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Article

Mainstreaming Climate Change Adaptation at the National Level in the Caribbean

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Abstract Small Island Developing States have been identified as some of the most vulnerable countries to the impacts of climate change due to inherent environmental, economic, and demographic characteristics. The cross-cutting reach of climate change impacts has led to the conversation of mainstreaming and its practicality. The study uses a qualitative research design that focuses on interviews with senior officials in the Caribbean at the national and regional levels. The study aims to identify the drivers of, barriers to adaptation mainstreaming into national policies and development plans in the Caribbean, and to derive actions needed to achieve mainstreaming at a national level. The main drivers of mainstreaming are the region's vulnerability, institutional arrangement, and the government budget, while the major barriers include poor planning and governance, insufficient human resources, and competing development priorities. The paper proposes several key initiatives and actions needed at a national level that can help the region to achieve adaptation mainstreaming. To this end, mainstreaming adaptation at the national level is an essential strategy for building resilience to the impacts of climate change within the region. It cannot be a "one size fits all" approach but one that is tailored by countries to fit the countries' circumstances and cultures.

Keywords climate change; adaptation; mainstreaming; resilience; Caribbean

1. Introduction

With concerns over the severe impacts of climate change increasing within the last decade, adaptation to climate change impacts is seen as an inevitable response [1] by most governments. Climate change discussions have moved from the stage of scientific debate about whether there is a need to adapt to a point where most attention is now directed at how to adapt [2–5]. In the case of Small Island Developing States (SIDS), climate change impacts have been unprecedented and threaten their development ambitions. SIDS' apparent inability to effectively adapt to the impacts of climate change results from various factors, including their exposure and sensitivity to shocks, and the cost of adaptation. These factors compound their environmental and economic vulnerabilities, which are directly linked to development concerns [6].

The unprecedented impacts of climate change have led to the proposal of integrating climate change considerations into national development plans and policies as a governance strategy, aiming to enhance countries' ability to adequately and effectively adapt to climate change [7]. Scholars expressed that climate change plans and policies should not be developed in isolation; instead, they should be integrated into the development aspirations of countries for more effective and sustainable outcomes [8]. According to Nurse et al. [9], with the diversity among SIDS, climate change adaptation varies based on the geophysical nature of the country and the region of its location. The literature also noted that apart from the varying adaptation strategies, their vulnerabilities, adaptive capacity, and resilience needs also vary [10].

Mainstreaming is an adaptation approach that has been gaining attention in the discussion of climate change [11]. It links climate change adaptation and sustainable development by integrating climate change information, concerns, and considerations into all areas of government and existing development planning, policy- and decision-making processes [12,13]. It is a sustainable and efficient means of using resources that can lead to development paths that are resilient to the present and future impacts of climate change [14,15]. Accordingly, it has become a popular climate change adaptation approach, especially in developing countries [13].

Mainstreaming is, in general terms, referred to as integrating climate change policies and measures into development policy-making [16,17]. Some scholars expressed that climate change should be mainstreamed into all sectors and institutions of government to meet the challenges of

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promoting inclusive and sustainable development while adapting to the impacts of climate change [18]. Mainstreaming climate change adaptation has been supported by several scholars in recent years. It is seen as advantageous to have decision-makers considering adaptation needs within all sectors [7,19–24]. Expected benefits from mainstreaming are increased coherence among policies, reduced chances of duplications, and policies that contradict each other. Mainstreaming approaches are furthermore expected to deal more efficiently with trade-offs between adaptation and other concerns and take better advantage of synergies [21].

The concept of this paper views climate change adaptation mainstreaming as an approach to building resilience in the Caribbean. This concept places climate change adaptation mainstreaming within a resilience framework [25]. Resilience refers to "The capacity of social, economic, and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation" [26]. According to Hay ([27], p. 309), "Vulnerability and resilience are considered to be important integrating concepts when managing the local consequences of global changes". As a result, adaptation actions are geared towards reducing vulnerability and increasing resilience through improving climate-related knowledge and strengthening socio-economic systems and livelihoods [27–29]. Within the borders of a resilience framework, this paper makes two assumptions. One, it assumes that adaptation to climate change in Caribbean SIDS is essential for reducing vulnerabilities and increasing resilience and adaptive capacity and two, that mainstreaming climate change adaptation into national development plans and policies is a crucial step towards building resilience in Caribbean SIDS.

Presently, mainstreaming efforts have produced less than average results in developed and developing countries [30,31]. Mainstreaming climate change plans and policies is an incredibly challenging task even though there is consensus regarding its indispensability. However, the unsuccessful efforts on behalf of governments to mainstream climate change adaptation policies into national development and sectoral policies and plans have raised many questions, including the extent to which mainstreaming is realistic and whether it is the only way forward. This paper takes a regional case study approach and delves into the climate change adaptation mainstreaming efforts across the Caribbean region. The countries involved in the study include St. Vincent and the Grenadines (SVG), Saint Lucia, Antigua and Barbuda, The Bahamas, Barbados, Jamaica, and Belize, while the relevant regional organizations included Caribbean Community (CARICOM), Caribbean Community Climate Change Centre (CCCCC), and the Organization of the Eastern Caribbean States (OECS). The article contends that adaptation mainstreaming within the national and sectoral policies and plans is essential to adapt to the impacts of climate change effectively. Therefore, this paper contributes to the conversation on mainstreaming by addressing two primary questions: (1) what are the drivers of and barriers to mainstreaming climate change adaptation at the national cross-sectoral level in Caribbean SIDS, and (2) how the Caribbean region can achieve adaptation mainstreaming at the national cross-sectoral level?

The academic literature on the drivers of and barriers to climate change adaptation mainstreaming, and methodologies for achieving climate change adaptation mainstreaming in SIDS varies from rich information in terms of mainstreaming barriers to very limited in terms of the practicality of achieving mainstreaming. While the literature shows several studies on mainstreaming drivers in developed countries, it is less explicit in the context of SIDS. SIDS are generally smaller, isolated, and have few natural, human, financial, and technological resources. Therefore, it is vital to understand the drivers of climate change adaptation mainstreaming in SIDS. Drivers are recognized as factors that cause or facilitate the required adjustments to fully mainstream climate change adaptation into national and cross-sectoral policies, programs, and plans. At the same time, barriers are obstacles that hamper or prevent the planning and implementation of climate change adaptation mainstreaming.

2. Method

The study uses a qualitative research design that focuses on interviews with senior officials in the Caribbean at the national and regional levels. Interviews were conducted in person between August 2022 and February 2023. A total of thirty interviewees from the region were selected by purposive sampling [32] and subjected to four criteria. Firstly, they had to be the head of a climate change, environment, and/or development portfolio in a national government ministry or department. Secondly, they had to be the head of a climate change, environment, and/or

development portfolio at a relevant regional organization. Thirdly, they had to have five or more years of experience, and fourthly; they had to confirm their willingness to be a part of the interview. Interviews were semi-structured; this allowed for a more conversational setting [33]. A key benefit of semi-structured interviews is that participants are likely to be more comfortable in expressing their points of view [34].

Content analysis was applied to analyze the data from the interviews. The process included the following steps: (1) listening to each interview twice; (2) interpretive and descriptive classifications were established; (3) the classifications from step two comprising the initial manual codes were utilized to recognize further patterns in the data; (4) broad themes were identified from the individual interviews; and (5) the general themes were used to cross-examine all interviews. Concluding all the steps, the predominant themes were presented in the results.

This study has one primary limitation. Interview data were manually coded and analyzed. With-in method triangulation was used to mitigate human error [35]. The triangulation method was applied by using the data collected from the interview and the academic literature reviewed to increase the quality and validity of the research findings [36].

3. Results

The data analysis conducted is organized into three sub-sections that aim to present a more systematic review. In general, the stakeholders interviewed agreed that in the Caribbean region adaptation policies and plans are generally not well-coordinated and/or integrated at the national cross-sectoral level. However, the majority of the interviewees indicated that steps are being taken to improve integration at that level. Tables 1 and 2 outline the drivers of and barriers to mainstreaming climate change adaptation into national policies and development plans in the Caribbean, while Table 3 suggests initiatives and actions to facilitate national-level mainstreaming of climate change adaptation.

Table 1. Drivers of climate change adaptation mainstreaming in Caribbean SIDS.

Drivers	Rank
The region's vulnerability a) Increased hazards/hazard intensity. b) Increased loss and damage from hazards. c) Physical evidence of the impacts of climate change.	1
Institutional arrangements a) Legislation/policies/plans. b) Organizational restructuring e) Awareness. d) Programs and projects. e) Leadership and vision.	2
Government budget a) International donors. b) National budget allocation.	3
"Champions"/personalities	4
Economic survival/sustainability	5
Political will	6
Need to meet MEA's obligations	7
Climate change "buzz"	8

Table 2. Barriers to climate change adaptation mainstreaming in Caribbean SIDS.

Barriers	Rank
Poor planning and governance a) Silo approach. b) Poorly managed policies/projects/programs. c) Short-term development goals are given a higher priority. d) Corruption. e) Mindset. f) Overlapping mandates.	1

Table 2. (*Continued*)

Insufficient human resources	2
Competing development priorities	3
Lack of funding/government budget	4
Lack of political will	5
Lack of data management	6
Insufficient knowledge/understanding	7
Political cycle (every five years)	8
Unharmonized strategies	9

Table 3. Initiatives and actions to achieve climate change adaptation mainstreaming at the national cross-sectoral level in the Caribbean SIDS.

Initiative	Action
1. Strengthen climate change lead entity	**Capacity Building:** Enhance the capacity of the lead entity through training programs, workshops, and partnerships with regional and international organizations specializing in climate change adaptation and mitigation. **Resource Allocation:** Allocate sufficient financial and human resources to effectively carry out its mandate. **Policy Support:** Provide policy support by enacting legislations and developing regulatory frameworks that prioritize climate change action and resilience building.
2. Update legislations and improve political will	**Review Existing Legislation:** Conduct a comprehensive review of existing laws, regulations, and policies to identify gaps and opportunities for integrating climate change considerations across all sectors. Develop **Climate Change Laws:** Enact or revise legislations specifically focused on climate adaptation and mitigation. **Build Political Consensus:** Raise awareness among policymakers and political leaders about the importance of climate change mainstreaming for sustainable development and economic resilience. **Leadership Engagement:** Encourage political leaders to champion climate change mainstreaming efforts and demonstrate commitment to addressing climate challenges.
3. Development of financial frameworks	**Assessment of Needs:** Conduct comprehensive assessments to identify the climate change adaptation and mitigation needs to prioritize interventions. **Resource Mobilization:** Explore diverse sources of financing for climate change action including domestic budgets, international financial mechanisms, and private sector investment. **Mainstreaming Climate into Budgets:** Integrate climate change considerations into national budgetary processes, ensuring that climate-related expenditures are adequately reflected in government budgets and financial planning documents. **Financial Instruments:** Design and deploy a mix of financial instruments tailored to the unique needs and priorities of the region including grants, concessional loans, levies, and carbon trading.
4. Establishment of cross-sectoral committees	**Multi-sector Representation:** Members from key sectors such as government ministries, private sector entities, civil society organizations, academia, and community representatives to ensure a holistic approach. **Data and Information Sharing:** Facilitating the sharing of climate-related data, information, and best practices among sectors to support evidence-based decision-making and coordination of adaptation methods. **Policy advocacy:** Advocating for mainstreaming climate change into national policies. **Partnership and Collaboration:** Collaborating with other committees, government agencies, regional organizations, development partners, and international agencies to share experiences, coordinate activities, and leverage resources for effective mainstreaming of climate change across sectors.
5. Establishment of clearing house mechanism	**Centralized Platform:** Setting up a centralized platform, such as a website or online portal, to serve as a repository for relevant information, resources, tools, and guidance on climate change mainstreaming. **Knowledge Management:** Collecting, synthesizing, and disseminating knowledge and expertise on climate change impacts, adaptation strategies, and mainstreaming practices. **Adaptation Tools and Resources:** Developing and providing access to tools, methodologies, guidelines, and decision-support systems to assist in conducting climate risk assessments, developing adaptation plans, and implementing climate-resilient practices. **Information Exchange:** Facilitating the exchange of information and experiences through workshops, conferences, and seminars focused on climate change mainstreaming.
6. Capacity development	**Training and Education:** Providing training programs, workshops, and educational opportunities to government officials, policymakers, planners, practitioners, and other stakeholders to enhance their understanding of climate change science, impacts, vulnerabilities, and adaptation options. **Technical Expertise:** Building technical expertise and skills in climate-related topics. **Data and Information Management:** Improving data collection, management, and analysis systems to support evidence-based decision-making on climate change adaptation. **Knowledge Sharing and Learning:** Promoting knowledge sharing, learning exchanges, and networking opportunities among stakeholders to facilitate peer-to-peer learning, exchange of experiences, and adoption of best practices in climate change mainstreaming.
7. Development of mainstreaming tools	**Risk Assessment Tools:** Developing tools and methodologies for conducting climate risk assessments to identify vulnerabilities, assess exposure to climate hazards, and evaluate the potential impacts of climate change on key sectors and systems. **Vulnerability Mapping:** Creating maps and spatial analysis tools to visualize and prioritize areas and populations most vulnerable to climate change impacts. **Decision-support Systems:** Developing decision-support tools and software applications to assist policymakers, planners, and practitioners in making informed decisions on climate change.
8. Development of monitoring and evaluation component	**Indicator Development:** Identifying and developing relevant indicators to measure progress in climate change mainstreaming. **Baseline Assessment:** Conducting baseline assessments to establish the current status of climate change mainstreaming efforts. **Monitoring Systems:** Establishing monitoring systems to collect, analyze, and report on key indicators related to climate change mainstreaming. **Reporting Mechanisms:** Implementing reporting mechanisms to communicate progress in climate change mainstreaming to stakeholders. **Evaluation Frameworks:** Designing evaluation frameworks and methodologies to assess the effectiveness of climate change mainstreaming efforts.

3.1. Drivers to Climate Change Adaptation Mainstreaming in Caribbean SIDS

The Country's Vulnerability

The majority of the interviewees cited vulnerability as the main reason behind the mainstreaming efforts applied in the Caribbean region. Vulnerability comprises the increased number of hazards and increased intensity of hazards and the excessive physical evidence of the impacts of climate change that leads to increased loss and damage. Several interviewees lamented the increased amount of intense tropical cyclones the Caribbean region has experienced over the past few years, which have devastated many countries in the region. The interviewee from St. Lucia stated, "The reality of our vulnerability serves as the primary motivation for integrating adaptation measures into mainstream policies". Several interviewees mentioned the need for a more integrated approach to climate change in the Caribbean region, while other interviewees reiterated that mainstreaming is necessary for the survival of the region, citing examples of climate migration that is taking place in different parts of the world.

Institutional Arrangement

The majority of the interviewees cited institutional arrangements as a crucial factor that drives climate change adaptation mainstreaming in the region. The interviewee from Barbados states "Improving our institutional framework is pivotal for effectively mainstreaming climate change into plans and policies". Interviewees attribute institutional arrangement to the overall vision and leadership of the government for their level of awareness of the impacts of climate change and the necessity to adapt, their restructuring of departments, their development of policies and legislations geared towards mainstreaming adaptation, and projects and programs that include mainstreaming components. Interviewees pinpointed the development of economic and social development plans in countries across the region as a significant step towards mainstreaming climate change adaptation. Several interviewees added that the restructuring of government ministries within the region to include sustainable development and the formation of new ministries with the mandate of sustainable development and/or climate change are critical factors in the Caribbean region aligning climate change in a pivotal position. The interviewee from Antigua and Barbuda further stated "Our commitment to improving institutional arrangements to address institutional gaps underscores our dedication to mainstreaming adaptation at all levels of governance". Interviewees also noted the development of the national climate change policies and national action plans within the Caribbean countries are efforts on behalf of their respective governments to mainstream climate change at a national cross-sectoral level.

Government Budget

Government budget ranked as the third leading reason for mainstreaming in the Caribbean region comprised of international donors and national budget allocation. The majority of the interviewees acknowledged that most of the financing for climate change adaptation is through international donors. At the same time, other interviewees indicated that a lot of the departmental work plans funded by the government's annual budget include climate change adaptation and have been practicing it for many years. However, it may not necessarily be under the name of climate change adaptation. The interview from CARICOM mentioned that the government budget is not sufficient to combat the impacts of climate change and build resilience. The interviewee further stated, "Accessing financial resources from international donors to complement government budgets is essential for effective mainstreaming adaptation measures in our region". All interviewees stated the importance of international donor funding for the implementation of climate change adaptation, citing how expensive adaptation actions are. Several interviewees highlighted that capacity building, technical support, and mainstreaming components are built into climate change adaptation projects. Other interviewees indicated that both the government budget and international donor funding have led to a more streamlined approach to climate change adaptation.

3.2. Barriers to Climate Change Adaptation Mainstreaming in Caribbean SIDS

Poor Planning and Governance

Most of the stakeholders interviewed alluded to poor planning and governance as the primary problems hindering mainstreaming in the Caribbean region. Poor planning and management include issues such as a silo approach within the government system, poorly managed policies,

projects, and programs, lack of communication, corruption within the government system, overlapping mandates, and the general mindset of some of the key actors in the system. The interviewee from Jamaica highlighted that "collaboration is mostly done out of necessity and not really through a structured legislative process". While the interviewee from the Bahamas coined the silo approach as "turf war" where "agencies think they will lose their power if they do things in a more coordinated and integrated way". The interviewee from Belize alleged that an individual's mindset is a setback to progress, stating "In the case of committees, some officers see it as extra work as it is not incorporated within their work plan". The issue of mindset was viewed from a different angle by another interviewee. The interviewee from SVG noted, "Some policymakers still plan around the election cycle of every five years, so they think short term and focus their attention on things they can get done within that period". Several interviewees indicated overlapping mandates is a significant issue. And this ties into a lack of communication and a silo mentality among entities. According to the interviewee from The Bahamas, "You might have more than one institution having jurisdiction over the same land space and as a result, you might have changes, development or intervention being made without consultation".

Insufficient Human Resources

Lack of resources, whether financial, human, or technical, is always an issue confronted by the Caribbean region. Most of the interviews lamented insufficient human resources as a significant hindrance in mainstreaming climate change adaptation at the national cross-sectoral level. One interviewee indicated that some departments are poorly staffed, and mainstreaming climate change is an additional strain. The interviewee from Saint Lucia stated that "the financial capacity in the Caribbean region is directly linked to the insufficiency of human resources within the government system". Several interviewees highlighted that apart from the issue of insufficient human resources is the issue of lack of capacity and necessary skillset, which further compounds the problem within Caribbean SIDS for mainstreaming.

Competing Development Priorities

Most of the interviewees indicated that competing development priorities is another major hindrance to climate change adaptation mainstreaming at a national cross-sectoral level. The interviewee from Jamaica alluded that this issue is also directly linked to the region's financial capacity and its prioritization of short-term development goals. The interviewee from Barbados stated, "while climate change is of utmost importance, there are also other priority areas that need to be addressed such as roads, health, poverty, and hunger". The interviewee also pointed out that the limited resources in respective countries are a deep-rooted factor that compounds the problem.

3.3. Proposal to Achieve Mainstreaming at the National Cross-sectoral Level in Caribbean SIDS

Table 3 above proposes eight initiatives and actions compiled from the content analysis interviews to achieve mainstreaming in the Caribbean region. Most of the interviewees highlighted that lead entities for climate change in the region usually lack human resources and legal mandates to do the job intended, which includes facilitating mainstreaming effectively. Several interviewees indicated that establishing a cross-sectoral committee to assist the lead entities in respective countries can help to coordinate the efforts needed to mainstream climate change adaptation at a cross-sectoral level. Interviewees also alluded to the need for updated legislation, capacity needs and training, a central data minding hub, clear and defined budget line within the national budget, mainstreaming templates, and an oversight of all the activities, for transparency. One interviewee from SVG stated that "for climate change to be integrated, the silos mentality has to change". The interviewee further said, "The only how I see that happening is through updated policies that mandate collaboration and political will". Several other interviewees highlighted that corruption is always an issue within the government system, so there must be an oversight that will ensure transparency.

4. Discussion

The study identifies multiple factors influencing national-level mainstreaming action in the Caribbean SIDS. The three most commonly reported drivers are the country's vulnerability, institutional arrangements, and the government's budget. These findings differ to some extent

from those of [30] who interviewed key informants in the Philippines and highlighted the availability of funds, advocacy by Non-Governmental Organizations (NGOs), political will, and sufficient knowledge as contributing factors for mainstreaming. However, the findings from this study align with the results of [37,38] which highlight the multi-level driving forces behind mainstreaming the relevance and importance of inter-ministerial cooperation with high-level support for mainstreaming success. This study highlights the role of the country's vulnerability and the government's budget/finance in driving mainstreaming. Both drivers were a non-factor in previous studies except one by [10], where the results indicated risk and exposure as one of the main drivers while a few policy-makers indicated budget/finance as a driver though it wasn't one of the main drivers. Enhancing the drivers can serve as a conduit for increasing resilience in the Caribbean SIDS in general.

This study also identifies multiple mainstreaming barriers to the Caribbean region—the three most commonly reported barriers are poor planning/governance, insufficient human resources, and competing development priorities. While the findings of [39,40] are very general and span holistically across the financial, technical, and human resources, the findings of this study broadly align with those of [10,30,41,42]. These earlier studies identify mainstreaming barriers according to institutional/organizational/regulatory, social/sociocultural, technological, individual/cognitive, and financial categories. While these categories appear to apply to SIDS broadly, this study does not establish the role of technology in hindering mainstreaming action in SIDS; further, finance seems to have a less-than-expected role. This study's findings, however, depart from those of [43], which pinpoint organizational routines as a mainstreaming barrier. A follow-up consideration is looking at how these barriers can be overcome in the context of SIDS. Interviewees agreed that this would be difficult as many of the challenges are systemic. The interviewee from the OECS suggested that "We need a holistic framework to accommodate mainstreaming at all levels'; while the interviewee from The Bahamas suggested that "We need to think about building resilience into our systems". Others highlighted the importance of climate change awareness to build the knowledge of the general public, including policy-makers and stakeholders.

4.1. Defying a "business-as-usual" Approach to Climate Change Adaptation in the Caribbean

The study's findings for the drivers of and barriers to mainstreaming climate change at the national cross-sectoral level indicate that the approach in the Caribbean SIDS cannot be one of "business-as-usual". The cross-cutting nature of the impacts of climate change ensures that there is a seat at the table for all sectors of government. The adverse effects of climate change have been shown to reverse human progress and make development goals unreachable [44,45]. The top three drivers for mainstreaming adaptation in the Caribbean region are the region's vulnerability, institutional arrangements, and the government budget. The region's vulnerability has exposed the urgency for mainstreaming climate change adaptation and triggers the other two main drivers by respective governments in the Caribbean SIDS. The economy of the Caribbean SIDS is primarily built upon the agriculture and tourism sectors, both of which are highly sensitive to the impacts of climate change. Several interviewees alluded to the importance of their respective governments paying close attention to the devastation by hurricanes in other Caribbean countries like The Bahamas, Dominica, and Antigua and Barbuda over the past few years and a stern warning of what it can be like for other countries in the region. The interviewee from Belize stated that "climate change represents the biggest and perhaps the most integrated threat to the current and future potential of the Caribbean because what it does is that it compounds all of our vulnerabilities". The interviewee further stated that while there are multiple points of vulnerability such as economic and social vulnerability climatic vulnerability is the one that presents the most urgent danger to us because of the impacts of disasters as we have seen in recent times of unprecedently scales and intensity of storms like hurricane Maria and Irma and what they have done to the Gross Domestic Product (GDP), the infrastructure, and the social advancements that we have made, in every aspect". Interviewees from SVG applauded the efforts of the government at an institutional level for incorporating sustainable development into the Ministry of Economic Planning. One interviewee from SVG further mentioned, "that placing the Sustainable Development Unit (SDU) within the new structure of the ministry was vital because the unit can be more central in decision making as opposed to when it was overlooked in the ministry of environment, among other things." The restructuring is seen as a positive step to ensure that climate change is always on top of the agenda. Interviewees from other Caribbean SIDS also applauded similar steps taken by their respective governments.

On the other hand, the three main barriers to mainstreaming adaptation at the national cross-sectoral level in the Caribbean SIDS are poor planning and governance, lack of human resources, and competing development priorities. Scobie [46] looked at accountability in climate change governance in the Caribbean and indicated that there is weak accountability within the climate governance architectures, primarily external accountability in the Caribbean. This factor was highlighted in this study, as interviewees suggested that the silo approach taken by different ministries, agencies, and departments, along with corruption, are impeding mainstreaming and transparency in the government system. The interviewee from Antigua and Barbuda mentioned, "In small countries like those in the Caribbean where we are one extreme weather event away from total devastation, there is no time divisiveness among sectors". In the context of SIDS, the potentially adverse impacts of climate change will negatively affect development in several key sectors, including water resources, agriculture, and coastal zone management [7]. Another interviewee expressed concern about mainstreaming climate change. The interviewee suggested that while there is progress towards mainstreaming climate change adaptation at the national level, there remains a lack of urgency and political will to ensure that climate change adaptation becomes a mainstay within national and sectoral policies and plans and a household name within the Caribbean region. Other interviewees highlighted that while there are mainstreaming efforts on a national and regional level, a lack of coordination is hurting the process and remains one of the main hurdles affecting the region.

The data gathered from the interviewees was filled with the different actions taken at the national cross-sectoral level to build resilience to the impacts of climate change and the efforts to mainstream climate change adaptation. However, the Caribbean region government architectures are still struggling with the challenges posed by climate change and the challenges of mainstreaming adaptation into policies and plans. Despite the challenges, as one interviewee stressed, "We cannot operate on a business-as-usual basis". Successful adaptation to climate change requires the incorporation of potential climate change impacts into ongoing strategies and plans at sectoral and national levels [24,47]. To this end, the article proposes a list of initiatives and actions seen as pivotal towards achieving climate change adaptation mainstreaming in the Caribbean SIDS. Apart from the proposed list of initiatives and actions being applicable in the context of the Caribbean SIDS, it can also be tweaked or adjusted to fit in the context of all SIDS to achieve adaptation mainstreaming.

4.2. Achieving Climate Change Adaptation Mainstreaming in the Caribbean

The list of initiatives and actions proposed in this study was deduced from the content analysis of the interview data, as seen in Table 3 in the results section. Though the Caribbean region is making efforts towards adaptation mainstreaming at the national level as indicated by the majority of the interviewees, it is clear that due to the lack of an overarching framework, the efforts made are more in an ad-hoc nature. In the context of the Caribbean SIDS, the proposed list of initiatives and actions can help in achieving climate change adaptation mainstreaming without adding additional burden. The list underscores the importance of developing an applicable governance framework for climate change adaptation mainstreaming.

The development of new ministries in the case of some Caribbean countries and the restructuring of ministries in others gave rise to lead entities for climate change and sustainable development. However, while interviewees acknowledged the steps taken by governments across the region to align climate change and economic planning and finance, they indicated that lead entities usually lack financial and human resources, need capacity building, and lack legal instruments to perform their duties. One interviewee stressed that equipping lead entities with the necessary tools would lead to increased coordination between ministries, departments, and agencies. Apart from human resource and legal mandates, there needs to be a drive to update legislations and inject political will to eliminate the silo approach within the government architecture. Strong political will and commitment are essential to achieve mainstreaming [38,48] with cross-sectoral cooperation, another critical factor for successful mainstreaming [38]. Several interviewees acknowledged that the silo mentality engrained throughout the varying governmental sectors is hindering effective planning and decision-making that will be beneficial for the respective countries towards building resilience to climate change in the region. The interviewee from the CCCCC stated that "the lack of cooperation among departments is a significant problem". The interviewee further noted that the problem arises because ministries are competing for limited

financial resources. Interviewees suggested that if all departments were mandated by law to cooperate, it could help to facilitate mainstreaming.

Financial frameworks are imperative for successful mainstreaming. The interviewee from Jamaica reiterated that "climate change adaptation measures are expensive, especially for SIDS that are incredibly vulnerable to the impacts of climate change". The interviewee further mentioned that "for climate change adaptation mainstreaming to be successful, a financial mechanism is needed, where climate change adaptation is integrated into the government's annual, medium-term, and long-term expenditure and budgetary frameworks and sustained over time". Other interviewees added to that point by highlighting the need for resource mobilization strategies. They continued by indicating that the majority of climate change financing comes from donor agencies; therefore, the plans must cater to the scale of required resources.

Although entities are established to lead climate change and sustainable development in the Caribbean SIDS, mainstreaming cannot be achieved in isolation hence the need to establish cabinet-appointed cross-sectoral committees as arms of the lead entities. Nunan et al. [48] concluded that cross-departmental structures could not be relied upon to deliver on mainstreaming. A few of the interviewees also shared this viewpoint as they mentioned that there are many committees set up that are not very useful. However, several interviewees indicated that cabinet-appointed committees are much more effective and could be a way to mandate a fully functional cross-sectoral committee. One interviewee from SVG mentioned that "it's essential to establish a key stakeholder in each department as the one to coordinate climate change in the department". Therefore, that person can also translate as the one who will form part of the cross-sectoral committee. The interviewee from Barbados mentioned that "the problem with selecting a focal person in each department is that if that person leaves the information ends with that person, hence there is a need for a repository for data storage and continuity".

As mentioned above, institutional memory and data are necessary components for continuity within government architectures. Therefore, the establishment of a central clearing house mechanism managed by the lead entities in the respective countries will be vital towards achieving mainstreaming. One interviewee cited that "one of the main issues with the government system in SVG and to an extent across the region is the lack of institutional memory—data is either stored on a shelf or is lost if the person with that data leaves or retires". Several interviewees indicated that the problem could be solved by implementing a clearing house mechanism as an information source—inventories and data sets. Such a tool can be vital in managing and communicating the information needed for mainstreaming [49].

Identifying capacity needs and training is also essential towards achieving mainstreaming. Huq & Ayers [50] estimated that mainstreaming can be reached within a time frame of five to seven years. However, for the majority of the interviewees, mainstreaming in the context of the Caribbean region can take approximately ten to twelve years. This time frame coincides with that of [10], where policy-makers suggested that climate change adaptation mainstreaming could take up to ten years to be fully achieved. The time frame can have probable cause to suggest that adaptation mainstreaming in SIDS is slower [10]. The interviewee from CARICOM mentioned that "to facilitate mainstreaming, the government has to identify gaps, develop capacity needs which includes training of key personnel", while the interviewee from the OECS posited that "capacity building is needed for both the politicians and technocrats who are advising them". When asked about the reason for this point, the interviewee stated, "Access to climate information is needed because decisions are often made without the requisite information, and at times the decisions come directly from the politicians with minimal or no guidance".

The use of existing mainstreaming tools or in their absence and the development of mainstreaming tools are essential to systematically screen plans, policies, programs, and projects. Mainstreaming tools are a component of most mainstreaming frameworks and aim to identify the extent to which climate change, risks, and vulnerability have been considered or addressed and whether more should be done [51]. Several interviewees mentioned that the CCCCC developed an online risk and adaptation tool called CCORAL that is designed to help climate-resilient decision-making and suggested that this tool can be useful in mainstreaming adaptation. Interviewees further indicated that several stakeholders across the region were trained using the tool. The interviewee from Saint Lucia stated that "if there is no mainstreaming template(s) already developed at a regional level, then they should consider such an approach led by the CARICOM".

In any framework or process, there must be monitoring and evaluation. Therefore, developing a framework for independent reviews is integral. As highlighted by one interviewee from SVG, "An overarching body is needed to audit policies and plans". Robinson [10] stated that such an approach "presents opportunities to incorporate a build-measure-learn feedback loop into adaptation policy-making, which can contribute to resilience-building in SIDS". Other interviewees indicated that "audits are necessary, especially as there is a lack of monitoring and evaluation when projects are implemented".

5. Conclusion

This study shows the varying range of climate change adaptation mainstreaming drivers and barriers in the Caribbean SIDS. It provides evidence that the region's exposure to climate change, people, and funding are the most commonly reported mainstreaming drivers. The experiences witnessed within recent years throughout the region with increased hurricanes, increased intensity, and increased loss and damage have helped to bring the topic of climate change to the forefront. Also, with the availability of funding, development, and implementation of policies, leadership and vision, awareness of international best practices for adaptation mainstreaming, and organizational restructuring all play a vital role in mainstreaming climate change adaptation at the national cross-sectoral level in the Caribbean SIDS. Despite the primary reported barriers—poor planning and governance, insufficient human resources, and lack of funding/government budget, this study contends that mainstreaming adaptation into national development policies and programs is a critical step in ensuring effective adaptation in the Caribbean SIDS. Mainstreaming climate change adaptation at the national cross-sectoral level can be an essential strategy for building resilience to the impacts of climate change within the region. However, mainstreaming climate change adaptation is not a standardized strategy. Therefore, though mainstreaming is one approach, it would need to be tailored by countries to fit their circumstances and cultures. It means that mainstreaming cannot be an imposed top-down approach by external actors, but where the government sees adaptation mainstreaming as an appropriate strategy. Mainstreaming climate change at the national cross-sectoral level can be practically achieved within the circumstances and culture in the Caribbean SIDS through the list of initiatives and actions proposed in this study which can help the Caribbean SIDS build resilience in the face of climate change.

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Conflicts of Interest

The author has no conflict of interest to declare.

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