made evident the necessity to reassess science, scientific knowledge, and traditional knowledge, to contribute to making informed decisions. In parallel, it has manifested the necessity of reinforcing the social sciences, at all levels, but most importantly, at the local level. In the case of climate change, the science that evaluates trends is a generally robust science with abundant past work and consolidated results, despite the uncertainty that persists and it's still limited progress in incorporating the results of the Social Sciences. However, climate change science has not been adequately followed by decision-makers, who on many occasions have acted counter to scientific evidence. For Caribbean countries, that are generally small and very dependent on world markets and the external generation of knowledge, this is an issue that needs to be re-evaluated considering the most recent events and the planetary challenges in the foreseeable future.

Lastly, with Covid-19, it has been made clear that whichever country, no matter how large and powerful, is unable to confront alone these great challenges. Challenges which **reaffirm the importance of international cooperation** that is also valid in facing climate change, even if the present United States administration acts counter to this direction. For Caribbean countries, the reinforcing of an effective collaboration constitutes an unavoidable ingredient to the response strategies against substantial socio-economic and environmental challenges, including climate change. It is, above all, a form of collaboration where solidarity and preferential treatment of the most vulnerable constitutes a key element. An example of this is the collaborative medical programmes that Cuba has offered to different Caribbean countries, which contribute to solidifying their response capacity against the diverse challenges that affect those territories.

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