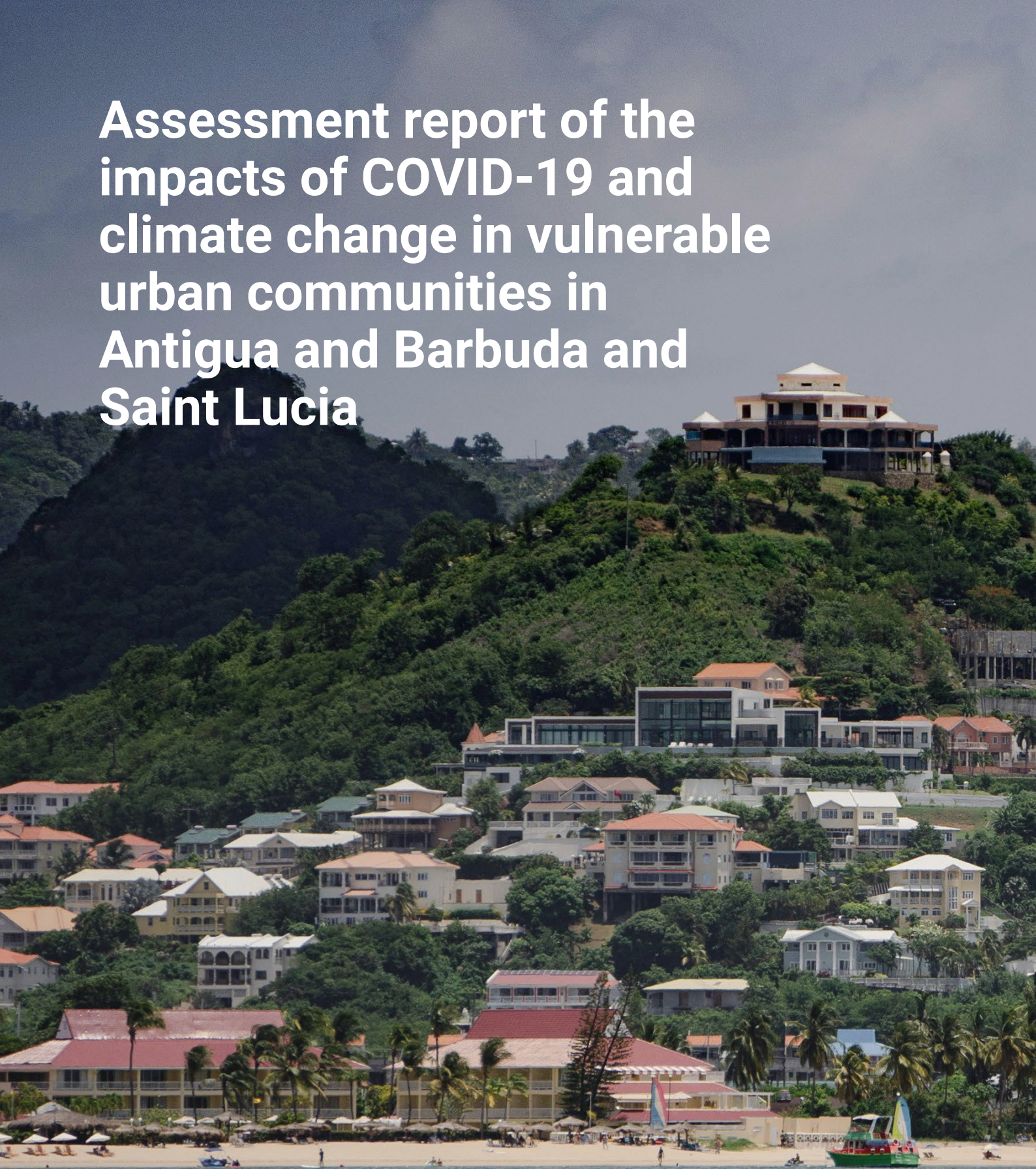
Assessment report of the impacts of COVID-19 and climate change in vulnerable urban communities in Antigua and Barbuda and Saint Lucia



UN-HABITAT

CARIBBEAN PERSPECTIVE

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Table of contents

List of boxes, figures, and tables 6

01. Objective and methodology 8

Vulnerability 9

02. Small islands in the Caribbean in the context of climate change 10

Current climate impacts and vulnerability in the Caribbean 11

Future climate impacts in the Caribbean 12

Antigua and Barbuda in the context of climate change 13

Saint Lucia in the context of climate change 15

03. Underlying vulnerabilities in the Caribbean 18

Underlying vulnerabilities Antigua and Barbuda 20

Underlying vulnerabilities in Saint Lucia 22

04. Vulnerabilities created and expanded by COVID-19 24

Vulnerabilities created and expanded by COVID-19 in Antigua and Barbuda 26

Vulnerabilities created and expanded by COVID-19 in Saint Lucia 27

05. Existing COVID-19 recovery plans and strategies 30

Existing COVID-19 recovery plans and strategies in Antigua and Barbuda 31

Existing COVID-19 recovery plans and strategies in Saint Lucia 34

06. Recommendations 38

General recommendations for cities and settlements by the sea 39

General recommendations for Small Island Developing States 40

General recommendations for the Caribbean 40

General recommendations for cities after the COVID-19 pandemic 41

Recommendations for working with informal settlements in response to COVID-19 41

Recommendations specific to Antigua and Barbuda 42

Specific recommendations for Saint Lucia 43

List of boxes, figures, and tables

Figure 1. Coastal damage from hurricane Irma in Sint Maarten. 11

Figure 2. Mangrove roots in Trinidad and Tobago 13

Figure 3. Antigua Harbour 14

Figure 4. Informal settlement in Port au Prince, Haiti. 19

Figure 5. Castries, Saint Lucia. 21

Figure 6. People lining up at a distribution store in Maisi, Cuba, wearing protective masks. 25

Figure 7. Woman with an umbrella facing the ocean in a Caribbean SIDS 27

Figure 8. Coastal St Georges, Grenada. 39

Figure 9. Cobblestone street in Trinidad, Cuba 40

Table 1. Urban-related indicators in the Caribbean 20

Table 2. Existing actions, plans, budgets, projects and programmes in Antigua and Barbuda focused on COVID-19 recovery and supporting environmental sustainability while recognising and managing trade-offs 33

Table 3. Existing actions, plans, budgets, projects and programmes in Saint Lucia focused on COVID-19 recovery and supporting environmental sustainability while recognising and managing trade-offs 35

Table 4. Existing actions, plans, budgets, projects and programmes in Saint Lucia focused on COVID-19 recovery and supporting environmental sustainability while recognising and managing trade-offs 36

Table 5. Existing actions, plans, budgets, projects and programmes in Saint Lucia focused on COVID-19 recovery and supporting environmental sustainability while recognising and managing trade-offs 37

Table 6. Antigua and Barbuda COVID-19 recovery recommendations supporting environmental sustainability while recognising and managing trade-offs 42

Box 1. UN-Habitat's engagement with Antigua and Barbuda 21

Box 2. Identified multi-layered vulnerability hotspots in Antigua and Barbuda in a 2023 workshop organized by UN-Habitat 25

Box 3. Existing adaptation strategies that could improve food security amid crises. 31

Objective and methodology

01

This assessment report has the objective of analysing the climate change impacts that were exacerbated by COVID-19 in vulnerable urban communities of Antigua and Barbuda and Saint Lucia. It provides an overview of the climate change impacts in both Small Island Developing States (SIDS), the underlying vulnerabilities that exist in both countries and how COVID-19 created new vulnerabilities and expanded existing ones. Finally, it outlines existing recovery plans and strategies that address both COVID-19 and climate change impacts and gives recommendations for future project implementation. The report was prepared in the context of the project "Strengthened Capacities of African, Caribbean and Pacific SIDS for Green, Resilient and Pro-poor Pandemic Recovery", of the 14th tranche of funding by the United Nations Development Account, UNDESA. It is part of a four-report series on urban resilience building in post-COVID-19 contexts, comprising three regional policy papers and one global report.

The following report presents findings from desk research. In addition, interviews with key stakeholders from the Ministry of Environment of Antigua and Barbuda were conducted to inform the analysis.

Vulnerability

To analyse the underlying vulnerabilities in Antigua and Barbuda and Saint Lucia, the definition of vulnerability used in the report is based on definitions previously used by the United Nations in different documents. A vulnerable population is a group that has "a greater probability than the population as a whole of being harmed and experiencing impaired quality of life because of social, environmental, health or economic conditions or policies."[1] Vulnerable groups include but are not limited to the elderly, the mentally and physically disabled, children and youth, religious and ethnic minorities[2], chronically ill, marginalized populations[3], Indigenous Peoples, migrants, refugees, people living in poverty, women, and the LGBTQI+ community[4]. In the context of climate change, the Intergovernmental Panel of Climate Change (IPCC) defines vulnerability as "the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt."[5]

Figure 1. Traffic along a canal in Belize City, Belize. Meritt Thomas / Unsplash.

1. UNHQ. "Vulnerable population". Available at: https://unterm.un.org/unterm2/en/view/62f85e28-06de-42a1-a53f-72f3ec191fd1
2. ESCWA. "Vulnerable groups". Available at: https://unterm.un.org/unterm2/en/view/5a1815d0-ce0b-4bef-91a3-2ac7f7b1348b
3. UNHQ. "Vulnerable groups". Available at: https://unterm.un.org/unterm2/en/view/1cd7bdc7-abdc-40d1-a818-7826c127faa4
4. United Nations. "Vulnerable Groups". Available at: https://www.un.org/en/fight-racism/vulnerable-groups
5. IPCC. "Vulnerability". Available at: https://apps.ipcc.ch/glossary/

Small islands in the Caribbean in the context of climate change

02

Cities and settlements by the sea are at the frontline of climate action. According to the IPCC Sixth Assessment Report, most of the world's infrastructure and economic activities are located near the sea. In addition, almost 1 billion people live in low-lying coastal areas exposed to climate hazards. In 2100, the value of the assets in coastal floodplains will be around USD 8 to 14 trillion (depending on the scenario)[6].

In addition, the IPCC also highlights common barriers and limits to climate adaptation for small islands and coastal settlements. The lack of updated baseline data makes it difficult for small islands to project climate impacts[7]. Whereas technical and financial challenges hinder the implementation of coastal protection in coastal settlements [8].

Current climate impacts and vulnerability in the Caribbean

The IPCC estimates that 6 - 8 percent of Latin America and the Caribbean's population face high risk associated with coastal hazards[9]. The Caribbean has been particularly affected by a 'cumulative community vulnerability' defined in the IPCC Sixth Assessment Report on Impacts, Adaptation and Vulnerability (Chapter 15: Small Islands). In 2017, 22 of the 29 SIDS were affected by at least one tropical cyclone (category 4 or 5). The lack of capacity of Caribbean SIDS to adapt to these climate impacts in addition to the pre-cyclone high exposure and vulnerability has resulted in a long-term vulnerability.

Figure 2. Coastal damage from hurricane Irma in Sint Maarten.

Source: Multiverse / Adobe Stock.

6. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Fact Sheet: Cities and Settlements by the Sea," 2022.

7. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Fact Sheet: Small Islands," 2022.

8. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Fact Sheet: Cities and Settlements by the Sea," 2022.

9. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 8: Poverty, Livelihoods and Sustainable Development," 2022.

"The economic impacts of Hurricanes Irma and Maria on the Caribbean region are estimated between USD 27 and 48 billion and have long-term implications for state budgets for infrastructure supporting development of the poorest" [10]

This vulnerability originated due to their concentration of population and infrastructure in flood-prone coastal areas, inadequate housing, limited access to basic services and lack of food security. National Meteorological and Hydrological Services and regional intergovernmental bodies do not have the capacity to translate, transfer and ease the use of climate information to different groups. In terms of climate finance, bureaucratic structures prevent communities from accessing finance intended for them.

While climate events can impact entire countries and disrupt national economies, in the context of the SIDS that make up the Caribbean region these consequences are felt most acutely by low-income residents whose homes and livelihoods are particularly vulnerable to flooding, wind damage, and landslides [11].

Consequences of this 'cumulative community vulnerability' by sector include:

- **Ecosystems.** Ecosystem destruction facing marine- and land-based features such as mangroves, coral reefs, sea grasses and forests has worsened the economic crisis. These ecosystems serve a dual function of enhancing resilience to future damage while also contributing to key industries such as tourism, agriculture and fisheries

- **Fishing and tourism.** Since 2011, unusual inflows of seaweed have damaged coastal habitats of the Caribbean having consequences for fisheries and tourism.

- **Transport.** The destruction of transport systems has made rescue complex. The interruption of the supply chains has caused a lack of water, food, medication, and fuel.

- **Health.** The activities related to clean-up and recovery after the event have increased physical injuries. The risk of chronic and vector-borne diseases has increased together with diseases related to contaminated water and mental health. Mosquito-borne diseases have particularly increased in incidence and severity during the past 10 years.

- **Cultural heritage.** The destruction of infrastructure and migration caused the loss of tangible and intangible cultural heritage, ranging from archeologically significant sites to culturally-significant coastal areas serving as fishing grounds.

Future climate impacts in the Caribbean

The Caribbean will become particularly vulnerable to climate hazards. According to the IPCC, the Caribbean will suffer **growing trends in drought** caused by a 1°C increase in temperature. **Tropical cyclones** will be the main cause of **flooding**. Additionally, **sea level rise** will increase flooding in small islands[12]. This will expose the 22 million people in the Caribbean that live below 6-m elevation (as of 2017). This also means that 8.7 percent to 49.2 percent of the Caribbean islands could be entirely submerged, losing the largest area of habitat worldwide[13].

As reported by the IPCC Sixth Assessment Report on Impacts, Adaptation and Vulnerability (Chapter 15: Small Islands) the future climate impacts in the Caribbean by sector are:

- **Ecosystems.** The degradation of ecosystems caused by human activity might cause the extinction of endemic species in biodiversity hotspots of the Caribbean, impacting the provision of resources, food and water security, and health, among others.

- **Water.** Droughts could increase by 60 percent the number of people who will suffer from water stress (from 2043 to 2071).

10. Idem.

11. Eastern Caribbean Community Resilience Programme, "Organisation of Eastern Caribbean States," Accessed on 25 September 2024. Available at: https://oecs.int/en/eastern-caribbean-community-resilience-programme

12. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

13. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Fact Sheet: Cities and Settlements by the Sea," 2022.

Figure 3. Mangrove roots in Trinidad and Tobago

Source: Shaueel Persadee / Unsplash.

- **Food and agriculture.** Droughts will impact agricultural production and yield in the region. There will be a reduction in land suited for agriculture.

- **Infrastructure.** It is projected that almost all harbour infrastructure will suffer inundation[14].

- **Migration.** Climate-related migration is expected to increase, as demonstrated by the impact of Hurricanes Irma and Maria in 2017. Hurricane Irma caused the prolonged displacement of Ragged Island's entire population in the Bahamas, leading to cultural losses and threats to community cohesion. Similarly, Hurricane Maria caused a 14 percent population decline in Puerto Rico's population within two years due to migration to the U.S. mainland. Climate-induced migration could further intensify existing migration pressures caused by political and economic crises in countries like Venezuela, Haiti, and Cuba.

Antigua and Barbuda in the context of climate change

The country is exposed to increasingly intense stormwater surges and hurricanes. The location of its population and critical infrastructure on low-lying and coastal lands has heightened their vulnerabilities to severe weather phenomena – especially as the capital is along the coast and poor neighbourhoods are in climate-vulnerable areas[15]. Antigua and Barbuda has been affected by the 'cumulative community vulnerability'. For example, 95 percent of the housing in Barbuda was either damaged or destroyed and the entire population of the island was evacuated (1,600 inhabitants) following Hurricane Irma in 2017[16]. The prolonged displacement of the entire population of Barbuda has caused "threats to health and well-being, and loss of culture, sense of place and agency" (defined as 'non-economic loss and damage')[17].

14. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Fact Sheet: Cities and Settlements by the Sea," 2022.

15. United Nations Human Settlements Programme (UN-Habitat) (2022). Strengthened Capacities of African, Caribbean and Pacific SIDS for Green, Resilient and Pro-poor Pandemic Recovery. Unpublished manuscript.

16. Ministry of Finance and Corporate Governance of Antigua and Barbuda, "Medium Term Fiscal Strategy 2021-2023", 2020.

Other climate events such as the decreased rainfall associated with the Pan-Caribbean Drought (2013-2016), and an extreme rainfall in 2020 caused severe damage to the islands' infrastructure, including housing, energy, wastewater, roads and ports.

Housing and road infrastructure are critical areas requiring investment, as they are essential for providing shelter and facilitating the transportation of basic goods. Hurricane Irma severely damaged or destroyed 44 percent of private structures in Antigua and Barbuda. With the projected increase in tropical cyclone intensity and precipitation, the risk of loss and damage to the housing sector is expected to rise, alongside impacts from sea level rise and coastal erosion, particularly in Barbuda. Similarly, rising temperatures will shorten the lifespan of roads, necessitating more frequent maintenance. The anticipated increase in tropical cyclone intensity, stronger wind speeds, and heavier rainfall will further weaken roadways and drainage systems[18].

In addition to housing and road infrastructure, schools and hospitals are key facilities that require prioritization to ensure the continuity of essential services during future crises. As schools often serve as shelters during hurricanes, it is crucial that they remain operational during grid outages. To enhance energy resilience in healthcare facilities, solar panel systems have been installed in several clinics across Antigua[19].

In the future, the country will be specifically impacted by climate change in terms of **food security** as "fish protein is estimated to make up 50–90 percent of animal protein consumption in rural areas and 40–80 percent in urban areas[20]. The Government of Antigua and Barbuda is preparing for climate impacts in urban areas, particularly in terms of adequate human and financial resources. The Government is also committed to taking actions to address environmental issues and climate change adaptation measures reducing greenhouse gas emissions and concerning

Figure 4. Antigua Harbour

Source: Bgabel / Wikimedia Commons.

17. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

18. Antigua and Barbuda, "Antigua and Barbuda's Adaptation Plan for the Infrastructure and Housing Sector", 2023. Available at: https://environment.gov.ag/assets/uploads/attachments/534a9-infrastructure-and-housing-sap.pdf, and Pacific Disaster Center (PDC), "Antigua and Barbuda National Disaster Preparedness Baseline Assessment (NDPBA)", 2024. Available at: https://reliefweb.int/report/antigua-and-barbuda/antigua-and-barbuda-national-disaster-preparedness-baseline-assessment-data-driven-tool-assessing-risk-and-building-lasting-resilience

19. Idem

20. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

coastal zone management and environmental management in the context of pro-poor urban development[21].This work is coordinated by the Ministry of Finance, Corporate Governance & Public Private Partnerships and the Ministry of Health, Wellness, Social Transformation, and the Environment, which serve as the country's co-National Designated Authority (NDA).

The Updated Nationally Determined Contribution (NDC) of Antigua and Barbuda of 2021 outlines an Implementation Plan as a roadmap to achieve its NDC targets – building on the existing national climate change policy frameworks. The Plan "identifies mitigation, adaptation and climate finance actions and activities, timelines for implementation, estimated costs as well as enabling actions such as governance and capacity support to advance NDC implementation."[22] These were developed during the COVID-19 pandemic and therefore consider "the need for green, low-carbon and resilient recovery[23]."

Similarly, the country's 2023 draft Adaptation Plan for the Infrastructure and Housing Sector aims to enhance the country's resilience by providing strategic direction to key stakeholders and agencies. The 10-year planning framework outlines adaptation actions across four priority sectors—housing, roads, wastewater, and energy—and provides a pathway for implementation through a financing strategy and a monitoring and evaluation (M&E) framework[24].

These plans are reflected in the 2024 National Budget that includes a commitment to "undertake a debt for climate adaptation project and collaborate with regional and international agencies on green and blue bond initiatives". To that end, Antigua and Barbuda allocated US$10 million from the Green Climate Fund for various initiatives, such as improving climate information systems, building climate-proof key public service and community buildings, and increasing medical storage and pharmacy infrastructure, all aimed at enabling a more effective response following a climate event. Additionally, the country offered US$25 million in loans and grants to its residents through the Sustainable Island Resource Framework (SIRF) Fund to help make their homes more resilient to natural disasters[25].

Saint Lucia in the context of climate change

The key natural hazards affecting Saint Lucia are storms and flooding[26]. The country is highly vulnerable to climate change as a significant proportion of its population and economic activities are in the coastal area[27]. According to the IPCC Sixth Assessment Report, the **challenges to mainstreaming adaptation** in Saint Lucia "include competing development priorities, the absence of planning frameworks or of corruption and corrupt people in political and public life, and insufficient manpower and human resources, linked to the country's financial capacity." Future climate impacts include sea level rise. This will also bring important consequences to **transport infrastructure**[28].

Many homes in Saint Lucia are vulnerable to landslides due to their location on steep slopes, with risks heightened by poor construction practices. Hurricanes further impact households through loss of assets, crops, homes, and livelihoods, accounting for 74.4 percent of economic losses between 1990 and 2014. Schools, often serving as community hubs during disasters, are also at risk and frequently remain closed post-disaster due to damage. To enhance their resilience, the Ministry of Education is planning to retrofit schools

21. United Nations Human Settlements Programme (UN-Habitat) (2022). Strengthened Capacities of African, Caribbean and Pacific SIDS for Green, Resilient and Pro-poor Pandemic Recovery. Unpublished manuscript.

22. Antigua and Barbuda, "Updated Nationally Determined Contribution: For the period 2020-2030," 2021.

23. Idem

24. Antigua and Barbuda, "Antigua and Barbuda's Adaptation Plan for the Infrastructure and Housing Sector", 2023, Available at: https://environment.gov.ag/assets/uploads/attachments/534a9-infrastructure-and-housing-sap.pdf

25. Antigua and Barbuda 2024 Budget Statement. Available at: https://ab.gov.ag/pdf/budget/2024_Budget_Statement.pdf

26. Climate Change Knowledge Portal, "Saint Lucia. Historical Climate Hazards," Accessed on 28 December 2023. Available at: https://climateknowledgeportal.worldbank.org/country/st-lucia/vulnerability

27. Caribbean Development Bank. "Project Appraisal Document. Settlement Upgrading Project - St. Lucia," 2011.

28. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

with solar panels and water collection tanks while assessing locations for flood and landslide risks[29].

Despite the challenges, the island has been classified as a **refuge for biodiversity** in a world at increasing levels of warming[30]. In addition, Saint Lucia communicated its updated NDC to the United Nations Framework Convention on Climate Change (UNFCCC) in 2021. The updated NDC was developed during the COVID-19 pandemic in "a participatory, cross-sectoral and robust manner, building on sound inventories, data and ongoing processes." [31]

The NDC is reinforced by Saint Lucia's National Adaptation Plan (NAP), a 10-year commitment (2018-2028) focused on key cross-sectoral and sector-specific adaptation measures for eight priority sectors: tourism, water, agriculture, fisheries, infrastructure, natural resource management, education, and health. The NAP has two main goals: 'to enhance the national enabling environment for climate-related adaptation and risk reduction actions within and across development sectors,' and 'to accelerate the implementation of climate adaptation and risk reduction actions critical to safeguarding the country's socioeconomic and environmental systems.[32]

With revenue collection returning to pre-COVID levels, Saint Lucia's 2024 budget highlights the ongoing threats posed by the uncertainty of potential negative effects of climate change to its survival as a small island developing state to be addressed by the government. These efforts are led by the Department of Economic Development & Youth Economy and the Department of Sustainable Development. The budget emphasizes that it is imperative to build resilience and adapt to climate events across all infrastructure and agricultural programs. For example, in 2024, the country allocated $10.0 million to the Disaster Vulnerability Reduction Project to support this goal. [33]

Figure 5. Boardwalk in Baracoa, Cuba

Source: Hector Bayona / UN-Habitat.

29. Saint Lucia, "Saint Lucia's National Adaptation Plan (NAP) 2018–2028", 2018, https://www4.unfccc.int/sites/NAPC/Documents/Parties/SLU-NAP-May-2018.pdf and the Cadmus Group LLC, "Saint Lucia Climate Change Baseline Assessment Report", 2016, https://napglobalnetwork.org/wp-content/uploads/2020/05/napgn-en-2016-Saint-Lucia-Climate-Change-Baseline-Assessment.pdf

30. Idem.

31. Saint Lucia, "Updated Nationally Determined Contribution," 2021.

32. Saint Lucia, "Saint Lucia's National Adaptation Plan (NAP) 2018–2028", 2018.

33. Saint Lucia, "Statement on the estimates of revenue & expenditure 2024/25", 2024. Available at: https://www.govt.lc/media.govt.lc/www/pressroom/news/attachments/prime-minister-s-statement-on-the-estimates-of-revenue---expenditure-2024-2025.pdf

Underlying vulnerabilities in the Caribbean

03

The IPCC has identified some underlying vulnerabilities in the Caribbean region that might be exacerbated by climate change. Some of the most challenging are as follows:

- **Marginalized populations.** Research shows that marginalized populations in SIDS are becoming "increasingly socially and economically disadvantaged and politically marginalised, which in turn heightens climate vulnerability and impedes sustainable development efforts." [34]

- **Informality.** Insufficient governance mechanisms in urban planning have played a role in the expansion of urban sprawl – leading to an increase of informal settlements, "which together with population growth are driving Caribbean small islands to their limits." [35]

- **Colonialism.** In the Caribbean, the drivers and root causes of systemic vulnerability "can be linked to histories of imperialism, colonial structures, and subsequent development and governance contexts... [t]he Caribbean are still influenced by the colonial power relations outside of these countries making solutions for vulnerability reduction more difficult." [36]

- **Gender.** Evidence shows that men and women adapt differently to climate change due to unequal access to resources, services, and decision-making power. In the Caribbean, women face additional barriers because of deeply ingrained gender norms and biases in communities, workplaces, and institutions. Women and girls are disproportionately affected by food insecurity linked to climate-induced water scarcity. During extreme climate disasters, women take on responsibilities related

Figure 6. Informal settlement in Port au Prince, Haiti.

Source: Alberto Hektor / Adobe Stock.

34. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

35. Idem.

36. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 8: Poverty, Livelihoods and Sustainable Development," 2022.

Table 1. Urban-related indicators in the Caribbean[40]

	Antigua and Barbuda	Saint Lucia	Caribbean small states[41]
Urban population	24%	19%	47%
Access to basic drinking water service, urban	98%	97%	98%
Access to basic sanitation, urban	95%	79%	93%
Access to electricity, urban	100%	100%	99%

to adverse health issues and perform the majority of unpaid care work in shelters. [37]

- **Emigration.** The limited job opportunities and vulnerability to climate impacts are factors driving emigration. The Eastern Caribbean has the higher emigration rates in the world. Most of the diaspora is located in the United States, Canada, and Europe.[38]

Many of these challenges faced by the Caribbean's SIDS are directly tied to urbanization, much of which is occurring in coastal areas most vulnerable to erosion, storm surge and flooding. However, urbanization is often underestimated in the Caribbean due to the reliance on definitions grounded in the experience of Latin American countries with cities and population densities far exceeding those of of even the largest Caribbean SIDS. Driven by economic opportunities and population growth, urbanization in the Caribbean is leading to the expansion of cities and urban areas. This rapid urban growth has created a complex landscape in Antigua and Barbuda and Saint Lucia where the need to address infrastructure, housing, and service provision has become increasingly urgent.[39] Despite these challenges, the data outlined in Table 1 indicates that there is nearly complete coverage of basic services, such as drinking water, sanitation, and electricity, in most urban areas—except for basic sanitation services in Saint Lucia, where gaps still remain. While access to basic services is high, the data does not reveal issues of affordability, equity and the consequences of these. For example, while access to basic sanitation is high, both countries lack centralized wastewater collection and treatment. In their absence, households rely on septic tanks and soak-aways, many of which are poorly constructed and maintained at the expense of the household, contributing to pollution of the already stressed groundwater and delicate coastal ecosystems.

Underlying vulnerabilities Antigua and Barbuda

According to the Government of Antigua and Barbuda, in the past thirty years the value of human assets has improved. In addition, the country has attained universal access to primary and secondary education[42]. However, several issues related to **poverty, social vulnerability, and wellbeing** of the poorest populations remain challenging.

Poverty. As reported in Antigua and Barbuda Medium Term Fiscal Strategy 2021-2023, 18 percent of the population is considered poor; 3.7 percent is classified as indigent (population with lack of food security); and 10 percent are susceptible to poverty in the face of socio-economic shocks or natural disasters[43].

Informality. Though the country experiences high levels of poverty, informal settlements have not been identified by the government.

Employment. Agricultural production is not a primary activity, and the country is highly dependant on imported products which can impact food security. The tourism sector (hotels, restaurants and other services) is the principal economic activity; it accounted for 75 percent of GDP in 2018.[44]

Gender-based vulnerabilities. 41 percent of homes in Antigua and Barbuda are led by single mothers as the primary heads of households[45] while a higher percentage of women (91 percent) are engaged as employees compared to men (80 percent)[46]. This situation renders women more susceptible to income reductions in instances of staff layouts, and more vulnerable if they are also heads of their household. In addition, the rates of unemployment for women (14.5 percent) are higher than for men (12.9 percent)[47].

Health. Before the COVID-19 pandemic, the principal health issues in Antigua and Barbuda were related to non-communicable and vector-borne diseases such as dengue and leptospirosis[48].

Box 1. UN-Habitat's engagement with Antigua and Barbuda

Antigua and Barbuda participated in the second funding cycle (2013-2017) of UN-Habitat's Participatory Slum Upgrading Programme (PSUP II); a programme of a tripartite partnership initiated by the Organization of African, Caribbean and Pacific Secretariat (OACPS), funded by European Commission (EC), and implemented by UN-Habitat. Implementation of the PSUP II in Antigua and Barbuda led to the Government's commitment to reducing poverty in the City of St. Johns to meet the SDGs for poverty reduction and improvement of urban conditions. It also led to the realization of the link between poverty reduction and climate vulnerability in cities.

Figure 7. Castries, Saint Lucia.

Source: Nick Fewings / Unsplash.

37. IDB, "Study of the Impacts of Climate Change on the Women and Men of the Caribbean. Pilot Programme for Climate Resilience Countries", 2020.

38. UNDP, UNICEF and UN Women, "Saint Lucia: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

39. UN-Habitat, "Caribbean Strategy for Informal Settlements Upgrading", 2020. Available at: https://unhabitat.org/caribbean-strategy-for-informal-settlements-upgrading

40. Available at: https://data.worldbank.org/region/caribbean-small-states. Accessed on 29 September 2024

41. According to the World Bank, Caribbean Small States include Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, St. Kitts and Nevis, St. Lucia, St. Vincent and the Grenadines, Suriname. See https://data.worldbank.org/region/caribbean-small-states

42. UNDP, UNICEF and UN Women, "Antigua and Barbuda: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

43. Ministry of Finance and Corporate Governance of Antigua and Barbuda, "Medium Term Fiscal Strategy 2021-2023," 2020.

44. Idem.

45. Idem.

46. UNDP, UNICEF and UN Women, "Antigua and Barbuda: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

47. Idem.

48. Idem.

Underlying vulnerabilities in Saint Lucia

Saint Lucia faces economic and social problems in terms of poverty, informality, social vulnerabilities and lack of resources.

Poverty. Around 25 percent of the population of Saint Lucia lives under the poverty line[49]. Urban poverty has increased due to rural-urban migration and though there are social safety net programmes, coordination and rationalisation are limited[50].

As per UNICEF's data in 2016, around one in every three children and adolescents were living in poverty. Children in rural communities experienced a higher poverty rate compared to urban areas in 2015. In contrast, most of poor adolescents are also urban residents (72 percent). In addition, a third of adolescents do not participate in education, employment, or training (NEET) programmes, with the majority of those beyond school age being unemployed[51].

Employment. Most of the poor population in Saint Lucia is employed in agricultural activities[52] – a sector vulnerable to extreme weather events, making this population disproportionately affected.

Remittances also play a vital role in the economy of Saint Lucia. They constitute 10 percent of the average incomes of lower-income households[53].

Informality. Around 10 percent of households in Saint Lucia live in informal settlements[54] and informal employment accounts for 27 percent of the labour force (generating 8 percent to GDP)[55].

Informal settlements, which vary widely in form and characteristics across the region, are typically found in densely populated coastal and hillside areas within or adjacent to rapidly growing urban centers. These areas face significant challenges, including vulnerability to climate change, disaster risks, inadequate and unaffordable housing, and socioeconomic inequality. Despite these risks, residents often settle in these locations to gain access to employment opportunities, services, and amenities. The poor and marginalized are overrepresented in these communities[56].

Small-scale farmers and individuals engaged in service and craft occupations predominantly occupy these informal positions. Within the industrial sector, more than 80 percent of businesses operate as Micro, Small, and Medium Enterprises (MSMEs) and a large percentage of them are unregistered and part of the informal economy. Among informal enterprise operators, 58 percent are male, and 42 percent are female, with a significant number of these enterprises being sole proprietorships[57].

Gender-based vulnerabilities. While 23 percent of women and 25 percent of men in Saint Lucia fall under the poverty line, more women become heads of poor households. In addition, poverty tends to be concentrated within single female-headed households with children under the age of five[58].

Water availability. Saint Lucia experiences 35 percent deficit in water supply. In small islands, population growth, urbanization and tourism often place significant pressure on limited freshwater resources[59].

49. The Enhanced Country Poverty Assessment (ECPA, 2016), through a multi-dimensional poverty assessment, defines poverty as the population below the 2016 annualised poverty line of XCD 6,443.00.

50. UNDP, UNICEF and UN Women, "Saint Lucia: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

51. Idem.

52. Idem.

53. Idem.

54. Caribbean Development Bank (CDB), "Project Appraisal Document. Settlement Upgrading Project – St. Lucia," 2011.

55. UNDP, UNICEF and UN Women, "Saint Lucia: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

56. UN-Habitat, "Caribbean Strategy for Informal Settlements Upgrading", 2020. Available at: https://unhabitat.org/caribbean-strategy-for-informal-settlements-upgrading

57. UNDP, UNICEF and UN Women, "Saint Lucia: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

58. Idem.

59. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

Vulnerabilities created and expanded by COVID-19

04

The COVID-19 pandemic hit the Caribbean islands in the beginning of 2020, when their economies were still recovering from the hurricanes of 2017. The global transportation shutdown had severe socioeconomic impacts on these communities reliant on tourism – reducing incomes that could have otherwise been used to enhance climate resilience. This highlights how compounding crises amplify the existing vulnerability to both climate- and non-climate-related events. [60]

Box 2. Identified multi-layered vulnerability hotspots in Antigua and Barbuda in a 2023 workshop organized by UN-Habitat

St. John's, Antigua:

- St. John's city centre
- St. John's Harbour
- Fort Bay
- Fort James
- High Street
- Green Bay
- Perry Bay
- Villa
- Yorks

English Harbour, Antigua:

- The whole harbour/bay area
- Pigeon Point Beach
- Windward Beach Bay
- Nelson's Dockyard National Park
- The area around Fort Berkely
- Galleon Beach
- Falmouth Harbour Marina

Codrington Bay, Barbuda

- Codrington Lagoon
- Coastal settlements
- The Barbuda Power Plant area
- The Barbuda Airport

Figure 8. People lining up at a distribution store in Maisi, Cuba, wearing protective masks.

Source: Hector Bayona / UN-Habitat

60. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

The COVID-19 pandemic hit the Caribbean islands in the beginning of 2020, when their economies were still recovering from the hurricanes of 2017. The global transportation shutdown had severe socioeconomic impacts on these communities reliant on tourism – reducing incomes that could have otherwise been used to enhance climate resilience. This highlights how compounding crises amplify the existing vulnerability to both climate- and non-climate-related events. [60]

Vulnerabilities created and expanded by COVID-19 in Antigua and Barbuda

The COVID-19 measures in Antigua and Barbuda started with a nationwide lockdown in April and May 2020, implementation of curfew hours and the promotion of social distancing. Although the number of cases was relatively low when compared to the global scenario, the significant impact on the country's economy stemmed from the **closure of the tourism industry and the extended duration for tourism flows to return to normalcy**[61]**.** The International Monetary Fund (IMF) estimated that an additional XCD 259 million in financing would be needed by the government to cover the impacts of the pandemic[62]. The following are among the most impacted sectors:

Employment. The impact on employment in Antigua and Barbuda was especially severe with the closure or downsizing of hotels and other businesses.[63] The overall unemployment rate reached almost 30 percent as a result of the pandemic. This is particularly alarming due to the lack of an unemployment benefit programme – implying that those newly unemployed would have to depend on savings and other government social protection programmes.[64]

Gender-based vulnerabilities. Given that the rates of unemployment were already higher for women than for men, women might have been more susceptible to the layout of staff caused by the pandemic, also considering that more of them are engaged as employees and most homes in the two-island nation are led by single mothers.

Poverty. Existing multidimensional poverty in Antigua and Barbuda was likely increased by unemployment and the interruption of other activities due to the nationwide lockdown.

Food security. The COVID-19 pandemic exposed deep vulnerabilities in food systems, particularly in SIDS that are highly dependent on food imports. Disrupted global transportation and supply chain interruptions worsened food shortages and heightened reliance on costly imported goods. In countries like Antigua and Barbuda, where agricultural production is minimal, the closure of global transportation routes significantly impacted food availability and security. As a result, an estimated 39 percent of the English-speaking Caribbean is now food insecure, according to a 2024 UN World Food Programme report. These challenges are compounded by extreme weather events such as droughts, floods, and hurricanes, highlighting how climate change exacerbates existing risks to food security in already fragile systems[65].

Health. As occurred worldwide, the focus on solving health issues directly linked to the pandemic caused inattention to other diseases. Principal health issues (non-communicable and vector-borne diseases) before COVID-19 in Antigua and Barbuda might have become more challenging to address. It is also important to note that climate change increases the risk for vector-borne diseases, making this an example where underlying vulnerabilities are expanded by both the COVID-19 and climate crises.

Economic Impact and Climate resilience. SIDS are among the most vulnerable to climate change and require substantial climate finance to support adaptation planning and implementation. However, international funding has been insufficient, particularly in recent years, as large amounts of financial aid were redirected to address the COVID-19 pandemic and countries affected by war.[66] By the end of 2020, almost one year after the pandemic started, Antigua and Barbuda was still struggling economically from Hurricane Irma impacts in 2017 – the resources to address these impacts were probably redirected to tackle COVID-19 causing the recovery to delay even longer. In addition, the displaced population of Barbuda was further affected by the COVID-19 pandemic, causing threats to health and well-being.

Policy. Key priorities and services of the government of Antigua ang Barbuda like the provision of public infrastructure (roads, schools and housing) were paused after the COVID-19 pandemic. These limited policy actions reduced the "resources available for growth-promoting social, economic and climate resilient capital spending." [67]

Vulnerabilities created and expanded by COVID-19 in Saint Lucia

Confirming its initial cases of COVID-19 in March 2020, the government of Saint Lucia enacted a state of emergency, closed its borders and imposed a series of curfews. The island was principally affected by **unemployment** given the underlying vulnerabilities caused by **informality** and **poverty**.

Employment. As a consequence of COVID-19, 47,867 inhabitants with low incomes in Saint Lucia became at risk of income loss or job security.[68] The ones bearing the brunt of unemployment are the most vulnerable communities:

Figure 9. Woman with an umbrella facing the ocean in a Caribbean SIDS

Source: Tom Jur / Unsplash.

61. Ministry of Finance and Corporate Governance of Antigua and Barbuda, "Medium Term Fiscal Strategy 2021-2023," 2020.

62. UNDP, UNICEF and UN Women, "Antigua and Barbuda: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

63. Ministry of Finance and Corporate Governance of Antigua and Barbuda, "Medium Term Fiscal Strategy 2021-2023," 2020.

64. UNDP, UNICEF and UN Women, "Antigua and Barbuda: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

65. UN World Food Programme, "Caribbean Food Security and Livelihoods Survey", 2024

66. Thomas et al., "Climate Change and Small Island Developing States", 2020. Available at: https://doi.org/10.1146/annurev-environ-012320-083355

67. Idem.

68. UNDP, UNICEF and UN Women, "Saint Lucia: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

69. Idem.

70. Idem.

Gender-based vulnerabilities. Given that more women become heads of poor households, unemployment would impact harder these female workers and their children.

Youth. In the case of young populations, as the majority of those beyond school age were already unemployed, layoffs caused by COVID-19 would decrease the opportunities for them to get a job.

Informality. "The self-employed in the informal economy (craft, retail, agro-processing and taxi-drivers) ... will continue to be the hardest hit in terms of income loss."[69] They account for one third of the labour force. When unemployed, they would not have access to social safety progammes. They are predominantly employed as small-scale farmers and engaged in service and craft occupations. This might have affected the communities supplied by these farmers in terms of food security and other services.

Poverty. UNDP, UNICEF and UN Women estimated that the vulnerability caused by unemployment due to the pandemic would have moved the poverty rate to 47 percent – almost half of the population.[70]

Health. As happened worldwide, existing health issues were reprioritized after the COVID-19 pandemic. In addition, Saint Lucia experiences 35 percent deficit in water supply which was an essential resource since the hygienic measures to prevent the spread of COVID-19 (among other health impacts) were based on continuous hand washing and cleaning of tools.

Food security. Since the country relies principally on agriculture, water deficit might have also affected food security as, most probably, water supply would have been prioritized for hospital and health facilities.

Figure 10. Bikers in Placetas, Cuba

Source: Hector Bayona / UN-Habitat

Existing COVID-19 recovery plans and strategies

05

According to the IPCC, initial research about the responses to COVID-19 in the Caribbean suggests that existing disaster response mechanisms have played a crucial role in swift reactions to the pandemic. Many small islands were mainly affected by the travel disruptions caused by COVID-19 as they rely heavily on tourism[71].

Existing COVID-19 recovery plans and strategies in Antigua and Barbuda

Since the economic downturn of 2020 caused by the COVID-19 pandemic, Antigua and Barbuda's recovery has been marked by steady growth above 8 percent between 2021 and 2023. This performance has positioned the country as one of the fastest-growing in the region, second only to Guyana with its emerging oil and gas sector. [72]

The Ministry of Finance and Corporate Governance of Antigua and Barbuda focused the economic recovery plan of the country after the COVID-19 pandemic on building infrastructure, improving utilities (such as water, electricity and information and communications technology), supporting light manufacturing, agriculture and employment. Other key priorities identified by the Economic Recovery Committee (ERC)[73] are the development of entrepreneurship, food security, energy and environmental sustainability and enhancing the role of the public sector.

Specific to infrastructure, the Government of Antigua and Barbuda (GOAB) recognizes the vital role public infrastructure has in fostering sustainable economic development – including roads, land and coastal management, sustainable waste management, energy, water, and information communication technology. For that reason, the expenditure priority of GOAB over the medium term after the COVID-19 pandemic focuses on **critical infrastructure to attract private sector investment in key sectors like agriculture, manufacturing and tourism while addressing health and education**[74].

Box 3. Existing adaptation strategies that could improve food security amid crises.

In response to rising air and ocean temperatures, increased wind and shifts in rain patterns, coastal fishers in Antigua have invested in technologies and equipment, shifts in fishing locations and enhanced training and education.

In addition, Barbuda has already implemented rainwater harvesting increasing watershed protection and reducing dependence on the public supply of water, which could also improve food security.

According to IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

The Government of Antigua and Barbuda has developed different plans under their Economic Recovery Strategy (ERS) to recover from the COVID-19 pandemic that also support underlying and/or climate related vulnerabilities. These include the following sectors:

Employment. The strategy enables continued support for job creation.

Poverty. It plans the expansion of social safety net programmes and the establishment of a central beneficiary registry to prevent abuse or duplication of services.

Food security. To enhance food production, the Government distributed seedlings and implemented backyard gardening initiatives. Individuals who found themselves unemployed due to the pandemic and those constrained by curfews turned to agriculture and the distribution of agricultural products.

71. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

72. Antigua and Barbuda 2024 Budget Statement. Available at: https://ab.gov.ag/pdf/budget/2024_Budget_Statement.pdf

73. The Committee was commissioned by the Government of Antigua and Barbuda to outline a three-year Economic Recovery Strategy (ERS) after the COVID-19 pandemic.

74. Ministry of Finance and Corporate Governance of Antigua and Barbuda, "Medium Term Fiscal Strategy 2021-2023," 2020.

Housing. The ERS includes crown lands sale in the medium term which are an affordable option to buy land. In addition, the Government aimed to provide a one-year investment incentive for home renovation and construction and a 20 percent reduction in electricity costs[75].

Infrastructure. The following projects were included in the ERS as strategies to improve the economy of Antigua and Barbuda after COVID-19 while ensuring climate resilience:

- Refurbishment of 53 public buildings to ensure climate resilience (over 6 years), funded by the Green Climate Fund (GCF)
- Reconstruction of infrastructure damaged by Hurricane Irma, financed by the Reconstruction and Rehabilitation Loan (RRL)
- Implementation of green technologies on Barbuda, implemented by the Barbuda Energy Resilience Project (BERP)
- Construction of housing for residents of Barbuda displaced by Hurricane Irma, funded by The Prince's Foundation and Calvin Ayre
- Reconstruction and repairment of houses for residents of Barbuda affected by Hurricane Irma, funded by the European Union and executed by UNDP

The Government also intends to sell land for the investment of the private sector in agriculture, manufacturing, and tourism. Infrastructure projects also included in the ERS were private sector projects that do not support climate resilience like the PLH Ocean Club in Barbuda, YIDA project, and luxury properties on several sites like the Mill Reef Club, Jumby Bay Pearns Point and Windward Beach.

Climate resilience. Increasing public investment in building resilience to natural disasters and climate change is one of the priorities of the ERC committed to maintain macroeconomic stability, other priorities also include health and education.

The Climate Resilience and Development Fund (CRDF) of Antigua and Barbuda is funded by the Tourist Accommodation Levy (TAL). This is a measure implemented by the GOAB in the first half of 2021 which applies a toll to tourism accommodations.

The GOAB is also an accredited entity to the Green Climate Fund (GCF). These projects aim to stimulate investments in infrastructure that can withstand climate challenges, redirecting government expenditures from debt servicing to local adaptation and mitigation efforts. Additionally, these projects seek to attract additional investments through a "crowding-in" effect.

Moreover, there are existing measures to reduce the financial exposure and other vulnerabilities to disaster risk are the Disaster Insurance, the Disaster Management Act (No. 13 of 2022) and the National Office of Disaster Services.[76]

In addition to the strategies identified by the ERC, the Caribbean Natural Resources Institute (CANARI) identified public sector COVID-19 initiatives. CANARI mapped how these initiatives could contribute to 'building back better' and support green, inclusive and resilient development in four areas:

1. Transformed Economic Governance (TEG): Transforming economic decision-making.
2. Environmental Sustainability (ES): Supporting environmental sustainability while recognising and managing trade-offs.
3. Inclusion (I): Supporting fairness, inclusion and justice in economic development.
4. Resilience (R): Enabling a low-carbon transition and building resilience to address multiple risks.

Within these four areas, there are eighteen associated indicators. Antigua and Barbuda presented initiatives in all areas. For the purpose of this report, only initiatives related to Environmental Sustainability (ES) and Resilience (R) are included in table 2.

75. UNDP, UNICEF and UN Women, "Antigua and Barbuda: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

76. Ministry of Finance and Corporate Governance of Antigua and Barbuda, "Medium Term Fiscal Strategy 2021-2023," 2020.

Table 2. Existing actions, plans, budgets, projects and programmes in Antigua and Barbuda focused on COVID-19 recovery and supporting environmental sustainability while recognising and managing trade-offs[77]

Indicator	Recovery responses	Status
ES 8. Nature-based solutions used to deliver development and climate benefits through restoration, protection and/or sustainable use of natural ecosystems and biodiversity	Nationally Determined Contribution (NDC) and Implementation Plan - the NDC and its implementation plan have considered / are in line with "green, low carbon and resilient COVID-19 recovery".	Plan
ES 9. Environmental sustainability concerns mainstreamed in key economic sectors	Memorandum of Understanding to establish a Centre of Excellence for Oceanography and the Blue Economy at the University of the West Indies Five Island Campus.	Plan
R15. Development of and/or enhanced access to renewable energy and energy-efficient technologies for carbon reduction/ climate mitigation	Government to implement a 10-year project under UNOPS Sustainable Infrastructure impact Investment Initiative to construct homes across the Caribbean that would include solar panels and waste to energy technology	Budget / Investment
	Barbuda Energy Resilience Project (part of Implementing Green Technologies in Barbuda)	Existing Project
	Abu Dhabi Fund for Development (ADFD) 2 Project - connecting renewable energy systems to electric grid.	Budget/ Investment
	Investments by the West Indies Oil Company[78]	Budget / Investment
	Nationally Determined Contribution (NDC) and Implementation Plan - the NDC and its implementation plan have considered / are in line with "green, low carbon and resilient COVID-19 recovery".	Plan
	GCF Build Project: Supporting resilience to hurricanes in building sector.	Budget/ Investment
R 16. Development of and/or enhanced access to climate resilient infrastructure (including via the use of building and transport standards) to support basic services, livelihoods and the wider economy	Nationally Determined Contribution (NDC) and Implementation Plan - the NDC and its implementation plan have considered / are in line with "green, low carbon and resilient COVID-19 recovery".	Plan
	GCF Build Project: Supporting resilience to hurricanes in building sector.	Budget/ Investment
R 17. Measures taken to adapt and build resilience of communities and economic sectors to climate change and natural disasters, with a focus on the most vulnerable groups and SMEs	Debt for Climate Swap Initiative	Budget/ Investment
	Enhanced Direct Access Project (EDA) - supports grants for adaptation and community resilience.	Existing Programme
	Agriculture COVID-19 Policies - granting farmlands to farmers (50 new farmers) and increasing water availability to farms.[79]	Budget/ Investment
	Relief to farmers in reducing their water bills to increase food production and installation of reverse osmosis plants to ensure water supply.[80]	Action
R 18. Measures taken to protect citizens from environmental, health and economic disasters are reaching all sectors of society including the most vulnerable	Nationally Determined Contribution (NDC) and Implementation Plan - the NDC and its implementation plan have considered / are in line with "green, low carbon and resilient COVID-19 recovery".	Plan
	GCF Build Project: Supporting resilience to hurricanes in building sector.	Budget/ Investment

77. This table is adapted from an addendum to Thanoo, A., Leotaud, N. and Granderson, A., 2023. Planning for an inclusive, environmentally sustainable and climate resilient COVID-19 recovery within the Caribbean region: Progress and opportunities. CANARI Technical Report 406. Port of Spain: CANARI.

78. Categorized as "Brown", which means this initiative is likely to have a negative impact based on previous experience (e.g., documented negative impacts of the oil and gas sector on climate change, documented negative environmental impacts of cruise ship tourism).

79. Categorized as "Ambiguous" due to lack of information.

80. Idem.

Existing COVID-19 recovery plans and strategies in Saint Lucia

The 2024 Saint Lucia Budget reports that revenue collection had returned to pre-COVID levels by the end of 2023, reflecting a strong economic rebound. GDP increase of 5.8 percent is forecast for 2024-2025, driven by significant expansion in both public and private sector construction. Additionally, expected growth in the tourism sector is expected to create a multiplier effect, further enhancing the nation's post-COVID recovery[81].

To address the potential consequences of the pandemic, Saint Lucia employed a three-part strategy comprising health measures, social stabilization, and economic recovery.

Poverty. The third phase of COVID-19 strategy of Saint Lucia involved the implementation of the Economic Recovery and Resilience Plan, which aimed to provide aid to poor and vulnerable households along other support. At the policy level, Saint Lucia is dedicated to eliminating poverty and enhancing social protection initiatives to cater to vulnerable populations[82].

Climate resilience. The Government of Saint Lucia introduced a Citizenship by-Investment Programme (CIP) to generate funds to finance current expenses, capital project (such as post-disaster reconstruction), and reducing debt. The country has also received support from the UN SDG Joint Fund to strengthen its social protection system, making it more responsible to shocks. Even before COVID-19, Saint Lucia was considering to secure donor grants to finance initiatives focused on climate resilience[83].

In addition, before the onset of COVID-19, Saint Lucia was already implementing a few climate-resilient strategies that helped to address the pandemic.

Employment. Prior to COVID-19, Saint Lucia was implementing Ecosystem-based Adaptation (EbA) strategies in marine-protected areas which were mainly financed by the tourism sector. This initiative provided funds for adaptation, education, capacity building and works with nature to reduce vulnerability and increase adaptive capacities[84].

Food security. In addition, 70-80 percent of primary schools had gardens in operation. These initiatives play a role in sustaining the national school feeding programme, with distinct agreements to distribute the produce between participating farmers and the schools.[85]

Finance models for adaptation. Through the Caribbean Oceans and Aquaculture Sustainability Facility, Saint Lucia was already planning a national-level parametric insurance. This initiative, financed by the United States State Department, aims to expedite fishing communities' recovery in the aftermath of future tropical cyclones[86].

As presented in the section about Antigua and Barbuda, CANARI also identified public sector COVID-19 initiatives in Saint Lucia. Saint Lucia presented strategies in all four areas: Transformed Economic Governance (TEG), Environmental Sustainability (ES), Inclusion (I) and Resilience (R).

Table 3. Existing actions, plans, budgets, projects and programmes in Saint Lucia focused on COVID-19 recovery and supporting environmental sustainability while recognising and managing trade-offs[87]

Indicator	Recovery responses	Status
TEG 1. Mechanisms are put in place for participatory, bottom-up and decentralised economic decision-making and monitoring, including development and monitoring of COVID-19 recovery plans and national development plans	The Economic Recovery and Resilience Plan	Plan
TEG 2. Mechanisms are put in place for cross-sectoral collaboration and partnerships at the national level to mobilise knowledge and resources for recovery actions	The Economic Recovery and Resilience Plan	Plan
TEG 4. Transition to green, inclusive and resilient economic development supported by financing and fiscal mechanisms (e.g., green public procurement, green trade, green investment, public expenditure reviews, tax reform, decentralised funding, debt for nature/climate swaps and other innovating financing instruments)	Saint Lucia COVID-19 Response, Recovery, and Resilience Development Policy Credit	Action
TEG 5. Digitisation and technological innovation used to support recovery	Saint Lucia COVID-19 Response, Recovery, and Resilience Development Policy Credit	Action
	Building competitiveness through Digital Transformation and adoption	Plan
ES 7. Enhanced efficiency in use of water, land and materials, and management of pollution and waste to protect environmental quality	Construction of a cruise port in Vieux Fort [88]	Budget/ Investment
ES 8. Nature-based solutions used to deliver development and climate benefits through restoration, protection and/or sustainable use of natural ecosystems and biodiversity	Sustainable Water Infrastructure Initiatives (John Compton Dam Water Protection and Desilting Project, Dennery North Water Supply Project and Vieux Fort North Water Supply Project)	Budget / Investment
I 11. Support for development and strengthening of local small and micro enterprises (SMEs), including in the use of environmentally sustainable practices and access to basic services and resources	Hotel development projects [89]	Action
	Saint Lucia COVID-19 Response, Recovery, and Resilience Development Policy Credit	Plan
	Labour market enhancement	Plan
	Supporting business continuity in firms	Plan
	Supporting the business environment by fast tracking legislation for increasing access to finance by SMEs	Plan
	Rural Community Small Projects Economic Stimulation Initiative	Plan
	Micro-Finance loans to households to diversify into Small and Microenterprise and Cottage Industries	Plan
	Zero interest working capital loans for MSMEs affected by COVID-19	Plan
	COVID-19 Agriculture Response Project and Adaptation Programme the "Emergency Agriculture Livelihoods and Climate Resilience Project"	Existing programme

81. Saint Lucia, "Statement on the estimates of revenue & expenditure 2024/25," 2024. Available at: https://www.govt.lc/media.govt.lc/www/pressroom/news/attachments/prime-minister-s-statement-on-the-estimates-of-revenue---expenditure-2024-2025.pdf

82. UNDP, UNICEF and UN Women, "Saint Lucia: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

83. Idem.

84. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

85. Saint Lucia, "Updated Nationally Determined Contribution," 2021.

86. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

87. This table is adapted from an addendum to Thanoo, A., Leotaud, N. and Granderson, A., 2023. Planning for an inclusive, environmentally sustainable and climate resilient COVID-19 recovery within the Caribbean region: Progress and opportunities. CANARI Technical Report 406. Port of Spain: CANARI.

88. Categorized as "Brown", which means this initiative is likely to have a negative impact based on previous experience (e.g., documented negative impacts of the oil and gas sector on climate change, documented negative environmental impacts of cruise ship tourism).

89. Idem.

Table 4. Existing actions, plans, budgets, projects and programmes in Saint Lucia focused on COVID-19 recovery and supporting environmental sustainability while recognising and managing trade-offs

Indicator	Recovery responses	Status
I 11. Support for development and strengthening of local small and micro enterprises (SMEs), including in the use of environmentally sustainable practices and access to basic services and resources	Hotel development projects	Action
	Saint Lucia COVID-19 Response, Recovery, and Resilience Development Policy Credit	Plan
	Labour market enhancement	Plan
	Supporting business continuity in firms	Plan
	Supporting the business environment by fast tracking legislation for increasing access to finance by SMEs	Plan
	Rural Community Small Projects Economic Stimulation Initiative	Plan
	Micro-Finance loans to households to diversify into Small and Microenterprise and Cottage Industries	Plan
	Zero interest working capital loans for MSMEs affected by COVID-19	Plan
	COVID-19 Agriculture Response Project and Adaptation Programme the "Emergency Agriculture Livelihoods and Climate Resilience Project"	Existing programme
	Provision of funds to Belfund to support SME sector and provide start-up capital for persons to start a business	Budget / Investment
	Increase local output, stimulate domestic demand and strengthen food security to support farmers and fishers	Plan
	Provision of funds to Belfund to support SME sector and provide start-up capital for persons to start a business	Budget / Investment
	Increase local output, stimulate domestic demand and strengthen food security to support farmers and fishers	Plan
I 12. Support for development and expansion of livelihoods and reskilling strategies to engage in new and growing green economic sectors, with a focus on the income poor and informal workers for a just transition	Labour market enhancement	Plan
I 13. Strengthened social protection systems to support informal workers and other at-risk groups, using a gender sensitive approach	Expand Saint Lucia's Public Assistance Programme by 1,000 from 2,600 to 3,600 households	Existing programme
I 14. Redesign of education, health and social development systems supports inclusion, equity, wellness and well-being of citizens	Building capacity of Primary Health Care Facilities	Plan
	Increase population access to healthcare – National Health Insurance Scheme	Plan

Table 5. Existing actions, plans, budgets, projects and programmes in Saint Lucia focused on COVID-19 recovery and supporting environmental sustainability while recognising and managing trade-offs

Indicator	Recovery responses	Status
R 15. Development of and/or enhanced access to renewable energy and energy-efficient technologies for carbon reduction/ climate mitigation	Castries Redevelopment project	Budget / Investment
R 16. Development of and/or enhanced access to climate resilient infrastructure (including via the use of building and transport standards) to support basic services, livelihoods and the wider economy	Castries Redevelopment project	Budget / Investment
	Fast tracking shovel ready capital investment projects	Plan
	Sustainable Water Infrastructure Initiatives (John Compton Dam Water Protection and Desilting Project, Dennery North Water Supply Project and Vieux Fort North Water Supply Project)	Budget / Investment
R 17. Measures taken to adapt and build resilience of communities and economic sectors to climate change and natural disasters, with a focus on the most vulnerable groups and SMEs	Saint Lucia COVID-19 Response, Recovery, and Resilience Development Policy Credit	Budget/ Investment
	Provision of 800 Water Tanks to Vulnerable Communities and Essential Public Services	Budget / Investment
	COVID-19 Agriculture Response Project and Adaptation Programme the "Emergency Agriculture Livelihoods and Climate Resilience Project"	Existing
R 18. Measures taken to protect citizens from environmental, health and economic disasters are reaching all sectors of society including the most vulnerable	The Economic Recovery and Resilience Plan	Plan

Recommendations

05

General recommendations for cities and settlements by the sea

The IPCC advocates for a combination of infrastructural, nature-based, institutional and sociocultural interventions to reduce climate risks faced by cities and settlements by the sea [90]:

- Multiple knowledge systems to co-design and co-produce responses
- Building governance capacity
- A long-term view, taking action now
- Avoidance of new development in exposed locations
- Networks and linkages within and between different governance scales and levels
- Shared and local responses through experimentation, innovation and social learning
- Recognition of political realities and prioritization of vulnerability, justice and equity concerns
- Strengthening community capabilities using external assistance and government response
- Creation of safe arenas of engagement for inclusive, informed and meaningful deliberation

In addition, the IPCC emphasizes that "aligning adaptation in cities and settlements with socioeconomic development, infrastructure maintenance and COVID-19 recovery investments will provide additional co-benefits." [91]

Figure 11. Coastal St Georges, Grenada.

Source: Jamie Tudor / Unsplash.

90. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Fact Sheet: Cities and Settlements by the Sea," 2022.
91. Idem.

General recommendations for Small Island Developing States

The IPCC highlights the following recommendations for SIDS to address climate impacts, emphasizing that the pressing demand for investment in capacity building and adaptation strategies is most acute in small islands [92]:

- Better governance and legal reforms
- Improving justice, equity and gender considerations
- Building human resource capacity
- Increased finance and risk transfer mechanisms
- Education and awareness programmes
- Increased access to climate information
- Adequately downscaled climate data
- Embedding Indigenous knowledge and local knowledge as well as integrating cultural resources into decision-making

General recommendations for the Caribbean

The IPCC has also included recommendations specific to the Caribbean in its latest report [93]:

Building codes. Hurricane-resistant housing in the Caribbean, along with providing incentives for informal settlements to adopt resilient building practices, can have benefits for adaptation and development.

Diversified and sustainable economies. The adaptive capacity and innovative approaches of some SIDS amid the pandemic highlight the advantages of diversified economies to enhance the sustainability and resilience of human and ecological communities.

Figure 12. Cobblestone street in Trinidad, Cuba

Source: Louis Renaudineau / Unsplash.

92. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Fact Sheet: Small Islands," 2022.
93. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Chapter 15: Small Islands," 2022.

Aquaculture. Many Caribbean islands are considering fish farming as a sustainable strategy for diversifying incomes and enhancing resilience over the long term.

Tourism. In the Caribbean, the implementation of adaptation taxes and enhanced building regulations in the tourism industry could mitigate risks significantly. The Caribbean Climate Online Risk and Adaptation tool supports the development of climate-sensitive tourism infrastructure.

Ecosystem-based Adaptation. EbA strategies are lacking in national and regional programmes and plans in the Caribbean. However, at the local level, EbA approaches are gaining traction, with implementation predominantly led by non-governmental organizations.

Vegetation buffers. In Caribbean islands like Saint Marteen, the indigenous vegetation is conserved and has served as a buffer to reduce the impacts of waves of tropical cyclones. This led to a reduction of marine inundation and shoreline retreat compared to deforested areas.

Nature-based solutions (NBS). Building on these recommendations, the Inter-American Development Bank support investment in NBS, integrating this approach into infrastructure planning to enhance climate resilience and service delivery across multiple sectors. NBS, defined as actions that protect, sustainably manage, and restore natural or modified ecosystems to address societal challenges while providing human and biodiversity benefits, should be prioritized in areas where ecosystem loss and degradation pose risks to physical assets and communities. Policymakers should identify opportunities for NBS integration, develop enabling conditions, and strengthen capacity-building and decision-making tools to support the effective design and implementation of NBS in climate adaptation and mitigation strategies. [94]

General recommendations for cities after the COVID-19 pandemic

From a general perspective, Cities and Pandemics [95], published by UN-Habitat, highlights four key priorities to deliver sustainable, resilient, and just recovery:

- **Rethinking the form and function of cities.** UN-Habitat advocates for a compact design, accessible mobility and diverse land uses to make more liveable urban environments.
- **Addressing systemic poverty and inequality in cities.** Underlying causes of exclusion should be addressed.
- **Rebuilding a new normal for the urban economy.** Help should be focused on smaller businesses, informal workers, and at-risk sectors.
- **Clarifying urban legislation and governance arrangements.** Authorities need to work in an integrated manner, strengthening multi-level governance, with an emphasis on finance.

Recommendations for working with informal settlements in response to COVID-19

In addition, through UN-Habitat's initial COVID-19 related work with informal settlements and the urban poor in Pacific SIDS, key lessons learnt have been identified:

- **Data gap.** Critical data on informal settlements is not available, making communication and the provision of support during events such as lockdowns difficult to target.
- **Underlying socio-economic vulnerabilities to COVID-19, climate change and other threats are similar and compounding.** Overlapping crises explicitly affect urban poor communities.

94. IPCC, "Climate change 2022: Impacts, Adaptation and Vulnerability. Fact Sheet: Cities and Settlements by the Sea," 2022.
95. UN-Habitat, 2020. Cities and Pandemics. Available at: https://unhabitat.org/cities-and-pandemics-towards-a-more-just-

- **Existing knowledge contributes to resilience.** Unique heritage, tight kinship and creativity for sustainable livelihoods help to deal with environmental and social change.

- **Reaching all households with information is challenging.** Though health workers circulated information about COVID-19, in larger settlements communication was challenging.

- **Dependence on farming.** COVID-19 increased dependence on farming, a sector vulnerable to climate-related hazards.

- **Poor recognition of informal settlements needs.** Authorities do not understand the issues faced by informal settlements, excluding them from decision-making processes and disaster response.

Recommendations specific to Antigua and Barbuda

UN agencies particularly highlight the following recommendations for Antigua and Barbuda to address current and future COVID-19 impacts, particularly for the most vulnerable in light of climate change impacts [96]:

- **Expand the definition of vulnerability** covered by the National Board of Guardians Scheme.

- **Promote local products and services** by collaborating with internet service providers to facilitate affordable access to the technology required.

Table 6. Antigua and Barbuda COVID-19 recovery recommendations supporting environmental sustainability while recognising and managing trade-offs [97]

Indicator	Recovery responses
ES 7. Enhanced efficiency in use of water, land and materials, and management of pollution and waste to protect environmental quality	Consideration for efficient use of food waste through waste to energy considerations and increase compost production.
	Enhance production of local agriculture resources by using green waste for animal fodder
	Compost facility
	Biodigester for waste to energy considerations
ES 8. Nature-based solutions used to deliver development and climate benefits through restoration, protection and/or sustainable use of natural ecosystems and biodiversity	Land Use plan for developing a new town in Willough Bay will allow for green energy infrastructure and public green areas / designated parks [98].
R 15. Development of and/or enhanced access to renewable energy and energy-efficient technologies for carbon reduction/ climate mitigation	Transition to electric buses and taxis supported by SIRF Fund; includes consideration for infrastructural support and regulatory framework.
	GCF Back - up Energy project - to waive taxes on renewable energy equipment and systems.
	Land Use plan for developing a new town in Willough Bay will allow for green energy infrastructure and public green areas / designated parks [99].
R 17. Measures taken to adapt and build resilience of communities and economic sectors to climate change and natural disasters, with a focus on the most vulnerable groups and SMEs	Support of physical adaptation and resilient communities in McKinnon watershed areas.

96. UNDP, UNICEF and UN Women, "Antigua and Barbuda: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

97. This table is adapted from an addendum to Thanoo, A., Leotaud, N. and Granderson, A., 2023. Planning for an inclusive, environmentally sustainable and climate resilient COVID-19 recovery within the Caribbean region: Progress and opportunities. CANARI Technical Report 406. Port of Spain: CANARI.

98. Categorized as "Ambiguous" due to lack of information.

99. Idem.

In addition, CANARI also identified recovery recommendations in the areas of Environmental Sustainability and Resilience.

Finally, the draft Housing and Infrastructure Sector Assessment Plan calls for sustained ten-year investment to **strengthen the resilience of the infrastructure and housing sectors**, with these investments generating co-benefits for communities and the environment.

In summary, for Antigua and Barbuda to be able to reduce vulnerabilities caused by overlapping crises like climate change and COVID-19, the most important strategy would be to **diversify the economy** so that the island does not rely entirely on tourism. Fishing is an economic activity already widespread in coastal areas of Antigua. Investments for agriculture infrastructure are planned. This could become another primary activity, as products are mostly imported and were disrupted by global lockdowns. Small scale agriculture could be further promoted after the COVID-19 pandemic, this provided an income to unemployed populations. **Fishing and agriculture** would also provide food security to the islands.

Investment in **climate-resilient housing and infrastructure**, especially for the most vulnerable communities, should be a priority for Antigua and Barbuda. The prolonged displacement caused by Hurricane Irma in 2017 has had great consequences in terms on health and wellbeing and should be avoided in the future.

In addition, **nature-based solutions (NBS)** can offer benefits for the reduction of climate impacts while providing benefits for livelihoods and wellbeing, particularly useful in times of crisis like the one caused by COVID-19. Barbuda is already implementing rainwater harvesting, protecting the watershed but also supplying water to the community which can be a factor for improving food security. Backyard harvesting during the pandemic was also a NBS that provided income and food security. There are many more strategies that could reduce vulnerabilities to climate change and COVID-19 consequences.

Specific recommendations for Saint Lucia

Saint Lucia is already implementing many initiatives that address both the COVID-19 pandemic and climate impacts. This includes **nature-based solutions** like EbA strategies in marine-protected areas and school gardens. A new NBS strategy important to implement in Saint Lucia would be **rainwater harvesting and other water supply solutions**, due to the deficit of water in the island.

Saint Lucia could especially benefit from solutions that use nature while protecting it given that it is considered a refuge for biodiversity. In addition, like for Antigua and Barbuda, nature-based solutions have shown a cost-effective solution to address climate change impacts while providing benefits for the most vulnerable populations.

Investment in **climate-resilient housing** would be particularly important for Saint Lucia given that 10 percent of its population live in informal settlements and noting that urban poverty has increased due to rural-urban migration.

Saint Lucia should also prioritize **agriculture** as an economic activity, given that most of the informal workers and poor populations are employed in agricultural activities. This provides them with an income and food security but at the same time is vulnerable to extreme weather and slow-onset events.

Finance models for adaptation are also in the making, as exemplified by the investment of fishing communities in tropical cyclone recovery mechanisms. The IMF has also recommended fiscal reform to Saint Lucia that would better support speedy natural disaster recovery and reconstruction" [100].

100. UNDP, UNICEF and UN Women, "Saint Lucia: COVID-19 HEAT Report – Human and Economic Assessment of Impact," 2020.

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